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Silver Conference Partners

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Program Highlights

Conference Goals and Objectives

Organizers of the 16th Annual Maternal and Child Health Epidemiology (MCH EPI) Conference are excited about continuing to offer MCH professionals a platform to share experiences, enhance knowledge, and generate new ideas for promoting and improving the health of women, children and families. The 16th Annual MCH EPI Conference will bring together MCH professionals and public health practitioners from across the United States and North America. Hosted by the Centers for Disease Control and Prevention (CDC), Health Services and Resources Administration/Maternal and Child Health Bureau (HRSA/MCHB) and City**M**at**CH**, this event will offer sessions led by researchers, federal officials, advocates, health care providers and staff of state MCH programs. As always, it is our hope that this year's conference will prove yet another success and develop participants' analytic skills and knowledge base to promote program effectiveness.

During the conference, participants will recognize the importance of bridging epidemiologic methods and MCH practice for effective program development, delivery and evaluation. Conference discussions will focus on the application of epidemiologic methods to improve maternal and child health outcomes.

Registration Information

Registration will be open during the following hours at the Registration Desk 2 area on the 3rd floor:

Date:	Time:
Tuesday, December 14, 2010	5:00 PM – 7:00 PM
Wednesday, December 15, 2010	7:00 AM – 4:00 PM
Thursday, December 16, 2010	7:00 AM – 4:00 PM
Friday, December 17, 2010	7:30 AM – 12:00 PM

Program Highlights

Program At-A-Glance

The Program At-A-Glance provides a quick overview of the entire program with room assignments.

Breakout Sessions, Workshops and Symposia

The concurrent, classroom-style breakout sessions are smaller in size and highlight various MCH topics. There will be opportunities to discuss each presentation as well as establish or improve partnerships. Valuable workshops and symposia are also choices for breakout sessions. Please consult each day's agenda for the topics. Seating will be on a "first come, first serve" basis.

Plenary Sessions

The plenary sessions focus on different aspects of Maternal and Child Health (MCH). All plenary sessions will be held in Salon E.

Poster Session

This is a great opportunity to leisurely browse visual displays of MCH epidemiology work and talk directly with the authors. The authors will be available to discuss their poster presentations on Wednesday, December 15, from 12:00 PM to 2:00 PM in Salon A/B/F. Posters are available for viewing from Wednesday morning through Thursday evening.

Career Mentoring Session for Students and Young Professionals

This opportunity is for students, interns, fellows, young professionals and those looking for a career change. It will be held on Wednesday, December 15, 5:30 PM to 7:00 PM in Salon J. Attendees will be able to discuss career tracks, learning opportunities, job possibilities and more with senior MCH epidemiologists from CDC, HRSA, March of Dimes, academia, and state/local public health agencies. This session is organized to have attendees meet several potential contacts/mentors, have preliminary conversations, and arrange potential times and mechanisms to connect for further discussions during the conference or afterwards. This is a rare opportunity to meet such a diverse set of nationally recognized leaders.

National Maternal and Child Health Epidemiology (MCH EPI) Awards Luncheon

Join the Coalition for Excellence in MCH Epidemiology as they present the 2010 awards celebrating this year's top achievement to improve the health of women and children. The awards will be presented during this year's National MCH EPI Award Luncheon on Thursday, December 16, 11:45 AM to 1:45 PM in the Salon K.

Job Board

If you would like to post a list of open positions at your agency or discover what positions are available, don't forget to stop by the Job Board throughout the conference. The job board will be located in Salon A/B/F.

Program Highlights

Evaluation Forms

Conference organizers are requesting that all participants complete the conference evaluation form which will be distributed during the National MCH EPI Awards Luncheon. The evaluation form will also be available at the registration desk. Your feedback is important to planning future conferences.

Recreational Activities

The San Antonio River Walk area offers great opportunities for entertainment. For further entertainment information, please do not hesitate to visit the hotel's concierge desk.

Cellular Phone and Pager Courtesy

As a courtesy to presenters and all meeting attendees, please turn ringers on phones and pagers OFF (or silent) during the conference sessions. Use of cellular phones is restricted to the meeting room foyers and public areas outside of all meeting rooms.

Program At-A-Glance

Monday, December 13, 2010 Pre-Conference

8:00 AM - 5:00 PM	Pre-conference training: Basic Geospatial Methods for Public Health Professionals: ArcGIS Desktop I (Version 9.2)
8:00 AM - 5:00 PM	Pre-conference training: Leadership Skills Training for MCH Professionals
8:00 AM - 5:00 PM	Pre-conference training: Using Applied Multilevel Modeling for MCH Epi Data Analysis
8:00 AM - 4:30 PM	Pre-conference training: Perinatal Periods of Risk: Using Data and Community Involvement to Prevent Infant Mortality

Tuesday, December 14, 2010 Pre-Conference

8:00 AM - 5:00 PM	Pre-conference training: Basic Geospatial Methods for Public Health Professionals: ArcGIS Desktop I (Version 9.2)
8:00 AM - 5:00 PM	Pre-conference training: Leadership Skills Training for MCH Professionals
8:00 AM - 5:00 PM	Pre-conference training: Using Applied Multilevel Modeling for MCH Epi Data Analysis
8:00 AM - 4:30 PM	Pre-conference training: Perinatal Periods of Risk: Using Data and Community Involvement to Prevent Infant Mortality
5:00 PM - 6:30 PM	CDC/HRSA Ad hoc Advisory Committee Meeting (Invitation Only)
6:30 PM - 8:00 PM	Scientific Review Panel Meeting (Invitation Only)

Wednesday, December 15, 2010 MCH EPI Conference

8:15 AM - 8:30 AM	**Welcome Address: Fernando A. Guerra, MD, MPH**
8:30 AM - 10:00 AM	**Keynote Address: Michael S. Kramer, MD**
10:30 AM - 12:00 PM	**Breakout Session A**
	A1. Symposium: Addressing Social Determinants of MCH Outcomes Using National and State Data
	A2. Workshop: Understanding and Applying Multilevel Models in Maternal and Child Health Epidemiology and Public Health: An Introductory, Applied Approach
	A3. Fellow, Intern, Trainee, CDC EIS Officer Symposium: The Impact of Smoking, Drinking, and Child Maltreatment from Birth to Adulthood: How Do We Define Long Term
	A4. Using PRAMS Data to Examine State Maternal and Child Health Priorities
	A5. Obesity on the Borderline
	A6. A Glimpse of Hope: Addressing Infant Mortality

Program At-A-Glance (continued)

12:00 PM – 2:00 PM **Lunch, Poster Session, and Exhibits**

2:00 PM – 3:30 PM **Breakout Session B**

B1. Symposium: American Indian and Alaska Native MCH Research and Programs: Updates, Information Exchange and Collaboration Opportunities

B2. Workshop: Big Matters with Small Numbers, Part II: Narrow Populations

B3. The Challenge of Becoming Parents: Infertility and Assisted Reproductive Technologies

B4. There's No Place Like Home: Coordinated Care for Children

B5. Understanding Teen Pregnancy - Examples from Texas

B6. Who Are the People in Your Neighborhood? Levels of Influence on Perinatal Outcomes

3:45 PM – 5:15 PM **Plenary I: Social Determinants of Health: How Far Have We Come in the Past Two Decades and Where Do We Go from Here?**

5:30 PM – 7:00 PM **Career Mentoring Session for Students and Young Professionals**

Thursday, December 16, 2010 MCH EPI Conference

7:00 AM – 8:00 AM **(Open Invitation) Discussion Group: MCH Epi Group (AMCHP/CSTE)**

8:00 AM – 8:30 AM **Presentation of Conference Oral and Poster Awards**

8:30 AM – 10:00 AM **Plenary II: Opportunities for Chronic Disease Prevention: Targeting Women with Gestational Diabetes and Hypertension**

10:15 AM – 11:45 AM **Breakout Session C**

C1. Symposium: Oral Health Status of Mothers and their Children

C2. Workshop: Women's and Infants' Health Data in the National Survey of Family Growth

C3. Antenatal Experiences in International Settings

C4. Prenatal Care and Child Cardiovascular Outcomes

C5. Oops...We Did It Again! Reducing Repeat and Intergenerational Teen Pregnancy

C6. The "3 M's" in MCH: Maternal Morbidity and Mortality

Program At-A-Glance (continued)

11:45 AM – 1:45 PM **National Maternal and Child Health Epidemiology Awards Luncheon**

1:45 PM – 3:15 PM **Breakout Session D**

D1. Obstetric Interventions and Complications during Delivery

D2. Workshop: Sample Size Determination for Observational Studies

D3. Great Idea, but It's Not That Simple

D4. Prenatal Experiences of Canadian Mothers: National Data on Partner Violence, H1N1 and Immigration

D5. Quality of Life and Children with Special Healthcare Needs

D6. What Does It Take to Breastfeed?

3:30 PM – 5:00 PM **Plenary III: Challenges to Evidence-Based Public Health Practice**

5:15 PM – 7:00 PM **Planning Committee Meeting (Invitation Only)**

Friday, December 17, 2010 MCH EPI Conference

7:00 AM - 8:30 AM **Meeting with MCHEP Assignees and State Supervisors (Invitation Only)**

8:30 AM – 10:00 AM **Breakout Session E**

E1. Symposium: Using Data to Guide Policy Change: The 10 Things Every Epidemiologist Should Know When Talking to Policymakers

E2. All You Need Is Love and Contraception

E3. Fellow, Intern, Trainee, CDC EIS Officer Symposium: Racial Disparities in Infant Survival and the Impact of Racism on Adult Morbidity

E4. The Milk Stops Here: Policies and Practices That Influence Breastfeeding

E5. Chain, Chain, Chain...Chain of Tools #1…Using Linked Datasets to Identify Infant Outcomes

E6. Responding to the H1N1 Epidemic: How Well Did We Do?

10:30 AM – 12:00 PM **Breakout Session F**

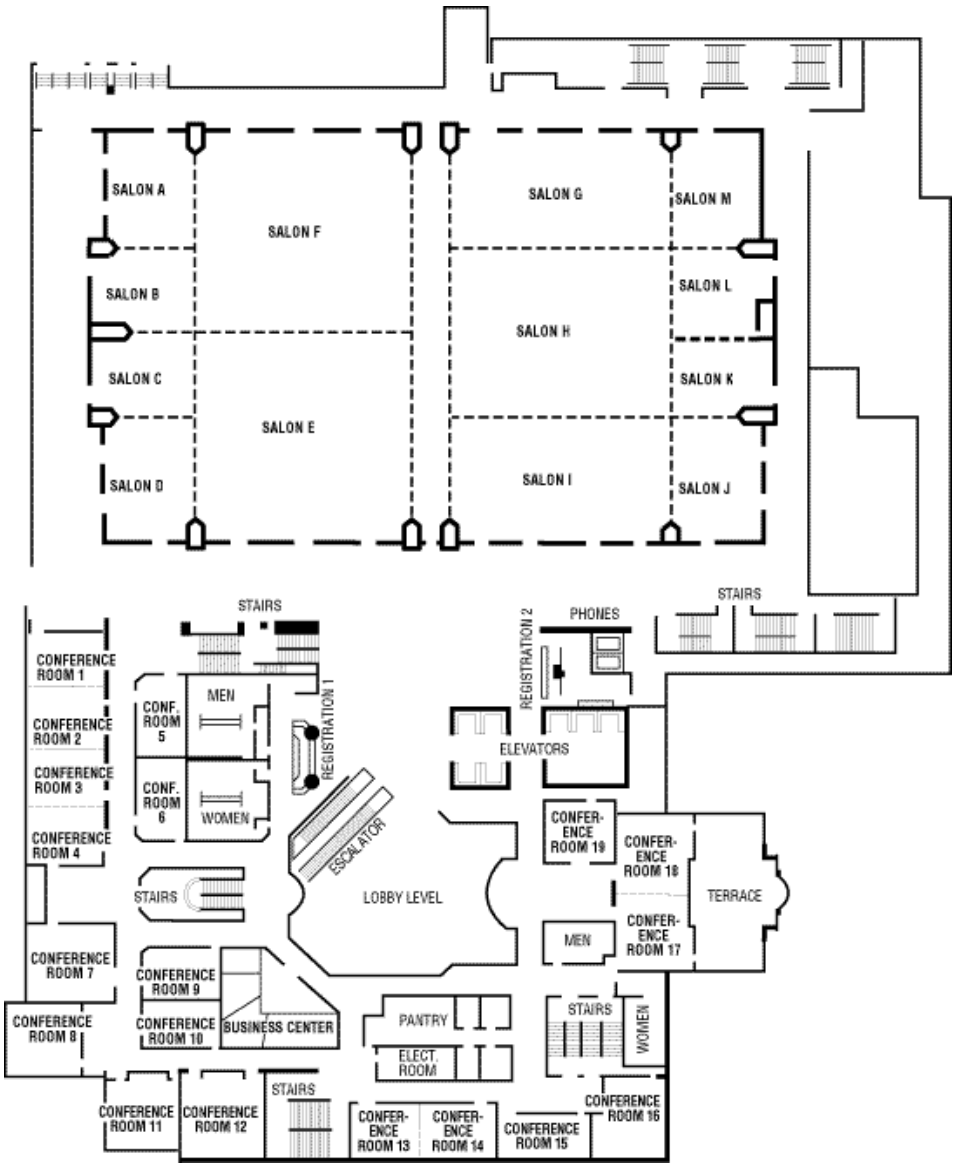
F1. Starting It Out Right: Birth Outcomes and the Life Course Perspective

F2. Broken Promise: Violence Across the Lifespan

F3. Preconception Care: Promoting an Ounce of Prevention for Pounds of Cure

F4. Chain, Chain, Chain...Chain of Tools #2…Using Linked Datasets to Identify Childhood Outcomes

Hotel Map



Marriott Rivercenter
3rd Floor

Awardee

Greg Alexander Award for Advancing Knowledge
Gopal K. Singh, PhD

Dr. Gopal K. Singh is a senior epidemiologist with the Maternal and Child Health Bureau (MCHB), Health Resources & Services Administration. Before coming to MCHB, he held research appointments at the National Cancer Institute, Kansas Health Institute, and National Center for Health Statistics. He has taught at the University of Kansas Medical Center and Ohio State University and has served as a statistical consultant to the US Agency for International Development and the Government of Egypt. For nearly 20 years, Dr. Singh has made extensive contributions to advancing knowledge in the field of maternal and child health. He has published nearly 100 peer-reviewed publications.

The breadth and depth of Dr. Singh's work has been striking. He has creatively used numerous data sources to examine important subjects such as infant mortality, child mortality, childhood obesity, social determinants of health, immigrant health, physical activity, life expectancy, and geographic disparities. He has become one of the country's leading voices on the epidemic of childhood obesity. He has spoken at the National Press Club on this topic, and his recent work on neighborhood conditions, built environments, and child obesity was featured in a White House report. If one of the driving forces of MCH epidemiology is to provide data for policy changes at the national, state, and local levels, then Dr. Singh's examinations of state-level differences in areas such as obesity, physical activity, medical home, and environmental tobacco smoke have contributed greatly towards assisting state policy makers. A further important area of work in MCH epidemiology has been grappling with how to both illuminate and ameliorate socioeconomic disparities in health. Dr. Singh's work, through innovative uses of statistics and development of a deprivation index has highlighted the costs of social inequalities in the US for mothers and children. His work on childhood obesity and neighborhoods has helped change the focus of the policy discussion from "how can individuals change their behavior" to "what policies can we put in place to create an environment where families can make healthier choices?" Finally, Dr. Singh's work has changed how we view health issues in the immigrant population. He wrote some of the first papers to show that immigrant minorities from the same geographic areas are not doing equally well. He was also one of the first to highlight the differences in birth outcomes between US and foreign-born women within various racial and ethnic groups.

Dr. Singh has produced an impressive body of work that clearly shows his deep and long-standing concern for issues of social inequalities in health, and his desire to advance knowledge. His writings show his commitment to addressing research questions that matter and are relevant policy issues. They also show his methodological rigor, his scientific integrity, his thoughtfulness, and his rejection of simplistic approaches to complex issues. Dr. Singh is an outstanding public health scientist, committed to using his scientific skills for public service. He epitomizes the qualities that the Greg Alexander Award for Advancing Knowledge is meant to recognize.

Awardee

Effective Practice Award at the State Level

Kenneth D. Rosenberg, MD, MPH

Dr. Ken Rosenberg has had a long career focused on improving the health and well-being of vulnerable populations with long term efforts focused on women, children and families. He has contributed to the body of knowledge on a wide range of topics including smoking cessation, child health surveillance, promotion of breastfeeding, SIDS risk reduction, use of folic acid, HIV testing in pregnant women, parental concerns about vaccination, and multiple issues related to racial/ethnic disparities in pregnancy outcomes. While at Tufts University School of Medicine, Dr. Rosenberg organized innovative, student-led community health projects in Boston and began teaching about the politics of health care; in 1972, he published a seminal annotated bibliography on the politics of health care. After graduating from Tufts in 1973, he completed a Public Health and Preventive Medicine residency at the New York City Department of Health, where his projects focused on service delivery, radiation control, and lead poisoning. He received his MPH from Columbia University in 1989, followed by a postdoctoral fellowship at Yale University in Perinatal Epidemiology. Dr. Rosenberg then became the director of Epidemiology and Research for the Bureau of Maternity Services and Family Planning at the New York City Department of Health where he examined MCH priorities including breastfeeding, infant mortality, abortion, and drug treatment for pregnant women. Since 1997, he has been the Maternal and Child Health epidemiologist in the Oregon Public Health Division's Office of Family Health. In this position, he has implemented the Oregon PRAMS survey, used these data to shed light on a wide range of MCH issues, and expanded PRAMS into a longitudinal survey by following up with PRAMS participants two years postpartum.

Dr. Rosenberg's efforts have addressed critical issues faced by MCH public health professionals; these efforts have been successful due to his extraordinary ability to turn data into information that improves public health practice. For example, Dr. Rosenberg used Oregon data to show that the practice of providing mothers with hospital discharge packs containing free formula resulted in earlier breastfeeding cessation. This work led to Portland becoming the first "bag-free" city in the US: since 2009, none of Portland's hospitals have provided women with a discharge pack containing infant formula. Additionally, Dr. Rosenberg's research contributed to the passage of an Oregon law in 2008 which requires employers to provide accommodations for breastfeeding mothers. Dr. Rosenberg's research on access to emergency contraception in Oregon's hospital emergency departments contributed to the passage of legislation which requires all emergency departments to inform women of their right to receive emergency contraception after sexual assault. In addition to his efforts to improve MCH public health practice, Dr. Rosenberg's work with medical residents, MCH epidemiology fellows, and graduate student interns is legendary; he has successfully mentored over 30 MCH epidemiology fellows, preventive medicine residents and MPH students. In 2009, he received the Award for Excellence in Mentorship from the Department of Public Health and Preventive Medicine of Oregon Health & Science University. For these reasons, Dr. Rosenberg is an outstanding exemplar of effective MCH epidemiology practice at the state level.

Awardee

Young Professional Achievement Award
Amina P. Alio, PhD

Dr. Amina Alio obtained her PhD in Anthropology and was recruited three years ago as Assistant Professor in the Department of Community and Family Health at the University of South Florida. She immediately identified her interest in Maternal and Child Health with a focus on the impact of social factors on birth outcomes. Over this short period of time, Dr. Alio has published 53 peer-reviewed journal articles in high impact journals including a seminal paper on intimate partner violence and recurrent fetal loss in the Lancet. Dr. Alio's scholarly contributions demonstrate an effective use of data to convince healthcare stakeholders to act and make a difference to MCH populations. This is exemplified by her publications on paternal involvement and birth outcomes which have contributed to increased dialogue in determining birth outcomes, and the growing recognition that this social factor is deserving of national attention and action.

Apart from the unique epidemiologic approaches utilized by Dr. Alio in her research, she has brought along from her background in anthropology a theoretical framework that proves useful in putting into context factors that impact pregnancy outcomes. This is competently detailed in her seminal paper titled: "An Ecological Approach to Understanding Black-White Disparities in Perinatal Mortality", published in the June 2009 edition of the MCH Journal. It provides a global, social environmental perspective of adverse pregnancy events among African-Americans in a unique fashion that enriches the field of social epidemiology in MCH. The theory she proposes in this seminal paper also delineates pathways for intervention that are relevant to public health practice in general, and narrowing/eliminating the black-white disparity, in particular. Several other papers she has recently published have similarly emphasized the relevance of her research findings to public health practice, and have significantly enhanced our understanding of the contribution of social determinants of health in MCH. Nationally, Dr. Alio is on the forefront of paternal involvement research, an area in which she uses a unique combination of socio-cultural and biologic theories to interpret her findings. She is now regarded nationally as expert on paternal involvement and birth outcomes as evidenced by her invitation to join the National Commission on Paternal Involvement in Pregnancy Outcomes. The invitation of Dr. Alio to join this recognized eminent group of experts is clear indication that her research is having a resonant effect nationally, and bears the potential of inducing changes that will positively impact the MCH population. For these reasons, Dr. Alio is more than deserving of the award for Young Professional Achievement.

Awardee

Effective Practice Award at the National Level *CDC Maternal Health Team for 2009 Pandemic H1N1 Influenza Response*

The Centers for Disease Control and Prevention (CDC) Maternal Health Team (MH Team) for pandemic 2009 H1N1 (pH1N1) influenza response included staff from both the National Center for Chronic Disease Prevention and Health Promotion/Division of Reproductive Health and the National Center for Birth Defects and Developmental Disabilities. Over the course of a year, 72 CDC staff participated and contributed to key MH Team accomplishments which prevented or reduced maternal and infant morbidity from pH1N1 influenza illness. Team accomplishments in surveillance, communications, and partner outreach are expected to also have positive impacts in future flu seasons. Ongoing surveillance of influenza illness in pregnancy, a result of the MH Team's creative implementation of surveillance strategies during the pH1N1 response, includes continuation of the new CDC Pregnancy Flu Line. This case reporting mechanism is designed to collect nationwide data on all severely ill pregnant women and postpartum women with influenza including ICU admissions and deaths. Infant outcomes of women identified as cases are also being monitored. Based on the high quality of surveillance data collected and used during the pH1N1 response, the MH Team was able to develop a broad communications strategy for healthcare providers and consumers which included traditional partner outreach but also included innovative approaches such as educational videos on Medscape and use social media such as Twitter, blogs, and eCards. The MH Team presented three Clinician Outreach and Communication Activity (COCA) calls with a combined audience of more than 4,000 call lines used. COCA calls were developed and presented to rapidly disseminate new information and to encourage appropriate health care provider response such as advising pregnant women to get vaccinated and to seek early treatment for symptoms. In addition, the MH Team produced two Medscape video segments on antiviral treatment and vaccination which, combined, have had more than 66,000 full length web viewings. The MH Team developed, cleared, and posted 10 original web based guidance or education documents for professional and consumer audiences, updated seven of these guidance documents over a period of nine months, developed an pH1N1 and Pregnancy web feature for English and Spanish lay audiences, and contributed significantly to the Vaccine Task Force communications strategy. Finally, MH Team partner outreach to professional organizations as well as academic partner's ensured critical vaccine and treatment messages were disseminated rapidly to both healthcare professionals and consumers. Partners also worked with the MH Team to review and provide input in developing CDC guidance documents and educational outreach to their constituents; one effort was estimated to reach over 250,000 providers of clinical care for pregnant women.

Owing to the MH Team's high quality, sustained scientific contributions to CDC's pH1N1 response, influenza infection and adverse outcomes in pregnant women, including severe illness and death, were prevented. This is a commendable example of Effective Practice at the National Level and deserving of recognition.

Keynote Address

Wednesday, December 15, 2010, 8:30 AM – 10:00 AM

Obstetric Intervention and the Changing Perinatal Landscape

INTRODUCTION:

Increasing obstetric intervention, especially labor induction and infertility treatment, has led to profound changes in perinatal outcomes for the mother, fetus, and newborn. Preterm birth is on the rise, particularly at late preterm gestational ages (34-36 completed weeks). Increases at very early preterm gestations (<25 weeks) have had a negligible effect on preterm birth rates but a substantial impact on slowing reductions in infant mortality. The proportion of term births at early preterm gestational ages (37-38 completed weeks) has also increased dramatically. These trends have had, and will continue to have, major impacts on maternal, fetal, and neonatal health and on prenatal and postnatal health care services. In my presentation, I will review population trends in multiple birth, gestational age, birth weight, late pregnancy termination, stillbirth, infant mortality, labor induction, and cesarean delivery. I will also review population data on the effects of induction and cesarean delivery on severe maternal morbidity. Finally, I will highlight the need for improved health education messaging and for additional research, including both observational studies and randomized trials, in weighing the risks and benefits of increased obstetric intervention.

BIOGRAPHICAL INFORMATION:

Michael S. Kramer, MD

Dr. Michael S. Kramer is James McGill Professor in the Departments of Pediatrics and of Epidemiology and Biostatistics at McGill University Faculty of Medicine. A member of four expert committees of the U.S. Institute of Medicine, in 1997-98 Dr. Kramer served as President of the Society of Pediatric and Perinatal Epidemiologic Research. Dr. Kramer has authored or co-authored 20 books and monographs, and has published over 300 original articles. His systematic review of the evidence on the optimal duration of exclusive breastfeeding led directly to new infant feeding recommendations by WHO and the World Health Assembly. His current principal areas of research are the causes and prevention of preterm birth and intrauterine growth restriction, the determinants of fetal and infant mortality, and the long-term child health effects of breastfeeding. He received the 2007 National MCH Epidemiology Award for Advancing Knowledge.

Plenary Session I

Wednesday, December 15, 2010, 3:45 PM – 5:15 PM

Social Determinants of Health: How Far Have We Come in the Past Two Decades and Where Do We Go from Here?

INTRODUCTION:

The World Health Organization (WHO) defines social determinants of health as the conditions, social and cultural, under which people are born and spend their entire lives. These conditions encompass the systems that impact individuals including the health care system, monetary systems, the political system, and resources. More importantly, the social determinants of health contribute to health inequity most notably in developing countries, but also in post-industrial countries including the U.S. The most recent WHO Commission on Social Determinants of Health report published in 2008 had three overarching recommendations: 1) Improve daily life, 2) Address inequity in quality of life, and 3) Measure and assess the impact of social determinants and understand how projects have moved from data results to programs motivating change.

In the U.S., scientists have focused research on specific social determinants including institutional racism and health disparities, the impact of cultural practices on lifestyle, access to health care, residence, education level, and the impact of the political system. Research on measurement of the social determinants of health and health inequities has offered solutions aimed at addressing these inequities through change of the political and health care systems. Less research has focused on exploring the synthesis of epidemiology and the social determinants of health. The purpose of this plenary session is to present current epidemiologic study of the social determinants of health, methodologies, and the societal/generational impact of these determinants on health in the U.S.

LEARNING OBJECTIVES:

1. To provide practical examples of the social determinants of health
2. To describe the populations affected by health inequity and disparity
3. To describe data sources available for measuring the social determinants of health
4. To offer multiple measurement techniques of social determinants at the individual, community, and societal levels

BIOGRAPHICAL INFORMATION:

Lisa Berkman, PhD

Director of the Center for Population and Development Studies and Thomas D. Cabot Professor of Public Policy, Epidemiology, and Global Population Health at Harvard University. She is an epidemiologist whose work focuses extensively on social influences on health and aging. Her research has been oriented towards understanding social inequalities in health related to socioeconomic status, different racial and ethnic groups, and social networks, and social isolation. The majority of her work is devoted to identifying social conditions that predict declines in physical and cognitive functioning, onset of disease and mortality, especially related to cardiovascular or cerebrovascular disease. Her current work relates to work/family policies and to understanding how work organization and redesign can improve employee and family health and well being while at the same time improving corporate outcomes. As many countries face demographic transitions which result "aging societies", new ways of work and social participation must be identified. Berkman is committed to the identification of evidence based policies that have the potential to improve population health. Berkman has been an innovator in developing the field of social epidemiology and has edited (with Ichiro Kawachi) the first textbook on social epidemiology (Social Epidemiology, 2000). She is a member of the Institute of Medicine, has served on numerous National Academy of Science panels, is a member of the National Institute of Aging Advisory Council is and past president of the Society for Epidemiologic Research.

Patricia O'Campo, PhD

Dr. Patricia O'Campo is Director of the Centre for Research on Inner City Health at St. Michael's Hospital and Professor at the Dalla Lana School of Public Health at the University of Toronto. As a social epidemiologist she has been conducting research on the social determinants of health and well-being among women and children for over 20 years. She has focused on methods development as part of her research including application of multilevel modeling to understand residential and workplace contexts on women's and children's health, the application of concept mapping to increase understanding of how residential neighborhoods influence well-being, and on the development of monitoring methods for rare health events in small geographic areas. She has conducted a number of survey-based and longitudinal studies in the areas of the social determinants of adult mental health, intimate partner violence and children's well-being as well as clinic and community based evaluations of programs concerning smoking cessation, prevention of perinatal transmission of HIV, and prevention of infant mortality. She has been widely recognized for her contributions to the well-being of women and children through the receipt of early and mid-career awards given by national organizations including being a former recipient of the Greg Alexander Award for Advancing Knowledge. She serves on several boards and committees concerned with maternal and child health including the Canadian Perinatal Surveillance System committee, and US Federal Advisory Committee for the National Children's Study.

Richard David, PhD

Dr. David is an attending neonatologist and co-director of the neonatal intensive care unit at Stroger Hospital of Cook County. His clinical work involves care for newborns from a low-income minority and immigrant population in Chicago. His research has focused on perinatal epidemiology and more specifically on the relation between social inequality – especially racism in its various forms – and birth outcomes. He and his colleagues constructed a transgenerational birth file from several decades worth of birth and death certificates and linked census data, which has allowed them to explore risk factors across the life course and the impact of the social environment on birthweight and survival. He has also studied the impact of immigrant status on birth outcomes and the changes in birth weight over generations for different ethnic populations immigrating to the United States.

Plenary Session II

Thursday, December 16, 2010, 8:30 AM – 10:00 AM

Opportunities for Chronic Disease Prevention: Targeting Women with Gestational Diabetes and Hypertension

INTRODUCTION:

The intersection of pregnancy and chronic disease encompasses health implications for the woman and for the child. Women with chronic diseases not only face their own health problems, but their infants have increased risks of poor outcomes. Conditions identified during pregnancy, such as gestational diabetes and hypertension, reveal future risk of cardiovascular and metabolic diseases for the woman and immediate risk of poorer outcomes for the infant. Pregnancy provides an opportunity to identify chronic disease risk among women who are in need of education, counseling, and appropriate follow up to address their long-term health risks.

Approximately 30% of women of reproductive age are obese, and one in four women will develop diabetes in their lifetime. During pregnancy, 4-7% of women experience gestational diabetes, a condition that indicates a high risk for future development of type 2 diabetes, and approximately 5% experience preeclampsia, which is associated with increased future risk of cardiovascular disease, the number one cause of death among women in the US. Effective interventions exist for diabetes prevention. For women with a history of preeclampsia, little is known about how to best prevent cardiovascular disease. However, lifestyle interventions to reduce obesity and diabetes may also reduce risk of cardiovascular disease.

The purpose of this plenary session is to provide a state-of-the-art update on the epidemiology of obesity, gestational diabetes and hypertension, their effect on pregnancy outcomes, and how gestational diabetes and hypertension identify future risk of chronic disease. In addition, our speakers will discuss their research on interventions to offset those risks. Participants will come away with an understanding of the epidemiology of these conditions, current clinical recommendations, research on effective interventions, and directions for future research and programmatic needs.

LEARNING OBJECTIVES:

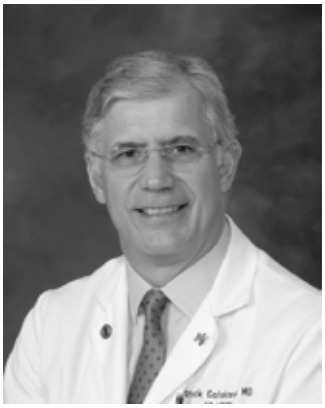
At the conclusion of this plenary session, the audience will have a better understanding of:

1. The epidemiology of obesity, gestational diabetes and hypertension, and effect on pregnancy outcomes, future disease risk for the mother.
2. Clinical recommendations for screening before, during, and after pregnancy.
3. Effective interventions for risk reduction and prevention of diabetes among women with previous gestational diabetes.
4. Current research on interventions for preventing cardiovascular disease among women with a history of preeclampsia.
5. Future needs for research with special emphasis on the role of state MCH epidemiologists in addressing these needs.

BIOGRAPHICAL INFORMATION:

Patricia Dietz, DrPH, MPH

Patricia Dietz is the Team Leader of the Research and Evaluation Team in the Applied Sciences Branch, Division of Reproductive Health, a position she has held since the Team was created in 2008. The Team's mission is to improve pregnancy outcomes by reducing risk factors for chronic disease among women of reproductive age. Team activities focus on surveillance, program evaluation, and intervention studies. Dr. Dietz began her career at the Centers for Disease Control and Prevention as an Epidemic Intelligence Officer working on perinatal epidemiology at the Georgia State Health Department. Following her experience at the State, she has worked as an epidemiologist on the Pregnancy Risk Assessment Monitoring System Team, the Maternal Health Team, and as Senior Scientist for the Applied Sciences Branch. She has published many peer-reviewed articles on the topics of postpartum screening for diabetes, unintended pregnancy, prenatal smoking, obesity and weight gain during pregnancy, and depression.



Patrick Catalano, MD

Patrick Catalano, M.D. is Professor and Chair of the Department of Reproductive Biology at Case Western Reserve University/MetroHealth Medical Center. Doctor Catalano's research interests include diabetes and metabolism in pregnancy, more specifically the longitudinal evaluation of women before and throughout pregnancy to determine the short and long term effects maternal obesity and diabetes have on both the mother and the fetus. He is a member of several professional organizations including the American College of Obstetrics and Gynecology, the Society of Maternal-Fetal Medicine, American Diabetes Association and the Perinatal Research Society among others. Most recently, Dr. Catalano was the Chair of the American Diabetes Association Council on Pregnancy and Women's Health. Receiving his M.D. from the University of Vermont College of Medicine, he is certified in general Obstetrics and Gynecology and Maternal-Fetal Medicine through the American Board of Obstetrics and Gynecology. He has over 120 peer reviewed publications and continuous National Institute of Health funding since 1987.

Ellen Seely, MD

Ellen W. Seely, MD is Director of Clinical Research in the Endocrinology, Diabetes and Hypertension Division, Vice Chair for Faculty Development in the Department of Medicine at Brigham and Women's Hospital, and Professor of Medicine at Harvard Medical School. Dr. Seely obtained her MD from Columbia College of Physicians and Surgeons and completed her training in Internal Medicine and Endocrinology and Metabolism at Brigham and Women's Hospital. Dr. Seely is a cardiovascular endocrinologist and directs the Unique Cardiovascular Risk Factors in Women Research and Mentoring Program at Brigham and Women's Hospital which is supported by a NIH (NHLBI) K24 award. Her research focus is on unique cardiovascular risk factors in women with an emphasis on the pregnancy complications, preeclampsia and gestational diabetes (GDM) and on menopause. She has demonstrated that women with a history of preeclampsia and women with a history of GDM have increased cardiovascular risk markers, impaired vascular function and altered regulation of the renin- angiotensin-aldosterone system (RAAS) when studied remote from pregnancy and is working to develop ways

to improve this adverse cardiovascular profile by interrupting the RAAS. Dr. Seely's work on women with a history of GDM is currently supported by a grant from the CDC. In postmenopausal women, she is testing the hypothesis that estrogen induced activation of the RAAS is responsible for the adverse cardiovascular effects of estrogen therapy in this population and is studying whether blockade of the mineralocorticoid receptor will prevent these adverse effects. Dr. Seely has a long term commitment to mentoring clinical investigators and has been recognized for this work by her receipt of an A. Clifford Barger Excellence in Mentoring Award from Harvard Medical School and the K24 from NIH.

Assiamira Ferrara, MD, PhD

Assiamira Ferrara, M.D., Ph.D., is diabetologist and epidemiologist with an established track record for conducting epidemiologic research and intervention studies of GDM. She is a Research Scientist III at the Division of Research (DOR) of Kaiser Permanente Northern California (KPNC), as well as an Affiliate Professor at the University of Washington in the Department of Epidemiology. Since joining DOR in 1996, she has developed the KPNC GDM Registry and embarked on a research agenda focusing on women and children's health, particularly issues relating to GDM. She has extensive experience identifying and recruiting women with GDM for epidemiologic studies. She is currently the principal investigator of a large randomized intervention of diet and physical activity designed to help women with GDM lose weight after pregnancy in an effort to reduce their risk of progressing to T2DM. Her publication record includes studies of diabetes, GDM, insulin and glucose metabolism, cardiovascular disease, endocrine disrupters and genetic factors. She has been a Co-investigator in the multi-site study Insulin Resistance and Atherosclerosis Study (IRAS) and is also a Co-investigator in the multi-site study Translating Research Into Action for Diabetes (TRIAD).

Shadi Chamany, MD, MPH

Dr. Shadi Chamany has been the Director of the Diabetes Prevention and Control Program at the New York City Department of Health and Mental Hygiene since 2006. She is responsible for overseeing the programmatic and epidemiology activities of the Program including the NYC A1C Registry.

She previously served as the chronic disease epidemiologist for the Department's Bureau of Chronic Disease following training at CDC through the Epidemic Intelligence Service and Preventive Medicine Residency programs where she worked in various areas of infectious disease, emergency planning and chronic disease. She received her medical degree from the University of Iowa, her MPH at Emory University, and training in Internal Medicine at Mount Sinai Hospital in New York City.

Plenary Session III

Thursday, December 16, 2010, 3:30 PM – 5:00 PM

Challenges to Evidence-Based Public Health Practice

INTRODUCTION:

The message is clear. With health care being reformed, government agencies being pushed for accountability, and health care dollars becoming tight, public health agencies are needing to demonstrate that their policies and programs are evidence-based and clearly beneficial. However, the task is challenging. The current published literature is complex to summarize because of different approaches and methodological issues. Moreover, the literature is spotty in addressing the necessary issues in a comprehensive systematic fashion. Not all MCH issues have demonstrated effective policy and program solutions. Further research is needed to design and shape potential solutions and maximize the potential. Even when the evidence is clear, evidence-based practices and policies are not always implemented, implemented fully or implemented appropriately. The boundary is not always clear as to what is necessary for fidelity to the effective model versus what is necessary to change to adapt to the culture and environment. Scientific methods and public health practices are available to address these issues. But, there are many challenges... How can we best strengthen the MCH field's evidence-based practice?

LEARNING OBJECTIVES:

1. Understand the definition(s) of evidence-based public health practice
2. Understand the sciences and practices to developing and implementing evidence-based practices
3. Learn the current challenges and approaches to evidence-based public health practice
4. Discuss the next necessary steps for strengthening the MCH practice field

BIOGRAPHICAL INFORMATION:

Stephen B. Thacker, MD, MSc

Dr. Stephen B. Thacker serves as Deputy Director for Surveillance, Epidemiology and Laboratory Services of CDC and Director, Office of Surveillance, Epidemiology and Laboratory Services. He leads the CDC program responsible for coordinating, complementing, and extending program-specific surveillance, epidemiology, laboratory, informatics, genomics, and professional development activities.

Dr. Thacker came to CDC as an Epidemic Intelligence Service (EIS) Officer in 1976 and was assigned to the Washington, DC Health Department. From 1989 – 2004, Dr. Thacker served as Director of the Epidemiology Program Office (EPO) and led the CDC Program responsible for domestic and international training and consultation in epidemiology, statistics, and applied public health, as well as scientific communications. Dr. Thacker led the Office of Workforce and Career Development (OWCD), Centers for Disease Control and Prevention (CDC) from 2004 – 2009. As Director of OWCD, Dr. Thacker led the CDC Program responsible for improving health outcomes by ensuring a competent and sustainable workforce through excellence and innovation in workforce and career development. Dr. Thacker has also served as Acting Deputy Director for Surveillance, Epidemiology and Laboratory Services (2009), Acting Director for the National Center for Public Health Informatics (NCPHI) 2009, Acting Director of the National Center for Injury Prevention and Control (NCIPC) 1999 – 2000, Acting Deputy Director of CDC and Deputy Administrator of the Agency for Toxic Substances and Disease Registry (ATSDR) 1998 and as Acting Director of CDC's National Center for Environmental Health (NCEH) 1993 – 1994.

He received his undergraduate degree in biochemistry at Princeton University in 1969 and his M.D. from Mount Sinai School of Medicine in 1973. In 1984, he was awarded a MSc in epidemiology from the London School of Hygiene and Tropical Medicine. He trained in Family Medicine at Duke University and was certified in Family Practice in 1976. He also received certification in Preventive Medicine from the American Board of Preventive Medicine in 1984.

Dr. Thacker has published over 220 articles in a broad range of fields in public health, including epidemiology, public health surveillance, meta-analysis, infectious diseases, environmental public health, injury prevention, alcohol abuse, health care delivery, workforce development, and technology assessment. He currently holds appointments at both Emory University School of Public Health and the Mount Sinai School of Medicine.

Lauren A. Smith, MD, MPH

Lauren A. Smith, MD, MPH, is the Medical Director and Chief Medical Officer of the Massachusetts Department of Public Health, where she provides senior clinical leadership for programs, planning and policy. An Associate Professor at the Boston University School of Medicine, she served as the Medical Director of the Pediatric Inpatient Unit at Boston Medical Center and was a pediatric hospitalist for 10 years. Dr. Smith's research career has focused on childhood health disparities and the implication of public polices for child health and wellbeing. In addition to numerous peer reviewed papers, she has authored reports on the health impact of affordable housing and energy costs as examples of the effects of public policy on health. She served as a William T. Grant Health Policy Fellow in the office of the Massachusetts Speaker of the House and as a member of the Massachusetts Commission to End Racial Disparities in Health. Her public service also included work as a policy analyst for the Department of Health and Human Services. She completed her education and training at Harvard College, the University of California, San Francisco School of Medicine and the University of California, Berkeley School of Public Health. She completed her residency and chief residency at Children's Hospital, Boston and her fellowship in General Pediatrics at Boston Medical Center.

Jennifer F. Culhane, Ph.D., MPH

Dr. Jennifer F. Culhane is an Associate Professor of Pediatrics at the University of Pennsylvania School of Medicine where she is the Principal Investigator of the Children's Hospital of Philadelphia's National Children's Study (NCS) Center. She also is a Research Associate for the Population Studies Center at the University of Pennsylvania.

Dr. Culhane's research interests include the interaction of stress, infection and pregnancy outcomes. She has been the principal investigator for multiple research grants from the National Institutes of Health and the Centers for Disease Control and Prevention examining the causes of preterm birth and the associated racial and ethic disparities.

Her research has been widely published in such journals as the American Journal of Obstetrics and Gynecology, the American Journal of Public Health and Paediatric and Perinatal Epidemiology.

Pierre Buekens, MD, MPH, PhD

Pierre Buekens is Dean of the School of Public Health and Tropical Medicine at Tulane University, New Orleans, where he is also W. H. Watkins Professor of Epidemiology and Professor of Clinical Obstetrics and Gynecology. Dr. Buekens previously was Professor and Chair of the Department of Maternal and Child Health and Associate Dean for Global Health in the School of Public Health at The University of North Carolina at Chapel Hill. He is an obstetrician-gynecologist and former Vice-President of the School of Public Health at the Free University of Brussels, Belgium. He has been a consultant for WHO, UNFPA, UNICEF, FHI, and other international organizations. Dr. Buekens is past-President of the Association of Teachers of Maternal and Child Health (ATMCH) and the Society for Pediatric and Perinatal Epidemiologic Research (SPER). He is the Chair of the Global Health Committee of the Association of Schools of Public Health (ASPH). Dr. Buekens' research interests are in perinatal epidemiology and evaluation of perinatal services.

Time	Session	Room/Presenter
7:00 AM – 8:00 AM	**Light Breakfast**	**Salon A/B/F**
8:15 AM – 8:30 AM	**Welcome Address**	**Salon E**
	Fernando A. Guerra, MD, MPH Director of Health San Antonio Metropolitan Health District (Metro Health)	
	Wanda D. Barfield, MD, MPH Captain - U.S. Public Health Service Director Division of Reproductive Health National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention	
	Michael D. Kogan, PhD Director Office of Epidemiology, Policy and Evaluation Health Resources and Services Administration Maternal and Child Health Bureau	
8:30 AM – 10:00 AM	**Keynote Address - Obstetric Intervention and the Changing Perinatal Landscape**	**Salon E**
	Michael S. Kramer, MD James McGill Professor, Departments of Pediatrics and of Epidemiology and Biostatistics McGill University Faculty of Medicine	
10:00 AM – 10:30 AM	**BREAK**	
10:30 AM – 12:00 PM	**Breakout Session A**	
A1.	**SYMPOSIUM: Addressing Social Determinants of MCH Outcomes Using National and State Data** **Moderator: Jessie Richardson Hood**	**Salon C**
A2.	**WORKSHOP: Understanding and Applying Multilevel Models in Maternal and Child Health Epidemiology and Public Health: An Introductory, Applied Approach** **Moderator: Adam Carle**	**Salon D**
A3.	**Fellow, Intern, Trainee, CDC EIS Officer Symposium: The Impact of Smoking, Drinking, and Child Maltreatment from Birth to Adulthood: How Do We Define Long Term** **Moderator: Angela Rohan**	**CR #1-2**

** Note: Presentations not listed in order to be presented*

Time	Session	Room/Presenter
	Characteristics of Women Who Smoke Before, During and After Pregnancy, Pennsylvania Pregnancy Risk Assessment Monitoring System, 2007-2008	Vanessa Short
	Binge Drinking Prior to Pregnancy Among Disparate Groups in Hawaii: Findings from Hawaii PRAMS Survey, 2004-2008	Michelle Kazi
	Child Maltreatment and Post-Secondary Educational Enrollment and Attainment	Lizzie Harvey
A4.	**Using PRAMS Data to Examine State Maternal and Child Health Priorities** **Moderator: Indu Ahluwalia**	**CR #3-4**
	Predictors of Infant Sleep Position in 4 Southern States: Pregnancy Risk Assessment Monitoring System (PRAMS), 2007	Seema Gupta
	Maternal Depression and Parenting Practices Among Mothers of 3-year-old Children in Alaska	Margaret Blabey
	Exploring Breastfeeding Duration by WIC Participation Using Propensity Scores, MN PRAMS 2004-2007	Barbara Frohnert
	Prescription Drug Use During and Immediately Before Pregnancy in Hawaii – Data from the Hawaii Pregnancy Risk Assessment Monitoring System, 2004-2008	Emily Roberson
A5.	**Obesity on the Borderline** **Moderator: Jill McDonald**	**CR #11**
	The Relationship between Acculturation, Maternal and Paternal Body Mass Index, Food Items Consumed, and Childhood Obesity	Elizabeth Reifsnider
	Geographic Variation in Childhood Obesity in Mexican States Along the U.S. border, Mexico National Survey of Health and Nutrition, 2006	Dyanne Herrera
	A U.S. Border Effect on Adolescent Health Behaviors in Mexico's Most Northern States	Jill McDonald
A6.	**A Glimpse of Hope: Addressing Infant Mortality** **Moderator: Wanda Barfield**	**CR #12**
	Excess Infant Mortality Among Native Hawaiians: Can We Identify Causes And Possible Solutions?	Ashley Schempf

** Note: Presentations not listed in order to be presented*

Time	Session	Room/Presenter
	Paternal Involvement and Racial/Ethnic Disparities in Infant Mortality	Amina Alio
	Characteristics of Infant Sleep Location and Position in Texas — 2009	Gita Mirchandani
	Examining Fetal Mortality, Infant Mortality and Infant Births by Weeks of Gestation at Delivery and Race/Ethnicity in Massachusetts, 1998-2005	Milton Kotelchuck
12:00 PM – 2:00 PM	**Lunch, Poster Session, and Exhibits**	**Salon A/B/F**
2:00 PM – 3:30 PM	**Breakout Session B**	
B1.	**SYMPOSIUM: American Indian and Alaska Native MCH Research and Programs: Updates, Information Exchange and Collaboration Opportunities** **Moderator: Myra Tucker**	**Salon C**
B2.	**WORKSHOP: Big Matters with Small Numbers, Part II: Narrow Populations** **Moderator: Richard Charnigo**	**Salon D**
B3.	**The Challenge of Becoming Parents: Infertility and Assisted Reproductive Technologies** **Moderator: Maurizio Macaluso**	**CR #1-2**
	Use of Birth Certificate Data to Assess Assisted Reproductive	Bruce Cohen
	Technology: the Massachusetts and Florida Experience	
	Maternal Characteristics and Birth Outcomes of Assisted Reproductive Technology (ART) Conceived Live Births, Florida, 2004-2006	Lori Westphal
	Obesity, Assisted Reproductive Technology, and Very Low BirthWeight — Florida, 2004–2006	Erin Sauber-Schatz
	Differences in Pregnancy Outcomes of Assisted Reproductive Technology by Infertility Diagnosis, Michigan, 2000-2004	Violanda Grigorescu
B4.	**There's No Place Like Home: Coordinated Care for Children** **Moderator: Michael Kogan**	**CR #3-4**
	Access To a Medical Home Among American Indian and Alaskan Native Children: National Survey of Children's Health, 2007	Danielle Barradas

** Note: Presentations not listed in order to be presented*

Time	Session	Room/Presenter
	Receipt of Transition Services Within a Medical Home: Do Racial and Geographical Disparities Exist?	Nicole Richmond
B5.	**Understanding Teen Pregnancy – Examples from Texas** **Moderator: Gita Mirchandani**	**CR #11**
	Teen Fertility in Texas: A Qualitative Approach to Examining the Role of Future Orientation Toward Education	Catherine Cubbin
	Making Data Work for You: Advocacy Tools that Changed Perspectives towards Sexual Health Education in School Personnel in Texas	Belinda Flores
	Barriers to Consistent Contraceptive Use Among Texas Adolescents: Results from the Texas Teen Opportunity Project	Emily Schiefelbein
B6.	**Who Are the People in Your Neighborhood? Levels of Influence on Perinatal Outcomes** **Moderator: William Sappenfield**	**CR #12**
	Maternal and Neighborhood Factors For Small-For-Gestational Age Infants, Pinellas County, 2005-07	Cheryl Clark
	Prior Fetal Loss Associated with Pregnancy Intention in Subsequent Pregnancy	Lyn Kieltyka
	Measuring the State-Level Impact of Preterm Birth on Infant Mortality	Rebecca Russell
3:30 PM – 3:45 PM	**BREAK**	
3:45 PM – 5:15 PM	**PLENARY SESSION I – Social Determinants of Health: How Far Have We Come in the Past Two Decades and Where Do We Go from Here?**	**Salon E**
5:15 PM – 5:30 PM	**BREAK**	
5:30 PM – 7:00 PM	**Career Mentoring Session for Students and Young Professionals**	**Salon J**

** Note: Presentations not listed in order to be presented*

Time	Session	Room/Presenter
7:00 AM – 8:00 AM	**Light Breakfast**	**Salon A/B/F**
7:00 AM – 8:00 AM	**(Open Invitation) Discussion Group: MCH Epi Group (AMCHP/CSTE)**	**Salon D**
8:00 AM – 8:30 AM	**Presentation of Conference Oral and Poster Awards**	**Salon E**
8:30 AM – 10:00 AM	**PLENARY II – Opportunities for Chronic Disease Prevention: Targeting Women with Gestational Diabetes and Hypertension**	**Salon E**
10:00 AM – 10:15 AM	**BREAK**	
10:15 AM – 11:30 PM	**Breakout Session C**	
C1.	**SYMPOSIUM: Oral Health Status of Mothers and Their Children** **Moderator: Gina Thornton-Evans**	**Salon C**
C2.	**WORKSHOP: Women's and Infants' Health Data in the National Survey of Family Growth** **Moderator: Anjani Chandra**	**Salon D**
C3.	**Antenatal Experiences in International Settings** **Moderator: Roger Rochat**	**CR #1-2**
	Folate,Iron and Calcium Status of Teenage Pregnant Girls Attending ANC in Two Health Facilities, in Bungoma South District, Western Kenya	Evelyn Shipala
	The Association Between Pregnancy-related Risk Factors and Nativity Status, by Race/Ethnicity	Mark Canfield
	Intermittent Preventive Treatment with Sulfadoxine-Pyrimethamine in Preventing Malaria and Anemia in Pregnancy among Women Visiting Korle-Bu Teaching Hospital, Accra, Ghana	Nana Wilson
	Association Between Maternal Prepregnancy Body Mass Index and Adverse Pregnancy Outcomes in a Population of Chinese Women	Kirsten Herrick
C4.	**Prenatal Care and Child Cardiovascular Outcomes** **Moderator: Peter Langlois**	**CR #3-4**
	Identification Birth Defects in Michigan Infants with Sickle Cell Disease and Sickle Cell Trait: Michigan NBS and MBDR Data, 2004-2006	Bethany Reimink

** Note: Presentations not listed in order to be presented*

Time	Session	Room/Presenter
	The Association Between Maternal Intake of Vitamin E and Selected Congenital Heart Defects (CHDs), National Birth Defects Prevention Study (NBDPS), 1997-2005	Flavia Traven
	Racial/Ethnic Differences in Early Childhood Mortality among Infants with Congenital Heart Defects, Texas, 1996-2003	Wendy Nembhard
	Racial Disparities in Infant Mortality Attributable to Birth Defects by Preterm Birth Status — United States, 2003–2006	Cheryl Broussard
C5.	**Oops…We Did It Again! Reducing Repeat and Intergenerational Teen Pregnancy** **Moderator: Stephanie Ventura**	**CR #11**
	Effectiveness of the Federal Healthy Start Project in Reducing Primary and Repeat Teen Pregnancies: Our Experience Over the Decade	Hamisu Salihu
	Assessment of Factors Contributing to Repeat Teen Pregnancy	Caroline Stampfel
	Like Mother, Like Daughter: The Intergenerational Cycle of Teen Motherhood in the Context of Race and Lifelong Neighborhood Economic Environment	Kristin Rankin
C6.	**The "3 M's" in MCH: Maternal Morbidity and Mortality** **Moderator: William Callaghan**	**CR #12**
	Estimating the Prevalence of Gestational Diabetes mellitus (GDM)P in South Carolina	Philip Cavicchia
	Asian and Pacific Islander Race Subgroups have Elevated Risk of Blood Glucose or Diabetes Occurring During a Pregnancy, Hawaii PRAMS 2004-2008	Donald Hayes
	Did Prenatal Care Reduce LGA Outcomes among Women with Gestational Diabetes?	Nathan Hale
	Quantitative Assessment of Maternal Morbidity	B. Denise Raynor
	Relationship of Maternal Life Stress on Immunization Rates Among Infants in a Low-Income Sample	Melissa Danielson
11:45 AM – 1:45 PM	**National Maternal and Child Health Epidemiology Awards Luncheon**	**Salon K**

** Note: Presentations not listed in order to be presented*

Time	Session	Room/Presenter
1:45 PM – 3:15 PM	**Breakout Session D**	
D1.	**Obstetric Interventions and Complications During Delivery** **Moderator: Samuel Posner**	**Salon C**
	Variation in Cesarean Delivery Rates Among Massachusetts Hospitals, 2004-2006	Isabel Cáceres
	Factors Associated with High and Low Hospital Rates of Late Preterm and Primary Cesarean Delivery Among Singleton Live Births, Florida, 2006-07	Bill Sappenfield
	Comparison of Uterine Rupture Rates in the United States Between 1994-1998 and 2003-2007	Sayeedha Uddin
	Perinatal Transfusion at a Regional Hospital Over the Past Decade	Deborah Ehrenthal
D2.	**WORKSHOP: Sample Size Determination for Observational Studies** **Moderator: Ruben Smith**	**Salon D**
D3.	**Great Idea, but It's Not That Simple** **Moderator: Lee Warner**	**CR #1-2**
	Establishing the Reliability and Validity of Measuring Parent-child Functioning Using the National Survey of Children's Health	Adam Carle
	Risk Profiles for Overweight/Obesity among Preschoolers	Panagiota Kitsantas
	Comparison of Maternal Pre-pregnancy Weight Classification Methods and the Effect on Gestational Weight Gain Classification Among MI Adolescents 2003-2007	Patricia McKane
	Two-Stage Cluster Sampling with Referral: Improving the Efficiency of Estimating Unmet Needs among Pregnant and Postpartum Women after Disaster	Jennifer Horney
D4.	**Prenatal Experiences of Canadian Mothers: National Data on Partner Violence, H1N1, and Immigration** **Moderator: Patricia O'Campo**	**CR #3-4**
	Passive Surveillance of H1N1: A Collaboration Between the Canadian Perinatal Surveillance System and Provincial/Territorial Perinatal Programs	Sharon Bartholomew

** Note: Presentations not listed in order to be presented*

Time	Session	Room/Presenter
	Correlates of abuse around the time of pregnancy: Results from the Canadian Maternity Experiences Survey	Patricia O'Campo
	Time Since Immigration and Pregnancy Outcomes in a National Survey of Canadian Women	Marcelo Urquia
D5.	**Quality of Life and Children with Special Healthcare Needs** **Moderator: Amy Case**	**CR #11**
	Social Determinants of Receiving Physical, Occupation, or Speech Therapy Among Very Low Birth Weight (VLBW) 2-year Olds in Wisconsin (WI) At Risk for Developmental Difficulties	Beth McManus
	Chronic Maternal Depressive Symptoms and Participation in Early Intervention Services for Young Children	Sara Donahue
	Healthcare Quality Experiences of Children and Youth with Mobility Limitations	Janice Bell
	Family Burden in U.S. Households with Multiple Children with Special Health Care Needs	Rosa Avila
D6.	**What Does It Take to Breastfeed?** **Moderator: Lorraine Walker**	**CR #12**
	Classification of Early Postpartum Breastfeeding Status on Birth Certificate and Newborn Screening Documents	David Laflamme
	Development of a Ranking System to Target Breastfeeding Interventions	Najmul Chowdhury
	The Influence of Education and Family Structure on the Risk and Timing of Breastfeeding Cessation: Findings from the National Survey of Children's Health, 2007	Noreen Almazora
	Illinois Breastfeeding Blueprint: Using WIC and PRAMS Data to Examine Disparities in Breastfeeding Continuation and Change Breastfeeding Policy	Amanda Bennett
3:15 PM – 3:30 PM	**BREAK**	
3:30 PM – 5:00 PM	**PLENARY III – Challenges to Evidence-Based Public Health Practice**	**Salon E**
5:00 PM – 5:15 PM	**BREAK**	
5:15 PM – 7:00 PM	**Planning Committee Meeting (Invitation Only)**	**Salon J**

** Note: Presentations not listed in order to be presented*

Time	Session	Room/Presenter
7:00 AM – 8:00 AM	**Light Breakfast**	**Salon A/B/F**
8:30 AM – 10:00 AM	**Breakout Session E**	
E1.	**SYMPOSIUM: Using Data to Guide Policy Change: The 10 Things Every Epidemiologist Should Know When Talking To Policymakers** **Moderator: Michael Fraser**	**Salon C**
E2.	**All You Need Is Love and Contraception** **Moderator: Anjani Chandra**	**Salon D**
	Contraception Use in Louisiana 2000-2007	Heather Brightharp
	Postpartum Intrauterine Device Insertion and Postpartum Tubal Sterilization in the United States, 2000–2007	Maura Whiteman
	The Long-Term Influence of Pregnancy Intention on Educational Attainment	Debra Saxton
	Contraceptive Method Availability Among Office-Based Physicians and Title X Clinic Providers in the United States, 2009-2010	Crystal Tyler
E3.	**Fellow, Intern, Trainee, CDC EIS Officer Symposium: Racial Disparities in Infant Survival and the Impact of Racism On Adult Morbidity** **Moderator: Wendy Nembhard**	**CR #1-2**
	Race-Specific Birthweight and Gestational Age-Specific Infant Mortality Rates in Pennsylvania, 2005-2008	Vanessa Short
	Impact of Healthy Start Home Visiting Model on Reduction Perinatal Health Disparities in Allegheny County, PA: Evaluation of Five-Year Major Perinatal Outcomes	Raynard Washington
	Racial Disparities in Survival Among Infants with Congenital Heart Defects	Kyung Lee
	Impact of Change in Self-Reported Experiences of Racial/Ethnic Discrimination on Waist Circumference and Body Mass Index: A Longitudinal Analysis of the CARDIA Cohort	Timothy Cunningham

** Note: Presentations not listed in order to be presented*

Time	Session	Room/Presenter
E4.	**The Milk Stops Here: Policies and Practices the Influence Breastfeeding** **Moderator: Elizabeth Conrey**	**CR #3-4**
	The Effect of Hospital Breastfeeding Policies and Practices on Exclusive Breastfeeding in the Early Postpartum Period	Karen Wade
	Epidural Anesthesia, Obstetric Factors, and Breastfeeding Cessation: Who or What is the Culprit?	Ann Dozier
	Differences in Breastfeeding Initiation, Duration, and Exclusivity Based on Hospital Experiences among WIC Women in Texas, 2009	Emily Schiefelbein
	Association of mPINC Survey Scores and Exclusive Breastfeeding Initiation among California Hospitals, 2007	Carina Saraiva
E5.	**Chain, Chain, Chain…Chain of Tools #1…Using Linked Datasets to Identify Infant Outcomes** **Moderator: Ashley Schempf**	**CR #11**
	Linking Immunization Information System (IIS) Data to the Oklahoma Pregnancy Risk Assessment Monitoring System (PRAMS)	Robert Feyerharm
	Pregnancy-Associated Morbidities: a Comparison of Hospital Discharge, Birth Certificates, and the Pregnancy Risk Assessment Monitoring System (PRAMS) Data, Massachusetts, 2007	Emily Lu
	Smoking Quit Rates During Pregnancy: Can the New Birth Certificate Data Elements Provide Accurate Estimates?	Debra Kane
E6.	**Responding to the H1N1 Epidemic: How Well Did We Do?** **Moderator: Marianne Zotti**	**CR #12**
	Risk of Severe 2009 H1N1 Influenza among Pregnant Women, Washington, 2009-2010	Cathy Wasserman
	Receipt of H1N1 Vaccine by Mothers and Other Caregivers of Newborns in 2009	Deborah Ehrenthal
	Comparison of Pandemic 2009 H1N1 and Seasonal Influenza Infection During Pregnancy	Andreea Creanga

** Note: Presentations not listed in order to be presented*

Time	Session	Room/Presenter
	CDC Pregnancy Flu Line Surveillance System for Maternal and Infant Outcomes Among Critically Ill Pregnant and Postpartum Women with Lab-Confirmed Influenza	Kim Newsome
10:00 AM – 10:30 AM	**BREAK**	
10:30 AM – 12:00 PM	**Breakout Session F**	
F1.	**Starting It Out Right: Birth Outcomes and the Life Course Perspective** **Moderator: Vani Bettegowda**	**Salon D**
	Perinatal Complications Among Latina Immigrants	Felisa Gonzales
	Associations of Placental Size and Vascular Pathological Lesions with Childhood Systolic Blood Pressure	Xiaozhong Wen
	Exploring "Weathering" Among U.S. Born Mexican American Mothers: a Population-Based Transgenerational Study	Anna Hedstrom
	African-American Women's Lifetime Upward Economic Mobility and Preterm Birth: The Effect of Fetal Programming	James W. Collins, Jr
F2.	**Broken Promise: Violence Across the Lifespan** **Moderator: Jessica Jones**	**CR #1-2**
	Racial and Ethnic Disparities in the Knowledge of Shaken Baby Syndrome Among Recent Mothers: Rhode Island 2004-2008	Hanna Kim
	Intimate Partner Violence against Women in the Perinatal Period by Disability Status – Massachusetts PRAMS, 2007–2008	Susan Manning
	Intimate Partner Violence and Women's Health during Pregnancy – Rhode Island, 2004-2007	Hanna Kim
	Violence Related Behaviors And Suicidality Among Youth In Georgia: Findings From The Georgia Youth Risk Behavioral Surveillance (YRBS)	Suparna Bagchi
F3.	**Preconception Care: Promoting an Ounce of Prevention for Pounds of Cure** **Moderator: Alison Johnson**	**CR #3-4**

** Note: Presentations not listed in order to be presented*

Time	Session	Room/Presenter
	Changes In Contraceptive Use Over Time Among Florida Women: Implications For Policies And Programs	Leticia Hernandez
	Racial Differences in Preconception Health, Florida, 2007-2008	Lindsay Womack
	Preconception, Prenatal, and Postpartum Factors Related to Low Birth Weight: Georgia PRAMS, 2004-2006.	Katherine Kahn
	Does good preconception health lead to good birth outcomes? Findings from Virginia PRAMS 2007-08	Kristin Austin
F4.	**Chain, Chain, Chain…Chain of Tools #2… Using Linked Datasets to Identify Childhood Outcomes** **Moderator: Craig Mason**	**CR #11**
	Linking Administrative Data to Inform Early Childhood Development Research and Policies	Melissa Pfeiffer
	Predicted Risk of Special Education Among New York City Public School Children not Referred to Early Intervention Program, by Birth Weight and Gestational Age	Meredith Slopen
	Using Linked, Population-Level Administrative Data to Identify Prenatal Illicit Drug Exposure and Referral to Early Intervention	Taletha Derrington
12:00 PM	**ADJOURN**	

** Note: Presentations not listed in order to be presented*

Concurrent Session A1

Symposium: Addressing Social Determinants of MCH Outcomes Using National and State Data

Jessie Hood, MPH, Camara Jones, MD, PhD, MPH, Marshalyn Yeargin-Allsopp, Barbara Ferrer, PhD, MPH, MEd, Lauren Smith

Centers for Disease Control and Prevention, Boston Public Health Commission, Massachusetts Department of Public Health

INTRODUCTION TO THE TOPIC: The social determinants of health are those factors which are outside of the individual; they are beyond genetic endowment and beyond individual behaviors. They are the context in which individual behaviors arise and in which individual behaviors convey risk. The social determinants of health include individual resources, neighborhood (place-based) or community (group-based) resources, hazards and toxic exposures, and opportunity structures.

Measurement of the social determinants of health is a critical component to understand and address the underlying causes of poor birth outcomes and particularly the associated health disparities. This symposium will engage federal, state, local and academic partners in discussions about the importance and value of appropriate measures, use of currently available data, expansion and improvement of measures, and opportunities to build collaborative efforts to improve the quality of data related to the social determinants of health.

JUSTIFICATION FOR SYMPOSIUM: There is growing recognition of the importance of addressing social determinants of health, especially as they affect birth outcomes and future generations. Limited data are available on PRAMS and have been proposed for the National Children's Study. This symposium will highlight the measures and analyses possible using PRAMS data, the potential for National Children's Study data and opportunities for enhancing both datasets and public health practice. This symposium offers the opportunity to bring together MCH professionals working in diverse settings and unique perspectives to tackle the complex issues of social determinants of birth outcomes.

SYMPOSIUM OBJECTIVES:

1. Participants will become familiar with current questions on PRAMS related to the social determinants of health and equity
2. Participants will learn about current state-based analyses of social determinants of health using PRAMS data
3. Participants will learn about questions related to social determinants on the prenatal component of the National Children's Study
4. Participants will learn about existing gaps that need to be filled in understanding and addressing the social determinants of pregnancy outcomes

Concurrent Session A2

Workshop: Understanding and Applying Multilevel Models in Maternal and Child Health Epidemiology and Public Health: An Introductory, Applied Approach

Adam Carle, MA, PhD
Cincinnati Children's Hospital Medical Center

DESCRIPTION OF WORKSHOP: Maternal and child health research progressively seeks to investigate relationships between individuals and their environmental and social contexts. For example, an investigator might first identify all counties within an area, sample some but not all of the counties, and then select people clustered within each county. The investigator would collect data at both the county (contextual) and individual person levels. However, traditional analytic approaches do not allow analysts to simultaneously investigate individual and contextual influences on health and understand and partition sources of variance across these levels. As maternal and child health epidemiologists and public health researchers become increasingly interested in the simultaneous influence of individual and contextual influences on health, analysts and policy makers need to use methods that allow fuller investigations of both individual and contextual level health predictors.

Multilevel models (MLM) allow this. They let investigators simultaneously examine individual and contextual predictors of health and investigate what predicts variance within and across contexts. They take into account the clustered nature of data designed to address individual and contextual predictors and they deliver increased inferential precision. In this introductory workshop, I will review the rationale for MLM, the fundamentals of the approach, and the basics of understanding the results of different types of MLM. I will place a special emphasis on interpreting and applying MLM's results in maternal and child health epidemiology. Throughout, I will use real-life, public health examples to develop and interpret MLM concepts. I will take an example-based approach that emphasizes translating subject-area questions into MLM and interpreting the results. Participants will leave with a basic understanding of MLM and prepared to interpret MLM in research. They will know how simultaneously investigating and partitioning the variance in individual and contextual level health predictors leads to more fully informed pictures of public health, policy, and programs.

JUSTIFICATION OF WORKSHOP: Multilevel models (MLM) allow investigators to simultaneously examine individual and contextual predictors of health and investigate what predicts variance within and across contexts. They can provide a powerful perspective on the correlates of maternal and child health at individual, community, state, and national levels simultaneously and they can lead to effective methods for improving maternal and child health. However, MLM have gone underused in maternal and child health epidemiology and public health. Where MLM have been employed, investigators have often failed to utilize their full potential. This transpires because few examples demonstrate their application in maternal and child epidemiology and public health and because too few educational programs include MLM courses. As a result, when maternal and child health epidemiologists encounter MLM, they may have difficulty interpreting, critiquing, and/or translating the results of studies using MLM into meaningful evidence-based policy and programs. To address this, this skill-building workshop will take an applied approach (rather than mathematical) and introduce key MLM concepts. It will enhance the skills practitioners need to understand, critique, and apply the results of studies using MLM. Participants will leave the workshop with increased knowledge about MLM, their application in the maternal and child health epidemiology, and how MLM can inform evidenced-based policy and programs.

BIOGRAPHICAL SKETCH OF PRIMARY PRESENTERS: Dr. Carle, a clinically trained applied methodologist, is a nationally recognized expert in CSHCN, multilevel models, and child health measurement. His publications have employed structural equation models, multilevel models, and modern test theory to advance the methodological science used to identify CSHCN, investigate the individual and contextual correlates of CSHCN's and their families' well-being, and provide data for evidence-based practice and policy. His work has also addressed identifying and evaluating variation in the delivery of care and policy that influences CSHCN's outcomes. Additionally, his work seeks to better understand individual and contextual variables' influences on health and health disparities at individual, local, state, and national levels. Dr. Carle earned his PhD from Arizona State University's Psychology Department. He followed his PhD with a two year post-doctoral training experience at the US Census Bureau, where he refined his expertise in large scale survey and measurement research. Dr. Carle is currently the PI of an NINR-funded R-15 study examining

the psychometric properties (e.g., reliability and validity) of key measures identified in Healthy People 2010, across individuals of different racial and ethnic backgrounds. He has published 29 manuscripts in peer reviewed journals, including Pediatrics, Academic Pediatrics, and BMC Medical Research Methodology.

Concurrent Session A3

Fellow, Intern, Trainee, CDC EIS Officer Symposium: The Impact of Smoking, Drinking, and Child Maltreatment from Birth to Adulthood: How Do We Define Long Term

CHARACTERISTICS OF WOMEN WHO SMOKE BEFORE, DURING AND AFTER PREGNANCY, PENNSYLVANIA PREGNANCY RISK ASSESSMENT MONITORING SYSTEM, 2007 – 2008

Vanessa Short, MPH, PhD
CSTE/Pennsylvania Department of Health

BACKGROUND: Smoking during pregnancy has serious long-term health risks for both women and their children. Although a higher proportion of women stop smoking during pregnancy than at other times in their lives, many who do quit relapse in the postpartum period. Identifying specific characteristics of women who smoke may help health care providers intervene.

METHODS: Data from the 2007-2008 Pennsylvania Pregnancy Risk Assessment Monitoring System (PRAMS), a population-based surveillance system that collects information on self-reported maternal characteristics and behaviors before, during and after pregnancy, were used to estimate preconception, pregnancy, and postpartum smoking rates among 1,778 women. Chi-square tests were used to investigate differences in characteristics and behaviors among: 1) pre-pregnancy smokers and nonsmokers; 2) women who continued to smoke during pregnancy and quitters; and 3) women who relapsed in the postpartum period and women who remained tobacco-free.

RESULTS: Over one-quarter (27.9%) of women reported smoking 3 months before pregnancy, and nearly 1 in 5 (19.8%) women smoked while pregnant. Although 44.2% of smokers quit during pregnancy, over half (56.5%) of these women relapsed in the postpartum period. Compared to women who quit smoking during pregnancy, those who smoked were significantly more likely to be less educated ($p<0.001$), unmarried ($p=0.04$), and receive WIC services ($p=0.07$). Women who relapsed in the postpartum period were more likely to be non-white ($p=0.01$), less educated ($p=0.06$), receive WIC services ($p=0.008$), and report that the pregnancy was unintended ($p=0.03$) compared to women who did not resume smoking.

CONCLUSIONS: Although the data are self-reported, they suggest that a substantial number of pregnant and recently pregnant women would benefit from comprehensive tobacco control programs. Targeted interventions for young, low-income, and less educated women are needed to increase smoking cessation in these populations. WIC programs may be one venue to reach such women.

PUBLIC HEALTH IMPLICATIONS: Public health efforts to increase smoking cessation among women and mothers should be intensified.

Concurrent Session A3

Fellow, Intern, Trainee, CDC EIS Officer Symposium: The Impact of Smoking, Drinking, and Child Maltreatment from Birth to Adulthood: How Do We Define Long Term

BINGE DRINKING PRIOR TO PREGNANCY AMONG DISPARATE GROUPS IN HAWAII: FINDINGS FROM HAWAII PRAMS SURVEY, 2004 – 2008

Michelle Kazi, BA
Hawaii Department of Health, Family Health Services Division

BACKGROUND: Binge drinking during pregnancy, particularly in the first trimester, can lead to fetal alcohol syndrome and fetal alcohol spectrum disorders (FASD). Women often engage in binge drinking during the first month of fetal development, unaware that they are pregnant. Identifying women most at risk for binge drinking in early pregnancy can reduce the incidence of FASD.

METHODS: Data for 8991 mothers from the Hawaii Pregnancy Risk Assessment Monitoring Systems (PRAMS), a population-based surveillance system of maternal behaviors and experiences, before, during, and after the birth of a live infant were analyzed for 2004-2008. Pre-pregnancy binge drinking was defined as 5 alcoholic drinks or more in one sitting during the three months prior to pregnancy. Weighted prevalence estimates and multivariate logistic regression evaluated pre-pregnancy binge drinking with adjustment for age, unintended pregnancy, age, smoking, education, parity, race/ethnicity, and intimate partner violence.

RESULTS: Overall, 18.7% (95% CI: 17.8, 19.5) of mothers in Hawaii reported binge drinking within three months prior to pregnancy. Multivariate logistic regression analysis revealed pre-pregnancy binge drinking was associated with an unintended pregnancy (AOR = 1.5, 1.3-1.7), 20-24 years old (AOR=1.4, 1.1-1.7) and 25-34 years (AOR=1.4, 1.1-1.6) compared to 35 years old and over, being unmarried (AOR=1.4, 1.2-1.6), nulliparous (AOR=2.4, 1.9-3.1), and smoking within three months prior to pregnancy (AOR=4.0, 3.5-4.6). Compared to Filipino mothers, pre-pregnancy binge drinking was more likely among White (AOR=2.0, 1.7-2.5), Hawaiian (AOR=2.0, 1.7-2.5), and Japanese (AOR=1.4, 1.1-1.7) mothers. Intimate partner violence within 12 months before pregnancy was also significant (AOR= 2.0, 1.4-3.0).

CONCLUSIONS: The strongest predictors of pre-pregnancy binge drinking were women who were smokers, nulliparous, experiencing IPV, and of White or Hawaiian race/ethnicity. Binge drinking may be a marker of women experiencing and engaging in a constellation of harmful behaviors prior to pregnancy.

PUBLIC HEALTH IMPLICATIONS: Since 50% of pregnancies in Hawaii are unintended, indicating that women are unlikely to be preparing their bodies for pregnancy, reducing binge drinking among women of reproductive age is an important way to promote healthy pregnancies and minimize the likelihood of FASD.

Concurrent Session A3

Fellow, Intern, Trainee, CDC EIS Officer Symposium: The Impact of Smoking, Drinking, and Child Maltreatment from Birth to Adulthood: How Do We Define Long Term

CHILD MALTREATMENT AND POST-SECONDARY EDUCATIONAL ENROLLMENT AND ATTAINMENT

Lizzie Harvey, MPH
Massachusetts Department of Public Health

BACKGROUND: In 2007, approximately 794,000 children in the US were victims of child maltreatment. Child maltreatment is associated with adverse high school educational outcomes, which have significant health implications over the life course. However, studies have not examined the role of child maltreatment in post-secondary educational enrollment and attainment.

METHODS: Secondary data analyses were performed on the National Longitudinal Study of Adolescent Health. Univariate, bivariate, and multivariate analyses were conducted using Stata/SE 10.0. In addition to analyzing abuse type individually, a constructed variable summed the frequencies of maltreatment across the three types to create an exposure index. There is potential for recall bias as participants aged 24-32 years reported on child maltreatment before age 18.

RESULTS: Approximately 50% of respondents reported at least one incident of any type of maltreatment before age 18 (N=9,659). Psychological abuse was the most commonly reported (47%) followed by physical abuse (17%) and sexual abuse (5%). Participants reporting any type of maltreatment were 0.78 times as likely to complete high school (P=0.01) and 0.79 times as likely to obtain a college degree (P<0.001). Participants who reported physical abuse were 0.73 times as likely to graduate college (P=0.001). Those who reported sexual abuse were 0.72 times as likely to enroll in college (P<0.05) and 0.59 times as likely to graduate from college (P<0.01). The odds of graduating high school and college each decreased 7% for each one unit increase in maltreatment exposure (P<0.001).

CONCLUSIONS: The likelihood of college graduation was lower among persons who experienced physical and sexual abuse, but not psychological abuse. The more exposure to abuse, the less likely respondents were to complete college. The association between maltreatment and college enrollment was not significant, except for the case of sexual abuse.

PUBLIC HEALTH IMPLICATIONS: These results indicate that the adverse outcomes of various types of child maltreatment continue into young adulthood. Support structures are needed to help maltreated children succeed in high school and college and ultimately maximize their long-term health and well-being.

Concurrent Session A4

Using PRAMS Data to Examine State Maternal and Child Health Priorities

PREDICTORS OF INFANT SLEEP POSITION IN 4 SOUTHERN STATES: PREGNANCY RISK ASSESSMENT MONITORING SYSTEM (PRAMS), 2007

Seema Gupta, MPH, Mary Elizabeth O'Neil, MPH
Centers for Disease Control and Prevention, Division of Reproductive Health

BACKGROUND: The American Academy of Pediatrics recommends healthy full-term infants be put to sleep on their backs because this decreases the risk of sudden infant death syndrome, the leading cause of death for infants. Despite the national "Back to Sleep" campaign, which educates parents and physicians about this recommendation, a recent report showed disparities in sleep practices in Southern states compared to other regions of the U.S.

STUDY QUESTIONS: What are the predictors of mothers' practices in 4 Southern states?

METHODS: We analyzed combined 2007 data from Arkansas, Georgia, North Carolina, and South Carolina Pregnancy Risk Assessment Monitoring System (PRAMS) surveys (N=5,299). PRAMS surveys women who recently delivered a live born infant; it is conducted by state health departments in collaboration with the CDC. The main outcome was sleep position, defined as supine (back) or non-supine. Socio-demographic predictors examined included maternal age, race/ethnicity, education, marital status, prenatal care payer (Medicaid or non-Medicaid), and entry into prenatal care (before or after first trimester). We controlled for state in the final model, and there was no indication of state being an effect modifier. Statistically significant ($p<0.05$) predictors were identified using multivariable binomial logistic regression. All analyses were conducted using SUDAAN software, which accounts for complex survey sampling.

RESULTS: The prevalence of supine sleep position was 59.4%. Predictors of supine sleep position were maternal race/ethnicity and prenatal care payer. Supine sleeping was less common among Non-Hispanic Black (adjusted odds ratio [AOR]=0.5; 95% CI, 0.4-0.7) and Hispanic women (AOR=0.8; 95% CI, 0.5-1.1) compared to women of other racial/ethnic groups. Women whose prenatal care was paid for with Medicaid were also less likely to put their infants to sleep in the supine position (AOR=0.7; 95% CI, 0.5-0.8) compared to women whose prenatal care was not paid for with Medicaid.

CONCLUSIONS: Data from 4 Southern states showed disparities in supine sleep position among Non-Hispanic Black and Hispanic women and women whose prenatal care was paid for with Medicaid. Medicaid providers in these states might strengthen patient education about recommended sleep practices for infants.

PUBLIC HEALTH IMPLICATIONS: Future research could investigate education messages that effectively target non-White and low-income populations.

Concurrent Session A4

Using PRAMS Data to Examine State Maternal and Child Health Priorities

MATERNAL DEPRESSION AND PARENTING PRACTICES AMONG MOTHERS OF 3-YEAR-OLD CHILDREN IN ALASKA

Margaret Blabey, MPH
State of Alaska, Department of Health and Social Services

BACKGROUND: Research has identified associations between maternal depression and adverse outcomes for the mother and family. Many programs and research focus on postpartum depression. Less is known about depression symptoms among mothers of young children and the associations between later symptoms and parenting behaviors.

STUDY QUESTIONS: Among Alaskan mothers of 3-year-olds, are current symptoms of maternal depression associated with parenting practices?

METHODS: We used data from the 2008 Alaska Childhood Understanding Behaviors Survey, a 3-year follow-up to the Alaska Pregnancy Risk Assessment Monitoring System, linked with birth certificates. Variables used included maternal depressive symptoms and stressful life events since the child was born, recent medical history of the child, current safety practices in the home, discipline, routines, and time watching television and reading. Our dataset contained records for 559 respondents and was weighted to the 2005 birth year population. Methods accounting for complex survey design were used to conduct bivariate and multivariate analysis.

RESULTS: Depression symptoms were experienced by 12.8% of mothers of 3-year-old children. Depression symptoms had significant bivariate associations with reporting her child watched at least 2 hours of television on the previous day, her child was read aloud to less than 30 minutes on the previous day, and a lower prevalence of “distracting or redirecting” her child and “taking away privileges” when her child was misbehaving. In multivariate models we adjusted for maternal parity, education, age, presence of a spouse or partner, and reporting that since her child was born she had a lot of bills she couldn’t pay. Symptoms of depression remained associated with reporting her child spent >2 hours watching television yesterday (aOR 2.7; p-value 0.006) and not using the discipline technique of taking away privileges (aOR 3.1; p-value 0.006).

CONCLUSIONS: Women experiencing symptoms of depression are more likely to have children who watch more than the recommended amount of television per day and less likely to use some methods of discipline.

PUBLIC HEALTH IMPLICATIONS: Providers and programs should be aware that experiencing depression symptoms beyond the postpartum period may be associated with parenting practices. Public health efforts to reduce television time among young children should recognize the association with maternal mental health.

Concurrent Session A4

Using PRAMS Data to Examine State Maternal and Child Health Priorities

EXPLORING BREASTFEEDING DURATION BY WIC PARTICIPATION USING PROPENSITY SCORES, MN PRAMS 2004 – 2007

Barbara Frohnert, MPH, Gayle Johnson, Candidate - MPH Biostatistics, Judy Punyko, PhD, MS
Department of Health, Miinnesota Department of Health

BACKGROUND: In adjusted analyses, WIC participation is associated with shorter breastfeeding duration. However, WIC serves a higher risk population that may be less likely to initiate or sustain breastfeeding.

STUDY QUESTIONS: After matching using propensity scores to account for confounding on sociodemographic factors related to program participation, does WIC status continue to be associated with shorter breastfeeding duration in Minnesota mothers?

METHODS: PRAMS is a survey of women who recently had a live birth in Minnesota. PRAMS uses a systematic sample from recent birth certificates. Between 2004-2007, the weighted response rate for MN PRAMS was over 75%. Propensity scores were generated based on predictors of WIC during pregnancy, including maternal age, education level, race, metro/Greater Minnesota residence, marital status, parity, and income from a job. Using SAS v.9.2 and the "GREEDY" macro, 2364 of the 6203 eligible participants were matched. After matching, WIC and non-WIC mothers were similar based on these factors. Both an unmatched analysis and matched pair analysis were run in SAS and results compared. Important limitations include response bias since breastfeeding duration is self-reported, and recall bias since mothers respond when their babies are between 2 to 6 months old. In addition, propensity scores may not control for all confounders (observed and unobserved), both and missing data and matching reduce the usable sample.

RESULTS: In the matched pairs analysis, there was no longer a significant association between WIC participation during pregnancy and breastfeeding duration: hazard ratio = 1.06 (95% C.I.: 0.87-1.30, p-value 0.556, n=1672). In comparison, the hazard ratio in the unmatched analysis was significant at 1.17 (95% C.I.: 1.04-1.32, p-value 0.008, n=4514).

CONCLUSIONS: Using propensity scores to simultaneously account for multiple factors associated with program participation, WIC status during pregnancy did not negatively affect breastfeeding duration (p=0.6).

PUBLIC HEALTH IMPLICATIONS: Propensity score methods should be explored further to better utilize PRAMS results to evaluate programs that serve higher risk populations, such as WIC.

Concurrent Session A4

Using PRAMS Data to Examine State Maternal and Child Health Priorities

PRESCRIPTION DRUG USE DURING AND IMMEDIATELY BEFORE PREGNANCY IN HAWAII – DATA FROM THE HAWAII PREGNANCY RISK ASSESSMENT MONITORING SYSTEM, 2004 – 2008

Emily Roberson, MPH, Donald Hayes, Rebecca Shor, Loretta Fuddy
Hawaii Department of Health

BACKGROUND: There is relatively little population-based data on prescription drug use during pregnancy, despite the fact that some prescription drugs have documented teratogenic effects.

STUDY QUESTIONS: What is the prevalence of prescription drug use among women during and immediately before pregnancy in Hawaii, and which drugs are most common?

METHODS: Data from the 2004-2008 Hawaii Pregnancy Risk Assessment Monitoring System (PRAMS) was used to obtain estimates of overall prescription drug use immediately before and during the pregnancies of 8991 women. Prevalence estimates were calculated from qualitative data responses to drug use questions in PRAMS. Prescribed prenatal vitamins and supplements were excluded from the analysis.

RESULTS: Overall, 23.4% (95%CI:22.5-24.3) of recently-pregnant women in Hawaii reported using prescription drugs during their most recent pregnancy, which reflected an increase over the same women's reported prescription drug use in the month before they got pregnant (19.5%; 95%CI:18.6-20.3). American Indian (30.5%; 95%CI:22.4-39.9), Caucasian (29.9%; 95%CI: 27.8-32.0), and African American (28.8%; 95%CI:22.4-36.2) women reported the highest estimates of prescription drug use during pregnancy. The most commonly reported prescriptions taken during pregnancy were antibiotics (7.1%; 95%CI:6.5-7.7), pain relievers (4.9%; 95%CI:4.4-5.5), and medications for gastrointestinal problems (3.5%; 95%CI:3.1-4.0). The most common medications used immediately before pregnancy were pain relievers (4.8%; 95%CI:4.3-5.3), allergy medicines (3.3%; 95%CI:2.9-3.7), and antibiotics (3.1%; 95%CI: 2.7-3.5). Ten percent of the women who reported taking prescription medication during their pregnancies also reported that their healthcare provider had not counseled them on medicines that are safe to take during pregnancy during any of their prenatal care visits (10.7%; 95%CI:9.3-12.2).

CONCLUSIONS: Almost a quarter of women in Hawaii with a recent live birth reported using prescription medications during their pregnancies, and a significant percentage also reported not being counseled on safe medication usage during pregnancy.

PUBLIC HEALTH IMPLICATIONS: As use of prescription drugs among the general public becomes more widespread, there is an increased need for careful monitoring of usage in pregnant and reproductive-aged women by health care providers. Counseling on potential risks to mother and fetus should be emphasized during prenatal care visits to assure that women are informed and empowered to make the best decisions for themselves and their babies.

Concurrent Session A5

Obesity on the Borderline

THE RELATIONSHIP BETWEEN ACCULTURATION, MATERNAL AND PATERNAL BODY MASS INDEX, FOOD ITEMS CONSUMED, AND CHILDHOOD OBESITY

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University of Texas Medical Branch, University of Texas Houston Health Science Center

BACKGROUND: Childhood obesity has become a major health concern in nearly every country in the world. During early life, weight trajectories and food preferences predict trends and preferences throughout life. Early childhood is both a crucial stage for monitoring growth and BMI and the most opportune time to prevent obesity in children by promoting healthy behaviors.

STUDY QUESTIONS: What relationships exist between mother's and father's acculturation and parental BMIs, food items eaten by child, and child BMI?

METHODS: Data were collected from 12 to 36 month old Hispanic children and their parents (n=229, dyads) in a large southwest city. The parents' acculturation was assessed through the ARSMA, language used, and country of birth for child, parents, and grandparents. Weight and height were obtained and BMI computed. Twenty-four hour diet histories were analyzed with Food Processor II dietary analysis program.

RESULTS: Ten food items were associated with the ARSMA, 7 were associated with the mother's country of birth, and none were associated with language. Only 1 food item (sliced ham) was associated both with ARSMA and country of birth. Five food items were positively associated with child BMI and 2 were negatively associated with child BMI. Length of time breastfed was negatively associated with child BMI as well as the ARSMA. Maternal and child BMI were positively associated, and maternal BMI was negatively associated with ARSMA.

CONCLUSIONS: Toddlers ate a wide variety of foods, many of which can be considered "mainstream" American foods. Corn and flour tortillas and pinto beans were the only stereotypical foods from a traditional Mexican diet that were significantly associated with the mother's acculturation. The majority of foods significantly associated with a child's BMI were from a "mainstream" American diet.

PUBLIC HEALTH IMPLICATIONS: Childhood obesity has multiple causes, of which a child's diet plays a major role. Maintaining a traditional Mexican diet with emphasis on fruits, vegetables and vegetarian protein sources may be one way to reduce the prevalence of obesity among Hispanic children. A child's diet cannot be inferred by knowing a mother's language preference or her place of birth.

Concurrent Session A5

Obesity on the Borderline

GEOGRAPHIC VARIATION IN CHILDHOOD OBESITY IN MEXICAN STATES ALONG THE U.S. BORDER, MEXICO NATIONAL SURVEY OF HEALTH AND NUTRITION, 2006

Dyanne Herrera, MPH, Jill A. McDonald, PhD, Rosalba Rojas Martinez, MD, PhD
Centers for Disease Control and Prevention/TDSHS/INSP

BACKGROUND: Childhood obesity along the US-Mexico border is a primary concern of health authorities in the region. In Mexican border states, childhood overweight/obesity exceeds the Mexican national average by up to 40%. The extent to which childhood obesity varies with distance from the international border is unknown.

STUDY QUESTIONS: Within Mexican states along the US border, is the prevalence of overweight/obesity among children who reside in communities within 100 kilometers of the US border, the officially recognized definition of the border region, different from that of children who reside in more distant communities?

METHODS: Cross-sectional data from Mexico's 2006 National Survey of Health and Nutrition (ENSANUT) was used to examine weight status in children ages 2-9 (n=2,502) in the 80 border and 196 non-border municipalities of Baja California, Sonora, Chihuahua, Coahuila, Nuevo Leon and Tamaulipas, Mexico. Body mass index (BMI) was calculated from clinical height and weight measurements collected during the household survey. Weight status was derived from the calculated BMI and BMI percentiles for overweight (85th) and obesity (95th) obtained from the CDC 2000 growth and BMI-for-age charts published by the Centers for Disease Control and Prevention in 2002. Adjusted odds ratios (AOR) for overweight and obesity were calculated using logistic regression controlling for age, sex, and insurance coverage.

RESULTS: In Mexico's border communities, 16.0% (95%CI=13.5-18.6) of children ages 2-9 were obese compared to 12.6% (95%C=10.8-14.3) in non-border communities (AOR=2.1; 95%CI=1.7-2.5). The prevalence of overweight in border versus non-border communities was comparable (14.0% and 13.0%, respectively). No differences were found for males versus females or for children ages 2-5 versus children ages 6-9. Border children ages 2-9 were twice as likely to be uninsured (AOR=2.1; 95%CI=1.7-2.5) compared with non-border children.

CONCLUSIONS: Children in Baja California, Sonora, Chihuahua, Coahuila, Nuevo Leon and Tamaulipas, Mexico who live within 100 kilometers of the US border are less likely to have health insurance and are at higher risk of obesity than children in communities >100 kilometers from the border.

PUBLIC HEALTH IMPLICATIONS: Health authorities in Mexican border states concerned about obesity in children should consider focusing weight management and education interventions on higher risk communities within 100 kilometers of the US border.

Concurrent Session A5

Obesity on the Borderline

A U.S. BORDER EFFECT ON ADOLESCENT HEALTH BEHAVIORS IN MEXICO'S MOST NORTHERN STATES

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BACKGROUND: Adolescents living in Mexico's northern region are more obese than other Mexican adolescents, but less obese than US Mexican-American youth. Some adolescent risk behavior, like alcohol and contraceptive use, is more prevalent in Brownsville, Texas than in Brownsville's Mexican sister city of Matamoros. These patterns suggest a US-Mexico gradient of health behavior, but a systematic study of Mexican adolescents in relation to distance from the US border has not been conducted.

STUDY QUESTIONS: Is the behavioral health profile of adolescents in Mexico's border states who reside <=100 kilometers from the US different from that of adolescents who reside >100 kilometers from the US?

METHODS: Using data collected in Baja California, Sonora, Chihuahua, Coahuila, Nuevo Leon and Tamaulipas in the 2006 Mexican National Survey of Health and Nutrition, we compared 11 socio-behavioral characteristics from 4214 youth ages 10-19 in communities <=100 kilometers and >100 kilometers from the border. Characteristics included overweight/obesity, physical activity, sexual and social behavior, injuries and pregnancy. Age, gender, health insurance, education and marital status, were included in all analyses as potential confounders. We used multivariate modeling techniques to compute crude and adjusted odds ratios.

RESULTS: Youth residing <=100 kilometers from the US border were more obese than youth >100 kilometers away (AOR=1.4; 95%CI=1.12-1.74), more worried about their weight (AOR=1.45; 95%CI=1.22-1.73), and less involved in vigorous exercise (AOR=0.79; 95%CI=0.62-1.00); close proximity to the border was also associated with current alcohol use (AOR=2.02; 95%CI=1.67-2.46) and recent unintentional injury (AOR=1.66; 1.30-2.10). Adolescents ages 12-19 were more likely to be sexually active (AOR=1.37; 95%CI=1.04-1.80) and know STD prevention methods (AOR=1.60; 95%CI=1.19-2.14) if they lived close to versus distant from the border, but the proportions of ever-pregnant females were not statistically different (11.6% versus 9.5%). No differences were found for contraception use or age at first sex, or ever-smoking. Youth <=100 kilometers versus >100 kilometers from the border had less schooling and health insurance.

CONCLUSIONS: Proximity to the US border is associated with increased risky health behaviors among Mexican adolescents.

PUBLIC HEALTH IMPLICATIONS: Mexican border states considering adolescent health promotion interventions could increase effectiveness by targeting their border communities. Such efforts might be coordinated with US health promotion activities.

Concurrent Session A6

A Glimpse of Hope: Addressing Infant Mortality

EXCESS INFANT MORTALITY AMONG NATIVE HAWAIIANS: CAN WE IDENTIFY CAUSES AND POSSIBLE SOLUTIONS?

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BACKGROUND: Higher infant, neonatal, and postneonatal mortality among Native Hawaiians compared to Asians and Whites have been consistently documented, yet little attention has been given to identifying potential determinants or cause-specific sources of the disparity.

STUDY QUESTIONS: What are the potential determinants and cause-specific sources of excess infant mortality among Native Hawaiians?

METHODS: Infant, neonatal, and postneonatal mortality among births to mothers of Native Hawaiian ancestry (n=30,197) were compared to those of White mothers (n=22,888) using data from a 2002-2007 Hawaii State Linked Birth / Infant Death Cohort File. ICD-10 underlying causes of infant death were categorized according to the modified Dolfus classification scheme (recommended by AMCHP). The contribution of sociodemographic, behavioral, and medical factors to the mortality disparities was evaluated using logistic regression.

RESULTS: Compared to Whites, Native Hawaiians had higher mortality rates per 1000 live births: infant (7.9 v. 3.7; RR 2.2), neonatal (5.1 v. 3.0; RR: 1.7), and postneonatal (2.8 v. 0.7; RR 4.1). Excess neonatal mortality accounted for 80% of the overall infant mortality disparity and was largely attributable to prematurity and related conditions (74%) and obstetric conditions (8%). Of the postneonatal mortality disparity, 48% could be explained by SIDS/SUID (35%) and infection (13%). In logistic models, the neonatal mortality disparity was eliminated after accounting for differences in the birth weight or gestational age distribution. Adjustment for all sociodemographic, behavioral, and chronic medical factors explained 32% of the neonatal mortality disparity and 61% of the postneonatal disparity. Maternal chronic conditions (Hawaiians 21% v. Whites 9%) explained 15% of the neonatal mortality disparity. Maternal smoking (Hawaiians 12% v. Whites 3.5%) explained 13% of the postneonatal mortality disparity. Maternal education explained about a third of both neonatal and postneonatal mortality disparities.

CONCLUSIONS: PTB/LBW and SIDS/SUID were the largest cause-specific sources of excess neonatal and postneonatal mortality among Native Hawaiians. Maternal chronic conditions and smoking were significant modifiable determinants of the infant mortality disparity.

PUBLIC HEALTH IMPLICATIONS: Improving chronic disease prevention/management and reducing smoking among Native Hawaiian mothers would help to eliminate excess infant mortality. Addressing educational inequalities could be an effective upstream strategy to promote infant health.

Concurrent Session A6

A Glimpse of Hope: Addressing Infant Mortality

PATERNAL INVOLVEMENT AND RACIAL/ETHNIC DISPARITIES IN INFANT MORTALITY

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BACKGROUND: The infant mortality rate among non-Hispanic black infants is more than twice that of non-Hispanic white infants. This disparity has persisted in spite of efforts to reduce the rates of low birth weight and preterm birth, key contributing factors to infant mortality. Other explanations such as access to care, quality of care, lower socioeconomic status have not fully explained differences, and interventions, although successful in reducing the overall infant mortality rate, have not eliminated racial disparities. Further, complicating the issue is the fact that Hispanics, although of similar socioeconomic status as non-Hispanic blacks, have birth outcomes more comparable to those of whites. There is some literature that implies that paternal involvement is critical for feto-infant health, but few studies have examined this construct in relation to infant mortality.

STUDY QUESTIONS: To assess the contribution of paternal involvement to racial disparities in infant mortality.

METHODS: Using vital records data from singleton births in Florida between 1998 and 2005, we generated odds ratios (OR), 95% confidence intervals (CI), and preventative fractions to assess the association between paternal involvement and infant mortality. Paternal involvement status was based on presence/absence of paternal first and/or last name on the birth certificate.

RESULTS: Disparities in infant mortality were observed between and within racial/ethnic subpopulations. When compared to Hispanic (NH)-white women with involved fathers, NH-black women with involved fathers had a two-fold increased risk of infant mortality whereas infants born to black women with absent fathers had a 7-fold increased risk of infant mortality. Elevated risks of infant mortality were also observed for Hispanic infants with absent fathers (OR=3.33. 95%CI=2.66-4.17). About 65-75% of excess mortality could be prevented with increased paternal involvement.

CONCLUSIONS: Paternal absence widens the black-white gap in infant mortality almost four-fold. Intervention programs to improve perinatal paternal involvement may decrease the burden of absent father-associated infant mortality.

PUBLIC HEALTH IMPLICATIONS: A better understanding of the degree to which lack of paternal involvement contributes to infant mortality may lead to enhanced intervention programs aimed at improving paternal involvement during the perinatal period.

Concurrent Session A6

A Glimpse of Hope: Addressing Infant Mortality

CHARACTERISTICS OF INFANT SLEEP LOCATION AND POSITION IN TEXAS – 2009

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BACKGROUND: Sudden Infant Death Syndrome (SIDS) is the third leading cause of death to infants in Texas. Certain infant sleep practices have been identified as associated with SIDS. The American Academy of Pediatrics (AAP) recommends that infants be placed to sleep in supine position in a crib/bassinet/cradle in the same room as the mother.

STUDY QUESTIONS: What is the prevalence of AAP recommended sleep practices in Texas? Do these practices differ by race/ethnicity?

METHODS: A statewide representative survey of 1,802 Texas women with infants aged 3-11 months was conducted in summer 2009. Chi-square tests were used to look at associations between sleep practices and race/ethnicity. Multivariate logistic regression was used to control for maternal socio-demographic characteristics.

RESULTS: Almost half (49%,95%CI:46.4%-51.6%) of Texas women report placing their infant to sleep in a crib/bassinet/cradle in the same room as they sleep. Prevalence of this AAP recommended infant sleep practice varied among racial/ethnic groups, with 28.8% among Whites (95%CI:24.8%-32.8%), 47.8% among Blacks (95%CI:43.4%-52.2%), and 62.1% among Hispanics (95%CI:57.8%-66.3%), $p<0.0001$. Almost three-quarters of Whites (72%,95%CI:68.3%-76.1%) and Hispanics (70%,95%CI:66.3%-74.3%) reported usually placing their infant to sleep in supine position, as compared to less than one half of Blacks (47%,95%CI:42.3%-51.1%), $p<0.0001$. After adjusting for mother's age, education, income, marital status, acculturation, and infant's age and birth weight, Hispanics (AOR:2.9,95%CI: 2.1-4.0) and Blacks (AOR:1.7,95%CI: 1.2-2.2) were still more likely than Whites to follow this AAP recommended sleep practice. Blacks (AOR: 2.6,95%CI: 1.9-3.6) were more likely and Hispanics (AOR:0.8,95%CI:0.55-1.1) were less likely than Whites to usually place their infant in a non-supine position after adjusting for other confounders.

CONCLUSIONS: This is the first comprehensive, statewide, representative, sample survey to gather baseline information on infant sleep practices in Texas. Prevalence rates for infant sleep position are consistent with results from the 2009 National Infant Sleep Position Study.

PUBLIC HEALTH IMPLICATIONS: Culturally-relevant educational messaging should be targeted to sub-populations to reduce the risky behavior of prone sleep position. Future work will follow this cohort of infants and link infant death records to study the association between infant death, including deaths coded as SIDS, and sleep practices among a multiethnic sample of mothers in Texas.

Concurrent Session A6

A Glimpse of Hope: Addressing Infant Mortality

EXAMINING FETAL MORTALITY, INFANT MORTALITY AND INFANT BIRTHS BY WEEKS OF GESTATION AT DELIVERY AND RACE/ETHNICITY IN MASSACHUSETTS, 1998 – 2005

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BACKGROUND: Persistent, unexplained racial/ethnic disparities in rates of both fetal and infant mortality favor non-Hispanic whites (NHW) over non-Hispanic blacks (NHB). If the rates and patterns in fetal versus infant deaths differ across racial/ethnic groups and gestational age at delivery and age at death, these differences may help illuminate mechanisms associated with observed disparities.

STUDY QUESTIONS: Are there racial/ethnic differences in the patterns of perinatal outcomes by week of gestational age at delivery and age at death?

METHODS: Data from fetal death, live birth, and infant death records were taken from the Pregnancy to Early Life Longitudinal (PELL) data system. Cases included deliveries occurring in a MA hospital to MA-resident women from 1998-2005, and deaths occurring during 1998-2006. Fetal (gestational age = 20 weeks or birth weight =350 grams), infant (< 365 days), and neonatal/post-neonatal deaths (< 28 days, 28-364 days) were counted overall and by week of gestational age from 1998-2006. Fetal and infant mortality rates were calculated. Mortality was compared by gestational age at delivery/age at death across four racial/ethnic groups: non-Hispanic white (NHW), non-Hispanic Black (NHB), and Hispanic.

RESULTS: Rates and patterns of fetal, neonatal and postneonatal deaths differed by race/ethnicity across gestational age. NHB women had higher rates of perinatal mortality compared to Hispanic and WNH women in almost every gestational age/age at death grouping. The disparity of greatest magnitude was observed in rates of fetal death occurring in the early fetal period (20-27 weeks) (NHB: 5.98/1000; Hispanic: 2.57; NHW: 1.48). Moreover, the rate of fetal death was higher in the late (28+) versus early fetal period for Hispanic and NHW babies, but lower in the late versus early fetal period for NHB babies.

CONCLUSIONS: Patterns in the risk of fetal and infant death differed by race/ethnicity and gestational age at delivery/age at death.

PUBLIC HEALTH IMPLICATIONS: These findings suggest the need for greater understanding of mechanisms driving differential rates and patterns of fetal and infant death by race/ethnicity. Particular attention to conditions surrounding early fetal death among NHB babies may substantially reduce the disproportionate burden of perinatal loss experienced by the Black community.

Concurrent Session B1

Symposium: American Indian and Alaska Native MCH Research and Programs: Updates, Information Exchange and Collaboration Opportunities

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INTRODUCTION TO THE TOPIC: American Indian and Alaska Native (AIAN) mothers and infants bear a far greater burden of health risk and illness than the overall population and other subpopulations of the United States. AIAN mothers are more likely than white mothers to bear children before they are18 years of age, be unmarried, have less than a high school education, receive inadequate prenatal care, and use tobacco or alcohol during pregnancy. Infant mortality is higher among AIAN than white infants for several important causes of death. Yet, despite the excess of risk factors and adverse health outcomes experienced by AIAN mothers and their infants, little research in maternal and infant health has focused on them. MCH epidemiologists need to address this knowledge deficit by conducting appropriate research and program evaluations and sharing the results.

JUSTIFICATION FOR SYMPOSIUM: For the past six years, a forum focusing on AIAN MCH has been offered at each MCH-Epi meeting. Such a forum, with a special focus on AIAN, is important for promoting and disseminating appropriate and effective AIAN MCH interventions and improving coordination and cooperation among partners. Despite large, persistent MCH disparities between AIAN and other population groups, resources to reduce AIAN MCH disparities are limited and insufficient. AIAN are too often invisible both in data and service systems. By providing an opportunity for sharing knowledge, experience, and resources among MCH professionals who work with or are interested in working with AIAN, MCH-Epi helps maximize the efficiency of limited programmatic, surveillance, and research efforts to benefit AIAN.

SYMPOSIUM OBJECTIVES:

- Participants will obtain a more complete understanding of current AIAN MCH activities in CDC, IHS, AIAN organizations, and other organizations serving AIAN.
- Participants will learn about reorganization within CDC and IHS and its effect on MCH work in tribal communities.
- Participants will meet persons and organizations involved and interested in AIAN MCH for potential collaboration.

Concurrent Session B2

Workshop: Big Matters with Small Numbers, Part II: Narrow Populations

Richard Charnigo, PhD
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DESCRIPTION OF WORKSHOP: The workshop will begin by familiarizing participants with alternative methods based on frequentist probability modeling with Binomial and Hypergeometric distributions; practical skills will be emphasized over theory. The workshop will then proceed to alternative methods based on Bayesian incorporation of "prior" information. Sources and quantification of prior information will be discussed. The advantages and disadvantages of these two approaches, as well as the conceptual differences between frequentist and Bayesian inference, will be enumerated. The workshop will conclude with a discussion of confidentiality issues as they pertain to narrow populations.

JUSTIFICATION OF WORKSHOP: This workshop, a sequel to "Big Matters with Small Numbers: Rare Events" from MCH EPI 2008, will develop knowledge and skills for analyzing data sets with few individuals. Such data sets are sometimes described as having "small denominators". They arise in MCH when the individuals are restricted to a narrow demographic or geographic stratum. Data sets with few individuals present analytical challenges because the usual normal-theory methods (e.g., the Z test for comparing two proportions) cannot be applied.

BIOGRAPHICAL SKETCH OF PRIMARY PRESENTERS: Richard Charnigo is an Associate Professor of Statistics and Biostatistics at the University of Kentucky. Dr. Charnigo's research interests in statistical methodology include mixture modeling and nonparametric regression. He is the PI on an NSF-funded project in nonparametric regression, and he has published in venues such as The Journal of the American Statistical Association, The Journal of Statistical Planning and Inference, and The Journal of Applied Statistics. Dr. Charnigo's interdisciplinary collaborations span several areas, including cardiology, psychology, organizational behavior, engineering, and public health. Within public health, his research interests include evaluation of health departments via the National Public Health Performance Standards Program, prevention of sexually transmitted diseases, and mixture modeling analysis of birthweight and infant mortality data.

Concurrent Session B3

The Challenge of Becoming Parents: Infertility and Assisted Reproductive Technologies

USE OF BIRTH CERTIFICATE DATA TO ASSESS ASSISTED REPRODUCTIVE TECHNOLOGY: THE MASSACHUSETTS AND FLORIDA EXPERIENCE

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BACKGROUND: Use of Assisted Reproductive Technology (ART) has steadily increased in the United States over the past 25 years. Currently, at least 22 states include questions about ART use on their standard certificates of live birth. However, very little research has been done to examine the completeness and accuracy of ART data collected on birth certificates (BCs).

STUDY QUESTIONS: How complete are the data on ART collected on the Florida (FL) and Massachusetts (MA) BCs?

METHODS: Data from the National Assisted Reproductive Technology Surveillance System (NASS), maintained by the Centers for Disease Control and Prevention, were linked with FL and MA BCs for 2004 and 2005. The NASS data were considered the gold standard for ART-related deliveries in evaluating the sensitivity of the ART information reported on BCs. The MA BC contains a specific question on the use of ART (including intrauterine insemination); whereas the FL BC contains a general question on fertility treatments. Sensitivity (with corresponding 95% confidence intervals [CI]) was calculated as the percentage of NASS-linked live-birth deliveries with ART usage reported on BCs. Differences in ART definitions between the two states and the NASS system were a limitation of the analysis.

RESULTS: Preliminary findings indicate that the sensitivity of ART reporting on BCs was 25.5% (95% CI=20.0-32.0) in FL and 38.1% (95% CI=29.4-47.6) in MA. In FL, no statistically significant differences in sensitivity were identified by maternal age or plurality. In MA, no significant differences in sensitivity were identified by maternal age; however, sensitivity was significantly higher among women giving birth to triplets or higher order multiples (68.4%, 95% CI=52.3-81.0).

CONCLUSIONS: These findings indicate that reporting of ART information on BCs was incomplete even using broad questions, and that ART and fertility treatment births identified through BCs are an underestimate of the true population of these births. Furthermore, ART reporting on MA BCs was more complete for women giving birth to triplets and higher order multiples.

PUBLIC HEALTH IMPLICATIONS: Using BC data as the source of ART information dramatically underestimates the extent of ART procedures. Alternative methods for collecting these data on BCs should be explored.

Concurrent Session B3

The Challenge of Becoming Parents: Infertility and Assisted Reproductive Technologies

MATERNAL CHARACTERISTICS AND BIRTH OUTCOMES OF ASSISTED REPRODUCTIVE TECHNOLOGY (ART) CONCEIVED LIVE BIRTHS, FLORIDA, 2004 – 2006

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BACKGROUND: Between 1996 and 2006, the number of babies born in the US using assisted reproductive technology (ART) more than doubled. By 2006, Florida ranked 6th among the US states in ART procedures started, but 18th in the ratio of ART procedures per one million population. Little information is available on the maternal characteristics and infant outcomes among women in Florida who conceived with ART.

STUDY QUESTIONS: How do maternal characteristics and birth outcomes among Florida residents differ between women who undergo ART versus women who do not?

METHODS: The study data source is the National Assisted Reproductive Technology Surveillance System (NASS), maintained by Centers for Disease Control and Prevention, linked to Florida 2004-2006 birth, fetal death and infant death records. This study focuses on live births to Florida residents conceived using ART during the three year study period. We examined maternal demographic characteristics and birth outcomes using descriptive statistics.

RESULTS: Between 2004 and 2006, 4,547 (0.68%) live births in Florida were conceived using ART. Of these, 32.7% (1,485) were twins or higher ordered multiples as compared to 1.4% (9,436) twins or higher ordered multiples not conceived using ART. A greater proportion of mothers who conceived using ART versus those who did not conceive using ART were 35 and older (55.3% vs. 14.6%), college educated (71.1% vs. 29.0%), and married (95.9% vs. 57.4%). Twenty one percent of the women who received ART were Hispanic compared to non-Hispanic (20.7% vs. 78.0%). Fewer Black women who conceived with ART had a live birth relative to Black women who did not receive ART and had a live birth (5.6% vs. 21.5%).

CONCLUSIONS: Linking ART information with birth certificate data provides a robust dataset with which to examine pregnancy outcomes among ART-conceived births in Florida. In particular, the racial and ethnic composition of Florida provides an opportunity to examine ART-related health outcomes among non-white women.

PUBLIC HEALTH IMPLICATIONS: These data provide further insight into the demographic characteristics of women who undergo ART and present an opportunity to tailor strategies addressing the adverse health outcomes among ART-conceived infants.

Concurrent Session B3

The Challenge of Becoming Parents: Infertility and Assisted Reproductive Technologies

OBESITY, ASSISTED REPRODUCTIVE TECHNOLOGY, AND VERY LOW BIRTH WEIGHT — FLORIDA, 2004 – 2006

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BACKGROUND: Obesity is associated with decreased fertility and increased adverse pregnancy complications and outcomes. With the increasing prevalence of obesity, more women might use assisted reproductive technology (ART). ART is associated with an increased risk for very low birth weight (VLBW); obesity is associated with higher prevalence of macrosomia and preterm birth. Whether ART modifies the role of pre-pregnancy body mass index (BMI) on birth weight has not been fully explored.

STUDY QUESTIONS: What is the association between being overweight or obese pre-pregnancy and birth weight, accounting for ART usage?

METHODS: We studied all live births occurring in Florida to residents, by using 2004–2006 linked Florida birth certificates and CDC's National ART Surveillance System (NASS) data. ART was defined as fertility treatments in which both eggs and sperm are handled. Pre-pregnancy BMI was categorized into overweight/obese (BMI >=25 kg/m2) or normal/underweight (BMI <25 kg/m2). VLBW was defined as birth weight <1,500 g. We used descriptive statistics and stratified analyses to assess differences in proportions among maternal, pregnancy, infant, and ART variables.

RESULTS: Of 633,237 live births, 4,316 (0.68%) were conceived through ART; of 247,649 (39.1%) live births to overweight/obese women, 1,339 (0.54%) were conceived through ART. Among singleton births, the mother's being overweight/obese increased the risk for VLBW among non-ART births (relative risk [RR], 1.32; 95% confidence interval [CI], 1.26–1.39), but not significantly among ART births (RR, 1.51; 95% CI, 0.87–2.62). Among twins, the mother's being overweight/obese decreased the risk for VLBW among non-ART births (RR, 0.9; 95% CI, 0.82–0.99), but increased the risk among ART births (RR, 1.51; 95% CI, 1.16–1.95). Among triplets or more, RRs were similar to those of twins, but were not statistically significant.

CONCLUSIONS: Obese/overweight women were at increased risk for delivering VLBW singleton infants. This increase was comparable for pregnancies conceived with and without ART. However, among higher-order births, pre-pregnancy weight had opposite effects with ART and non-ART conception.

PUBLIC HEALTH IMPLICATIONS: VLBW infants have higher morbidity and mortality than normal weight infants. Better understanding of reasons for higher VLBW risk, including ART usage, might reveal new preventive strategies.

Concurrent Session B3

The Challenge of Becoming Parents: Infertility and Assisted Reproductive Technologies

DIFFERENCES IN PREGNANCY OUTCOMES OF ASSISTED REPRODUCTIVE TECHNOLOGY BY INFERTILITY DIAGNOSIS, MICHIGAN, 2000 – 2004

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BACKGROUND: Use of Assisted Reproductive Technology (ART) to treat infertility almost doubled from 1998 to 2007 (81,438 to 142,435 cycles, respectively) along with the number of ART live-birth deliveries (20,126 to 43,412, respectively). ART treatment outcomes (e.g., multiple live-births, infant health status) might differ by infertility diagnosis.

STUDY QUESTIONS: Are there differences in patient characteristics and ART treatment outcomes between women with ovulatory dysfunction (OD) or tubal obstruction (TO)?

METHODS: We used data from the National ART Surveillance System linked with live birth certificates for Michigan (MI), 2000-2004. Maternal characteristics and pregnancy outcomes (i.e., multiple live-births, gestational age, 5-min Apgar score, birth weight [<1500 grams, 1500-2499 grams, >2500 grams], NICU admission) for women with OD and TO were calculated. Crude odds ratios (OR) and the corresponding 95% confidence intervals (CIs) were calculated to compare OD and TO with respect to each outcome.

RESULTS: During 2000-2004, 3,926 MI women underwent ART procedures ending in a live birth; 5.0% (n=196) of women had OD and 13.8% (n=542) TO. No significant differences in maternal characteristics were identified between the two groups. Although the proportion of live births that were multiple did not differ (56% in both groups), the infants of women with OD were more often born very pre-term (<32weeks, OR= 1.5, 95%CI: 1.0-2.3, p=0.04), more likely to have a 5-min Apgar score <8 (OR= 1.8, 95%CI: 1.0-3.0, p=0.03), and more likely to be admitted to a NICU (OR= 1.6, 95%CI: 1.1-2.3, p=0.01). There was no association, however, between infertility diagnosis and birth weight of the infant (p>0.1).

CONCLUSIONS: Whereas maternal characteristics and multiple pregnancy rates did not differ by diagnosis, infants born to women with OD who underwent ART had poorer health outcomes and required more intensive care.

PUBLIC HEALTH IMPLICATIONS: Understanding the differences in ART treatment outcomes by infertility diagnosis is needed to assess the impact of underlying conditions.

Concurrent Session B4

There's No Place Like Home: Coordinated Care for Children

ACCESS TO A MEDICAL HOME AMONG AMERICAN INDIAN AND ALASKAN NATIVE CHILDREN: NATIONAL SURVEY OF CHILDREN'S HEALTH, 2007

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BACKGROUND: Health status among American Indian/Alaskan Native (AI/AN) children is generally lower than other children residing in similar geographic regions. Having a medical home, or source of ongoing, comprehensive, coordinated, family-centered care, is associated with improved preventive healthcare utilization among children.

STUDY QUESTIONS: What is the prevalence of having a medical home among AI/AN children? What are barriers to having a medical home in this population?

METHODS: The National Survey of Children's Health (NSCH) is a population-based survey which measures parental perception of their child's health and healthcare utilization. Prevalence of having a medical home, Indian Health Service (IHS) utilization within the past year, and parental perception of the quality of care received were estimated using 2007 NSCH data. Medical home was defined as a composite measure based on criteria suggested by the American Academy of Pediatrics. Analyses were limited to 2-17 year-old children in states reporting AI/AN race as a distinct category (Alaska, Arizona, Montana, New Mexico, North Dakota, Oklahoma, and South Dakota, weighted n= 227,000). AI/AN children residing on a reservation may have greater access to IHS facilities than those in urban/suburban settings, but the NSCH does not capture this information.

RESULTS: Among AI/AN children, 56.3% (95% CI= 47.2-65.0) did not have a medical home, despite 63.0% of children receiving services from an IHS facility. This is significantly higher than the estimated 41.0% (95% CI= 38.6-43.5) of non-Hispanic white children with no medical home. Among parents of children who received IHS services, yet reported no medical home for their child, nearly 30.4% indicated that their child had no personal doctor or nurse; 63.7% felt that their child's doctor did not spend adequate time with him/her; 31.1% indicated that their doctor was not usually sensitive to their family's values and customs.

CONCLUSIONS: Despite federally-mandated access to healthcare, the majority of AI/AN children in these seven states did not have a medical home.

PUBLIC HEALTH IMPLICATIONS: IHS was designed to deliver comprehensive healthcare to tribal members, particularly those living on or near reservations. Improvements in service delivery are needed to increase access to comprehensive care among AI/AN children.

Concurrent Session B4

There's No Place Like Home: Coordinated Care for Children

RECEIPT OF TRANSITION SERVICES WITHIN A MEDICAL HOME: DO RACIAL AND GEOGRAPHICAL DISPARITIES EXIST?

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BACKGROUND: Youth with Special Health Care Needs (YSHCN) are the largest proportion of the Children and Youth with Special Health Care Needs population. YSHCN require specific transition services to address medical, educational, and work related outcomes. These services are a component of the Medical Home model of primary care.

STUDY QUESTIONS: (1) Rank all states and southern regional states by racial disparity between black and white YSHCN for receipt of Transition services within a Medical Home (Healthcare Transition); (2) determine if a racial and geographic disparity exists after control of demographic characteristics.

METHODS: The 05/06 National Survey of Children with SHCN data was used. A composite of the Medical Home and Transition National Performance Measures (NPMs) captured Healthcare Transition. If both NPMs were met, Healthcare Transition was received; otherwise, if neither were met, it was not received. Race and ethnicity were grouped as Non-Hispanic black or Non-Hispanic white. Census Bureau regions defined geography. Southern geography was categorized as Deep South or remaining southern states. Covariates included sex, age, health condition severity, education, poverty level, adequate insurance, and metropolitan status. Observations were limited to YSHCN. Chi-square and logistic regression were conducted. Alpha was set to 0.05 for significance.

RESULTS: Nationally, about 42% of YSHCN received Healthcare Transition, with a racial gap of 25%; more white YSHCN received Healthcare Transition. Multiple logistic regression showed white YSHCN had more than twice, and Midwestern had 44% higher odds of receiving Healthcare Transition. Among southern states, about 38% of YSHCN received Healthcare Transition, with a 26% racial gap. Moreover, 12 of the 17 states had significant differences. Multiple logistic regression showed that white YSHCN had almost 2.6 higher odds of receiving Healthcare Transition. Southern geography was not associated with Healthcare Transition receipt.

CONCLUSIONS: Despite efforts to increase Medical Home capacity, and likewise Transition, less than half of YSHCN received Healthcare Transition. Moreover, significant racial disparities were found. White and Midwestern YSHCN were more likely to receive the services.

PUBLIC HEALTH IMPLICATIONS: Intervention programs that are culturally salient at the individual and regional level may address racial and geographic disparities, and thereby increase the prevalence rate for Healthcare Transition.

Concurrent Session B4

There's No Place Like Home: Coordinated Care for Children

ACCULTURATION AND HEALTH CARE ACCESS AND UTILIZATION FOR HISPANIC CHILDREN IN THE UNITED STATES

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BACKGROUND: Although access barriers to health care among Hispanic children have been studied, little is known about how acculturation may influence health access factors for the nation's largest minority group of children.

STUDY QUESTIONS: What are the independent effects of primary household language on having a personal doctor or nurse (PDN), having consistent coverage, and receiving needed care, among Hispanic children in the US?

METHODS: Cross-sectional data were drawn from the 2003 National Survey of Children's Health. The study sample included 13,357 Hispanic children (ages 0-17). The exposure of interest was acculturation approximated by primary household language (Spanish/English). The primary outcomes included having a PDN, having consistent coverage over the past 12 months, and receiving needed medical care over the past 12 months. Bivariate and multivariate logistic regression analyses were performed, controlling for age, gender, parental education, and family structure.

RESULTS: 48.9% of Hispanic children live in Spanish-speaking households in our study sample. Hispanic children from Spanish-speaking households are more likely to be male, have less educated parents, and live in two-parent (biological) households compared to Hispanic children from English speaking households. 9.8% of Hispanic children did not have consistent health care coverage. 28% of Hispanic children did not have a PDN. 1.6% of Hispanic children did not receive all needed medical care. After adjusting for covariates, we found that compared to children who live in English-speaking households, children from Spanish-speaking houses were almost twice as likely to have inconsistent health care coverage (OR=1.802, 95%CI 1.554-2.091)) and unmet medical care (OR=1.987, 95%CI 1.379-2.864), and were more than 2.5 times as likely to not have a PDN (OR=2.695, 95%CI 2.455-2.958).

CONCLUSIONS: Hispanic children from Spanish-speaking households were nearly twice as likely to have inconsistent health care coverage and unmet medical care, and were over 2.5 times as likely to not have a PDN, compared to English-speaking Hispanic households.

PUBLIC HEALTH IMPLICATIONS: As the Spanish-speaking population grows, it will be important to understand how household language impacts Hispanic children's access to health care. Further examination and interventions are needed, in order to improve access to health care for Hispanic children in Spanish-speaking households.

Concurrent Session B5

Understanding Teen Pregnancy – Examples from Texas

TEEN FERTILITY IN TEXAS: A QUALITATIVE APPROACH TO EXAMINING THE ROLE OF FUTURE ORIENTATION TOWARD EDUCATION

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BACKGROUND: Between 1990 and 2006, the teen birth rate in Texas declined 43% among African Americans, 31% among Whites, but only 11% among Latinas. Future orientation toward education may vary according to racial/ethnic group, and thus may account for some of the differences in these recent trends.

STUDY QUESTIONS: What themes do youth identify in terms of future orientation toward education, and do these themes differ according to racial/ethnic group and gender?

METHODS: We conducted focus groups (n=36) that lasted 1.5-2 hours with young women (aged 15-21) and men (aged 18-24), stratified by race/ethnicity, for the Texas Teen Opportunity Project (N=214). Participants were recruited from community-based organizations and groups were conducted in Austin, Dallas, El Paso, and Houston. We focused on two questions: "How important is it for teens to finish high school" and "How important is it for young people to get education or training after high school."

RESULTS: Nearly every group discussed the importance of completing high school as a means toward a better future (via college and better jobs). However, college and better jobs were not as frequently mentioned among Hispanic young women. Other themes that emerged were that completing high school: is an expectation; leads to personal growth; is important for family reasons; and avoids stigma. Some groups mentioned barriers to completing high school, such as daily survival, getting into "trouble," unstable families, and having a child. Nearly every group discussed that education or training beyond high school is important for a better job and higher income but young men frequently mentioned that college is not that important. Other common themes included personal growth, to support and provide role models for children; and to avoid struggle later in life. Personal growth was infrequently mentioned among white young men and no Hispanic young women mentioned avoiding struggle later in life.

CONCLUSIONS: Norms regarding future orientation toward education vary by race/ethnicity and gender.

PUBLIC HEALTH IMPLICATIONS: Public health policy and practice should build resilience among youth at young ages and promote universal high school education completion to increase future life chances for parenting and non-parenting youth.

Concurrent Session B5

Understanding Teen Pregnancy – Examples from Texas

MAKING DATA WORK FOR YOU: ADVOCACY TOOLS THAT CHANGED PERSPECTIVES TOWARDS SEXUAL HEALTH EDUCATION IN SCHOOL PERSONNEL IN TEXAS

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University of Texas Prevention Research Center

BACKGROUND: Texas has the 3rd highest teen birth rate and the highest repeat births in the US. While compelling epidemiologic data exists to make a convincing case for adoption and implementation of evidence-based sexual education programs, especially in school settings, sex education is highly controversial and it is difficult to know the best approach for making a case for good programming. Data presentation and reframing arguments for evidence-based programs to school personnel, community members, and parents that minimize controversy are needed. However, little is known regarding successful advocacy approaches.

STUDY QUESTIONS: How can epidemiologic data and communication strategies be effective in influencing school personnel perspectives' towards evidence-based sexual education?

METHODS: Using input from community members, school personnel, and experts in adolescent sexual health, advocacy tools to increase awareness of teen pregnancy and increase support for evidence-based programs were developed. Tools, designed to inform and motivate, included: localized, geo-coded maps of teen birth rates, a PowerPoint presentation of epidemiologic data of teen sexual health in clear, simple terms, and fact sheets to address common myths and arguments. Materials also outlined the benefits of evidence-based programs and steps to select appropriate programs. Advocacy tools were presented to school board members, superintendents, principals, teachers, School Health Advisory Councils, district health coordinators, and parents during meetings, focus groups, and in-depth interviews.

RESULTS: Communication strategies of geo-coded maps of teen birth rates personalized by zip codes and school district boundaries and PowerPoint presentations had a positive impact on perspectives towards adolescent sexual education. Highlighting advantages of evidence-based programs helped some school districts to reevaluate recommendations for program adoption.

CONCLUSIONS: Perspectives towards sexual education can be influenced by using effective advocacy tools that present data in lay terms with visual representation and that personalize the impact of teen pregnancy in targeted communities.

PUBLIC HEALTH IMPLICATIONS: Strategies to increase support for evidence-based programs should include providing data that are easily interpretable, personalized to local communities, and packaged so that program advocates can use the strategies in their own advocacy efforts. Mapping geo-coded teen birth data is highly effective and highly recommended to influence perspectives towards sexual education.

Concurrent Session B5

Understanding Teen Pregnancy – Examples from Texas

BARRIERS TO CONSISTENT CONTRACEPTIVE USE AMONG TEXAS ADOLESCENTS: RESULTS FROM THE TEXAS TEEN OPPORTUNITY PROJECT

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BACKGROUND: Despite reports of increases in the use of contraception among teens, approximately 70% of adolescent pregnancies in Texas are unintended, indicating that many sexually-active teens may not be using contraception consistently.

STUDY QUESTIONS: What do adolescents identify as barriers to consistent contraceptive use, and do responses differ by sex or race/ethnicity?

METHODS: Thirty-six focus groups were conducted in four of the five largest Texas cities with 214 adolescents who identified as Hispanic, African-American, or White as part of the Texas Teen Opportunity Project (T-TOP). Focus group topics included future goals and planning, parent-adolescent communication, teen pregnancy, and contraception. Focus group audio files were transcribed. Predominant themes were identified among adolescent responses to a question about barriers to consistent contraceptive use.

RESULTS: The main themes that emerged from discussions about challenges to consistent use of contraception among adolescents were (1) Lack of planning/preparation, (2) Influence of partner or peers, (3) Not wanting to use contraception, (4) Not having access, (5) Various fears, including embarrassment or parents finding out, and (6) Lack of knowledge or misperceptions. Being pressured by a partner not to use contraception was more commonly expressed by females, while more males reported not wanting to use contraception because it feels better without (in reference to condoms). More females were concerned about the side-effects of contraception and more White adolescents feared their parents finding out about their sexual activity. Lack of information as a barrier was only reported in Hispanic and African-American groups. All groups reported access as a barrier, including not being able to afford contraception or not knowing where, how, or if they could obtain it.

CONCLUSIONS: The main themes observed are not unexpected, and some are less modifiable than others. It is important to note that adolescents often cited barriers in access to family planning services as a factor associated with inconsistent use of contraception.

PUBLIC HEALTH IMPLICATIONS: Interventions that provide clarification and inform adolescents about availability of comprehensive family planning services may increase consistent contraceptive use among sexually-active adolescents and potentially reduce unintended teen pregnancy.

Concurrent Session B6

Who Are the People in Your Neighborhood? Levels of Influence on Perinatal Outcomes

MATERNAL AND NEIGHBORHOOD FACTORS FOR SMALL-FOR-GESTATIONAL AGE INFANTS, PINELLAS COUNTY, 2005 – 2007

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BACKGROUND: The Pinellas-Florida Action Learning Collaborative wanted to explore maternal and neighborhood factors that contribute to racial disparities in perinatal health as part of their assessment.

STUDY QUESTIONS: How are maternal and neighborhood factors associated with small-for-gestational age (SGA) births and racial disparities?

METHODS: 2005-07 Pinellas live births to non-Hispanic Black and White mothers were the study subjects. Individual-level data was obtained from birth certificate records. Maternal addresses were geocoded to and linked to Pinellas census tract data to obtain neighborhood variables. The study cohort contained 16,413 White and 4,438 Black births with a 94.4% geocoded linkage rate. Small-for-gestational age was defined as the lower 10% of birthweight births for every gestational age. Statistical analyses were performed using multilevel random intercept and generalized estimation equation (GEE) logistic regression. Stratified and interaction analyses were conducted to compare factors by race.

RESULTS: The prevalence of SGA births was 9.8% ±0.2% overall, 7.8% ±0.2% for White births, and 17.0% ±0.6% for Black births. The significant maternal factors identified were: Black race (AOR =2.03), age >35 (AOR=1.22), age <18 (AOR=1.54), BMI <18.5 (AOR=1.60), smoking (AOR=2.59), married (AOR=0.72), BMI 25-29 (AOR=.070), and BMI 30+ (AOR=0.71). Significant neighborhood factors were: census tracts in the 2nd and 3rd highest quartiles of less than a high school education (AORs = 1.15 and 1.19, respectively) and census tracts in the upper 50th percentile of the racial residential segregation isolation index (AOR=1.14). In race-specific models, Black infants (AOR =2.24) with young mothers had higher odds of SGA compared to White infants (AOR =0.78) and infants with White mothers that smoked (AOR= 2.74) had higher odds of SGA compared to Black infants (AOR= 1.80). These significant differences held when Black maternal race was interacted with young age (AOR=2.86) and smoking (AOR=0.66).

CONCLUSIONS: Maternal factors of age, weight, marital status and smoking status, and neighborhood factors of education attainment and racial residential segregation are associated with the likelihood of SGA births. Racial differences are seen for mothers who are young or smoke during pregnancy.

PUBLIC HEALTH IMPLICATIONS: Maternal and neighborhood factors need to be addressed to reduce racial disparities with SGA in Pinellas.

Concurrent Session B6

Who Are the People in Your Neighborhood? Levels of Influence on Perinatal Outcomes

PRIOR FETAL LOSS ASSCOCIATED WITH PREGNANCY INTENTION IN SUBSEQUENT PREGNANCY

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BACKGROUND: Nearly one-third of all US pregnancies result in fetal losses. The relationship between prior adverse pregnancy outcomes and pregnancy intention of women subsequently delivering a live-born infant are poorly understood in Louisiana.

STUDY QUESTIONS: Does pregnancy history affect pregnancy intention in subsequent pregnancies?

METHODS: Linked PRAMS-birth data from 2004 and 2007 were used to evaluate the study question. Pregnancy history was defined as (1) mothers with no previous pregnancies, (2) mothers who experienced only live births, or (3) mothers who had experienced at least one prior fetal loss. Pregnancy intention was categorized as intended and unintended. Women who reported wanting to be pregnant sooner or then were considered to have intended pregnancies. Women who reported wanting to be pregnant later or never were considered to have unintended pregnancies. SAS-callable SUDAAN was used for all analyses to account for the complex sampling design. Limitations include use of self-reported data, inability to obtain pregnancy spacing or gestational age of prior fetal losses, and the exclusion of women whose subsequent pregnancy resulted in another fetal loss (not sampled in PRAMS).

RESULTS: Responses from 2,995 women were weighted to represent 127,711 Louisiana resident women. Of respondents, 36.8% had no previous pregnancies, 22.6% had experienced at least one prior fetal loss, and 40.6% had only prior live births. After controlling for maternal race, education, pre-pregnancy body mass index, partner abuse, smoking three months before pregnancy, and vitamin consumption, mothers with a prior fetal loss were fifty percent more likely to report having an intended pregnancy (OR=1.5,95%CI=1.2,2.0).

CONCLUSIONS: Mothers who experienced a previous fetal loss were significantly more likely to report the current pregnancy being intended.

PUBLIC HEALTH IMPLICATIONS: Opportunities to educate women on the importance of good health prior to pregnancy should be promoted among all women, irrespective of pregnancy history. Women with prior poor outcomes might be at risk for subsequent poor outcomes. Increased pregnancy intention among this group might provide additional opportunity to promote healthy behaviors prior to subsequent pregnancies.

Concurrent Session B6

Who Are the People in Your Neighborhood? Levels of Influence on Perinatal Outcomes

MEASURING THE STATE-LEVEL IMPACT OF PRETERM BIRTH ON INFANT MORTALITY

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BACKGROUND: The National Center for Health Statistics (NCHS) publishes infant cause of death statistics using International Classification of Diseases, 10th Revision (ICD-10) categories. "Short gestation/low birthweight (LBW)" traditionally represents deaths attributed to preterm birth (PTB, <37 weeks) and in the U.S. is the second leading cause of infant death after birth defects. The Centers for Disease Control and Prevention (CDC) recently published a broader classification of deaths due to "preterm-related" causes, which accounted for 37% of infant deaths in 2006. While NCHS publishes national preterm-related IMRs, no regional or state rates have been published.

STUDY QUESTIONS: What is the state-specific impact of preterm-related infant mortality?

METHODS: Retrospective analyses of 2003-2005 linked birth/infant death data from NCHS were performed. State infant mortality rates (IMR) for the five leading causes of death nationally were calculated using standard definitions. Preterm-related mortality was defined according to the CDC (gestational age <37 weeks and a PTB-related ICD-10 code). State PTB and very PTB rates were calculated using the live birth denominator file. Pearson correlation coefficients were calculated to determine associations between cause of death and gestational age distributions by state.

RESULTS: Short gestation/LBW was the leading cause of death in 15 of 51 states and DC, with higher rates in the Southeast (ranging from 39.1 per 100,000 live births in Alaska to 207.4 in Mississippi), and accounted for 6.1% to 26.7% of infant deaths. IMRs due to preterm-related causes were also higher in the Southeast and ranged from 142.6 in Montana to 570.8 in DC, but accounted for a greater percentage of infant deaths in the Northeast (Rhode Island 49.3%, Maryland 48.4%). States with higher rates of very PTB, not necessarily higher PTB rates, were closely associated with higher preterm-related IMRs ($r=.865$, $p<.01$).

CONCLUSIONS: Infant mortality attributed to PTB varies greatly by state and is closely correlated with the percentage of very PTB in each state.

PUBLIC HEALTH IMPLICATIONS: States need to examine preterm-related causes of infant death to fully understand the contribution of PTB to infant mortality and to help target resources and interventions to reduce infant mortality.

Concurrent Session C1

Symposium: Oral Health Status of Mothers and their Children

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INTRODUCTION TO THE TOPIC: Tooth decay is a growing, severe problem among low-income and minority preschool-aged children that is compounded by limited access to dental care. Simply increasing children's access to dental care through universal dental insurance may not reduce the in equalities in oral health. An alternative approach to solving this public health problem may exist through the links between mother and child access to dental care. Through regular dental care, mothers build positive dental knowledge, attitudes, and self-care practices, which may influence whether she takes her child to the dentist.

JUSTIFICATION FOR SYMPOSIUM: Children's access to dental care in the U.S., particularly by low-income children, remains a concern. Recent efforts to investigate and report on this issue include efforts by the GAO in 2008 and more recently, the convening of an expert panel by the Institutes of Medicine to study access to oral health care. Additionally, dental caries in young children appear to be increasing. Emerging research has shown that there is a strong relationship between the oral health status of mothers and that of their children and low-income children are more likely to utilize dental care if their mothers have a regular source of dental care.

SYMPOSIUM OBJECTIVES:

- Participants will be exposed to current information related to children's access to dental care with the intent to understand basic background issues affecting pediatric access to dental care.
- Participants will be provided with information describing the relationship between the oral health status of children and that of their mothers'.
- Participants will be informed on our current understanding on how a mother's regular source of dental care can impact their child's utilization of dental care and hear about examples of intervention programs.

Concurrent Session C2

Workshop: Women's and Infants' Health Data in the National Survey of Family Growth

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DESCRIPTION OF WORKSHOP: The National Survey of Family Growth (NSFG) has been a rich resource for data on women's and infant health (WIH) since 1973. In this workshop, NSFG staff will describe and illustrate opportunities for analysis of the NSFG, focusing on the newly released 2006-2008 public use data and topics most pertinent to MCH-EPI Conference participants.

From 1973 to 2002, the NSFG was a periodically conducted survey providing nationally representative estimates for the household U.S. population in the primary reproductive ages of 15-44. In June 2006, the NSFG moved to a new continuous design, intended to improve the survey's ability to respond to emerging data needs, while still controlling costs in an increasingly challenging environment for survey research. The first public use files from the Continuous NSFG survey were released in May 2010, based on interviews conducted June 2006 through December 2008. As in prior NSFGs, these in-person interviews were conducted by highly trained female interviewers. The 2006-2008 survey oversampled blacks, Hispanics, and teens. As in the 2002 survey, the 2006-2008 NSFG included an independent sample of males 15-44 in the survey, gathering information directly from men on topics that were often proxy-reported by women (such as intendedness of pregnancy, contraceptive use, and marriages). The response rate for women was 76% in the 2006-2008 NSFG, and the response rate for men was 73%.

In this workshop, we will provide a detailed overview of the NSFG's survey methodology and content, and then present selected findings from published reports as well as ongoing analysis projects. Participants will gain concrete understanding of how to make valid national estimates with the NSFG data and where to find all the necessary data and documentation tools. We will also describe how to obtain access to other NSFG data, including the Contextual (Geographic) Data Files and the ACASI Files.

JUSTIFICATION OF WORKSHOP: Many MCH-EPI conference participants are far less familiar with the NSFG than with other data systems such as PRAMS and vital statistics. Our experience from prior workshops tells us that the MCH-EPI audience appreciated learning more about the NSFG's research potential not only in the areas of women's and infant's health, but in the areas of family formation, sexual/reproductive health, and parenting. Given that the 2006-2008 NSFG data have just been released, we believe a new NSFG workshop would be well received at the 2010 Conference.

Every NSFG cycle has collected a complete pregnancy history from women, including pregnancy losses and induced abortions. The NSFG's full pregnancy history, in conjunction with rich socioeconomic and other background information collected in the survey provide unique analytic opportunities to examine women's overall pregnancy experience in the context of other fertility-related behaviors (e.g., contraceptive use, marriage/cohabitation, infertility services and other medical care, HIV/STD risk behaviors). The inclusion of an independent sample of males 15-44 in the 2002 and 2006-2008 NSFG further expanded opportunities for analysis related to the context in which men and women have children, as well as the circumstances under which children are born and raised in the U.S. Despite its limitations for small-area estimation, the NSFG provides a consistently high-quality set of nationally representative data that complement state and local data. We therefore offer this workshop as a means of bolstering awareness of the NSFG's potential uses in a broad range of research areas.

BIOGRAPHICAL SKETCH OF PRIMARY PRESENTERS: Anjani Chandra, Ph.D, a Health Scientist in the Reproductive Statistics Branch, Division of Vital Statistics, National Center for Health Statistics (NCHS), has worked with the National Survey of Family Growth team for nearly 20 years. In addition to helping to design the survey instruments and oversee data collection for the NSFG, she conducts research on the fertility and reproductive health of U.S. women. Her research interests also include family/social demography, perinatal health, and survey methodology. She holds a Ph.D. in demography, with a minor in epidemiology, from the Johns Hopkins University School of Public Health, Baltimore, Maryland.

Gladys Martinez, Ph.D., a Demographer in the Reproductive Statistics Branch, Division of Vital Statistics, National Center for Health Statistics (NCHS), has worked with the National Survey of Family Growth for 10 years. In addition to helping to design the survey instruments and oversee data collection for the NSFG, she conducts research on the fertility and reproductive health of U.S. women and men. Her research interests also include family demography, timing of first births, childlessness, and survey methodology. She holds a Ph.D. in Sociology with a specialty in Demography and Gender, Work, and Family from the University of Maryland, College Park, Maryland.

Concurrent Session C3

Antenatal Experiences in International Settings

FOLATE, IRON AND CALCIUM STATUS OF TEENAGE PREGNANT GIRLS ATTENDING ANC IN TWO HEALTH FACILITIES, IN BUNGOMA SOUTH DISTRICT, WESTERN KENYA

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BACKGROUND: Teenage pregnancy associated with significant nutritional, medical, and social risks is a public health issue globally. Teenage girls who become pregnant are most likely those with inadequate nutrient intake and poor socio-economic status. Nutritional anemia is a widespread risk affecting 50% of girls in developing countries. The unplanned nature of many teenage pregnancies with the increased need of micronutrients leads to preterm delivery, still birth and neonatal death.

STUDY QUESTIONS: What is the adequacy of iron, folate and calcium intake and what factors affect nutrient intake among pregnant teenage girls?

METHODS: A cross sectional study of 384 teenage pregnant girls attending the ANC at Bungoma District hospital and Bumula Health Centre were consecutively recruited. Teenage pregnant girls (13-19 years) attending clinic for first time were included and those who were mentally retarded were excluded from the study. Data was analyzed using SPSS version 12; nutrient calculator determined nutrient intake. Chi square test determined association between nutrient intake and categorical variables. Logistic regression was used to determine the factors that affect nutrient intake. All p-values less than 0.05 were considered statistically significant. Time and financial support were main limitations.

RESULTS: The nutrient intake of folate, iron and calcium were below the RDA. The prevalence of anemia was 61%. Teenage pregnant girls who reported food shortage were two times more likely to have inadequate Iron intake (OR: 2.103; 95 CI 1.225-3.608). Participants with Hookworm infestation were three times likely to have inadequate calcium intake (OR: 3.074; 95 CI 1.087 – 8.698). Teenage girls with malaria infection had 64.5% higher chances o f having inadequate folate intake (OR: 0.355; 95 CI 0.226 – 0.557)

CONCLUSIONS: The selected nutrients of folate, iron and calcium were below the RDA and the high prevalence of anemia in the study population could be attributed to food shortage, diet restrictions and parasitic infections.

PUBLIC HEALTH IMPLICATIONS: The antenatal care should include nutrition education, de-worming with correction and prevention of anemia. Community nutrition programs to be established (government and NGO) to create awareness on the importance of adequate nutrient intake in pregnancy.

Concurrent Session C3

Antenatal Experiences in International Settings

THE ASSOCIATION BETWEEN PREGNANCY-RELATED RISK FACTORS AND NATIVITY STATUS, BY RACE/ETHNICITY

Mark Canfield, PhD, Tunu Ramadhani, PhD, Marjorie Royle, Adolfo Correa, D. Kim Waller, Angela Scheuerle
Texas Department State Health Services, Texas Department of State Health Services, New Jersey Department of Health and Senior Services, Centers for Disease Control and Prevention, University of Texas Health Science Center at Houston, Tesserae Genetics, Dallas

BACKGROUND: Previous studies have reported the relationship between selected socio-demographic characteristics, periconceptional behavioral factors and maternal nativity (foreign- vs. U.S.-born). However the current study looks at a broader range of factors and their relationship with each combination of maternal nativity status and racial/ethnic group. These factors include pregnancy intention, pregnancy recognition, inter-pregnancy interval, gestational hypertension and diabetes, periconceptional folic acid supplementation, substance abuse, and binge drinking.

STUDY QUESTIONS: We examined the association of maternal nativity with selected socio-demographic characteristics, periconceptional behavioral factors and maternal health conditions, stratified by maternal race/ethnicity.

METHODS: We analyzed the National Birth Defects Prevention Study data for 6463 interviewed control mothers, with an expected delivery dates from October 1997 - December 2005. We used logistic regression to calculate odds ratios (OR) and 95% confidence intervals (CI), for the association of these factors with foreign-born mothers compared to their U.S.-born counterparts, stratified by non-Hispanic white, Hispanic, non-Hispanic black and Asian/Pacific Islander racial/ethnic categories.

RESULTS: Overall, foreign-born mothers were more likely to be older and less likely to be obese. With the exception of foreign-born black mothers, other racial/ethnic groups were less likely to binge drink. In contrast to foreign-born non-Hispanic white mothers, foreign-born mothers in other racial/ethnic groups were less likely to smoke than U.S. natives. However, foreign-born Non-Hispanic white were more likely to be nulliparous (OR for 2+ children=0.62, 95% CI=0.39 – 0.98). Foreign-born Hispanic mothers had significantly lower levels of household income (OR for $50,000+ = 0.35, 95% CI=0.22 - 0.55) and education, but they were twice as likely to have gestational diabetes (OR=2.23, 95% CI=1.36 – 3.66). Similarly, certain behaviors were less reported in foreign-born black mothers (e.g. periconceptional folic acid use, OR=0.54, 95% CI=0.31 – 0.96) and foreign-born Asian Pacific Islander mothers (e.g. smoking cigarettes (OR=0.10, 95% CI=0.02 – 0.48).

CONCLUSIONS: Despite our study examining periconceptional period behavioral characteristics, we found that foreign-born mothers exhibit some behaviors and health conditions that may tend to favor healthier pregnancy outcomes.

PUBLIC HEALTH IMPLICATIONS: The significant racial/ethnic and nativity differences for several of the factors studied, may help to target prevention efforts for specific nativity and racial/ethnic sub-groups.

Concurrent Session C3

Antenatal Experiences in International Settings

INTERMITTENT PREVENTIVE TREATMENT WITH SULFADOXINE-PYRIMETHAMINE IN PREVENTING MALARIA AND ANEMIA IN PREGNANCY AMONG WOMEN VISITING KORLE-BU TEACHING HOSPITAL, ACCRA, GHANA

Nana Wilson, BSc, MPH, Fatou Ceesay, BSc, MPH, Cheryl Jones, PhD, MPH, MBA, Yassa Ndjakani, MD, MPH, Naomi Lucchi, PhD, Jonathan Stiles, PhD
Morehouse School of Medicine

BACKGROUND: Malaria and anemia takes a great toll on women in sub-Saharan Africa in terms of maternal morbidity and adverse birth outcomes. Intermittent preventive treatment during pregnancy with sulfadoxine-pyrimethamine (IPTp-SP) is currently recommended for prevention of malaria in pregnancy in endemic areas. However, the effectiveness of this approach in preventing malaria and anemia during pregnancy is unclear.

STUDY QUESTIONS: The objective of the study was to evaluate the effectiveness of IPTp-SP in preventing malaria and anemia among pregnant women attending antenatal clinic (ANC) at Korle-Bu Teaching Hospital (KBTH) in Accra, Ghana.

METHODS: A cross-sectional study comparing malaria and anemia incidence among pregnant women using IPTp-SP with non-IPTp-SP users was conducted. A total of 363 pregnant women were recruited of which 202 were users of IPTp and 161 were IPTp non-users. Malaria parasites and hemoglobin levels were determined.

RESULTS: Thirty-one (15.3%) women using IPTp had malaria compared to 72 (44.7%) of women who did not use IPTp, $p < 0.001$. The number of anemic women not utilizing IPTp was significantly higher (58.4%, 94/161) than women using IPTp (22.8%, 46/202), $p < 0.001$. Controlling for age and other variables, the difference in the incidence of malaria (odds ratio (OR) = 0.26, 95% confidence interval (CI) = 0.15 – 0.44, $p < 0.001$) and anemia (OR = 0.19, 95% CI = 0.11 – 0.34, $p < 0.001$) remained significant.

CONCLUSIONS: Regardless of reported resistance to SP for malaria treatment, the IPTp-SP regime is effective in preventing malaria and anemia among pregnant women visiting ANC at KBTH. The implementation of the IPTp-SP strategy holds great promise for reducing the burden of malaria and anemia in pregnancy in Ghana.

PUBLIC HEALTH IMPLICATIONS: These findings provide an evidenced-based template on which policymakers and health workers may develop interventions to reduce maternal mortality due to malaria and anemia in pregnancy.

Concurrent Session C3

Antenatal Experiences in International Settings

ASSOCIATION BETWEEN MATERNAL PREPREGNANCY BODY MASS INDEX AND ADVERSE PREGNANCY OUTCOMES IN A POPULATION OF CHINESE WOMEN

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BACKGROUND: Definitions of maternal obesity are based on Europid populations, and may not be appropriate for women of Chinese origin, as they are typically shorter and gain less weight in pregnancy. Studies that have examined the association between maternal obesity and obstetric outcomes in Chinese women are limited to small urban samples.

STUDY QUESTIONS: What is the magnitude and direction of the association between prepregnancy Body Mass Index (BMI) and cesarean delivery (CD), low birth weight (LBW) (birth weight <2500g), and macrosomia (birth weight =4000g)?

METHODS: All pregnant women from 21 city/counties in three provinces in China, one Northern (Hebei) and two Southern (Zhejiang and Jiangsu), registered with a perinatal health system. We restricted analysis to Han Chinese women aged 15-46 years, who registered from October 1, 1993 to September 30, 1995 and delivered a singleton infant by December 31, 1996 with prepregnancy BMI measured =1 year before becoming pregnant (N=60,556). Multivariable logistic regression assessed the association between deciles of BMI (1st decile as referent) and CD, LBW and macrosomia. Models were adjusted for parity, gestational age, infant sex, region, maternal age, education and occupation.

RESULTS: The risk of CD and macrosomia did not increase with BMI until the 8th decile, BMI=21.2 kg/m2. Odds Ratio (OR) for CD in the 2nd decile was 0.99 (CI: 0.91-1.09) vs. 1.11 (CI: 1.01-1.21) in the 8th decile and 1.52 (CI: 1.38-1.66) in the 10th decile. Equivalent ORs for macrosomia were 1.17 (0.96-1.42), 2.02 (1.70-2.41) and 2.93 (2.46-3.48), respectively. The risk of LBW decreased from 0.87 (CI: 0.68-1.11) in the 2nd decile to 0.49 (CI: 0.38-0.59) in the 8th decile. Above the 8th decile the OR for LBW increased to 0.55 (CI 0.42-0.72) in the 9th decile and 0.61(0.45-0.81) in the 10th decile.

CONCLUSIONS: This large population-based study of Chinese women suggests a lower BMI threshold of 21.2 kg/m2, rather than 23 kg/m2, as suggested by the WHO. BMI above the 8th decile may be associated with increased risk of CD, macrosomia and LBW.

PUBLIC HEALTH IMPLICATIONS: Existing BMI thresholds for Chinese women and risk of CD, macrosomia and LBW may be too high.

Concurrent Session C4

Prenatal Care and Child Cardiovascular Outcomes

IDENTIFICATION BIRTH DEFECTS IN MICHIGAN INFANTS WITH SICKLE CELL DISEASE AND SICKLE CELL TRAIT: MICHIGAN NBS AND MBDR DATA, 2004 – 2006

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BACKGROUND: Little research has been done to assess anomalies associated with sickle cell disease (SCD) or sickle cell trait (SCT). Michigan has been screening for sickle cell since 1987, and SCD cases are reported to the Michigan Birth Defects Registry (MBDR). Thus far, we have never used data from both newborn screening (NBS) records and MBDR for validation and quality improvement purposes or to conduct a comprehensive health status assessment of this population.

STUDY QUESTIONS: How many children with SCD or SCT are missing or misclassified in MDBR compared to NBS records? What birth defects are reported in children with SCD or SCT?

METHODS: NBS records for infants with SCD or SCT born from 2004-2006 were linked to MBDR using the birth certificate number from live birth records as a common identifier, as both data sources are routinely linked to live birth records. The final linked file was used to identify missing or misclassified SCD or SCT cases in MBDR and to determine the frequency and type of birth defects reported in those with these conditions.

RESULTS: In total, 174 of SCD and 8418 SCT cases were linked to live birth records. Of linked SCD cases, about 6% (n=10) were not in MBDR. Of SCT cases, 0.5% (n=46) were misclassified in MBDR as SCD. Among linked NBS-MDBR cases, 18% (29/165) of SCD cases and 13% (1073/8148) of SCT cases had birth defects. For SCD, most birth defects involved the gastrointestinal and circulatory systems (23% and 20% of the total number of defects, respectively). For SCT, most birth defects involved the circulatory and musculoskeletal systems (21% and 17% of the total number of defects, respectively).

CONCLUSIONS: The linkage identified a few reporting issues between the NBS Follow-up Program and the MBDR. The most common birth defects in those with SCD or SCT involved the gastrointestinal, circulatory, and musculoskeletal systems.

PUBLIC HEALTH IMPLICATIONS: Through identification of missing and misclassified cases, the NBS-MBDR linkage can help improve program efforts in reporting and follow-up processes. Additional research is needed to expand knowledge of birth defects associated with SCD and SCT and may have implications for future studies.

Concurrent Session C4

Prenatal Care and Child Cardiovascular Outcomes

THE ASSOCIATION BETWEEN MATERNAL INTAKE OF VITAMIN E AND SELECTED CONGENITAL HEART DEFECTS (CHDS), NATIONAL BIRTH DEFECTS PREVENTION STUDY (NBDPS), 1997 – 2005

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BACKGROUND: Congenital heart defects (CHDs), are relatively common birth defects (8-10 per 1,000) and a leading cause of infant mortality due to birth defects. In the United States, use of supplements with vitamin E has increased. Recently, Smedts 2009, found high maternal periconceptional intake of vitamin E from foods and supplements was associated with up to a nine-fold increased risk of CHDs.

STUDY QUESTIONS: Is vitamin E intake associated with selected CHDs?

METHODS: We used data from NBDPS, a multicenter case-control study of risk factors for birth defects, which includes a food frequency questionnaire to assess nutrient intakes from consumption of foods in the year before pregnancy. Questions about supplement use during pregnancy were used to estimate the intake of supplements with vitamin E from the three months before pregnancy through the first two months of pregnancy (B3-P2). We included simple isolated CHDs with 100 or more case infants (n=4,889) and 6,553 controls (live born infants without birth defects). Adjusting for maternal age, race/ethnicity, education, body mass index, smoking, alcohol use, and total energy and fat intakes, we used multiple logistic regression to estimate the associations between dietary and supplemental vitamin E intake and CHDs.

RESULTS: Use of supplements with vitamin E was not associated with all selected CHD combined, but was associated with hypoplastic left heart syndrome (aOR 1.70 [95% CI, 1.2-2.4]) and coarctation of the aorta (CoA) (1.53, [1.1-2.1]). Compared to the lowest quartile of vitamin E intake, dietary intake in the third and fourth quartiles was inversely associated with all selected CHD combined (0.85 [0.76-0.95] and 0.77 [0.68-0.89], respectively). In addition, significantly decreased aORs were found for all right ventricular outflow tract obstruction defects combined, atrial and muscular ventricular septal defects whereas an increased aOR was found for CoA.

CONCLUSIONS: Higher reported dietary intake of vitamin E may be associated with reduced risk for all selected CHDs combined and for several subtypes, whereas use of supplements with vitamin E may be associated with slightly increased risks for some types of CHD.

PUBLIC HEALTH IMPLICATIONS: Our study does not support previous findings of high CHD risk with vitamin E intake.

Concurrent Session C4

Prenatal Care and Child Cardiovascular Outcomes

RACIAL/ETHNIC DIFFERENCES IN EARLY CHILDHOOD MORTALITY AMONG INFANTS WITH CONGENITAL HEART DEFECTS, TEXAS, 1996 – 2003

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BACKGROUND: Infants with congenital heart defects (CHD), the most frequent of all birth defects, have increased risk of childhood morbidity and mortality. However, little is known about racial/ethnic differences in early childhood mortality among infants born with CHDs.

STUDY QUESTIONS: Does the risk of early childhood mortality vary by race/ethnicity among children in Texas with specific types of CHDs?

METHODS: We conducted a retrospective cohort study with data from the Texas Birth Defect Registry (TBDR) on 23,710 singleton, live-born infants diagnosed with a CHD and born between January 1, 1996 and December 31, 2003 to non-Hispanic (NH)-white, NH-black, or Hispanic women aged 15-49. TBDR data were linked to Texas death records and the National Death Index to ascertain deaths from January 1, 1996 until December 31, 2005. Information on medical, pregnancy, and socio-demographic factors was collected by the registry from birth certificates and facility medical records. Kaplan-Meier survival estimates were computed and hazard ratios (HR) and 95% confidence intervals (CI) were calculated from multivariable Cox-proportional hazard regression models to determine the effect of maternal race/ethnicity on mortality for each type of CHD. We adjusted for the potential effects of maternal age, education, residence at time of delivery, infant sex, number of defects, and gestational age-birth weight combinations.

RESULTS: After adjusting for covariates, compared to NH-Whites, NH-Blacks had higher mortality risk in the first five-years of life for d-transposition of the great arteries (HRa=2.10; 95% CI: 1.44, 3.04), tetralogy of Fallot (HRa=1.86; 95% CI: 1.04, 3.31), pulmonary valve atresia/stenosis (HRa=1.58; 95% CI: 1.03, 2.43), ventricular septal defect (HRa=1.57; 95% CI: 1.22, 2.03) and atrial septal defect (HRa=1.35; 95% CI: 1.09, 1.67). Hispanics had higher mortality risk for pulmonary valve atresia/stenosis (HRa=1.44, 95% CI: 1.03, 2.01) and hypoplastic left heart syndrome (HRa=1.41; 95% CI: 1.07, 1.87) compared to NH-Whites.

CONCLUSIONS: We provide initial evidence for racial/ethnic disparities in early childhood mortality among infants with CHD; but the etiology of these differences is unknown.

PUBLIC HEALTH IMPLICATIONS: Identifying infants with the greatest risk of early childhood mortality is critical for developing clinical processes, medical interventions and public health policies to mitigate these risks.

Concurrent Session C4

Prenatal Care and Child Cardiovascular Outcomes

RACIAL DISPARITIES IN INFANT MORTALITY ATTRIBUTABLE TO BIRTH DEFECTS BY PRETERM BIRTH STATUS — UNITED STATES, 2003 – 2006

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BACKGROUND: Birth defects are a leading cause of infant mortality in the United States. Reports using data through 2002 have highlighted disparities in overall infant mortality and infant mortality attributable to birth defects (IMBD) between non-Hispanic black and non-Hispanic white infants. Black-white disparities in preterm birth have also been reported, and rates of preterm birth have steadily increased in recent years.

STUDY QUESTIONS: Does preterm birth status impact the black-white disparity in IMBD in the United States?

METHODS: We estimated the rate of IMBD (using ICD-10 codes indicating a birth defect as the underlying cause of death) using the period linked birth/infant death data for US residents for January 2003 to December 2006. We excluded infants with missing gestational age, implausible values based on Alexander's index for birth weight for gestational age norms, or gestational ages <20 weeks or >44 weeks; we categorized gestational age into three groups: 20-33; 34-36; and 37-44 weeks. Using Poisson regression, we compared IMBD rates for non-Hispanic black infants with that for non-Hispanic white infants overall and stratified by the three gestational age categories. For all comparisons, numerators were weighted to equal the sum of the linked plus unlinked infant deaths by age at death and state of residence.

RESULTS: IMBD occurred in 1.4 per 1,000 live births. We found that 1) the overall black-white disparity in IMBD has not narrowed; 2) among term infants (born =37 weeks gestation), blacks had significantly higher IMBD than whites; but 3) there was no significant racial difference in IMBD among early or late preterm infants (born <34 or 34–36 weeks gestation, respectively).

CONCLUSIONS: Based on this analysis, the racial disparity in IMBD cannot be explained by differences in preterm birth.

PUBLIC HEALTH IMPLICATIONS: Although the IMBD rate is decreasing over time, the reasons why term white infants with birth defects fare better than term black infants with birth defects are unclear and will only be understood through further investigation, which should include an assessment of differential access to prenatal care and/or prenatal ascertainment of birth defects.

Concurrent Session C5

Oops…We Did It Again! Reducing Repeat and Intergenerational Teen Pregnancy

EFFECTIVENESS OF THE FEDERAL HEALTHY START PROJECT IN REDUCING PRIMARY AND REPEAT TEEN PREGNANCIES: OUR EXPERIENCE OVER THE DECADE

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BACKGROUND: Primary and repeat teen pregnancy are associated with adverse consequences for both the mother and her child. An important goal of the Federal Healthy Start initiative is to reduce maternal-infant morbidity and mortality as well as to the health and well-being of the mother and her child leading to a healthier community. The impact of the Healthy Start Program on first-time and repeat teen pregnancy rate reduction remains, however, poorly known. This study evaluates the effectiveness of the Federal Healthy Start pre-conception and inter-conception program in reducing teen pregnancies in a socio-economically challenged setting.

STUDY QUESTIONS: What is the impact of Federal Healthy Start program on 1) reduction in first-time teen pregnancies, 2) black-white disparities in the occurrence of first time teen pregnancy; 3) reduction in repeat teen pregnancy; and 4) black-white disparities in repeat teen pregnancy?

METHODS: Data was obtained from the Florida Vital Statistics Files covering the period 1998-2007. Rates of first-time teen pregnancy was based on the proportion of all live births to teenagers while repeat pregnancy was defined as the occurrence of a second pregnancy to a teenager within the period of study, using all first-time teen pregnancy as denominator. To assess effectiveness of the pre-conception/inter-conception services in reducing first-time and repeat teen pregnancy, we compared trends in live births among teenagers in the target community using two ecological control groups: (1) The rest of Hillsborough County (the county where the target community is located) and (2) The rest of the state of Florida. Within the target community, we also assessed differential impact of race on program outcomes over time.

RESULTS: The decline in primary teen pregnancy in the catchment area was 60% and 80% greater than the reduction experienced at the county level and at the state level respectively over the period of the study. However, the intervention did not prevent repeat pregnancy in the target community.

CONCLUSIONS: In a disadvantaged community, the Federal Healthy Start Pre-conception Care program prevents first-time teen pregnancy.

PUBLIC HEALTH IMPLICATIONS: Federal Healthy Start pre-conception care program has potential to be scaled-up and to target other disadvantaged communities.

Concurrent Session C5

Oops…We Did It Again! Reducing Repeat and Intergenerational Teen Pregnancy

ASSESSMENT OF FACTORS CONTRIBUTING TO REPEAT TEEN PREGNANCY

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BACKGROUND: Reduction of teen pregnancy has been the focus of state programs, national initiatives, and remains a Healthy People 2020 objective. Though the teen pregnancy rate has declined significantly since 1990, the rate of decline has slowed in the past three years.

STUDY QUESTIONS: In Virginia, what is the prevalence of repeat teen pregnancy (RTP), and do the characteristics of teens who repeat rapidly differ from delayed repeaters when compared to non-repeaters?

METHODS: Using a cross-sectional technique, RTP prevalence and trends were examined in Virginia. Using a cohort of linked Virginia resident birth and fetal death records, teens with a repeat event were compared to those with only one pregnancy in their teens. Linked data was used to assess repeat pregnancies among teens ages 10 to 17 in 1995-1997 to allow for 10 years (2005-07) of follow-up. Rapid repeat was defined as conception of a repeat teen fetal death or birth within 6 months of a fetal death or birth; delayed repeaters were after 6 months.

RESULTS: In 2008, 26.1% of teen pregnancies were repeat events. In adjusted analysis of linked data, teens with increased odds of a repeat event within 6 months were aged 16-17 years, OR=1.93 (1.45, 2.57), had a fetal death as first event, OR=9.52 (1.78, 77.07), were non-Hispanic Black, OR=1.64 (1.32, 2.04), were on Medicaid, OR=1.49 (1.18,1.88) and used tobacco, OR=1.47 (1.09,1.98) compared to teens with no repeat events. Fetal death as first event and tobacco use were not associated with repeat events that occurred after 6 months, but delayed repeaters had greater odds of attaining less education than expected, OR=1.26 (1.11, 1.44).

CONCLUSIONS: Age group, race/ethnicity, and insurance status were associated with all repeat teen events regardless of timing. There were differences between rapid and delayed repeaters in tobacco use, first event type, and educational attainment. Tobacco use and attaining less education than expected may be related to engagement in risky sexual behaviors.

PUBLIC HEALTH IMPLICATIONS: In Virginia, teens who have a fetal death as their first teen event may be a good target group for programs aimed at rapid repeat prevention.

Concurrent Session C5

Oops…We Did It Again! Reducing Repeat and Intergenerational Teen Pregnancy

LIKE MOTHER, LIKE DAUGHTER: THE INTERGENERATIONAL CYCLE OF TEEN MOTHERHOOD IN THE CONTEXT OF RACE AND LIFELONG NEIGHBORHOOD ECONOMIC ENVIRONMENT

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BACKGROUND: The U.S. has the highest teen birth rate of any country in the industrialized world. Teen motherhood has long-term consequences for the mother, including lower educational attainment, economic instability and psychosocial difficulties, and may result in problematic parent-child interactions.

STUDY QUESTIONS: Does the intergenerational cycle of teen birth differ by race? Does lifelong neighborhood economic context moderate or mediate this relationship?

METHODS: The Illinois transgenerational birth file was used, with census income values appended as a measure of neighborhood economic context in each generation. This study focused on vital statistics data for primiparous mothers who lived in Cook County when they delivered between 1989 and 1991 (n=11,047 non-Hispanic African-Americans, 10,802 non-Hispanic whites) and linked data for their mothers, who were born from 1956-1976 in Chicago. Race-specific multilevel logistic regression models were used to examine the effect that teen motherhood has on teen birth in the subsequent generation, while accounting for lifelong neighborhood economic context, first as an effect modifier and then as a mediator of this relationship.

RESULTS: Fifty-three percent of African-American and 9.5% of white women delivering from 1989-1991 were teenagers. The association between teen birth across generations differed in magnitude by race, with teen African-American and white mothers having 2.3 (95% CI = 2.1, 2.5) and 3.8 (95% CI = 3.1, 4.5) times the odds, respectively, of having daughters who would become teen mothers themselves. This relationship persisted when lifelong neighborhood economic context was added to the models. Upwardly mobile women had significantly reduced odds of teen birth compared to those experiencing lifelong non-poverty (OR=0.3, 95% CI = 0.2, 0.4 among African-Americans and OR = 0.2, 95% CI = 0.1, 0.3 among whites).

CONCLUSIONS: Daughters of teen mothers are significantly more likely to be teen mothers themselves than daughters of non-teen mothers. This relationship exists regardless of race or lifelong neighborhood economic context, which are independent predictors of teen birth. Upward mobility is associated with lower rates of teen birth.

PUBLIC HEALTH IMPLICATIONS: Educational and economic opportunities should be made available to young women to help break the intergenerational cycle of teen motherhood, especially for African-Americans who bear a majority of the burden of teen births.

Concurrent Session C6

The "3 M's" in MCH: Maternal Morbidity and Mortality

ESTIMATING THE PREVALENCE OF GESTATIONAL DIABETES MELLITUS (GDM) IN SOUTH CAROLINA

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BACKGROUND: Current knowledge about the prevalence of GDM at the population level primarily relies on information from birth certificates (BC) and hospital discharge (HD) data. Few studies have used insurance billing data to improve case ascertainment.

STUDY QUESTIONS: To estimate the prevalence of GDM among Medicaid recipients in South Carolina from 2004 to 2006 using outpatient claims (OC) data in addition to BC and HD data.

METHODS: Since 2004, reporting of GDM was added to South Carolina BC. In HD and OC data, GDM was defined using ICD-9 code 648.8. Sample was limited to observations with BC data, Medicaid and HD data during pregnancy. Prevalence of GDM from each or a combination of these sources was calculated. A "gold standard" was created by combining GDM status from the three data sources. To reduce the number of false positive GDM cases, Diabetes Mellitus (DM) diagnosis (ICD-9 code 250.0-.9) for the year before pregnancy and during pregnancy from HD and OC data were used. We calculated measures of agreement, sensitivity, and specificity for GDM using each or a combination of the data sources compared to the "gold standard".

RESULTS: 55.8% of births were born to Medicaid recipients (N=82,465). The prevalence of GDM in this population was 4.4, 4.3, and 10.1% when using BC, HD, and OC data, respectively. When BC and HD data were combined, the prevalence of GDM was 6.1%. Combining all three data sources produced a prevalence of 11.5%. After considering DM information from during and before pregnancy, the estimate for the prevalence of GDM was 8.4%. BC and HD data combined had a sensitivity of 44.5%, specificity of 97.4%, and kappa statistic of 46.9%. OC data had a sensitivity of 86%, specificity of 96.9%, and kappa statistic of 75.9%.

CONCLUSIONS: Adding information from OC may provide a more accurate estimate of the burden of GDM. Validation of this technique using medical records would be an important next step.

PUBLIC HEALTH IMPLICATIONS: Using BC, HD, and OC data may provide a more accurate estimate of the burden of GDM and result in more appropriate allocation of funds for preventive measures.

Concurrent Session C6

The "3 M's" in MCH: Maternal Morbidity and Mortality

ASIAN AND PACIFIC ISLANDER RACE SUBGROUPS HAVE ELEVATED RISK OF BLOOD GLUCOSE OR DIABETES OCCURRING DURING A PREGNANCY, HAWAII PRAMS 2004 – 2008

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BACKGROUND: Type I, Type 2 and gestational diabetes are medical conditions that increase risk for complications for mother and infant. An abnormal initial glucose screen during pregnancy and an actual diagnosis of gestational diabetes both increase the future risk for diabetes.

STUDY QUESTIONS: What is the burden of elevated blood glucose or diabetes among women having a live birth and does it vary by maternal characteristics in the State of Hawaii?

METHODS: Data from the Hawaii Pregnancy Risk Assessment and Monitoring System (PRAMS), a population-based surveillance system on maternal behaviors and experiences before, during and after a live birth was analyzed for 2004-2008 for 8,412 mothers. Elevated blood glucose or diabetes was calculated as a composite variable based on data from the PRAMS survey ["High blood sugar (diabetes) that started before this pregnancy" or "High blood sugar (diabetes) that started during the pregnancy"] and the birth certificate [diabetes] to identify all those with diabetes or those at higher risk for developing future diabetes. We used multivariable logistic regression analysis to examine the association between elevated blood glucose or diabetes and maternal race/ethnicity while accounting for body mass index(BMI) and socio-demographic characteristics.

RESULTS: The overall estimate of elevated blood glucose or diabetes was 13.1% (95%CI=12.4-13.8%) with whites (8.2%; 95%CI=7.0-9.5%) having the lowest estimate. "Other Asian" (17.8%; 95%CI=12.6-24.6%), Chinese (16.5%; 95%CI=14.5-18.6%), Filipino (16.0%; 95%CI=14.5-17.7%), Korean (15.8%; 95%CI=13.0-19.1%), Samoan (14.8%; 95%CI=10.8-19.9%), "Other Pacific Islander" (14.8%; 95%CI=11.6-18.8%), and Hawaiian (13.7%; 95%CI=12.3-15.3%) mothers had high estimates. After controlling for BMI, maternal age, education, and health insurance, the racial/ethnic differences in elevated blood glucose or diabetes persisted in "Other Asian" (aOR=2.7; 95%CI=1.6-4.3), Chinese (aOR=2.4, 95%CI=1.9-3.1), Filipino (aOR=2.2; 95%CI=1.7-2.7), Korean (aOR=2.1; 95%CI=1.5-2.8), Japanese (aOR=1.8; 95%CI=1.4-2.3), Hawaiian (aOR=1.8; 95%CI=1.4-2.2), and "Other Pacific Islander" (aOR=1.8; 95%CI=1.3-2.7) compared to white mothers. The addition of BMI to the model accounted for the higher risk among Samoan mothers.

CONCLUSIONS: Elevated blood glucose or diabetes occurs in just over 13% of mothers including most Asian and Pacific Islander subgroups. The PRAMS survey does not allow differentiation between high blood sugar, gestational diabetes, and diabetes Type I or 2.

PUBLIC HEALTH IMPLICATIONS: Providers should be aware of the burden, continue to screen and provide treatment during pregnancy, and ensure appropriate follow up post-partum.

Concurrent Session C6

The "3 M's" in MCH: Maternal Morbidity and Mortality

DID PRENATAL CARE REDUCE LGA OUTCOMES AMONG WOMEN WITH GESTATIONAL DIABETES?

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BACKGROUND: The presence of gestational diabetes during pregnancy can create an intrauterine environment of hyperglycemia exposing the infant to higher concentrations of glucose than normal. This environment forces the fetus to increase insulin production in response to the mother's elevated blood glucose levels potentially resulting in a fetus growing at a rate above what should be expected for a given gestational age. One primary benefit of prenatal care is the ability to detect and manage GDM, and potentially mitigating adverse outcomes associated with the condition.

STUDY QUESTIONS: We examined differences in the impact of prenatal care on LGA outcomes by gestational diabetes status among retrospective cohort of singleton live births to South Carolina women (2004-2007).

METHODS: Analysis was limited to women of whom both birth certificate and hospital discharge data are available (n=184,085). Women with GDM identified on the birth certificate or though hospital discharge records were considered as having GDM. Bi-variate analysis of categorical variables was conducted using the chi-square test for independence. Multivariable logistic regression was performed and included an interaction term for GDM status and adequacy of prenatal care.

RESULTS: Overall, 6.9% of women in the cohort were identified as having GDM. At all levels of prenatal care, the proportion of LGA outcomes among women with GDM was higher than among women without GDM (Inadequate 12.8% vs. 5.0%, p<.01; Intermediate/Adequate 11.7% vs. 7.2%, p<.01; Adequate Plus 13.3% vs. 6.4% p<.01). Adjusted analysis found women with GDM were more likely to experience LGA outcomes than a reference population, regardless of the level of prenatal care. However, as prenatal care improved from Inadequate to Intermediate/Adequate, the magnitude of the association was reduced (Inadequate OR=2.11, CI=1.82-2.44 vs. Intermediate/Adequate OR=1.52, CI=1.35-1.71).

CONCLUSIONS: Although higher levels prenatal care did not completely negate the increased likelihood of experiencing an LGA outcome among women with GDM, it does appear to reduce the likelihood of LGA outcomes when compared to the reference population.

PUBLIC HEALTH IMPLICATIONS: Improving the adequacy of prenatal care could have a demonstrable impact in reducing excessive fetal growth outcomes among women with GDM.

Concurrent Session C6

The "3 M's" in MCH: Maternal Morbidity and Mortality

QUANTITATIVE ASSESSMENT OF MATERNAL MORBIDITY

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BACKGROUND: The spectrum of maternal morbidity (normal to severe to death) can be evaluated to improve quality of care. Development of a useful index for hospitals and health officials could provide data for patient safety and performance improvement initiatives. Assessment of maternal morbidity is hindered by the lack of reliable data sources.

STUDY QUESTIONS: The objective of this study is to develop a scoring system to assess the spectrum of maternal morbidity using a hospital database rather than ICD9 codes.

METHODS: Cases of preeclampsia were selected from a database of deliveries between June 1997-Deceember 2006. Preeclampsia was defined as hypertension with proteinuria by ACOG criteria. Eclampsia, HELLP, superimposed preeclampsia and severe preeclampsia were considered severe. Chronic hypertension was excluded. The scoring system of Geller et al (Am J Ob Gyn 2004;191:939-44) was modified using variables: blood transfusion > 3 units, surgical intervention other than cesarean or tubal ligation, and length of stay > 8 days. Each was scored 3, 2, and 1, respectively. Total possible score was 6. Severe morbidity was defined as score > 3. Statistical analysis used chi square test; 0.05 was significant.

RESULTS: 1852 cases of preeclampsia were analyzed (6.2% of all delivering mothers); 202 (10.9%) had some morbidity; 159 with score < 2, 38 score > 3, and 5 maternal deaths. Severe preeclampsia ($p<0.04$), age < 35 ($p<0.03$), abruption and coagulopathy ($p<0.00$) were associated with score > 3 compared to < 2. No other significant factors (hemorrhage, cesarean, diabetes, preterm delivery, multiples, race) were seen.

CONCLUSIONS: Quantitative scoring of maternal morbidity in preeclampsia found disease complications and age associated with severe morbidity.

PUBLIC HEALTH IMPLICATIONS: The development of a quantitative score for maternal morbidity can guide efforts to improve patient safety. The accuracy of ICD9 codes has been shown to be limited. We analyzed a hospital database. In this preliminary report, we have not yet reviewed the medical records to include provider factors, a critical component for patient safety improvement. While most hospitals do not have databases, they can use these variables to review charts. With increasing use of EMRs, variables can be extracted for additional review to develop performance improvement initiatives.

Concurrent Session C6

The "3 M's" in MCH: Maternal Morbidity and Mortality

RELATIONSHIP OF MATERNAL LIFE STRESS ON IMMUNIZATION RATES AMONG INFANTS IN A LOW-INCOME SAMPLE

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BACKGROUND: Maternal stress and depression have been associated with a lower likelihood of routine preventative health practices but increased health care usage. In addition, infants of depressed mothers are less likely to have up-to-date immunizations. Under-vaccination has also been associated with non-white race, low socioeconomic status, and inadequate health care.

STUDY QUESTIONS: Do maternal life stress and depression affect the likelihood that a child will be fully immunized at 12 months among a sample of Medicaid-eligible mothers?

METHODS: Our sample consisted of 297 mothers with complete data at the 12-month assessment of the Legacy for Children(tm) intervention, a multisite randomized controlled trial of a group-based parenting intervention with Medicaid-eligible mothers (58% black, 21% Hispanic, 21% other). Infants were classified as fully immunized if their mother reported compliance with the Advisory Committee on Immunization Practices' 2002 recommended childhood immunization schedule. Maternal life stress was assessed using the Parenting Stress Index Life Stress checklist, with mothers endorsing more than the sample median of three stressful events in the last year categorized as high stress. Maternal depression was assessed with the Composite International Diagnostic Interview (CIDI) Major Depression Module. Univariate comparisons were examined using the chi-squared test, and a logistic model was used to test the association after controlling for intervention group, site, maternal age, race/ethnicity, education, income, maternal depression, and having a usual source of health care.

RESULTS: Mothers who reported high life stress were less likely to have fully vaccinated infants at 12 months than those with lower stress (42.5% vs. 58.9%, p=0.005). This association remained significant after controlling for intervention, demographic factors and maternal depression (adjusted OR = 0.58, 95% CI: 0.35-0.97) and was not associated with having a usual source of care.

CONCLUSIONS: Low-income mothers in our sample experiencing multiple life stressors are less likely to fully immunize their children, even after adjusting for maternal depression and having a usual source of care.

PUBLIC HEALTH IMPLICATIONS: Maternal mental health may be an important component of interventions seeking to increase rates of immunization among low-income families and should be addressed as part of a comprehensive system of pediatric preventative care.

Concurrent Session D1

Obstetric Interventions and Complications During Delivery

VARIATION IN CESAREAN DELIVERY RATES AMONG MASSACHUSETTS HOSPITALS, 2004 – 2006

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BACKGROUND: The rate of cesarean deliveries (c-delivery) varies substantially across hospitals. However, the extent to which hospital-level variation is attributable to hospital versus maternal characteristics is unknown.

STUDY QUESTIONS: 1) Is there variation in c-delivery rates among low risk women across hospitals? 2) Is there variation in c-delivery rates for women with preexisting conditions and/or labor and delivery complications?

METHODS: Massachusetts birth-certificates (BC) and fetal-death (FD) reports were linked to hospital-discharge (HD) data for singleton, term (>36wks), vertex infants with no birth defects, born during 2004-2006 to Massachusetts-resident women with no prior-cesarean. A total 156,830 deliveries occurring at 49 Massachusetts birthing hospitals were included. For each preexisting risk-factor (PRF) and labor-delivery complication (LDC), prevalence, c-delivery rate and Kappa statistic were calculated. Twelve selected conditions: 4-PRFs and 8-LDCs were used to identify risk for c-delivery. The No-documented-risk (NDR) group (N=93,585) included women with none of the 12 selected conditions reported on BC/FD and HD. The Any-risk group (N=63,245) included women with at least 1 of these selected conditions. Variation of c-delivery rates across hospitals was compared for both risk group and for each group stratified by level of hospital neonatal/maternal services (levels I-III).

RESULTS: Significant variation in c-delivery rates was observed across the 49 hospitals. Variation persisted even among the women with NDR. Larger hospital variation in rates was observed among women with Any-risk (s2=121.4) than those with NDR (s2=2.2). C-delivery rates varied more among Level-I and Level-II than Level-III hospitals for both women with NDR and those with Any-risk.

CONCLUSIONS: C-delivery rates varied significantly across Massachusetts hospitals for all risk groups, and this variation was larger among hospitals with lower level maternal/neonatal services (Level I and II). Additional hospital-specific characteristics need to be explored in association with differences in c-delivery rates.

PUBLIC HEALTH IMPLICATIONS: These results suggest an association between hospital level factors and c-delivery rates. Strategies to reduce unnecessary variation in c-delivery rates should include the dissemination of hospital-specific results, addressing hospital characteristics, practices, and policies.

Concurrent Session D1

Obstetric Interventions and Complications During Delivery

FACTORS ASSOCIATED WITH HIGH AND LOW HOSPITAL RATES OF LATE PRETERM AND PRIMARY CESAREAN DELIVERY AMONG SINGLETON LIVE BIRTHS, FLORIDA, 2006 – 07

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BACKGROUND: In 2006-07, primary cesarean rates among late preterm singleton live births (PCLPSB) varied by Florida hospitals from 11.8% to 58.3%. A statewide study group did not understand the cause of this large hospital variation.

STUDY QUESTIONS: What hospital and clinical factors are associated with hospitals having a high and low PCLPSB rate?

METHODS: Delivery records from 16 hospitals were abstracted by obstetrical nurse abstractors based on PCLPSB reporting from 2006 and 2007 Florida birth certificates. Study hospitals had to have 60 or more such deliveries and more than 2,000 total live births. Eight hospitals with the highest and lowest PCLPSB rates were selected. The study included only singleton primary cesarean live births according to the medical records (n=1,055). Chi square and Fisher's exact were used to test differences in proportions. Only statistically significant findings are provided ($p<0.05$). Statistical weighting was not required.

RESULTS: Compared with low rate hospitals, high rate hospitals were less likely to have an obstetrical residency program (0 versus 4 hospitals), frequently use nurse midwives (1 versus 6 hospitals), and have predominantly non-Hispanic mothers (38.7% and 84.7%). Compared to women delivered in low rate hospitals, women in high rate hospitals were less likely to be a high risk pregnancy (38.0% and 58.3%), have a non-scheduled cesarean (81.4% and 89.9%), and have an emergency cesarean (27.3% and 33.9%); they were less frequently multiparous (27.7% and 36.9%), or admitted for delivery with acute health problems (38.4% and 51.5%). Women in high rate hospitals had fewer study reasons for a cesarean. In contrast, expressed maternal interest in a cesarean was higher among high rate hospitals (7.8% and 1.4%).

CONCLUSIONS: Both hospital and clinical differences were identified between high and low PCLPSB rate hospitals. At a hospital level, health care provider and patient types were different. At a clinical level, women at high rate hospitals appeared to have less medical risk associated a cesarean and had more reported maternal interest in a cesarean.

PUBLIC HEALTH IMPLICATIONS: Promoting public and provider education about early cesarean delivery and implementing quality improvement initiatives may be beneficial in reducing these high cesarean rates.

Concurrent Session D1

Obstetric Interventions and Complications During Delivery

COMPARISON OF UTERINE RUPTURE RATES IN THE UNITED STATES BETWEEN 1994 – 1998 AND 2003 – 2007

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BACKGROUND: The rate of VBAC decreased from 28.3% to 8.5% of all U.S. births to women with previous cesareans between 1996 and 2006 as fewer women with previous cesarean deliveries underwent trials of labor (TOL's) out of concern for uterine rupture. Although uterine rupture is rare, it can result in severe morbidity and mortality. Nationally representative data on uterine rupture are lacking as studies have been in tertiary care centers.

STUDY QUESTIONS: Has the uterine rupture rate changed nationally, and, if so, is the change associated with a decrease in TOL rate or a change in rupture rates among women undergoing a TOL?

METHODS: Data from the National Hospital Discharge Survey (NHDS) were used to compare uterine rupture rates between 1994-1998, when VBAC rates were highest, and 2003-2007 when VBAC rates were lowest. NHDS is a nationally representative survey of discharges from non-federal, short-stay hospitals. ICD-9-CM diagnosis and procedure codes were used to identify deliveries, deliveries after previous cesareans, labor, and uterine rupture. Uterine rupture rates per 100,000 deliveries were compared between 1994-1998 and 2003-2007 for all deliveries, deliveries after previous cesareans as a whole and with and without TOLs. Pearson's chi square tests were performed to test for rate differences across the two time periods. The small sample size of uterine rupture cases prevented additional analysis of associated factors. Use of administrative data may result in some misclassification of uterine rupture.

RESULTS: There was no significant change in the uterine rupture rate between 1994-1998 (92.9/100,000) and 2003-2007 (65.5/100,000)($p=0.0633$). However, uterine rupture among deliveries with previous cesareans decreased significantly from 529.1/100,000 to 299.4/100,000($p=0.0158$) as the TOL rate in deliveries with previous cesareans fell from 50.2% to 20.4% between 1994-1998 and 2003-2007 ($p<0.0001$). The uterine rupture rate in deliveries with prior cesareans and TOLs, however, did not change significantly over time (1019.2/100,000 to 1305.4/100,000)($p=0.3229$).

CONCLUSIONS: The decreasing uterine rupture rate among deliveries with previous cesareans mirrors the decrease in the TOL rate in women with previous cesareans. However, among patients with TOL's no change in the uterine rupture rate was found.

PUBLIC HEALTH IMPLICATIONS: This study provides important national data for consideration in development of VBAC practice policy.

Concurrent Session D1

Obstetric Interventions and Complications During Delivery

PERINATAL TRANSFUSION AT A REGIONAL HOSPITAL OVER THE PAST DECADE

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BACKGROUND: Transfusion of blood products is an indicator of severe maternal morbidity.

STUDY QUESTIONS: What are the major predictors of perinatal transfusion for a regional population?

METHODS: A retrospective cohort study of all women delivering 20+ weeks gestational age at a large regional obstetrical hospital between 2000 and 2008. Clinical, laboratory and blood bank data were extracted from the institutional data warehouse; women with the diagnosis of pregnancy induced hypertension, thalassemia, sickle cell crisis, or thrombocytopenia were excluded. Incidence of transfusion of blood products per 1,000 deliveries was measured for each year. The association of maternal and obstetrical factors with odds of transfusion were explored using univariable and multivariable logistic regression.

RESULTS: We identified 55,112 deliveries and 510 cases of transfusion. The incidence of transfusion per 1,000 deliveries increased from 5.7 in 2000 to 13.8 in 2008 (p=0.0001). Transfusion rates were highest for black (1.26%) and lowest for white (0.74%) women. Other factors significantly associated with transfusion included anemia at admission for labor(OR=5.94, 95% CI= 4.97, 7.1 for Hgb < 10.5 g/dl; OR= 11.36, 95% CI=9.2, 14.1 for Hgb < 9.5), cesarean delivery (OR= 4.07, 95% CI=3.4, 4.9), and a multiple gestation pregnancy(OR= 5.51, 95% CI=4.1, 7.5). Anemia (aOR= 4.86, 95% CI= 4.0, 5.9), cesarean delivery (aOR= 3.58, 95% CI=3.0, 4.3) and multiple gestation pregnancy(aOR= 1.86, 95% CI=1.3, 2.6) remained associated with transfusion after adjustment for demographic factors, gestational age, birthweight, and pre-pregnancy diabetes. The excess risk associated with black race was eliminated after adjusting for the presence of anemia.

CONCLUSIONS: The annual rate of transfusion increased significantly over the period of the study. Potentially modifiable factors most strongly associated with risk for transfusion were anemia at the time of labor and a cesarean delivery. The excess risk of transfusion for black mothers could be attributed to maternal anemia.

PUBLIC HEALTH IMPLICATIONS: Increased attention to nutritional and other factors leading to anemia during the prenatal period may reduce disparities in maternal morbidity for black mothers.

Concurrent Session D2

Workshop: Sample Size Determination for Observational Studies

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Centers for Disease Control and Prevention

DESCRIPTION OF WORKSHOP: This workshop will provide participants with fundamental statistical concepts and practical tools needed to compute and understand the consequences of an appropriated sample size in survey sampling and data analysis. Participants will be introduced to solutions to typical problems for MCH study designs Examples from an epidemiological background will be used to highlight common problems associated with sample. The use of algebraic notation and formulae will be kept to a minimum.

The workshop will be conducted in PowerPoint lectures and focuses on sample size determination for parameter estimation in complex sample surveys. The main topics are outlined below:

I. Introduction: Information needed before determining the sample size. Basic study designs.

II. Sample size determination using the confidence interval approach.
- One-sample study: Estimating the population proportion. Estimating the population mean
- Two-sample study: Estimating the difference between two proportions. Estimating the difference between two means
- Case-control studies: Estimating the odds ratio

III. Sample size determination for complex sample surveys
- Fundamentals of sample size calculation
- Sample size calculation for multistage cluster sample designs
- Sample size calculation for stratified sample designs
- Practical approach for sample size determination under complex sample designs

JUSTIFICATION OF WORKSHOP: Determining an adequate sample size and understanding the implications of a predetermined sample size are two of the most important issues when designing a study or analyzing data. A sample size that is too small will limit the conclusions that can be made from the study and a sample size that is too large will result in unnecessary expenditures of resources, time, and effort to reach conclusions that could be made with fewer study subjects.

This workshop will provide an opportunity for the participants to acquire basic statistical knowledge of sample size determination for observational studies with or without complex sample design.

BIOGRAPHICAL SKETCH OF PRIMARY PRESENTERS: Ruben Smith, PhD, MS, is a Mathematical Statistician for the Applied Sciences Branch within the Division of Reproductive Health at the Centers for Disease Control and Prevention. Dr. Smith earned his PhD in Statistics from Oregon State University, and a Master Science from the University of Iowa. Dr. Smith's work focuses on the application and development of statistical methods for maternal and child health studies. He has been a statistical consultant assisting and collaborating with CDC Maternal and Child Health (MCH) researchers, state Epidemiologist assignees, and CSTE Fellows in planning, conducting, analysis and interpretation of research results. As a statistician, he has several years of experience in data analysis and statistical consulting including areas of sampling and survey data analysis, record linkage, analysis of longitudinal data, categorical data analysis, survival analysis, applied multivariate analysis, Bayesian statistics, spatial statistics, multilevel models, experimental designs and analysis of experiments, and linear and generalized linear models.

Jason Hsia, PhD, is a senior biostatistician at the Office on Smoking and Health, Centers for Disease Control and Prevention, Atlanta, Georgia. He has received his BS in Applied Mathematics, from Beijing Institute of Posts and Telecommunications, in 1982, his MS and PhD in biostatistics from the school of Public Health, University of Illinois at Chicago in 1988 and 1991, respectively. He has 20 years experience as a biostatistician, primarily in the Office on Smoking and Health and Division of Reproductive Health, Centers for Disease Control and Prevention, but also as a research associate in the Department of Health Science Research at the Mayo Clinic. He is a member of the American Statistical Association, International Biometric Society, and International Association of Survey Statistician. He has published papers and reports in the area of both sampling and applied statistics in medical and epidemiological research. Since 2007, he participated in developing Global Adults Tobacco Survey including all protocols and provided sample designs for GATS-Thailand, GATS-Vietnam, and GATS-China.

Concurrent Session D3

Great Idea, but It's Not That Simple

ESTABLISHING THE RELIABILITY AND VALIDITY OF MEASURING PARENT-CHILD FUNCTIONING USING THE NATIONAL SURVEY OF CHILDREN'S HEALTH

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BACKGROUND: High family- and/or high parent-child function (PCF) predict positive health and psychosocial outcomes, likely playing a causal role. Given this, efforts to understand children's outcomes should include a measure of family- or PCF. The National Survey of Children's Health (NSCH) provides an opportunity to evaluate PCF, including a series of six questions asking parents about their relationships with their child. Researchers have begun using these questions to measure PCF and its correlates. However, no research has examined the validity of this nor has it examined the psychometric properties of responses to these questions.

STUDY QUESTIONS: We examined whether responses to the PCF questions on the NSCH measure a common construct, whether they do so reliably and validly, and whether they do so similarly for children of different socio-demographic backgrounds.

METHODS: We used confirmatory factor analyses for ordered categorical measures (CFA-OCM) to evaluate the psychometric properties of responses to six questions measuring PCF using data (n = 34,654) from the 2007 NSCH, a cross-sectional random-digit-dial telephone survey sponsored by the Maternal and Child Health Bureau and conducted by the National Center for Health Statistics. Although the NSCH labels the section including these questions "family functioning," the questions more specifically address relationships between parents and their child, rather than the family more generally.

RESULTS: CFA-OCM indicated that responses to the questions measured a single underlying construct. CFA-OCM revealed little measurement bias across sex or age, however CFA-OCM did find significant bias across race and ethnicity. Regression analyses showed that responses to the questions demonstrated external validity, with scores correlating in the theoretically expected directions with related questions on the NSCH.

CONCLUSIONS: Our study supports the use of these six questions on the NSCH to measure levels of PCF. However, researchers should proceed cautiously when comparing PCF across children of different racial and ethnic backgrounds, ideally using model-based scores to mitigate bias.

PUBLIC HEALTH IMPLICATIONS: PCF offers a powerful mechanism for public policy efforts, given its amenability and likely causal role. Investigators can use the NSCH to measure PCF and establish its influences on children's health and subsequently guide public policy efforts.

Concurrent Session D3

Great Idea, but It's Not That Simple

RISK PROFILES FOR OVERWEIGHT/OBESITY AMONG PRESCHOOLERS

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BACKGROUND: Previous research has examined maternal characteristics and childhood overweight/obesity. Few studies, however, have explored the combined effect of maternal and child factors in establishing risk profiles for this escalating public health problem.

STUDY QUESTIONS: Classification and regression tree (CART) analysis was used to examine the combined effect of maternal and child factors in generating risk profiles for preschooler overweight/obesity.

METHODS: Preschooler data from the Early Childhood Longitudinal Study-Birth Cohort (ECLS-B) study were used. CART and logistic regression models were built and compared. A limitation of CART is its complexity. A strength is the graphic display it yields to assist researchers and practitioners visualize the relative importance of each variable in predicting the modeled response.

RESULTS: Children who were overweight/obese at two years old had an increased risk of being overweight/obesity at four years old. Children born to overweight/obese mothers were more likely to be overweight/obese by age four, even if their BMI at age two was normal. Children with high birth weights (= 4000 gm.) were more likely to be overweight/obese at age four if they were born to mothers with a normal pregravid BMI but were of lower SES. Among black and white mothers with high pregravid BMIs, breastfeeding duration and parity played an important role in the risk for preschooler overweight/obesity. A study limitation was potential error due to maternal self-reports. However, the likely result was under- rather than over-reporting of maternal weight data.

CONCLUSIONS: CART analysis confirms and extends current knowledge of preschool overweight/obesity by providing preliminary risk profiles structured within the context of pre-and postnatal maternal and child characteristics.

PUBLIC HEALTH IMPLICATIONS: Based on the high-risk profiles for preschooler overweight/obesity, we recommend: (1) preconception screening/intervention for overweight/obese women, as maternal pregravid BMI may be crucial to offspring BMI; (2) early pediatric screening/intervention for weight status, as BMI = 85th percentile at age two was found to increase the likelihood of overweight/obesity at age four; (3) Identification of Hispanic overweight/obese women as a high-risk group for having overweight/obese children; (4) Support for breastfeeding duration of at least 3 months to reduce the likelihood of childhood overweight/obesity.

Concurrent Session D3

Great Idea, but It's Not That Simple

COMPARISON OF MATERNAL PRE-PREGNANCY WEIGHT CLASSIFICATION METHODS AND THE EFFECT ON GESTATIONAL WEIGHT GAIN CLASSIFICATION AMONG MI ADOLESCENTS 2003 – 2007

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BACKGROUND: The Institute of Medicine (IOM) recognized the importance of pregnancy weight gain on birth outcomes and developed recommendations based on adult pre-pregnancy body mass index classification (BMI). Recent research has questioned the appropriateness of adult BMI use rather than the age/gender specific percentiles developed by the Centers for Disease Control and Prevention (CDC) to categorize prenatal BMI in adolescents.

STUDY QUESTIONS: Is there discordance between BMI categorization methods among pre-pregnant adolescents? Is discordance associated with inappropriate weight gain based on IOM 1990 and/or 2009 recommendations?

METHODS: Data from the Michigan Pregnancy Surveillance System (PNSS) 2003-2007 were used to estimate the differences between BMI based on the IOM 1990 & 2009 classification compared to BMI based on CDC age/gender specific percentiles for adolescents 10 - 20 years of age with a singleton birth and a gestation length of 37-41 weeks. Logistic regression was used to estimate the effects of maternal age on discordance while adjusting for covariates (i.e. race/ethnicity and previous pregnancy). Multinomial logistic regression was used to estimate the effect of BMI discordance on weight gain, while controlling for covariates (i.e. race/ethnicity, age, BMI, and prior pregnancy).

RESULTS: The prevalence of normal pre-pregnant BMI: 51.7% (IOM 1990), 55.1% (IOM 2009) and 63.8% (CDC). Discordance between BMI (CDC) and BMI (IOM 1990) was 21.9%, highest among underweight teens (81%) 10-15 year olds (33%). Discordance between BMI (CDC) and BMI (IOM 2009) was 12.7%, highest among underweight (56%) and overweight (26%) teens.Increased odds of discordance (IOM 1990) were found for 10-15 years of age (AOR 1.912; 1.744-2.096) compared to 20 year olds. Associations between 'less than ideal' weight gain (IOM 1990) and BMI discordance (IOM 1990) (AOR 1.547; 1.461-1.638) and between 'less than' ideal weight gain (IOM 2009) and BMI discordance (IOM 2009) (AOR 1.320; 1.222-1.426), were found.

CONCLUSIONS: Discordance between the three methods of BMI classification among adolescents was found and was associated with inappropriate weight gain based IOM recommendations.

PUBLIC HEALTH IMPLICATIONS: It seems that the BMI categorization based on the CDC age/gender specific percentiles for pregnant adolescents is more appropriate. Gestational weight gain recommendations specifically for adolescents must be further explored and thus better understood.

Concurrent Session D3

Great Idea, but It's Not That Simple

TWO-STAGE CLUSTER SAMPLING WITH REFERRAL: IMPROVING THE EFFICIENCY OF ESTIMATING UNMET NEEDS AMONG PREGNANT AND POSTPARTUM WOMEN AFTER DISASTER

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BACKGROUND: Women of reproductive age (WRA), in particular, women who are pregnant or < 6 months postpartum (P/PP), are uniquely vulnerable to the effects of natural disasters, which create stressors for caregivers, limit access to prenatal/postpartum care or interrupt contraception. Traditional approaches (e.g., newborn records, community surveys) to survey WRA about unmet needs may not be practical after disasters. Finding P/PP women is especially challenging as <5% of WRA are P/PP at any time. In 2009, we piloted a sampling strategy to increase the proportion of WRA who were P/PP in Johnston County, NC after tornadoes and Cobb/Douglas Counties, GA after flooding.

STUDY QUESTIONS: Does two-stage cluster sampling with referral identify an increased number of P/PP women in disaster-affected counties compared to sampling households without referral?

METHODS: We employed a two-stage cluster sampling method adding referrals of P/PP women. In the first stage, census blocks were selected probability proportionate to population (10 in Johnston; 30 in Cobb/Douglas). In the second stage, 7 random points were generated in each block using a GIS toolkit. Interviewers drove to each point, approached the closest household, and attempted an interview with a WRA, proceeding to the next nearest house if unoccupied. All households were asked to refer P/PP women nearby.

RESULTS: Overall, 1,176 households were approached in the 3 counties. Fifty-two percent (55/105) of households in Johnston and 39% (421/1071) in Cobb/Douglas had someone at home. In both pilots, 44% (185/421 in Cobb/Douglas; 24/55 in Johnston) had a WRA home. Of 73 interviews conducted in Cobb/Douglas, 5 were P/PP and 9 additional P/PP were identified through 49 referrals, for a total of 14 P/PP (19%). Of 19 interviews conducted in Johnston, 1 was P/PP and 4 additional P/PP were identified through 17 referrals, for a total of 5 P/PP (26%).

CONCLUSIONS: Compared to sampling without referral this method identified more P/PP women (13 versus 6).

PUBLIC HEALTH IMPLICATIONS: This strategy increases the sample size of P/PP women and is a promising way to assess unmet needs of P/PP women in disaster-affected communities. Another pilot is planned to further test the referral method and procedures to increase sampling efficiency.

Concurrent Session D4

Prenatal Experiences of Canadian Mothers: National Data on Partner Violence, H1N1, and Immigration

PASSIVE SURVEILLANCE OF H1N1: A COLLABORATION BETWEEN THE CANADIAN PERINATAL SURVEILLANCE SYSTEM AND PROVINCIAL/ TERRITORIAL PERINATAL PROGRAMS

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BACKGROUND: In the summer and fall of 2009 the Public Health Agency of Canada's (PHAC) FluWatch program reported that pregnant women had a higher burden of morbidity and mortality from pandemic H1N1. FluWatch has limited information on the cases of H1N1 in pregnant women and no information on pregnancy outcomes.

STUDY QUESTIONS: Can passive surveillance enhance our knowledge of risk factors and perinatal outcomes associated with pH1N1 in Canada?

METHODS: PHAC, through the Canadian Perinatal Surveillance System (CPSS), is collaborating with four provincial/ territorial perinatal programs to conduct surveillance of pH1N1 during pregnancy. The participating jurisdictions (Ontario, British Columbia, Yukon and Nunavut) account for approximately 50% of births in Canada. During the one year data collection period, which began in the fall of 2009, data variables related to pH1N1 in pregnant women are collected by the programs and combined into one dataset by PHAC. The exposure variables include: a) confirmed/suspected pH1N1 influenza infection, or ILI; b) antiviral medication; c) seasonal influenza or pH1N1 vaccination. Additional variables related to maternal characteristics, maternal health conditions, infant characteristics, obstetric complications, and labour and delivery will also be analyzed.

RESULTS: All jurisdictions were successful in collecting this data despite the many challenges to introducing new variables for surveillance in an existing program. Within three months, CPSS and the programs collaboratively established the case definition; programs updated their data collection forms or methods, trained staff and communicated the initiative locally. Although the pH1N1 definitions are standardized, perinatal related variables may differ in definition and detail from program to program, which provides a challenge for analyzing this data as a whole. Preliminary descriptive data will be presented.

CONCLUSIONS: The availability of data from four perinatal programs in Canada will contribute to better describing pH1N1 in pregnancy and determining risk factors and outcomes. The introduction of new data elements to existing perinatal databases has proven to be a feasible option for conducting perinatal health surveillance in Canada during pandemic-like situations.

PUBLIC HEALTH IMPLICATIONS: This type of collaboration for data collection on emerging issues allows more timely and customizable surveillance compared to traditional administrative data sources.

Concurrent Session D4

Prenatal Experiences of Canadian Mothers: National Data on Partner Violence, H1N1, and Immigration

CORRELATES OF ABUSE AROUND THE TIME OF PREGNANCY: RESULTS FROM THE CANADIAN MATERNITY EXPERIENCES SURVEY

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BACKGROUND: Several studies have explored factors associated with abuse around the time of pregnancy, but most involved hospital-based or regional samples rather than population-based samples. The purpose of this study was to describe the correlates of abuse among a nationally representative sample of women who participated in the Canadian Maternity Experiences Survey.

METHODS: The Maternity Experiences Survey used a stratified random sample of recent mothers drawn from the 2006 Canadian Census. Participants (n=6,421) completed a computer assisted telephone interview, most between 5-9 months postpartum. Proportions and odds ratios (OR) with 95% confidence intervals (CI) were calculated using bootstrapping methods (jackknife method of variance estimation) to account for sample design and weighting adjustments. The degree of sampling error affecting counts and proportions was based on the coefficient of variation.

RESULTS: 10.9% of women reported experiencing one or more abusive acts in the two years preceding the interview ("any abuse"), and 4.5% of women reported a combination of physical abuse and threats ("severe abuse"). In the final multivariate logistic regression model, significant correlates of any abuse included age <20 years (adjusted OR [aOR] 3.81, 95% CI 2.42-6.01), 3 or more stressful life events (aOR 3.23, 95% CI 2.60-4.01), and being single (aOR 1.98, 95% CI 1.49-2.63). Other factors significantly associated with abuse (aOR<2) were low support, low income, smoking during pregnancy, health problems during pregnancy, illicit drug use prior to pregnancy, and history of depression/antidepressant use. Aboriginal women were at increased risk of abuse (aOR 1.74, 95% CI 1.25-2.43) whereas immigrants had lower risk of abuse (aOR 0.68, 95% CI 0.49-0.94), as did women who took folic acid prior to pregnancy (aOR 0.80, 95% CI 0.65-0.98). Similar correlates were found for severe abuse.

CONCLUSIONS: More than 10% of women experience abuse around the time of pregnancy. Women who are young, single, poor, and/or have stressful lives appear vulnerable to abuse.

PUBLIC HEALTH IMPLICATIONS: These population-based results provide useful information for planning interventions and preventive strategies to address this important public health problem.

Concurrent Session D4

Prenatal Experiences of Canadian Mothers: National Data on Partner Violence, H1N1, and Immigration

TIME SINCE IMMIGRATION AND PREGNANCY OUTCOMES IN A NATIONAL SURVEY OF CANADIAN WOMEN

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BACKGROUND: Around 1 in 5 infants in North America are born to immigrant women. There is increasing evidence suggesting that pregnancy outcomes of immigrants deteriorate with increasing time since migration, although the reasons are not well established.

STUDY QUESTIONS: How do pregnancy outcomes and health behaviors of immigrant women differ with length of residence in Canada and how they compare with the outcomes experienced by the Canadian-born?

METHODS: Self-reported postpartum accounts on a wide array of health behaviors and pregnancy outcomes were gathered through the Maternity Experiences Survey (MES). The MES is a population-based survey that was completed by 6,421 women, who were interviewed about their experiences prior to, during and after pregnancy, representing all Canadian women in 2006 (weighted = 76,500). Immigrants were categorized according to the number of years since immigration. Bootstrap methods were used for variance estimation.

RESULTS: Twenty four percent of all mothers were immigrants. Overall, immigrant women had similar rates of preterm birth than their Canadian-born counterparts. However, compared to recent immigrants (< 10 years) long-term immigrants (=10 years) were at higher risk of delivering preterm infants (RR 2.0, 95% CI 1.1-3.4) but at lower risk of having small for gestational age infants (RR 0.6, 95% CI 0.4-1.0). Compared with recent immigrants, long-term immigrants were more likely to be overweight (RR 1.4, 95% CI 1.0-1.8), being hospitalized during pregnancy (RR 1.5, 95% CI 1.1-2.2) and less likely to receive inadequate support during pregnancy (RR 0.4, 95% CI 0.3-0.7). Adjustment for maternal sociodemographic characteristics and health behaviors did not account for the excess risk of preterm birth among long-term immigrants.

CONCLUSIONS: Time since immigration was independently associated with increases in preterm delivery. The mechanisms behind this association are not well understood. Risk factors were distributed in complex patterns among immigrants according to their length of residence.

PUBLIC HEALTH IMPLICATIONS: Long-term immigrants can be regarded as a high-risk group for preterm delivery. Further research is needed to identify the underlying mechanisms and to assess whether infants born to long-term immigrants are at higher risk of consequences of preterm birth, such as infant death or severe neonatal morbidity.

Concurrent Session D5

Quality of Life and Children with Special Healthcare Needs

SOCIAL DETERMINANTS OF RECEIVING PHYSICAL, OCCUPATION, OR SPEECH THERAPY AMONG VERY LOW BIRTH WEIGHT (VLBW) 2-YEAR OLDS IN WISCONSIN (WI) AT RISK FOR DEVELOPMENTAL DIFFICULTIES

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BACKGROUND: VLBW toddlers experience developmental difficulties. Physical, occupational, or speech therapy services, delivered primarily through Early Intervention (EI) programs, can ameliorate risk. Social disparities in EI participation have been documented, but family and neighborhood predictors of receiving therapy remain unclear.

STUDY QUESTIONS: Which family and neighborhood characteristics are associated with receipt of physical, occupational, or speech therapy among VLBW 2- year old children who meet Wisconsin (WI) eligibility requirements for EI?

METHODS: This was a cross-sectional analysis using the Newborn Lung Project, a regional cohort of VLBW infants hospitalized in WI's newborn intensive care units during 2003-2004. Of the whole cohort (N=719), 475 children were < 36 months and met WI state eligibility requirements (e.g. birth weight less than 1,000 grams, below-average development, or diagnosis of developmental disability) for EI. Generalized estimating equations (GEE) were used to describe child and neighborhood socio-demographic correlates of parent-reported receipt of therapy. We acknowledge potential biases: selection into neighborhoods, differential reporting, and access to care.

RESULTS: The cohort was predominantly white, non-Hispanic (71%), nearly 1/3 (31%) have annual incomes greater than $60,000, 2/3 have at least some post-high school education (66%), 1 in 4 are single-parents, and about 63% receive therapy. About 1 in 4 (22.5%) live in a disadvantaged neighborhood. The GEE analyses revealed black children have a 2-fold increased odds of receiving therapy (OR=1.95, $p<0.05$) than their white peers net of a socio-demographics, but this effect did not persist conditional on other family characteristics. Children living in disadvantaged neighborhoods have 40% lower odds of receiving therapy (OR=0.58, $p=0.05$), net of family attributes. We did not observe an expected effect increase for black children by conditioning on neighborhood disadvantage. Future research should explore interactions between personal and neighborhood characteristics.

CONCLUSIONS: Disparities in receipt of therapy services exist among children at risk for developmental difficulties. While child and family characteristics predict therapy participation, their influence seems less salient than children's neighborhood attributes.

PUBLIC HEALTH IMPLICATIONS: Despite meeting state eligibility requirements for therapy, less than 2/3 receive services. State policy and program efforts should target access to services for children living in disadvantaged neighborhoods.

Concurrent Session D5

Quality of Life and Children with Special Healthcare Needs

CHRONIC MATERNAL DEPRESSIVE SYMPTOMS AND PARTICIPATION IN EARLY INTERVENTION SERVICES FOR YOUNG CHILDREN

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BACKGROUND: An extensive literature documents the adverse impacts of maternal depression on children's developmental, cognitive, emotional, and health outcomes. Maternal depressive symptoms may impact child participation in early intervention (EI) programs. Few studies have examined the prevalence and effect of depressive symptoms among mothers whose children are eligible to receive EI services.

STUDY QUESTIONS: 1. Determine the prevalence of depressive symptoms among mothers of children a) eligible for and b) receiving EI services at 2 years postpartum. 2. Examine the association of maternal depressive symptoms with child receipt of EI services at 24 months, by duration of maternal depressive symptoms.

METHODS: We analyzed data from over 1,000 participants in the Early Child Longitudinal Study, Birth Cohort. Validated scales were used to measure maternal depressive symptoms at 9 and 24 months after delivery. Birth weight <1000 grams, an established medical condition associated with developmental delay, or low scores on a standardized measure of developmental performance were used to define EI service eligibility. Receipt of services was ascertained based on parental self-report. Multivariable logistic regression models were used to examine the association of maternal depressive symptoms with receipt of EI services after adjustment for children's actual or perceived illness severity, maternal health status, and maternal and family sociodemographic characteristics.

RESULTS: At 24 months postpartum, the estimated weighted prevalence of clinically significant depressive symptoms among mothers of children eligible for EI was 22.8%. Prevalence rates were significantly higher among mothers of children enrolled in EI and new symptom onset was common. In multivariate models, among children who were newly eligible for EI at age 2 years, persistent clinically significant maternal depressive symptoms had a strong positive association with enrollment (OR 7.3, 95% CI 1.7, 31.6; versus no depressive symptoms).

CONCLUSIONS: A high burden of depressive symptoms exists among mothers of children who receive EI services. Mothers' depressive symptoms do not appear to interfere with receipt of EI services, including among toddlers newly eligible for services at age 2 years due to developmental delays.

PUBLIC HEALTH IMPLICATIONS: EI programs may represent an important setting in which to address maternal emotional health concerns.

Concurrent Session D5

Quality of Life and Children with Special Healthcare Needs

HEALTHCARE QUALITY EXPERIENCES OF CHILDREN AND YOUTH WITH MOBILITY LIMITATIONS

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BACKGROUND: Nationwide, 10 - 15% of children with special health care needs (CSHCN) are reported to have significant mobility limitations, usually with co-morbidities and complex needs. Although care in a "medical home" is plausibly beneficial, there is no population-based evidence for whether this primary care model improves their healthcare experiences.

STUDY QUESTIONS: What are the quality of care experiences of children and youth with mobility limitations? To what extent does care in a medical home improve the quality of care experiences of children and youth in this population?

METHODS: This cross-sectional analysis examined associations between parent-reported mobility limitations, care in a medical home, and quality experiences of children, ages 4 – 17 years, in the 2005 – 2006 National Survey CSHCN (n = 40,387). Mobility limitations were defined by functional restrictions. Healthcare quality was measured with indicators of reported difficulties getting care in several domains and low overall healthcare satisfaction. Five criteria described care in a medical home. Associations were tested with survey-weighted logistic regression, controlling for important covariates (e.g. age, race/ethnicity, insurance, condition severity and SES).

RESULTS: Parents of children with mobility limitations reported lower satisfaction with care (OR = 1.60; 95% CI: 1.42, 1.81), and more problems with service availability (OR = 1.80; 95% CI; 1.40, 2.28) and other outcomes than did parents of other CSHCN. Adding indicators of the medical home to the statistical models attenuated odds ratios for mobility limitations but the estimates remained significant. In models restricted to children with mobility limitations, having a medical home was strongly associated with improved quality and satisfaction.

CONCLUSIONS: Having a medical home appears to improve healthcare quality experiences of children with mobility limitations but may be insufficient to eliminate the quality disparities they experience relative to other CSHCN.

PUBLIC HEALTH IMPLICATIONS: Study results will help guide future intervention to improve the process and outcomes of care for children and youth with mobility limitations. The findings also have direct implications for practitioners, health systems, and policy-makers pursuing medical home initiatives by quantifying the contribution of the model to the health care quality experiences of children and youth with mobility limitations.

Concurrent Session D5

Quality of Life and Children with Special Healthcare Needs

FAMILY BURDEN IN U.S. HOUSEHOLDS WITH MULTIPLE CHILDREN WITH SPECIAL HEALTH CARE NEEDS

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BACKGROUND: Children with special health care needs (CSHCN) need and utilize more health care and services than other children their age. Families with CSHCN are more likely to experience financial burdens, work modifications, and more time providing and coordinating care than families without CSHCN, but little is known about how the family burden varies for households with multiple CSHCN.

STUDY QUESTIONS: To investigate the impact of having multiple CSHCN on US families.

METHODS: The 2005-2006 National Survey of CSHCN is a household telephone survey sponsored by the Maternal and Child Health Bureau, conducted by the National Center for Health Statistics using the State and Local Area Integrated Telephone Survey mechanism. Descriptive characteristics of children 0-17 years old in households with no CSHCN, with one CSHCN, and with two or more CSHCN were statistically compared. The associations between number of CSHCN and various family impact indicators were analyzed using logistic regression analysis.

RESULTS: Approximately 18% of households have one child with special needs, and 4.3% have multiple CSHCN. Demographic and socioeconomic differences were found between households without CSHCN and households with one or more CSHCN. Compared to single-CSHCN-households, households with multiple CSHCN were more likely to live in poverty and in households where English is not the primary language. They are also more likely to be older and non-Hispanic black, to have elevated service needs/ use, and less likely to have any functional limitations than those in single-CSHCN households. Families with multiple CSHCN wer more likely to spend more than $1000 in out of pocket expenses and to modify work hours or stop working.

CONCLUSIONS: The findings suggest that multiple-CSHCN households may experience different family burdens than those with one special needs child.

PUBLIC HEALTH IMPLICATIONS: Households with multiple CSHCN may need different types of supplementary services to help alleviate the family burden that they experience. These findings may be useful to health care and program providers that work with families who have CSHCN.

Concurrent Session D6

What Does It Take to Breastfeed?

CLASSIFICATION OF EARLY POSTPARTUM BREASTFEEDING STATUS ON BIRTH CERTIFICATE AND NEWBORN SCREENING DOCUMENTS

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BACKGROUND: Early postpartum breastfeeding rates in birth facilities are often used as performance measures to assess promotion and initiation of this health behavior. In New Hampshire, breastfeeding items on the birth and newborn screening documents that are completed for every live birth offer two similar data sources for assessment. Varying discordance between these two sources prompted a qualitative investigation to improve understanding of the possible reasons for these differences.

STUDY QUESTIONS: How are various infant feeding scenarios classified by data recorders completing the birth certificate facility worksheet and newborn screening form?

METHODS: Up to 4 staff responsible for completing the birth certificate facility worksheet and the newborn screening form were recruited from 21 of 22 birth hospitals and 3 freestanding birth centers in New Hampshire. Qualitative telephone interviews were completed that included asking respondents how they would classify each of 4 breastfeeding scenarios (pumped breast milk only, pumped and formula, breastfed with formula supplementation, breastfeeding initiated but discontinued) based on the response choices available on each document. Responses were examined at the individual and facility levels; however the sampling method limits generalization.

RESULTS: Little variation in classification was found for the pumped breast milk only, pumped and formula, and breastfed with formula supplementation scenarios. Classification of breastfeeding initiation but discontinuation was about evenly split between Breastfed and Not Breastfed, indicating a need for clarification. Most respondents reported having little or no formal training in the completion of the infant feeding item on the birth certificate and newborn screening forms.

CONCLUSIONS: We have identified a situation of particular confusion for staff responsible for classifying early postpartum breastfeeding status that may partially explain the discordance between data sources. Clarification of the items and standardizing formal training has the potential to improve the quality of this common performance measure for breastfeeding initiation.

PUBLIC HEALTH IMPLICATIONS: The birth certificate and newborn screening documents are commonly used sources of population-based public health statistics for which the quality may be improved by increased guidance around situational classification through item clarification and staff training.

Concurrent Session D6

What Does It Take to Breastfeed?

DEVELOPMENT OF A RANKING SYSTEM TO TARGET BREASTFEEDING INTERVENTIONS

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BACKGROUND: An objective methodology was unavailable to best target breastfeeding interventions in the environment of limited resources. The purpose was to develop a system to rank counties in North Carolina using adverse birth outcome and breastfeeding indicators to target breastfeeding interventions to areas of greatest need.

STUDY QUESTIONS: Could a cumulative ranking system be developed which would identify counties at greatest need for targeted breastfeeding interventions?

METHODS: Breastfeeding indicators (initiation and duration from NC WIC Program) and adverse birth outcome indicators (prematurity, low birth weight, and infant mortality) where evidence suggests breastfeeding can mitigate negative effects on infant morbidity and mortality and for which data was available (vital statistics were selected for the analysis). Counties were ranked for each indicator and for a cumulative sum of all indicators in such a way that the highest cumulative sum indicated greatest need for targeted breastfeeding interventions.

RESULTS: A ranking system was devised for targeting breastfeeding interventions to areas with highest rates of adverse birth outcomes and lowest breastfeeding rates. Counties ranking the highest (highest 25%) in individual adverse birth outcome indicators: prematurity (14.4% – 17.9%), low birth weight (10.7% – 15.4%) and infant mortality (11.8% - 33.3%) consistently ranked lowest in breastfeeding initiation (13.6% - 51.1%) and 6-month duration (0.0% - 12.5%). The cumulative ranking indicated the same counties at greatest need for breastfeeding interventions. This methodology does not imply causality. Limitations include the lack of data on other indicators (breastfeeding exclusivity, other adverse birth outcomes) and the mixing of population based and program specific data. Despite these limitations, the ranking system proved useful for providing an objective approach to targeting breastfeeding interventions. Efforts to include socioeconomic indicators impacting breastfeeding rates will further refine the ability to identify greatest need.

CONCLUSIONS: This ranking system identifies counties (geographic areas) with the greatest need for improving the effect of selected adverse birth outcomes through improved breastfeeding rates.

PUBLIC HEALTH IMPLICATIONS: Having an objective way to identify areas of greatest need for breastfeeding interventions enables a State to target increasingly limited resources. This user-friendly ranking system can also be used to readily assess changing need over time.

Concurrent Session D6

What Does It Take to Breastfeed?

THE INFLUENCE OF EDUCATION AND FAMILY STRUCTURE ON THE RISK AND TIMING OF BREASTFEEDING CESSATION: FINDINGS FROM THE NATIONAL SURVEY OF CHILDREN'S HEALTH, 2007

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BACKGROUND: In light of the importance of breastfeeding infants, many studies have identified race/ethnicity, native language, and country of origin as predictors of breastfeeding initiation and duration. Yet, few studies have investigated the influence of education level and family structure on the risk and timing of breastfeeding cessation.

STUDY QUESTIONS: What role do achieved-status factors such as education level and family structure play in breastfeeding cessation?

METHODS: The present study uses a sample of 9,500 children from the 2007 National Survey of Children's Health to examine the influence of parents' education level and family characteristics on the risk and timing of breastfeeding cessation, while controlling for factors known to influence breastfeeding.

RESULTS: Cox proportional hazards models revealed that African Americans and U.S.-born mothers have an increased risk of breastfeeding cessation. Parents' education level plays a moderating role in the relationship between native language and breastfeeding cessation and the relationship between country of origin and breastfeeding cessation. English-speaking parents with a high school diploma or less were at an increased risk (hazard ratio = 1.6, $p < .001$) of early breastfeeding cessation. Similarly, U.S.-born parents with a high school diploma or less were at an increased risk of early breastfeeding cessation (hazard ratio = 1.6, $p < .024$. Family structure plays a moderating role in the relationship between race/ethnicity and breastfeeding cessation. Cohabitating African American (hazard ratio = 0.4, $p < .001$) and cohabitating Hispanic (hazard ratio = 0.5, $p < .001$) mothers were at a decreased risk of early breastfeeding cessation compared to their married counterparts. Cohabitating (hazard ratio = 1.2, $p < .029$) and single (hazard ratio = 1.6, $p < .001$) other race mothers are at an elevated risk for breastfeeding cessation compared to their married counterparts.

CONCLUSIONS: Findings from this study demonstrate the importance of social factors such as education level and family structure that influence mothers' risk of breastfeeding cessation.

PUBLIC HEALTH IMPLICATIONS: Breastfeeding promotion programs should consider the influence of achieved-status factors (e.g. parents' education level and family structure) on infant-feeding practices, beyond ascribed-status factors such as race/ethnicity, native language, and country of origin.

Concurrent Session D6

What Does It Take to Breastfeed?

ILLINOIS BREASTFEEDING BLUEPRINT: USING WIC AND PRAMS DATA TO EXAMINE DISPARITIES IN BREASTFEEDING CONTINUATION AND CHANGE BREASTFEEDING POLICY

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BACKGROUND: Despite known health benefits, breastfeeding rates in Illinois have remained below Healthy People 2010 objectives and wide breastfeeding disparities exist by race/ethnicity and socioeconomic status. To address this, HealthConnect One, Illinois Department of Human Services, and University of Illinois at Chicago are collaborating to create the "Illinois Blueprint for Breastfeeding", a strategic plan for decreasing breastfeeding disparities throughout Illinois based on a variety of data sources.

METHODS: Two data sources were used in this analysis: 1) administrative WIC data for 2008 births who were "ever breastfed" and 2) Illinois PRAMS data for 2000-2007 births to WIC participants who ever breastfed. To examine disparities in breastfeeding continuation, WIC data were used to generate Kaplan-Meier curves by race/ethnicity. Using PRAMS data, the impact of each hospital practice on breastfeeding continuation to 6 weeks was assessed via logistic regression while adjusting for demographics, pregnancy intention, and stress and while examining interaction between race/ethnicity and the hospital practice.

RESULTS: Among WIC women who initiated breastfeeding, White and Black women had similar breastfeeding continuation rates while Hispanic women had higher breastfeeding continuation. For each racial/ethnic group, the hazard rates of breastfeeding cessation were highest during the first 6 weeks. Delivery hospital practices associated with increased breastfeeding continuation were: breastfeeding in hospital, receiving a support phone number, rooming-in, breastfeeding in first hour, feeding only breast milk, and being told to breastfeed "on demand". Delivery hospital practices associated with decreased breastfeeding continuation were: helping with breastfeeding (among Whites and Blacks only) and pacifier use.

CONCLUSIONS: Among WIC participants, Hispanics are more likely to continue breastfeeding than Whites or Blacks. Breastfeeding cessation is most likely to occur during the first six weeks for all groups. Nearly all hospital practices were associated with breastfeeding continuation to 6 weeks among WIC women, with some practices exhibiting differential effects by race/ethnicity.

PUBLIC HEALTH IMPLICATIONS: This information will be used in the "Illinois Blueprint for Breastfeeding" to promote maternity care practices that encourage and support breastfeeding in Illinois, especially among WIC participants.

Concurrent Session E1

Symposium: Using Data to Guide Policy Change: The 10 Things Every Epidemiologist Should Know When Talking to Policymakers

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INTRODUCTION TO THE TOPIC: There are many ways that data are used to inform policy decisions about MCH programs and investments. In this session ten effective strategies for influencing policy decisions using data will be shared. The challenges and opportunities of the current political climate require decisions based on sound data, while also balancing political realities. Criteria for "evidence-based" decision making are currently being developed by several federal and state programs and this session will also include a conversation about the reality of evidence-based decision making for many MCH interventions. At the end of the session participants will gain a better understanding of the way policy makers view data and information, and how those data are used in their policy making process.

JUSTIFICATION FOR SYMPOSIUM: Policy makers are increasingly seeking data to guide decision-making on MCH funding and policies but are often frustrated when working with technical documents and professional staff when preparing reports and analyzing data because they do not understand the science and techniques described. Epidemiological analysis and the policy making process differ significantly but there are good strategies to move data into action to inform policy in a way that policy makers will understand. In this workshop we will share ten strategies that MCH epidemiologists can use to provide policy makers with data to drive important MCH decision making at the local, state, and national level. We will also describe ways that policy makers can learn to appreciate the work of MCH epidemiology with real life examples. A case study and role-play/simulation exercise will provide an interactive component to this session.

SYMPOSIUM OBJECTIVES:

- Provide an overview of how policy makers use MCH data to guide national policies for women, children, and families.
- Describe the way policy makers view data and information, and share techniques for making data more accessible to policy makers at the local, state, and federal levels.
- Share ideas and techniques on how MCH epidemiologists can use data to inform policy-makers about pressing issues, priorities, and emerging MCH needs and discuss current efforts at the national, state, and local levels.
- Apply material to a real life example/case study though a simulation/exercise with session participants.

Concurrent Session E2

All You Need Is Love and Contraception

CONTRACEPTION USE IN LOUISIANA 2000 – 2007

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BACKGROUND: Contraception use may impact the Healthy People objectives of increasing intended pregnancies and appropriate birth spacing. The reasons for not using contraception prior to pregnancy and after delivery among Louisiana women are not well understood.

STUDY QUESTIONS: What factors were associated with not using contraception prior to pregnancy and postpartum in Louisiana from 2000-2004 and 2007? Did contraception use differ by race?

METHODS: Using Louisiana PRAMS data from 2000-2004 and 2007, this study used bivariate and multivariate logistic regression methods accounting for complex survey design. Maternal race was included as an interaction term in the final model. Limitations included unavailability of 2005-2006 and maternal self-report.

RESULTS: Those at risk for not using contraception prior to pregnancy were aged 19-24 (OR=1.7;95CI1.0,1.8), had < high school education (OR=1.9;95CI1.5,2.3), had = four children (OR 1.8;95CI1.3, 2.5), drank alcohol before pregnancy (OR=1.16;95CI1.0,1.3) and had no insurance (OR=1.3;95CI1.1,1.5). Reasons for not using contraception prior to pregnancy among black women were: did not think she could get pregnant at the time 35%, did not mind getting pregnant 25% and partner did not want to use contraception 21%. Among white women, did not mind pregnancy 42%, did not think she could get pregnant at the time 35% and other 19% were the most common reasons for forgoing contraception prior to pregnancy. Women at risk for not using postpartum contraception had < a high school education (OR=.7;95CI1.3,2.0), smoked cigarettes (OR 1.4 95%CI1.2,1.7), had < four children (OR=1.3;95CI1.3,2.5), partner wanted pregnancy (OR=1.9;95CI1.5,2.6), did not talk to HCW about postpartum contraception (OR=1.3;95CI1.1,1.7) and had no prenatal care (OR=1.9;95%CI1.2,4.5). In the full model, white women who had mistimed pregnancy (OR=1.9), currently breastfeeding (OR=2.2;95CI1.8,2.6) and being unmarried (OR=1.3;95CI1.1,1.7) were at risk postpartum.

CONCLUSIONS: The risk factors for not using contraception are complex. Reasons for not using contraception may differ by race.

PUBLIC HEALTH IMPLICATIONS: Education and access to health insurance continue to influence contraceptive use. Health care workers are in a unique position to educate women about contraceptive use after pregnancy.

Concurrent Session E2

All You Need Is Love and Contraception

POSTPARTUM INTRAUTERINE DEVICE INSERTION AND POSTPARTUM TUBAL STERILIZATION IN THE UNITED STATES, 2000 – 2007

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BACKGROUND: Effective postpartum contraception is important to prevent unintended pregnancies and ensure adequate birth spacing. The provision of contraception prior to hospital discharge represents a useful, cost-effective strategy to increase effective postpartum contraceptive use. Tubal sterilization and the intrauterine device (IUD) are highly effective contraceptive methods that may be safely initiated prior to discharge after delivery. However unlike tubal sterilization, the IUD is a reversible method.

STUDY QUESTIONS: What are the recent U.S. trends in the rates of postpartum IUD insertion and tubal sterilization and do these rates vary by maternal and/or hospital characteristics?

METHODS: We used data for 2000–2007 from the Healthcare Cost and Utilization Project Nationwide Inpatient Sample, an annual survey of U.S. inpatient hospitalizations. Records indicating an obstetric delivery were examined for procedure codes for IUD insertion or tubal sterilization to estimate rates per 10,000 deliveries. Linear trends over time were assessed.

RESULTS: During 2000–2007, approximately 875 postpartum IUD insertions were performed during delivery hospitalizations (rate=0.26), whereas over 2.5 million postpartum tubal sterilizations were performed (rate=770). The rate of postpartum IUD insertion increased from 0.15 in 2000-2001 to 0.37 in 2006-2007 (p-trend <0.01) and the rate of postpartum tubal sterilization increased from 731 in 2000-2001 to 783 in 2006-2007 (p-trend=0.01). While the rate of postpartum IUD insertion was similar across maternal age groups, the rate of postpartum tubal sterilization increased with advancing maternal age and was highest among those > 35 years old (rate=1,482). Nonetheless, 15% of all postpartum tubal sterilizations occurred among women aged < 24 years old. The rate of postpartum IUD insertion was higher at teaching hospitals than non-teaching hospitals (0.37 vs. 0.17), whereas the rate of postpartum tubal sterilization was higher among non-teaching hospitals than teaching hospitals (836 vs. 690) (p<.01).

CONCLUSIONS: Despite a recent increase in the rate of postpartum IUD insertion, it occurs considerably less often than postpartum tubal sterilization, even among younger women for whom post-sterilization regret is a greater concern.

PUBLIC HEALTH IMPLICATIONS: Interventions are needed to ensure postpartum women are counseled about and have access to effective contraceptive methods, including the IUD.

Concurrent Session E2

All You Need Is Love and Contraception

THE LONG-TERM INFLUENCE OF PREGNANCY INTENTION ON EDUCATIONAL ATTAINMENT

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BACKGROUND: In light of the elevated levels of unplanned pregnancy in the United States, public health research has shown that unintended pregnancies are at an elevated risk for poor prenatal and perinatal health outcomes. A smaller body of research has sought to investigate the long-term effect of intendedness for children later in life. The present study examines the influence of pregnancy intention as reported by parents on the long-term educational attainment of their children.

STUDY QUESTIONS: This study examined if intendedness had long-term consequences on the educational attainment of children after a 13-year period. The analysis investigated if the relationship between intendedness and future educational attainment was mediated by parents' education or parents' age at child's birth.

METHODS: This study used the two waves of the National Survey of Families and Households (wave 1 at 1987-1988, wave 3 at 2001-2002). The analysis isolates a sample of 1,147 adult children between 18 and 34 surveyed at wave 3, whose parents were interviewed at wave 1.

RESULTS: Findings revealed the long-term consequences of intendedness for children later in life. If children were unintended, they were less likely to graduate from high school (odds ratio = 0.3, $p < .009$). This relationship remains even when controlling for parents' educational attainment at wave 1. Among children 23 years of age and older, results show unintended children were less likely to graduate from college (odds ratio = 0.4, $p < .016$), and this relationship remained statistically significant even after controlling for parents' education (odds ratio = 1.3, $p < .001$) and parents' age at their child's birth (odds ratio = 1.1, $p < .001$).

CONCLUSIONS: Findings from this study demonstrate the influence of intendedness on the long-term educational outcomes for children.

PUBLIC HEALTH IMPLICATIONS: Family planning education programs can incorporate the importance of pregnancy intention, parents' education and parents' age at first birth on the long-term educational outcomes for children.

Concurrent Session E2

All You Need Is Love and Contraception

CONTRACEPTIVE METHOD AVAILABILITY AMONG OFFICE-BASED PHYSICIANS AND TITLE X CLINIC PROVIDERS IN THE UNITED STATES, 2009 – 2010

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BACKGROUND: Unintended pregnancies are associated with adverse outcomes for both mother and child and account for 49% of all U.S. pregnancies. Ensuring access to a range of contraceptive methods is one strategy to reduce the proportion of unintended pregnancies.

STUDY QUESTIONS: What is the availability of various contraceptive methods and does availability differ by service setting?

METHODS: In December 2009, CDC mailed a survey on contraceptive provision to 2,000 U.S., office-based physicians specializing in obstetrics/gynecology, family medicine, and adolescent medicine, randomly selected from the American Medical Association Physician Masterfile, and 2,000 Title X clinics randomly selected from an Office of Population Affairs maintained list. The survey queried office-based physicians and one provider from each Title X clinic about whether they provided specific contraceptive methods to clients on-site, prescribed/recommended each method, or referred clients seeking specific contraceptive methods to other providers.

RESULTS: Our response rate was 62.2% (office-based physicians=42.4%; Title X clinic providers=79.5%). The overall on-site availability of combined oral contraceptives (COCs) (78.5%), depot medroxyprogesterone acetate (DMPA) (85.4%) and male condoms (73.7%) was higher than that of long-acting reversible contraceptives (LARCs) including the Copper (Cu) intrauterine device (IUD) (57.9%), levonorgesterel (LNG)-releasing IUD (49.9%), and implant (34.5%). The on-site availability of the LNG-IUD was significantly (p-value <0.0001) higher for office-based physicians (56.3%) than for Title X clinic providers (46.9%), but was significantly lower for other hormonal contraceptive methods (COC=48.8% vs. 92.2%; DMPA=61.2% vs. 96.6%; Cu-IUD=53.6% vs. 59.9%; implant=31.8% vs. 35.8%). Office-based physicians were significantly more likely than Title X clinic providers to prescribe/recommend each contraceptive method rather than having it available on-site, especially COCs (50.4% vs. 6.8% for office-based physicians and Title X clinic providers, respectively), and DMPA (36.1% vs. 2.5%).

CONCLUSIONS: Contraceptive method availability varied by service setting, with Title X clinics more likely to have methods available on-site and office-based physicians more likely to prescribe/recommend methods.

PUBLIC HEALTH IMPLICATIONS: Strategies are needed to reduce barriers to on-site availability of a range of contraceptive methods, especially LARCs, to women at risk for unintended pregnancy, within the context of both office-based physician practices and Title X clinics.

Concurrent Session E3

Fellow, Intern, Trainee, CDC EIS Officer Symposium: Racial Disparities in Infant Survival and the Impact of Racism On Adult Morbidity

RACE-SPECIFIC BIRTHWEIGHT AND GESTATIONAL AGE-SPECIFIC INFANT MORTALITY RATES IN PENNSYLVANIA, 2005-2008

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BACKGROUND: Racial disparities in infant mortality (death of an infant <1 year of age) have been consistently documented in Pennsylvania. Evidence suggests that the racial disparity in infant mortality rates (IMR) may be driven by differential improvements in birth weight (BW) and gestational age (GA)-specific survival.

METHODS: All instate live singleton births to PA residents were identified using a 2005-2008 linked live birth-infant death certificate database. IMRs were expressed as deaths per 1000 live-born infants and maternal race was used to define race (black n=756 or white n=1,832). We examined racial differences in cause-specific and BW/GA-specific IMRs using standard BW (500-999, 1000-1499, 1500-1999, 2000-2499, 2500-2999, 3000-3499, 3500-3999, 4000-4499, and >4500 grams) and GA (<28, 28-32, 33-36, 37-41 and >42 weeks) categories. Chi-square tests were used to compare infant and maternal demographic and health-related characteristics between blacks and whites.

RESULTS: Overall, blacks had a 2.6 higher IMR than whites (12.3 vs. 4.8, respectively). For combinations of BWs <2500 grams and GA <37 weeks, the IMR was not significantly different between blacks and whites. Conversely, for combinations of BWs >2500 and GA >37 weeks, the IMR was significantly higher for blacks than whites (2500-2999 grams and >37 weeks, Rate Ratio (RR)=1.5, $p<0.05$; 3000-3499 grams and >37 weeks, RR=1.5, $p<0.05$; 3500-3999 grams and >37 weeks, RR=1.6, $p<0.05$). Among term, normal birth weight infants, blacks were significantly more likely to die from Sudden Infant Death Syndrome (SIDS) (RR=2.4), external causes (RR=2.4), and other ill-defined/unspecified causes (RR=3.8). Further, blacks were more likely to die during the post-neonatal period and have mothers who were younger ($p<0.0001$), unmarried ($p<0.0001$), had less education ($p<0.0001$), received WIC ($p<0.0001$), lived in an urban area ($p<0.0001$), and lacked prenatal care ($p=0.0004$).

CONCLUSIONS: Racial variations in IMRs persist both in overall and within BW/GA-specific categories. Eliminating the racial IM disparity in PA will require improving the survival of term black infants with normal birth weights.

PUBLIC HEALTH IMPLICATIONS: Effective use of racial-specific interventions to prevent avoidable causes of death, such as SIDS, could help narrow the racial gap in infant mortality.

Concurrent Session E3

Fellow, Intern, Trainee, CDC EIS Officer Symposium: Racial Disparities in Infant Survival and the Impact of Racism On Adult Morbidity

IMPACT OF HEALTHY START HOME VISITING MODEL ON REDUCTION PERINATAL HEALTH DISPARITIES IN ALLEGHENY COUNTY, PA: EVALUATION OF FIVE-YEAR MAJOR PERINATAL OUTCOMES

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BACKGROUND: The Pittsburgh/Allegheny County(AC) Healthy Start(HS) program is designed as an intensive community-based effort to eliminate perinatal health disparities. Since beginning operation in 1991, HS continues to address the significant disparities, especially in African-Americans(AA), that exist with regard to infant mortality, incidence of low weight births, preterm delivery, access to early prenatal care and the need for on-going community involvement. The HS home visiting model includes a multidisciplinary team utilizing the interventions of outreach and recruitment, case management, interconception care, health education, and depression screening and referral.

METHODS: The primary outcome variables assessed were infant mortality, low birth weight, and first trimester prenatal care. Given the racial demographics of HS participants (88.0% African-American, N= 6509) and the persistent racial disparities in perinatal health, the general population and AAs in AC were also used as a comparison groups.

RESULTS: The infant mortality rate in HS participants (4.2 per 1,000 live births) was significantly lower than all races in AC (7.7 per 1,000 live births) and AAs in AC (18.4 per 1,000 live births). The percent of low birth weight births for HSI participants (10.2%[95%CI: 8.68, 11.76]) was lower than AAs in AC (14.1%[95%CI: 12.46, 15.56]), but higher than all races in AC (8.4%[95%CI: 8.03, 8.72]). The percent entering prenatal care during the first trimester was higher for HSI participants (90.9%[95%CI: 89.63, 92.17]), compared to all races in AC (87.1%[95%CI: 85.29., 88.94]) and AAs in AC (78.3%[95%CI: 75.94, 80.66]).

CONCLUSIONS: The results of this analysis provide further evidence that the Healthy Start home visiting model is an effective method of reducing infant mortality rates, increasing access to care for mothers and infants, and ultimately, decreasing the gap in racial health disparities.

PUBLIC HEALTH IMPLICATIONS: The Healthy Start home visiting model should be used in development of future community-based home visiting programs to address perinatal health.

Concurrent Session E3

Fellow, Intern, Trainee, CDC EIS Officer Symposium: Racial Disparities in Infant Survival and the Impact of Racism On Adult Morbidity

RACIAL DISPARITIES IN SURVIVAL AMONG INFANTS WITH CONGENITAL HEART DEFECTS

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BACKGROUND: Although survival among children with congenital heart defects (CHD) has improved in recent decades, racial/ethnic disparities in survival were noted in earlier decades.

STUDY QUESTIONS: Has the difference in survival probability between Non Hispanic (NH) Black and NH White children with CHD remained in recent years? If yes, can this difference be accounted for by possible differences in sociodemographic and clinical characteristics?

METHODS: The study cohort consisted of infants with CHD born between 1979 and 2005, and identified through the Metropolitan Atlanta Congenital Defects Program. Vital status was identified through 2006 through linkage with vital records and the National Death Index. Using the Kaplan-Meier method and the log rank test, we estimated the survival probability and 95% confidence intervals (CI) for CHD stratified by birth cohort (1979–1992 vs. 1993–2005), race/ethnicity (NH White vs. NH Black), severity of CHD (critical vs. non-critical), sex (male vs. female), plurality (single vs. multiple), low birth weight (yes vs. no), maternal age (<30, 30+), and socioeconomic status (high vs. low). We estimated adjusted hazard ratios (aHR) using Cox proportional hazards model.

RESULTS: The 1-year survival probability for infants with CHD was higher for NH Whites (87.3 %) than for NH Blacks (81.9 %) (p <0.0001). Between 1979–1992 and 1993–2005, the 1-year survival probability improved significantly (p<0.0001) for both NH White (81.6% to 91.3%) and NH Black infants (77.2% to 84.4%). NH Blacks had a 69% higher risk of death (aHR=1.69, CI: 1.17–2.43) among infants with non-critical CHD, and had a 23% higher risk of death among infants with critical CHD (aHR=1.23, CI: 0.98–1.53) compared with NH Whites after adjusting for other covariates.

CONCLUSIONS: Survival of infants with CHD has improved, but NH Black infants continue to experience a lower survival compared with NH White infants. This disparity remains after accounting for sociodemographic variables and heart defect severity.

PUBLIC HEALTH IMPLICATIONS: Efforts to eliminate the black-white disparity in survival among infants with CHDs will require further studies to elucidate the role of other factors (e.g., presence of other defects, access to and time of diagnosis and treatment) on survival.

Concurrent Session E3

Fellow, Intern, Trainee, CDC EIS Officer Symposium: Racial Disparities in Infant Survival and the Impact of Racism On Adult Morbidity

IMPACT OF CHANGE IN SELF-REPORTED EXPERIENCES OF RACIAL/ETHNIC DISCRIMINATION ON WAIST CIRCUMFERENCE AND BODY MASS INDEX: A LONGITUDINAL ANALYSIS OF THE CARDIA COHORT

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BACKGROUND: Several studies have shown that racial/ethnic discrimination is associated with markers of cardiometabolic risk across the life course, including preterm and low birth weight deliveries, high blood pressure, insulin resistance, and obesity. These prior studies, however, have been mainly cross-sectional and are especially susceptible to confounding bias. We tested the hypothesis that an increase in self-reported experiences of racial/ethnic discrimination predicts gains in waist circumference (WC) and body mass index (BMI) in Black women and men over eight years.

METHODS: Panel data came from the Coronary Artery Risk and Development in Young Adults (CARDIA) study. Self-reported experiences of racial/ethnic discrimination were ascertained using situation versions of the Experiences of Discrimination index in 1992-93 and 2000-01, as were WC and BMI. Using a fixed-effect regression approach, we examined whether change in self-reported experiences of racial/ethnic discrimination predicts changes in WC and BMI, controlling for all time-invariant covariates, social desirability bias, and change in education.

RESULTS: Mean age was nearly 33 years for all CARDIA participants in 1992-93 and about 25% lived in the South. For 910 Black women and 614 Black men, 72% to 80% reported any experiences of racial/ethnic discrimination in 1992-93 and 2000-01. An increase in self-reported experiences of racial/ethnic discrimination over time was significantly associated with an increase in WC (b=1.09; 95% CI, 0.00-2.19; $P<0.05$) and an increase in BMI (b=0.67; 95% CI, 0.19-1.16; $P<0.01$) among Black women.

CONCLUSIONS: We observed that a positive change in self-reported experiences of racial/ethnic discrimination was associated with positive changes in WC and BMI over time among Black women only. Our results are consistent with several previous studies and provide support linking experiences of racial/ethnic discrimination to the development and progression of obesity.

PUBLIC HEALTH IMPLICATIONS: A better understanding of how Black women and men experience, perceive, cope with, and self-report experiences of racial/ethnic discrimination may lead to more effective and integrated efforts to prevent and reduce racial/ethnic disparities in obesity and related chronic health conditions across the life course.

Concurrent Session E4

The Milk Stops Here: Policies and Practices the Influence Breastfeeding

THE EFFECT OF HOSPITAL BREASTFEEDING POLICIES AND PRACTICES ON EXCLUSIVE BREASTFEEDING IN THE EARLY POSTPARTUM PERIOD

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BACKGROUND: Despite global public health recommendations regarding exclusive breastfeeding to six months, Canadian rates remain low. This study explored sociodemographic, sociocultural, hospital, birth and community-related factors associated with any and exclusive breastfeeding at hospital discharge, two weeks and six months postpartum. Given evidence of their positive association with breastfeeding outcomes, hospital policies and practices required to achieve the WHO/UNICEF Baby-Friendly Hospital designation were of particular interest.

STUDY QUESTIONS: Are hospital breastfeeding policies and practices independently and positively associated with exclusive breastfeeding in the early postpartum period?

METHODS: The study consisted of a survey of the breastfeeding policies and practices of Toronto's ten birthing hospitals (2007/08) and a telephone survey of 1,518 first-time Toronto mothers giving birth in these hospitals at two weeks postpartum (2007/08), 910 of whom were surveyed at six months postpartum (2008/09). This analysis used hierarchical logistic regression to identify hospital policies and practices independently associated with exclusive breastfeeding during the early postpartum period.

RESULTS: Exclusive breastfeeding rates were 60% (95% CI: 57.5-62.4) at hospital discharge and 51.7% (95% CI: 49.2-54.2) at two weeks postpartum. Controlling for sociodemographic, sociocultural and birth-related factors, the following hospital policies and practices with low levels of implementation were independently and positively associated with exclusive breastfeeding during the early postpartum period: implementation of a written breastfeeding policy (AOR: 1.58, 95% CI: 1.23-2.04); supporting mothers to breastfeed within one hour of birth (AOR: 2.02, 95% CI: 1.23-3.32); hospital staff not giving babies fluids other than breastmilk (AOR: 4.28, 95% CI: 2.98-6.15); and not distributing infant formula at hospital discharge (AOR: 3.47, 95% CI: 2.21-5.45).

CONCLUSIONS: Exclusive breastfeeding rates in the early postpartum period are low. Selected hospital breastfeeding policies and practices play a significant role in exclusive breastfeeding in the early postpartum period, controlling for other factors.

PUBLIC HEALTH IMPLICATIONS: Pursuing the Baby-Friendly Hospital designation, paying particular attention to salient breastfeeding policies and practices identified in the study, has the potential to improve exclusive breastfeeding rates. The results of this study will be used to inform collaborative work with Toronto's birthing hospitals and other key stakeholders to promote, support, and protect breastfeeding.

Concurrent Session E4

The Milk Stops Here: Policies and Practices the Influence Breastfeeding

EPIDURAL ANESTHESIA, OBSTETRIC FACTORS, AND BREASTFEEDING CESSATION: WHO OR WHAT IS THE CULPRIT?

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BACKGROUND: Anecdotal reports suggest that epidural anesthesia (EA) during labor has detrimental effects on breastfeeding (BF) duration and exclusivity. Limited empiric evidence has not established a clear direct relationship between EA and BF. Possible effects could be mediated by administered fluids, medications, labor course, augmentation, or other associated obstetrical factors.

STUDY QUESTIONS: Is the potential impact of labor EA on overall BF duration and exclusivity direct or mediated by other obstetric factors?

METHODS: This secondary analysis used detailed data from two prospective cohort studies and included healthy BF women having uncomplicated, singleton, vaginal deliveries (n=957). Self-report survey data included peripartum experiences and infant feeding practices. Additional sociodemographic, prenatal, and peripartum data were obtained from birth certificates and medical records. Kaplan-Meier curves assessed the unadjusted relationship between EA and cessation of any BF (within 30-days). Multivariable methods included Cox Proportional Hazard (CPH) to evaluate 30-day BF cessation, modified CPH to account for time-varying effects of labor augmentation, and logistic regression for exclusive BF (14-days). Each method adjusted demographics, parity, maternal BF confidence, BF goal, hospital, labor medications, and combinations of labor fluid intake and edema status.

RESULTS: We detected a significant crude effect of EA on overall BF cessation at 30 days ($p<0.01$). Multivariable results differed across model types. Using the CPH model, there was no effect of EA on BF cessation within 30-days; significant independent predictors included lower maternal education, income, and BF confidence. After applying the modified CPH model, we identified an independent effect of EA on overall BF cessation (HR 1.18; CI 1.04-1.35); other independent predictors included oxytocin augmentation, non-white race and lower maternal education, income, and BF confidence. Lower confidence and presence of edema predicted cessation of exclusive BF at 14-days, while EA had no effect.

CONCLUSIONS: Our findings demonstrate a relationship between EA and early BF cessation while controlling for common confounders and novel covariates.

PUBLIC HEALTH IMPLICATIONS: These findings increase our understanding of the complex relationship between EA and BF and support an independent effect of maternal edema on cessation of exclusive BF and of EA and oxytocin augmentation on BF cessation by 1 month.

Concurrent Session E4

The Milk Stops Here: Policies and Practices the Influence Breastfeeding

DIFFERENCES IN BREASTFEEDING INITIATION, DURATION, AND EXCLUSIVITY BASED ON HOSPITAL EXPERIENCES AMONG WIC WOMEN IN TEXAS, 2009

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BACKGROUND: Breastfeeding promotes long-term health benefits for mothers and babies. Evidence shows that environments that encourage mothers to breastfeed, including hospital practices in maternity care settings, can significantly affect breastfeeding outcomes.

STUDY QUESTIONS: How do breastfeeding initiation, duration, and exclusivity rates differ among women receiving WIC benefits, based upon their hospital experiences?

METHODS: Approximately 5,427 mothers of infants receiving WIC services in Texas were surveyed in 2009. Chi-square tests of association and multivariate logistic regression were used to examine differences in breastfeeding initiation, duration, and exclusivity by self-reported experiences in the hospital, adjusting for mother's race, age, education, delivery by cesarean-section, and infant neonatal intensive care unit (NICU) admission status.

RESULTS: More than 50% of women reported experiencing recommended hospital practices including close contact with baby after birth, education about breastfeeding and encouragement to breastfeed. Breastfeeding at first feeding and in the first hour after birth were each reported by approximately 40% of women. Women who reported recommended hospital experiences were more likely to initiate and continue breastfeeding through 6 and 12 months. These practices were also associated with greater odds of exclusive breastfeeding at 3 and 6 months. Initiation and duration rates were lower when the baby spent one or more nights away in the nursery or if the baby was given a pacifier. Duration of breastfeeding was highest among the 22.4% of women reporting exclusive breastfeeding in the hospital after birth. These women were three times more likely to breastfeed at 6 months (OR 2.9, 95% CI 2.4-3.5) and 12 months (OR 2.9, 95% CI 2.3-3.6) than women who did not exclusively breastfeed in the hospital. Women who reported receiving formula samples in the hospital(83.6%) had lower odds of initiation (OR 0.70, 95% CI 0.57-0.86), duration at 6 and 12 months, and exclusive breastfeeding at 3 and 6 months.

CONCLUSIONS: Hospital practices related to birth and breastfeeding are associated with initiation, duration, and exclusivity of breastfeeding.

PUBLIC HEALTH IMPLICATIONS: Hospitals should integrate recommended maternity care practices that promote and support breastfeeding and discontinue practices that are associated with lower rates of breastfeeding.

Concurrent Session E4

The Milk Stops Here: Policies and Practices the Influence Breastfeeding

ASSOCIATION OF MPINC SURVEY SCORES AND EXCLUSIVE BREASTFEEDING INITIATION AMONG CALIFORNIA HOSPITALS, 2007

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BACKGROUND: Although 87% of California women initiate breastfeeding while in the hospital, less than 43% do so exclusively. In-hospital experiences can influence breastfeeding behaviors during a period critical for successful establishment of lactation.

STUDY QUESTIONS: What is the association between hospital maternity care practices related to breastfeeding and exclusive in-hospital breastfeeding rates in California?

METHODS: In 2007, 80% of California hospitals participated in CDC's Maternity Practices in Infant Nutrition and Care (mPINC) Survey, which scores hospital policies and practices related to breastfeeding on seven dimensions. Responses were linked with aggregated hospital-level data on breastfeeding and birth characteristics from the Newborn Screening Program and Birth Statistical Master File (n=175). The association between mPINC scores (low<60, moderate 60-79.9, and high 80-100) and poor exclusive breastfeeding rates (<25%) was assessed using chi-square tests, as well as logistic regression to control for hospital characteristics. This study is limited by the ecologic nature of the analysis.

RESULTS: Overall, 24% of hospitals had poor exclusive breastfeeding rates and 26% had a low total mPINC score. Compared to other hospitals, those with poor exclusive breastfeeding rates were more likely to score low on the mPINC, overall (58.1 vs. 15.4%, p <.0001) and on five of seven subscales, which measure practices related to labor and delivery (66.7 vs. 36.4%, p = .001), breastfeeding assistance (20.9 vs. 3.1%, p <.0001), mother-infant contact (25.6 vs. 8.5%, p <.01), supplementation of breastfed infants (52.4 vs. 7%, p <.0001), facility policies (48.8 vs. 16.3%, p <.0001), discharge care (81.4 vs. 63.8%, p =0.10), and staff training (50.0 vs. 37.3%, p =0.36). The findings were similar after controlling for the percent of cesarean section, Hispanic, and Medi-Cal births, which were higher among hospitals with poor exclusive breastfeeding rates.

CONCLUSIONS: Lack of evidence-based breastfeeding policies and practices is associated with poor exclusive breastfeeding rates in California hospitals.

PUBLIC HEALTH IMPLICATIONS: These results highlight the need for hospitals to implement evidence-based maternity care policies that support breastfeeding, such as the Ten Steps of the Baby Friendly Hospital Initiative. Hospitals should utilize the mPINC Survey results as a component of breastfeeding quality improvement initiatives.

Concurrent Session E5

Chain, Chain, Chain…Chain of Tools #1…Using Linked Datasets to Identify Infant Outcomes

LINKING IMMUNIZATION INFORMATION SYSTEM (IIS) DATA TO THE OKLAHOMA PREGNANCY RISK ASSESSMENT MONITORING SYSTEM (PRAMS)

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BACKGROUND: Immunization Information Systems (IIS) offer enormous potential in identifying vaccine coverage rates of children at a state, regional or community level. Yet most IIS captures little information beyond basic demographics that identify risk factors related to poor coverage. The Pregnancy Risk Assessment Monitoring System (PRAMS) is an ongoing population-based survey of new mothers that identifies maternal and early infancy risk factors. By linking IIS data with PRAMS, a more complete picture of maternal and family influences that impact immunization coverage may be formed.

STUDY QUESTIONS: Can a PRAMS/ IIS linkage produce a valid data set that can be used to describe additional risk factors of under-vaccinated children?

METHODS: Data from the 2005-2006 birth cohorts from Oklahoma State Immunization Information System (OSIIS) and PRAMS were linked to create the analytic dataset. Linkage was performed using the birth certificate numbering system, a common field in both data sets. Previous to the link, OSIIS data were reviewed for potential completeness of immunization records. Data were assessed to determine the overall strength of the linkage as well as to determine if there were significant demographic differences in matched children with complete and incomplete immunization records at age two years. In examining demographic differences, we reviewed mother's race, marital status, education and ethnicity. Descriptive statistics and a logistic regression were run to determine associations at a significance level of $p < .05$.

RESULTS: A total of 3,875 PRAMS records and 111,699 OSIIS records were used for the match of the 2005-06 birth cohort. Eighty-four percent (3,250) of PRAMS records were successfully matched to an OSIIS record. Of the 3,250 PRAMS linked records, 2,167, or 66.7 percent of the records were considered to have an up-to-date immunization record. Of the total records matched, no differences in demographic characteristics were found between PRAMS children with complete and incomplete immunization records.

CONCLUSIONS: Linking PRAMS and IIS data can produce a data set that can be utilized to determine further risk factors of under-vaccinated children.

PUBLIC HEALTH IMPLICATIONS: Linking IIS/PRAMS expands the potential for identifying additional risk factors that may be associated with under-vaccination and intervention development that may lead to increased immunization coverage.

Concurrent Session E5

Chain, Chain, Chain…Chain of Tools #1…Using Linked Datasets to Identify Infant Outcomes

PREGNANCY-ASSOCIATED MORBIDITIES: A COMPARISON OF HOSPITAL DISCHARGE, BIRTH CERTIFICATES, AND THE PREGNANCY RISK ASSESSMENT MONITORING SYSTEM (PRAMS) DATA, MASSACHUSETTS, 2007

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BACKGROUND: Information about pregnancy-associated morbidities is available from hospital discharge (HD) records, birth certificates (BC), and surveys. Massachusetts Pregnancy Risk Assessment Monitoring System (PRAMS) collects data on health conditions around the time of pregnancy. Compared to HD data, the BC is known to underestimate morbidities. However, less is known about PRAMS. To better understand PRAMS as a source of morbidity data, we assessed levels of agreement among PRAMS, HD, and BC.

STUDY QUESTIONS: What are the levels of agreement around the occurrence of pregnancy-associated morbidities, comparing PRAMS to HD and BC records?

METHODS: We linked data from 2007 Massachusetts PRAMS, a population-based survey of women who recently delivered a live birth, with respondents' delivery HD records and their infants' BC using the Pregnancy to Early Life Longitudinal (PELL) Database. Kappa statistics were used to assess agreement levels between PRAMS and the other data sources for selected pregnancy-associated morbidities including hypertension, incompetent cervix, placental complications (abruptio or previa), and premature rupture of membranes (PROM). We did not assess validity as no single source is an established gold standard.

RESULTS: Higher prevalences of pregnancy-associated morbidities were reported in PRAMS than in HD or BC records. PRAMS generally had higher agreement with HD than with BC data. Specifically, of the 1,478 linked records, 148 women reported having hypertension in PRAMS, compared to 112 identified in HD (kappa=0.62) and 37 in BC (kappa=0.26). The agreements between PRAMS and HD and BC were worse for complications of the placenta (kappa=0.26 and 0.15, respectively) and PROM (kappa= 0.16 and 0.11, respectively). For incompetent cervix, agreements between PRAMS and HD and between PRAMS and BC were similar (0.26 and 0.25, respectively).

CONCLUSIONS: Pregnancy-associated morbidity data from PRAMS tended to have higher agreement with HD than BC data. With the exception of HD-reported hypertension, a generally low level of agreement was observed between PRAMS and pregnancy-associated morbidities reported in HD and BC records.

PUBLIC HEALTH IMPLICATIONS: Reliable data regarding pregnancy-associated morbidities is important to optimize pregnancy outcomes. Because of limited resources, self-reported and administrative data are the main sources of this information. Linkage of PRAMS with HD data provides information about the reliability of PRAMS self-reported data.

Concurrent Session E5

Chain, Chain, Chain…Chain of Tools #1…Using Linked Datasets to Identify Infant Outcomes

SMOKING QUIT RATES DURING PREGNANCY: CAN THE NEW BIRTH CERTIFICATE DATA ELEMENTS PROVIDE ACCURATE ESTIMATES?

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BACKGROUND: Smoking cessation during pregnancy is an effective strategy to prevent adverse pregnancy outcomes. The revised 2007 Iowa birth certificate (I-BC) provided the first opportunity to measure maternal quit rates. The 2007-2008 Iowa Pregnancy Risk Assessment Monitoring System (I-PRAMS) pilot project provided the opportunity to evaluate the accuracy of smoking quit rates.

STUDY QUESTIONS: What is the level of agreement of smoking quit rates during pregnancy comparing I-BC and I-PRAMS?

METHODS: Iowa piloted the CDC core PRAMS survey for three months in 2007 and for six months in 2008 and achieved a weighted response rate of 68.4% (n=1226 respondents). I-PRAMS data were linked to I-BC and weighted for non-response and non-coverage. Both data sources ask for the number of cigarettes smoked in the three months prior to pregnancy and in the third trimester. Known responses to these questions were divided into three categories: smokers, non-smokers, and quitters. Using SAS version 9.2, we estimated quit smoking prevalence, kappa statistics, and agreement, overall and by maternal characteristics (e.g. age, race, education, Medicaid status).

RESULTS: The prevalence of I-BC quitters was 9.8% (95% CL: 7.8-11.7) and 11.7% per I-PRAMS (95% CL: 9.7-13.7). The overall Kappa comparing the two data sources was 0.74 (95% C.L.: 0.73–0.75). The agreement of I-BC with I-PRAMS was 90.4% (95% CL: 88.5-92.4) for non-smokers, 96.2% (95% CL: 93.4-99.0) for smokers, and 65.6% (95% CL: 55.4-75-8) for quitters. The agreement of I-PRAMS with I-BC was 98.4% (95% CL: 97.6-99.4) for non-smokers, 75.2% (95% CL: 68.7-81.9) for smokers, and 52.7% (95% CL: 43.5-61.9) for quitters. The agreement of I-BC with I-PRAMS for quitters was 85.5% (95% CI: 71.9 – 93.2) among Medicaid recipients and 53.8% (95% CI: 38.5-69.3) among non-Medicaid recipients, the only significant difference by maternal characteristic.

CONCLUSIONS: The overall Kappa for the smoking categories suggests substantial agreement. However, the agreement levels for quit rates were substantially lower than for other smoking categories which suggest poor agreement.

PUBLIC HEALTH IMPLICATIONS: The I-BC provides new smoking measures during pregnancy including quit rates. Given the low level of agreement between I-BC and I-PRAMS, Iowa's quit rates should be used with caution.

Concurrent Session E6

Responding to the H1N1 Epidemic: How Well Did We Do?

RISK OF SEVERE 2009 H1N1 INFLUENZA AMONG PREGNANT WOMEN, WASHINGTON, 2009 – 2010

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BACKGROUND: Pregnant women are reported to have increased risk for severe illness due to seasonal influenza. With arrival of H1N1 influenza in spring 2009 and two H1N1 influenza deaths to pregnant women in Washington early in the pandemic, there was concern the pandemic would cause significant morbidity and mortality among pregnant women.

STUDY QUESTIONS: Were pregnant women in Washington at increased risk of severe disease due to H1N1 influenza in 2009-2010 compared to non-pregnant women? What risk factors were observed among pregnant women hospitalized with H1N1?

METHODS: Pregnant women hospitalized with H1N1 influenza were identified from mandatory reporting by healthcare providers and hospitals during May 2009 – January 2010. Demographic and clinical data were collected during medical record review using a standardized form. Hospitalization rates were calculated using estimated 2008 population data. Risk factors for hospitalization were explored with odds ratios comparing women hospitalized with H1N1 to the 2008 live birth population.

RESULTS: During May 2009 – January 2010, 101 pregnant women were hospitalized with lab-confirmed influenza in Washington, including two women who died. Pregnant women had significantly higher hospitalization rates than non-pregnant women (141.1 per 100,000 pregnant women vs. 18.3 per 100,000 non-pregnant women). Pregnant women also had significantly higher rates of severe disease (15.4 vs. 5.0 per 100,000). Pregnant teens with H1N1 had increased risk of hospitalization compared to pregnant women 25-29 years (OR 3.2, [95% CI 1.7, 6.2]). Hispanic women and non-Hispanic Black women were more likely to be hospitalized while pregnant than non-Hispanic White women (OR 3.5 [95% CI 1.7, 6.8] and 5.3 [95% CI 1.9, 13.2], respectively).

CONCLUSIONS: Pregnant women were almost eight times more likely to be hospitalized with H1N1 influenza than non-pregnant women of reproductive age. Pregnant women hospitalized with influenza were overrepresented by teens, non-Hispanic Blacks and Hispanics. No deaths among pregnant women occurred in Washington after widespread communication regarding the increased risk of pregnancy.

PUBLIC HEALTH IMPLICATIONS: Seasonal and pandemic influenza can cause severe disease in pregnant women. Providers need to treat pregnant women quickly and monitor their care closely. Promotion of influenza vaccination among pregnant women should be prioritized.

Concurrent Session E6

Responding to the H1N1 Epidemic: How Well Did We Do?

RECEIPT OF H1N1 VACCINE BY MOTHERS AND OTHER CAREGIVERS OF NEWBORNS IN 2009

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BACKGROUND: Pregnant women and infants under six months of age were identified as members of high risk groups for the 2009 influenza season.

STUDY QUESTIONS: What were the H1N1 vaccination rates for mothers and other caregivers of newborns during the 2009 influenza vaccination campaign in a mid-Atlantic region?

METHODS: We administered a survey to women delivering a live birth at a large regional hospital between February and March of 2010. The survey ascertained maternal characteristics, history of prior/current seasonal influenza vaccination, reasons for lack of vaccination, and vaccination of family members and other planned caregivers of their newborn. We used logistic regression to determine factors that were associated with vaccination during pregnancy.

RESULTS: Among 303 postpartum women, 187 (61.7%) had been vaccinated against H1N1 while 76 (25.1%) were offered vaccine but refused. Seasonal vaccine was received by 183 (60.4%). Concern about H1N1 vaccine safety was the most commonly cited reason (66%) for refusal. Factors associated with H1N1 vaccination included older age (OR 1.08 per year, 95% CI 1.03-1.13), college education (OR 3.3, 95% CI 2.0-5.5), and influenza vaccination during prior pregnancies (OR 3.7, 95% CI 2.0-7.0). Provider recommendation was significantly associated with vaccination (69% vs. 20%, OR 9.3, 95% CI 4.3-20.1), and African-American women were less likely to have been vaccinated (OR 0.4, 95% CI 0.2-0.6). In multivariable analysis, education, provider recommendation, concurrent seasonal vaccination, and race remained significantly associated with H1N1 vaccination. Vaccination of all family members and others planning to care for the newborn was reported by 99 (32.7%), while 60 (19.8%) reported some were vaccinated. The rates of any caregiver vaccination were lower ($p<0.05$) than rates reported for the mothers.

CONCLUSIONS: Uptake of H1N1 vaccine by pregnant women was substantially higher than reported during previous influenza seasons. However, the vaccination rate among family members and other caregivers was significantly lower, leaving newborn infants at risk for influenza and its complications.

PUBLIC HEALTH IMPLICATIONS: Campaigns targeting women during pregnancy successfully increased rates of immunization for both H1N1 and seasonal flu vaccine. Attention to vaccination of family members and others providing newborn care are also needed.

Concurrent Session E6

Responding to the H1N1 Epidemic: How Well Did We Do?

COMPARISON OF PANDEMIC 2009 H1N1 AND SEASONAL INFLUENZA INFECTION DURING PREGNANCY

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BACKGROUND: Pregnant women are at higher risk of influenza-related complications than the general population. Enhanced national surveillance conducted through August 21, 2009 found that 22.6% of hospitalized pregnant women with confirmed pandemic 2009 H1N1 influenza infection reported to CDC were admitted to an intensive care unit (ICU) and 5.9% of these women died.

STUDY QUESTIONS: Was the severity of influenza infection among hospitalized pregnant women higher during the pandemic 2009 influenza season than during previous influenza seasons?

METHODS: We used data collected through the Emerging Infections Program from population-based surveillance sites in 10 US states from October 1, 2005 through March 23, 2010. Chi-square and Fisher's exact tests were used to compare socio-demographic and clinical characteristics of pregnant women hospitalized with laboratory-confirmed seasonal (2005/06-2008/09) and pandemic (2009/10) influenza infection.

RESULTS: Data were available on 192 seasonal and 477 pandemic influenza cases among pregnant women hospitalized during any trimester of pregnancy. The two groups did not differ significantly by age or race/ethnicity. About a third of women in both groups had an underlying medical condition for influenza complications other than pregnancy as defined by the Advisory Committee on Immunization Practices. There were no deaths among the reported hospitalized seasonal influenza cases, and 5 deaths among the pandemic influenza cases. Significantly more women with pandemic than with seasonal influenza were admitted to an ICU (11.5% versus 4.7%; p=0.006). Seasonal and pandemic influenza cases admitted to an ICU did not differ statistically by length of hospital stay, need for mechanical ventilation or pneumonia reported as a discharge diagnosis. However, more women with pandemic than with seasonal influenza infection received antiviral treatment (96.4% versus 22.4%, p<0.001).

CONCLUSIONS: Despite enhanced influenza testing during the 2009 H1N1 pandemic, our data suggest that women with pandemic influenza experienced more severe illness including being more likely to be admitted to an ICU than women with seasonal influenza.

PUBLIC HEALTH IMPLICATIONS: Clinicians should encourage pregnant women to get vaccinated against influenza and institute treatment early if women become ill. Influenza surveillance is needed to inform public health decisions related to the hospitalization and treatment needs of this high-risk group.

Concurrent Session E6

Responding to the H1N1 Epidemic: How Well Did We Do?

CDC PREGNANCY FLU LINE SURVEILLANCE SYSTEM FOR MATERNAL AND INFANT OUTCOMES AMONG CRITICALLY ILL PREGNANT AND POSTPARTUM WOMEN WITH LAB-CONFIRMED INFLUENZA

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BACKGROUND: As of August 21, 2009, pregnant women comprised five percent of United States pandemic H1N1-related deaths although pregnant women are about one percent of the US population. The Centers for Disease Control and Prevention (CDC) and state health departments responded to early evidence of severe pandemic H1N1-related illness among pregnant women by increasing influenza surveillance among this group. CDC launched the CDC Pregnancy Flu Line (Flu Line) to provide a central point for inquires about and reports of severe influenza during pregnancy and the postpartum period.

STUDY QUESTIONS: To describe creation of the CDC Pregnancy Flu Line surveillance system for maternal and infant outcomes among critically ill pregnant and postpartum women

METHODS: Since Flu Line implementation in October, 2009, CDC has collaborated with state/local/territorial health departments and, in some states, individual providers/hospitals to collect case reports on intensive care unit admissions and deaths among pregnant and postpartum women with lab-confirmed influenza. Flu Line epidemiologists provided case-reporting support according to state preferences

RESULTS: 46 states, three localities. and one territory participated in the Flu Line as of March 31, 2010. Five states/localities/territories reported >10 cases; twelve reported zero cases; most reported 1-5 cases. Four states have pending reports; no state declined participation. All 38 states/localities/territories reporting cases provided maternal diagnostic, treatment and outcome data; 34 of these also provided infant or stillbirth data. Surveillance methods and case report completeness varied by state. As of March 31, 2010, 199 intensive care unit admissions among pregnant and postpartum women have been reported to the Flu Line (with symptom onset from August 21, 2009 through February 23, 2010); 39 of these died and two additional deaths occurred without intensive care unit admission. Data analysis will be reported following collection of pending data.

CONCLUSIONS: Prior to October 2009, no national surveillance system was in place to track severe illness and death from influenza among pregnant and postpartum women. Flu Line data provide valuable contributions to the understanding of 2009 pandemic H1N1 infection in pregnant and postpartum women and their infants.

PUBLIC HEALTH IMPLICATIONS: Flu Line contributions have informed treatment recommendations for pandemic H1N1 infected pregnant and postpartum women.

Concurrent Session F1

Starting It Out Right: Birth Outcomes and the Life Course Perspective

PERINATAL COMPLICATIONS AMONG LATINA IMMIGRANTS

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BACKGROUND: Latinas experience relatively low rates low birthweight infants, although extensive research has shown that these rates increase with acculturation. Other adverse birth outcomes during the perinatal period are not routinely examined in the literature. A complete understanding of the impact of acculturation on Latina maternal and child health cannot be obtained without consideration of complications that occur throughout the perinatal period.

STUDY QUESTIONS: Is level of acculturation positively associated with perinatal optimality, a comprehensive index of birth complications?

METHODS: The Latinas in this study comprise a subsample (n=147) of participants in a longitudinal study that evaluated the impact of a cognitive-behavioral intervention on preventing perinatal depression. Two unidimensional measures of acculturation, length of time in the US and English language ability, were measured at a prenatal baseline interview. The dependent variable (optimality) was constructed using data from labor and delivery records. Associations were tested with Pearson's product-moment and point biserial correlations. Because all participants were at high risk for depression, the generalizability of the results may be limited.

RESULTS: Neither measure of acculturation shared a significant linear relationship with perinatal optimality. However, both length of time in the US and English language ability were positively related to preeclampsia and non-optimal 5-minute APGAR scores (less than 8), and negatively related to meconium staining at birth. Independently, length of time in the US was positively related to inadequate prenatal care, low birthweight, and non-optimal 1-minute APGAR scores and negatively related to inadequate weight gain and anemia. English language ability was the only correlate of urinary tract infections.

CONCLUSIONS: These findings underscore the importance of exploring a range of birth outcomes when attempting to understand the perinatal experiences of Latinas. Furthermore, these different patterns provide evidence that acculturation is not captured equally by length of time in the US and English language ability.

PUBLIC HEALTH IMPLICATIONS: A more thorough understanding of adverse birth complications among Latinas at various levels of acculturation will allow for the development of targeted perinatal interventions that seek to ensure optimal outcomes for mothers and infants in the fastest-growing segment of the US population.

Concurrent Session F1

Starting It Out Right: Birth Outcomes and the Life Course Perspective

ASSOCIATIONS OF PLACENTAL SIZE AND VASCULAR PATHOLOGICAL LESIONS WITH CHILDHOOD SYSTOLIC BLOOD PRESSURE

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BACKGROUND: As the main organ supplying nutrients, oxygen, and hormones to the fetus, the placenta can be key to understand fetal programming of blood pressure. Inconsistent evidence suggests that placental weight and placenta-fetus weight ratio may be linked to offspring blood pressure. Little is known regarding the role of other human placental characteristics.

STUDY QUESTIONS: Are placental size measures and vascular pathological lesions associated with childhood blood pressure?

METHODS: The sample included 13,273 full-term singletons in the Collaborative Perinatal Project. Systolic blood pressure (SBP) was measured with palpation and auscultation methods at 4-month and 7-year follow-ups, respectively. Placentas were examined with a standard protocol by pathologists blinded of pregnancy courses and outcomes. In this analyais, we focused on placental size measures (weight, diameters, thickness, area, volume, and density) and vascular pathological lesions (thrombus, infarct, necrosis, and retroplacental hemorrhage).

RESULTS: We found that placental weight and placenta-fetus weight ratio were positively associated with 7-year SBP but not associated with 4-month SBP. The highest quintiles of placental diameters and area were associated with lower 4-month SBP, but higher 7-year SBP. The lowest quintile of placental thickness was associated with higher 4-month SBP only. Placental volume was negatively associated with 4-month SBP, but positively associated with 7-year SBP. Thrombi in cord vessels (adjusted mean difference, 2.73 [95% confidence interval, -0.03 to 5.50]) and decidual vessels (2.58 [95% CI, 0.24 to 4.91]), villous microinfarcts (1.63 [95% CI, 0.71 to 2.55]), necrosis at the decidual margin (1.57 [95% CI, 0.54 to 2.59]) and basalis (3.44 [95% CI, 1.55 to 5.32]) were associated with higher 4-month SBP. Thrombi in fetal vessels (-2.11 [95% CI, -3.68 to -0.53]) were associated with lower 7-year SBP.

CONCLUSIONS: Large placental size is associated with lower infancy SBP but higher early childhood SBP. Placental vascular pathological lesions only predict high infancy SBP.

PUBLIC HEALTH IMPLICATIONS: Our novel findings can advance current limited knowledge on the role of the placenta in programming offspring blood pressure and other cardiovascular diseases: placental inefficiency predicts long-term blood pressure, whereas vascular resistance may only influence short-term blood pressure. More research is needed for translating these findings into clinical care and public health intervention.

Concurrent Session F1

Starting It Out Right: Birth Outcomes and the Life Course Perspective

EXPLORING "WEATHERING" AMONG US BORN MEXICAN AMERICAN MOTHERS: A POPULATION-BASED TRANSGENERATIONAL STUDY

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BACKGROUND: The deterioration in reproductive health status over the childbearing years among African-American women has been termed "weathering". The Weathering Hypothesis conceptualizes the physical consequences of social inequality on female reproductive outcome. The extent to which this phenomenon exists among US-born Mexican-Americans, the second largest and fastest growing minority group in this country, is unclear.

STUDY QUESTIONS: What is the association of low birth weight (< 2500g, LBW) rate, economic environment, and advancing maternal age among first and second or higher generation US born Mexican Americans?

METHODS: Stratified and multilevel logistic regression analyses were performed on an Illinois transgenerational dataset of Mexican-American (MA) infants (1989-1991) and their mothers (1956-1976) with appended U.S. census income information.

RESULTS: Second or higher generation US-born MA women (N= 2,006) had a LBW rate of 6.2% compared to 4.8% for first generation US-born MA women (N= 1,450), RR=1.3 (1.0-1.6). The former had a greater percentage of teenage mothers. They were also more likely to have a lifelong residence in low-income neighborhoods. In both generations of US-born MA, LBW rates actually declined with advancing maternal age. Moreover, among second or higher US-born MA mothers LBW rates were lower among those aged 30-35 compared to those aged < 20 years: 4.9% vs 7.4%, RR = 0.7 (0.4-0.9). In both generations of US-born MA with a lifelong residence in low-income neighborhoods, LBW rates still failed to rise with advancing maternal age.

CONCLUSIONS: Second or higher generation US-born MA have a greater risk of LBW than first generation US-born MA women. However, the authors were not able to demonstrate "weathering" in US-born Mexican-Americans, even among second or higher generation US-born mothers with a lifelong residence in low-income neighborhoods.

PUBLIC HEALTH IMPLICATIONS: Further research is warranted to understand the deterioration in birth outcome across generations among the US-born descendents of Mexican-born women.

Concurrent Session F1

Starting It Out Right: Birth Outcomes and the Life Course Perspective

AFRICAN-AMERICAN WOMEN'S LIFETIME UPWARD ECONOMIC MOBILITY AND PRETERM BIRTH: THE EFFECT OF FETAL PROGRAMMING

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BACKGROUND: A life-course conceptual model has been proposed to explain the racial disparity in preterm birth (PTB). In this model, the high rate of PTB among African-American (compared to non-Latino White) women reflects their higher prevalence of contextual risk factors and their paucity of protective contextual factors across the entire life-course from conception until reproductive age. The extent to which aberrant female reproductive programming modifies the association of contextual factors across the life-course and PTB is incompletely understood.

STUDY QUESTIONS: Is former low birth weight (<2500g, LBW) and non-LBW African-American mothers' upward economic mobility across the life-course associated with PTB?

METHODS: Stratified and multilevel logistic regression analyses were performed on an Illinois transgenerational dataset of birth certificates for African-American infants (1989-1991) and their mothers (1956-1976) with appended U.S. census income information.

RESULTS: African-American mothers (N=11,265) with a lifelong residence in impoverished neighborhoods had a PTB rate of 18.7%. African-American mothers with early-life impoverishment who experienced low (N=5,832), modest (N=2,256), or high (N=732) upward economic mobility by adulthood had lower PTB rates of 16.0%, 15.2%, and 12.4%; RR (95%CI) = 0.9 (0.8-0.9), 0.8 (0.7-0.9), and 0.7 (0.6-0.8), respectively. An improvement in the distribution of known individual-level risk factors during adulthood accounted for this phenomenon among those who experienced low and modest upward mobility. Most striking, PTB risk was not reduced among former LBW African-American mothers who experienced upward economic mobility compared to those who experienced lifetime impoverishment. In multilevel logistic regression models of former LBW and non-LBW mothers aged 20-35 years, the adjusted (for maternal age, education, marital status, parity, prenatal care usage, and cigarette smoking) OR of PTB for those who experienced high upward economic mobility across the life-course (compared to those with lifetime impoverishment) equaled 0.9 (0.5-1.6) and 0.7 (0.5-0.9), respectively.

CONCLUSIONS: Upward economic mobility is associated with a decreased risk of PTB among African-American mothers; however, consistent with a fetal programming theory of reproductive outcome this phenomenon fails to occur among mothers who were themselves born at low birth weight.

PUBLIC HEALTH IMPLICATIONS: An intergenerational conceptual model is needed to fully address African-American women's birth outcome disadvantage.

Concurrent Session F2

Broken Promise: Violence Across the Lifespan

RACIAL AND ETHNIC DISPARITIES IN THE KNOWLEDGE OF SHAKEN BABY SYNDROME AMONG RECENT MOTHERS: RHODE ISLAND 2004 – 2008

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BACKGROUND: Shaken baby syndrome (SBS) is a serious public health problem and can cause irreversible brain damage, blindness, cerebral palsy, spinal cord injury, learning disabilities, and even death. It is important that all caregivers/parents know that shaking a baby is dangerous.

STUDY QUESTIONS: Are there any racial/ethnic disparities in the knowledge of SBS among recent mothers in Rhode Island? Is there an interaction between race/ethnicity and immigration status in the knowledge of SBS?

METHODS: We analyzed Rhode Island PRAMS data from 2004-2008 (n=6,959). Knowledge of SBS was assessed by asking recent mothers a question, "Have you ever heard or read about what can happen if a baby is shaken?" Bivariate and multivariate logistic regression models were performed using SUDAAN software to determine whether there are racial/ethnic disparities, and whether there is an interaction between race/ethnicity and immigration status in the knowledge of SBS.

RESULTS: Overall, 6.2% of RI recent mothers reported Lacking Knowledge of SBS (LKSBS). LKSBS varied significantly by maternal race/ethnicity (White 2.2%; Black 15.8%; Hispanic 13.6%; Asian 16.7%; p<.0001) and by maternal immigration status (Non-immigrants 2.7%; immigrants17.1%; p<.0001). A logistic regression model with interaction fitted the data better than a model without interaction. After controlling for confounding factors (i.e., maternal age, education, income, marital status, and parity), minorities AND immigrants had significantly higher odds of LKSBS: immigrant Blacks (AOR=13.1, 95%CI: 8.1-21.4), immigrant Hispanics (AOR=6.7, 95%CI: 4.5-10.0), immigrant Asians (AOR=15.3, 95%CI: 8.6-27.0), non-immigrant Blacks (AOR=2.5, 95%CI: 1.3-5.1), non-immigrant Hispanics (AOR=3.1, 95%CI: 1.7-5.6), non-immigrant Asians (AOR=2.4, 95%CI: 0.7-7.9), immigrant Whites (AOR=5.0, 95%CI: 2.7-9.3), compared to non-immigrant Whites.

CONCLUSIONS: There were significant racial and ethnic disparities in the LKSBS in RI. There was also a significant interaction between race/ethnicity and immigration status in the LKSBS, especially immigrant Blacks and immigrant Asians had synergistic effects in the LKSBS.

PUBLIC HEALTH IMPLICATIONS: Substantial proportions of Rhode Island minority women who recently gave birth are also immigrants. These women are at highest risk for a lack of knowledge of SBS. Public health efforts should target minority and immigrant mothers to educate them on the dangers of shaking a baby to prevent SBS.

Concurrent Session F2

Broken Promise: Violence Across the Lifespan

INTIMATE PARTNER VIOLENCE AGAINST WOMEN IN THE PERINATAL PERIOD BY DISABILITY STATUS — MASSACHUSETTS PRAMS, 2007 – 2008

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BACKGROUND: Women with disabilities are at greater risk for intimate partner violence (IPV) than women without disabilities. However, no previous population-based studies have examined IPV against women with disabilities around the time of pregnancy, a critical period for both mother and infant.

STUDY QUESTIONS: What is the prevalence of IPV before and during pregnancy among Massachusetts mothers by disability status?

METHODS: We used data from the 2007–08 Massachusetts Pregnancy Risk Assessment Monitoring System (PRAMS), a representative survey of Massachusetts mothers. Weighted response rates were 70% in 2007 and 72% in 2008. Disability was defined as being limited in any activity because of physical, mental or emotional problems. IPV was defined as having been pushed, hit, slapped, kicked, choked, or physically hurt in any way by a husband/partner or ex-husband/ex-partner. IPV prevalence 12 months before and during pregnancy was examined by disability status. Multivariate logistic regression was used to assess the association between disability status and IPV controlling for race/ethnicity, income, maternal age and education. Analyses were limited by small sample sizes.

RESULTS: Disability prevalence was 4.9% among Massachusetts women giving birth during 2007-2008. Among women with disabilities, 13.6% (95% CI=7.2-24.0) reported IPV during the 12 months before pregnancy compared to 2.8% (95% CI=2.1-3.7) without disabilities. Similarly, 8.1% (95% CI=4.0-15.7) of women with disabilities reported IPV during their most recent pregnancy, compared to 2.3% (95% CI=1.7-3.1) without disabilities. Multivariate analyses indicated that women with disabilities were more likely to report abuse 12 months before pregnancy (OR=4.2, 95% CI=1.9-9.3), during pregnancy (OR=2.7, 95% CI=1.1-6.9), or during either time period (OR=3.1, 95% CI=1.5-6.8) than women without disabilities. No difference was observed by disability status in likelihood of prenatal care providers talking to women about physical abuse.

CONCLUSIONS: These analyses reveal disproportionate prevalence of IPV before and during pregnancy among women with disabilities.

PUBLIC HEALTH IMPLICATIONS: Providers should be aware of the higher risk of IPV among women with disabilities and familiar with preventive and intervention services available in their community. States conducting surveys of maternal perinatal experiences should include disability screeners to enable exploration of experiences and health outcomes by disability status.

Concurrent Session F2

Broken Promise: Violence Across the Lifespan

INTIMATE PARTNER VIOLENCE AND WOMEN'S HEALTH DURING PREGNANCY – RHODE ISLAND, 2004 – 2007

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BACKGROUND: As many as 20% of pregnant women are abused by their partners. Intimate partner violence (IPV) during pregnancy can lead to adverse health outcomes such as serious physical injury to the mother or fetus, premature delivery, miscarriage, or even death of the mother.

STUDY QUESTIONS: To determine whether women who experienced IPV had higher rates of specific physical and mental health problems during their pregnancy in Rhode Island.

METHODS: We analyzed Rhode Island PRAMS data from 2004-2007 (n=5,662). IPV was measured using 4 questions on physical abuse by partner/ex-partner in the year prior to and/or during a recent pregnancy. Women's health was assessed by the presence or absence of several physical and mental health problems during their pregnancy. Bivariate and multivariate logistic regression models were performed using SUDAAN software to determine the association between IPV and women's health. Since the measure of IPV in this study included only physical abuse (Sexual or psychological abuse was not measured), its prevalence may be underestimated.

RESULTS: 5.5% of RI women experienced physical IPV before and/or during a recent pregnancy. IPV rate was higher among women who were teenagers, Hispanic, non-white, unmarried, or who had family incomes <$15,000, or <high school education. After adjusting for confounding factors (age, race, ethnicity, marital status, family income, and educational level), IPV was significantly associated with kidney or bladder infection (aOR=1.8; 95% CI=1.3-2.5), vaginal bleeding (aOR=1.7; 95% CI=1.2-2.4), severe nausea, vomiting, or dehydration (aOR=2.0; 95% CI=1.5-2.8), preterm or early labor (aOR=1.7; 95% CI=1.3-2.4), premature rupture of membranes (aOR=1.8; 95% CI=1.2-2.8), emergency room visit (aOR=1.5; 95% CI=1.1-2.1), and diagnosed depression (aOR=2.6; 95% CI=1.8-3.7) during their pregnancy.

CONCLUSIONS: Women who experienced IPV before/during pregnancy were more likely than women who did not experience IPV to have several serious physical and mental health problems during pregnancy

PUBLIC HEALTH IMPLICATIONS: IPV has profound effects on women's health and well-being during pregnancy. Routine screening for IPV by health care providers is necessary before, during and after pregnancy to help prevent adverse effects of IPV and provide appropriate referrals and interventions for the victims of IPV.

Concurrent Session F2

Broken Promise: Violence Across the Lifespan

VIOLENCE RELATED BEHAVIORS AND SUICIDALITY AMONG YOUTH IN GEORGIA: FINDINGS FROM THE GEORGIA YOUTH RISK BEHAVIORAL SURVEILLANCE (YRBS)

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BACKGROUND: Suicide and interpersonal violence are significant public health problems among adolescents. In 2009, 8.3% of high school students in Georgia attempted suicide and 3.5% of students required medical treatment as a result of engaging in physical fights. Suicidal behaviors among adolescents have been shown to be associated with smoking, alcohol use, drug use, depression and violence-related behaviors. The role of violence-related behaviors (victimization and engagement in violence) in predisposing suicidality (suicidal ideation, making plans and attempting a suicide) among youth in Georgia has not been studied.

STUDY QUESTIONS: Is there an association between violence-related behaviors and suicidality among youth in Georgia?

METHODS: A cross-sectional study using combined survey data from 2003, 2005, 2007 and 2009 Georgia Youth Risk Behavioral Surveillance (YRBS) was conducted. Suicidality among youth was measured as a composite variable of responses to suicidal plans, attempts and being injured in an attempt during the past twelve months. Two aggregate measures of violence-related behaviors were used: victimization and engagement in violence. Using logistic regression models we assessed the role of violence-related behaviors on suicidality among high school students after adjusting for demographic characteristics, risky health behaviors (smoking, alcohol, substance use) and depression symptoms.

RESULTS: Of the total 8,168 high school students; 4.9% (n=395) showed suicidality during the past twelve months. About 13.5% (n= 1102) engaged in violence-related behaviors and 8.3% (n=675) were victims of violence. After adjusting for potential confounders, suicidality among high school students was significantly positively associated with violence victimization (OR: 2.71, 95% Confidence Interval (CI) =1.87-3.94), current smoking (OR: 1.83, 95% CI=1.32-2.40) and current substance use (OR: 2.22, 95% CI=1.19-4.13). African-American high school students were 1.5 times more likely to be suicidal and concurrent depressive symptoms increased the odds of suicidality by 4 times.

CONCLUSIONS: Suicidality among youth in Georgia is significantly associated with victimization to violence-related behaviors. Concurrent engagement in other health risk behaviors and depression symptoms also increased the risk of suicidality.

PUBLIC HEALTH IMPLICATIONS: Findings will be useful to public health practitioners in designing effective suicide prevention and intervention strategies which concurrently targets clustering of health risk behaviors

Concurrent Session F3

Preconception Care: Promoting an Ounce of Prevention for Pounds of Cure

CHANGES IN CONTRACEPTIVE USE OVER TIME AMONG FLORIDA WOMEN: IMPLICATIONS FOR POLICIES AND PROGRAMS

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BACKGROUND: In 2002-2004, effective contraceptive use among women was significantly lower in Florida than in Southeastern states (57.8% vs. 69.8%). Although now recognized as a Florida family planning issue, few new resources have been identified because of the difficult economic times and large state budget cuts.

STUDY QUESTIONS: How has the contraceptive use pattern among Florida women changed over time?

METHODS: We used Behavioral Risk Factor Surveillance System (BRFSS) data for two time periods: 2002 and 2004, and 2008 and 2009. Information was available for 4,308 women age 18-44 years and at risk of unintended pregnancy. Women were considered not at risk if they were not sexually active, had a same-sex partner, had a hysterectomy, or wanted to be pregnant. Three different groups of primary contraceptive methods were assessed: sterilization, reversible effective methods, and condoms. Binomial regression analysis was used to estimate change in prevalence over time. Risk ratios were adjusted for socio-demographics, economic, health, health care and other risk factors. STATA version 10.0 was used to account for complex sample design.

RESULTS: No significant differences over time were identified in the prevalence of sterilization or effective reversible methods. A significant difference was found for condom use; the adjusted risk ratio (ARR) for the later time period was 0.75 (95% CL: 0.58-0.95) or a 25% decrease. Findings persisted even when limited to women in households under 200% of the Federal Poverty Level. Factors associated with higher condom use were age <24 and 25-34 years (ARRs 1.62 [95% CL: 1.23-2.14] and 1.51 [95% CL: 1.02-2.24] respectively), and black race (ARR 1.72 [95% CL: 1.23-2.40]). No significant time period interactions were identified for these risk factors

CONCLUSIONS: No significant improvements in contraceptive use by Florida women were identified. Moreover, a significantly lower percentage of women are now using condoms as a primary method. This decrease was not explained by a change in identifiable risk factors.

PUBLIC HEALTH IMPLICATIONS: Low contraceptive use among adult Florida women continues as a major family planning issue. The lower use of condoms suggests an increased risk of unintended pregnancy and infection. New initiatives are needed.

Concurrent Session F3

Preconception Care: Promoting an Ounce of Prevention for Pounds of Cure

RACIAL DIFFERENCES IN PRECONCEPTION HEALTH, FLORIDA, 2007-2008

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BACKGROUND: Black and white disparities exist in pregnancy outcomes after adjusting for socioeconomic status. Preconception health may explain these disparities.

STUDY QUESTIONS: What are the racial differences in preconception health in Florida?

METHODS: We used 2007 and 2008 Florida Pregnancy Risk Assessment Monitoring System (PRAMS) and Florida Behavioral Risk Factor Surveillance System (BRFSS) data. For PRAMS, 1,782 recent mothers were selected for a stratified random mail/phone survey. For BRFSS, 5,619 women aged 18-44 years were selected for a random-digit-dialing telephone survey. Twelve PRAMS and 15 BRFSS indicators were used; indicators were recommended by the multi-state CORE State Preconception Health Indicator Work Group. Weighted logistic regression examined differences between non-Hispanic Black and White women for each indicator, adjusting for socio-economic status: age, education, income, and healthcare coverage.

RESULTS: Black women experienced poor preconception health within five indicators compared to white women in Florida. Among new mothers, Black women were associated with a higher risk of being overweight/obese before pregnancy (AOR = 1.61; 1.12-2.30), and not using postpartum contraception (AOR = 1.68; 1.04-2.72). Black women of childbearing age were associated with an increased risk of overweight/obesity (AOR = 4.07; 2.82-5.86), not receiving adequate emotional support (AOR = 1.87; 1.28-2.72), and having hypertension (AOR = 2.12; 1.33-3.39). In seven indicators, black women experienced better preconception health. Among recent mothers, prior to pregnancy, black women were associated with a decreased risk of smoking (AOR = 0.12; 0.07-0.22), drinking alcohol (AOR = 0.34; 0.24-0.50), and binge drinking (AOR = 0.46; 0.26-0.81). Black women of childbearing age were associated with a decreased risk of being a current smoker (A0.22; 0.14-0.37) and binge drinker (AOR = 0.35; 0.18-0.69), and not having a routine checkup (AOR = 0.28; 0.18-0.42) or pap test (AOR = 0.40; 0.17-0.94).

CONCLUSIONS: Preconceptionally, black women were more likely than white women to be overweight/obese, hypertensive, lack emotional support, and not use postpartum contraception. Although these may contribute to adverse pregnancies outcomes, these are likely not sufficient to explain all of the racial disparity in outcomes.

PUBLIC HEALTH IMPLICATIONS: Further research is needed on racial differences in preconception health and the impact on pregnancy outcomes.

Concurrent Session F3

Preconception Care: Promoting an Ounce of Prevention for Pounds of Cure

PRECONCEPTION, PRENATAL, AND POSTPARTUM FACTORS RELATED TO LOW BIRTH WEIGHT: GEORGIA PRAMS, 2004 – 2006

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Georgia Department of Community Health

BACKGROUND: Infants born weighing <2,500 grams (LBW) have increased risk for serious health problems, long term disabilities, and death. In 2008, nearly 10% of Georgia resident births were LBW. LBW is a priority issue for advocacy groups, the MCH program, and health districts in Georgia. Needed is information to help effectively direct stakeholder and partner action.

STUDY QUESTIONS: What program or policy relevant factors are associated with LBW delivery at time points surrounding pregnancy?

METHODS: Georgia PRAMS data were merged with the birth file for the years 2004-2006. The study was limited to the 4,841 women who completed a PRAMS survey and experienced a singleton live birth. Univariate, bivariate, and logistic regression analyses were conducted (SAS 9.2 and SAS-callable SUDAAN 10.0.1). Covariables were grouped by relevant time period (preconception, prenatal, and postpartum). Demographic covariables were held constant across time period specific models.

RESULTS: In the preconception model, women with a pregnancy interval of <24 months (AOR:1.41, CI:1.06-1.87) and >=48 months (AOR:1.43, CI:1.09-1.87) had greater odds of a LBW delivery. Women with a LBW (AOR:1.47, CI:1.02-2.12), preterm (AOR:2.60, CI:1.76-3.84) delivery, or both (OR:5.30, CI:3.68-7.64) in the preceding pregnancy had greater odds of a LBW delivery. Women with chronic diabetes (AOR:1.98, CI:1.26-3.13) and hypertension (AOR:3.88, CI:2.20-6.87) had greater odds of LBW. In the prenatal model, women whose provider did not talk with them about early labor had greater odds (AOR: 1.76, CI:1.46-2.12) of experiencing a LBW delivery than those who did. Women with chronic (AOR:3.79, CI:2.25-6.38) and pregnancy associated (AOR:3.92, CI:2.59-5.92) hypertension had greater odds of LBW. Postpartum results will be presented.

CONCLUSIONS: Interconception factors are significantly associated with LBW. The prenatal model suggests that women with increased odds of LBW are less likely to be talked with about signs of early labor. This is a population that may have benefited from this discussion. Chronic hypertension is a significant factor spanning both time periods.

PUBLIC HEALTH IMPLICATIONS: This analysis provides specific factors during the preconception and pregnancy time periods that may be useful to Georgia for most effectively developing state activities to impact LBW.

Concurrent Session F3

Preconception Care: Promoting an Ounce of Prevention for Pounds of Cure

DOES GOOD PRECONCEPTION HEALTH LEAD TO GOOD BIRTH OUTCOMES? FINDINGS FROM VIRGINIA PRAMS 2007 – 08

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BACKGROUND: Disorders of short gestation and low birth weight (LBW) continue to be the leading cause of infant death. In order to improve these and other poor birth outcomes, there has been an increased focus in public heath on preconception health. However, the extent to which preconception health factors influence birth outcomes in Virginia is not clear.

STUDY QUESTIONS: To what extent do preconception health factors influence LBW?

METHODS: Using cross-sectional data from 2007-08 Virginia Pregnancy Risk Assessment and Monitoring System (PRAMS), 24 preconception health indicators were categorized into three domains (health conditions, health behaviors, and psychosocial factors). Each domain was dichotomized into 'good' or 'poor' preconception health status. Multivariate logistic regression was used to examine the association between preconception health and LBW. To account for PRAMS complex sampling design, analyses used SAS callable SUDAAN and SAS survey procedures.

RESULTS: Overall, poor preconception health was crudely associated with higher odds of LBW, but this association was not significant after adjustment for social determinants (e.g., race/ethnicity, age, education, and income). However, differences were found across each of the three preconception health domains. For example, women with poor preconception health conditions had increased odds of having a LBW infant compared to women with good preconception health conditions [AOR=2.26 (1.50,3.42)].

CONCLUSIONS: Women's preconception health conditions, behaviors and psychosocial factors are so closely linked to social determinants that adjustment for these factors removes the association between overall preconception health and LBW. Women's health conditions were the only preconception domain with an independent impact on LBW. Thus, it appears that improvements in preconception health will have a limited benefit on LBW rates unless the related social determinants are also addressed.

PUBLIC HEALTH IMPLICATIONS: Though an emphasis on improving preconception health is emerging in public health, programs, policies and initiatives must also address social determinants of health in efforts to the reduce the percentage of LBW infants in Virginia.

Concurrent Session F4

Chain, Chain, Chain…Chain of Tools #2…Using Linked Datasets to Identify Childhood Outcomes

LINKING ADMINISTRATIVE DATA TO INFORM EARLY CHILDHOOD DEVELOPMENT RESEARCH AND POLICIES

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BACKGROUND: Leveraging administrative data sources allows health departments to conduct cost-effective research and evaluations of programs and policies. Maximizing the utility of these sources requires complex data linkages, but the methodologies undertaken are rarely published.

STUDY QUESTIONS: Can records for children in five data sources – birth certificates, death certificates, the lead poisoning registry, the Early Intervention Program and the Department of Education – be combined to enable investigation of risk factors and educational outcomes of children with developmental delays in New York City (NYC)?

METHODS: The NYC Department of Health and Mental Hygiene used probabilistic matching technology to link children and siblings across five data sources, creating the Longitudinal Study of Early Development (LSED) relational data warehouse. Statistical sampling techniques with human reviews were used for evaluation and setting non-match thresholds. False match rates were estimated overall and, for unique children, by data source. Match rates for unique children were compared with expected yields for ten pairings of data sources.

RESULTS: The LSED data warehouse, with 9.6 million records and more than 800 variables, contains data for 1,942,942 children born in 1994-2004 who appear in at least one data source. The linkage process identified 1,116,648 children (57%) with records in at least two sources and 306,240 sibling sets with two or more children. Among children with data from more than one original record, 0.6% (0.0% - 0.9% by source) are estimated to be false matches. Among sibling sets, 1.6% are estimated to be false matches. The proportion of children in one data source who matched with another was within our expectations for seven data source pairings, while yields from two pairings were below expectations and one was slightly above.

CONCLUSIONS: The linkage process was successful in producing a data warehouse capable of addressing key questions pertaining to early childhood development and educational outcomes.

PUBLIC HEALTH IMPLICATIONS: Analysis of the LSED data warehouse will address important questions in early childhood development policy evaluations and research. Sharing methodologies for linkages between administrative data sources allows jurisdictions to benefit from successful strategies. Replication of techniques, with slight modifications for variant resources and applications, allows for greater comparability between findings.

Concurrent Session F4

Chain, Chain, Chain…Chain of Tools #2…Using Linked Datasets to Identify Childhood Outcomes

PREDICTED RISK OF SPECIAL EDUCATION AMONG NEW YORK CITY PUBLIC SCHOOL CHILDREN NOT REFERRED TO EARLY INTERVENTION PROGRAM, BY BIRTH WEIGHT AND GESTATIONAL AGE

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BACKGROUND: Different birth weight and gestational age levels are used across jurisdictions to determine automatic eligibility for federally mandated Early Intervention (EI) services prior to age 3. New York City (NYC) currently defines children with birth weights of <1000 grams as automatically eligible due to their high rate of developmental delay. A related analysis observed that one in three children born either <1250 grams or <1500 grams and <30 weeks gestation are also at risk for developmental delays. It is unknown whether children who were not referred to EI experience disabilities that make them eligible to receive special education.

STUDY QUESTIONS: What is the predicted risk that children who were not referred to EI prior to age 3 who fall into distinct birth weight-gestational age categories will have disabilities that make them eligible to receive special education?

METHODS: Birth certificate and Department of Education data for children born in NYC from 1994-2001 to resident mothers were linked using probabilistic matching as part of the Longitudinal Study of Early Development. Children with an Individual Education Plan were classified as having an educational disability. Logistic regression was used to directly estimate the predicted risk of educational disability for combined birth weight-gestational age categories among children not referred to EI.

RESULTS: Among children not referred to EI, over 30% of children weighing <1000 grams at birth regardless of gestational age or born at <1500 grams and <30 weeks gestation were predicted to have an educational disability, compared with 15% among those born >2500 grams and 37+ weeks gestation.

CONCLUSIONS: Our findings demonstrate that among children not referred to EI, those at high risk of developmental delay due to very low birth weight continue to be at high risk of educational disability. Additionally, children born at <1500 grams and <30 weeks gestational age who are not referred to the EI Program remain at risk of being diagnosed with special needs. Adding gestational age as a criterion would prevent overlooking high-risk children born at slightly higher birth weights.

PUBLIC HEALTH IMPLICATIONS: EI programs should monitor all children who meet birth weight and gestational age auto-eligibility criteria, and could consider expanding criteria.

Concurrent Session F4

Chain, Chain, Chain…Chain of Tools #2…Using Linked Datasets to Identify Childhood Outcomes

USING LINKED, POPULATION-LEVEL ADMINISTRATIVE DATA TO IDENTIFY PRENATAL ILLICIT DRUG EXPOSURE AND REFERRAL TO EARLY INTERVENTION

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BACKGROUND: Children who are prenatally exposed to illicit drugs are at increased risk for compromised development. States are now required to have policies for referring these children to Part C Early Intervention (EI). There are no population-based studies measuring patterns of prenatal drug exposure and EI referral.

STUDY QUESTIONS: What percent of children identified through medical and birth records as prenatally exposed to illicit drugs in Massachusetts (MA) are referred to EI? What characteristics are associated with prenatal drug exposure and EI referral?

METHODS: Linked data from the Pregnancy to Early Life Longitudinal (PELL) data system on infants born in a MA hospitals to resident women from 1998-2005 were examined to identify prenatal exposure to illicit drugs (opioids, cocaine, cannabis, and psychotherapeutics used non-medically) through positive toxicology screens on the birth certificate and/or drug-related diagnosis codes in maternal and infant hospital discharge records. PELL linkages to EI records identified referrals. Drug exposure and EI referral were compared across four racial/ethnic groups: non-Hispanic white (NHW), Non-Hispanic black (NHB), Hispanic, and Asian/Pacific Islander (API).

RESULTS: From 1998-2005, 7,124 children were identified with prenatal illicit drug exposure (114.1 per 10,000 live births). Rates varied significantly by race/ethnicity (NHW: 98.9/10,000; NHB: 251.4/10,000; Hispanic: 169.4/10,000; and API: 14.7 /10,000). Of prenatally drug-exposed children who survived to hospital discharge, 61% were referred to an EI program in MA, but only 18% of referrals were made by hospital or medical personnel. Hispanic infants were more likely and API infants less likely to be referred than NHW infants; NHB infants were equally likely.

CONCLUSIONS: Racial/ethnic patterns of prenatal illicit drug use identified by this method differ from other studies, which report higher use among NHW. A substantial minority of prenatally drug-exposed infants was not referred to EI, and referral was lowest among API drug exposed children.

PUBLIC HEALTH IMPLICATIONS: Linked population-level data systems can assist in identifying prenatally drug exposed children and evaluating EI referral outcomes to ensure children receive needed services. In particular, identification of prenatal drug exposure and referral to EI by hospitals should be increased and attention paid to racial/ethnic referral equity.

POSTER ABSTRACTS INDEX

SUCCESSFUL IMPLEMENTATION OF TRIBAL PREGNANCY RISK ASSESSMENT ON RESERVATIONS IN MONTANA 2009-2010

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BACKGROUND: Pregnancy Risk Assessment Monitoring System (PRAMS) is an ongoing, population-based surveillance among selected women delivering live births, with maternal self reported experiences and behaviors before, during and after pregnancy and also during the child's early infancy. The Montana Wyoming Tribal Leaders Council's Rocky Mountain Tribal Epidemiology Center (MTWYTLC/RMTEC), upon request of two Tribal Health Directors (THD) in Montana embarked on replicating PRAMS on Reservations with very little local funding. The PRAMS replication pilot study was called "Pregnancy Risk Assessment" –PRA.

STUDY QUESTIONS: How can we ensure adequate American Indian (AI) response rates, representation and data quality in PRAMS?

METHODS: Operational sampling unit for PRA was "infants born alive to mother or father identified as AI on the birth certificate within participating "Reservations-Counties" (counties within the borders of a particular Reservation with only AI population taken into consideration) and resident during the surveillance period, April 2008 and within 6 Months to 18 Months of the live birth. The RMTEC PRA surveillance combines three modes of data collection: mail, telephone, and in-person follow-up. A flyer introducing the PRA survey was distributed on participating Reservation-Counties; Pre-letter developed by the local THD introduced PRA to the participants informing of the questionnaire soon to arrive; questionnaire packet (with Traditional pictorial symbols and Tribal incentives) was mailed once, at the advice of the THD. Simultaneous telephone survey and In-Person Interviews was initiated by Tribal Community Field Workers. Three Ticklers were sent to non-respondents during the survey period. Response rates were calculated.

RESULTS: There were a total of 73 eligible participants on one of the participating Reservation Counties. 100% of participants were accounted for with 31.51% mailed in surveys and 68.49% in-person follow-up by local Tribal Community Field Workers. There were no funds to follow-up with 12.33% of participants who moved out of the survey population area.

CONCLUSIONS: The help of Tribal Community Field Workers was critical in achieving the eighty percent response rate for PRA at first try.

PUBLIC HEALTH IMPLICATIONS: Adequate American Indian (AI) response rates, representation and data quality in PRAMS is best researched by the community based participatory research approach.

THE ROLE OF TRIBAL COMMUNITY FIELD WORKERS IN SUCCESSFUL PRAMS REPLICATION IN INDIAN COUNTRY, MONTANA 2009-2010

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BACKGROUND: Since the initiation of Pregnancy Risk Assessment Monitoring System -PRAMS (1987), there has only been one CDC sponsored "point in time" replication of PRAMS in Indian Country at the Aberdeen Area Tribal Chairmen's Health Board- Northern Plains Tribal Epidemiology Center. The Montana Wyoming Tribal Leaders Council's Rocky Mountain Tribal Epidemiology Center (MTWYTLC/RMTEC) uses the Community Participatory Approach for all its projects. In 2009, RMTEC embarked on replicating PRAMS on Reservations with very little local funding and donations from the community. The PRAMS replication pilot study was called "Pregnancy Risk Assessment" –PRA.

STUDY QUESTIONS: What is the role of the "Tribal Community Field Worker" in Community Participatory Research Approach-PRAMS replication?

METHODS: Community health needs were identified by local Tribal Health (TH) Directors and RMTEC developed projects to address these health needs. A literature search and consultation with experts including those from Center for Disease Control (CDC) were sought. A Steering Committee consisting of Local TH Department Staff and RMTEC was initiated. Community readiness was assessed and a plan was initiated to replicate PRAMS at the local Tribal level where most mothers have Post Office Boxes as addresses; use cell phones and were usually young; either –co-living or having highly mobile residence. A very difficult population to reach!

RESULTS: It was determined that the surveys should have certain traditional questions added with Traditional Pictogram included. Incentives were donations from CDC, local TH Department and MTWYTLC/RMTEC. A toll free number was used as an optional telephone survey and most importantly local TH Department Staff- Field Workers (FW) visited the non-respondent mothers with a letter of introduction from the local TH Director. FWs traveled from five to 264 Miles to reach the mothers making as many as 8 trips and up to 9 follow-up phone calls to the mothers who were usually tracked down with the help of relatives and other community members.

CONCLUSIONS: For small Reservation Communities, the best research approach is Community Based Participatory. Although cumbersome, the detailed outcomes are impeccable!

PUBLIC HEALTH IMPLICATIONS: Replication of national surveys with over-sampling of AI populations is possible using local TH Department Staff as Field Workers –"Community Based Participatory Approach."

DESIGN AND PILOT EVALUATION OF A SURVEY INSTRUMENT USED TO ASSESS CAPACITY OF PERINATAL CARE CENTERS IN GEORGIA

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BACKGROUND: In the Georgia regionalized perinatal care facilities through self-designation into one of three levels of care based healthcare capabilities. These facilities were grouped into six perinatal regions. Ideally, maternal, fetal, and neonatal risks were matched with the most appropriate facility within their geographic network. Despite changes in perinatology since the 1970s, few facilities have reassessed their designations and over 25% of high-risk deliveries occur outside the recommended level. Current regional and level-specific services are not systematically regulated or monitored, challenging assessment and comparison of access to appropriate healthcare by high-risk patients.

STUDY QUESTIONS: Can a tool be created to investigate the capacity and capabilities of specialty and subspecialty perinatal facilities and describe regionalization practices?

METHODS: From themes in perinatal research and guidelines, a survey tool was developed, sent to perinatal experts for feedback, and revised incorporating their comments. The pilot survey was then distributed to a convenience sample of five perinatal facilities within one region of Georgia and two facilities within another. Descriptive analysis examined how the pilot survey and study procedures worked within targeted facilities.

RESULTS: Of facilities sampled, two in the first region and two in the second returned the survey, representing a level II and level III hospital within each region. The four facility respondents completed the majority of the questions with answers aligning with the meaning of the questions within 2-3 hours. The tool gathered the desired types of data and facilities were receptive. All pilot respondents named payment reimbursement as the main barrier to back-transfer of improving infants, and half did not know on what their level designation was based.

CONCLUSIONS: The survey tool was well accepted by specialty and subspecialty perinatal facilities. Recommendations for standardizing, clarifying, and simplifying the survey were made based on the pilot results. Once these recommendations are integrated, this tool will be utilized in a statewide examination of perinatal capacity, with implementation informed by the pilot process.

PUBLIC HEALTH IMPLICATIONS: In a state with self-designated perinatal levels, a survey to measure capacity and barriers can be well received by facilities, and provides necessary information to strengthen perinatal systems.

PREGNANT AND HOMELESS IN UTAH, 2004 - 2008 UTAH PRAMS

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BACKGROUND: Homeless pregnant women face many challenges to their health and well being. Research has shown their infants are also at increased risk for poor outcomes. Little is known about Utah's homeless pregnant women.

STUDY QUESTIONS: To describe characteristics of women who indicated they were homeless during pregnancy and assess pregnancy outcomes and health behaviors associated with homelessness.

METHODS: Utah PRAMS data from 2004–2008 were evaluated. Demographic characteristics of homeless women were described. Pregnancy outcomes and health behaviors were stratified by self reported homelessness in the 12 months before delivery. Chi-squared and regression analyses were performed using SAS callable SUDAAN.

RESULTS: For the study period, 2.8% of respondents indicated they were homeless in the year before they gave birth, representing approximately 1,600 women per year. Women who were younger, unmarried, of lower educational levels, and Hispanic were more likely to report being homeless during pregnancy. Homeless women had significantly higher rates of low birthweight, preterm birth, hospitalization during pregnancy, neonatal intensive care unit admissions, and significantly lower rates of adequate prenatal care than women who were not homeless. However, when comparison was limited to similar poverty levels, only birthweight and prenatal care remained significantly different. Homeless women were significantly less likely to be living with their infant postpartum. While public assistance is available for low income women, only 36.7% reported applying. The most frequent reason cited for not applying for assistance was not knowing how to apply (35.5%) followed closely by not being a US citizen (34.8%). Despite 83% of homeless women reporting incomes that would presumably qualify them for prenatal Medicaid, only 57% reported having coverage.

CONCLUSIONS: Our analysis showed that homeless women in Utah had significantly higher odds of adverse pregnancy outcomes. Our analysis also found that homeless women had low levels of participation in public assistance programs.

PUBLIC HEALTH IMPLICATIONS: Because women who are homeless are at increased risk for adverse pregnancy outcomes, it is important to understand the characteristics of such women and potential areas for intervention. Connecting women to assistance programs may act as a doorway for women to access needed services and community resources.

IMPROVING INTERCONCEPTION CARE IN HEALTHY START COMMUNITIES USING THE LEARNING COLLABORATIVE MODEL

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BACKGROUND: In the 1980s, progress in reducing the United States' high infant mortality rate plateaued; the nation's rate was higher than that of many developing countries. Of concern was the racial disparity in infant mortality rates. As a result, the national Healthy Start program was developed within 15 communities, then as a broader effort reaching more than 100 communities nationwide to address racial and ethnic disparities in infant mortality and other birth outcomes.

STUDY QUESTIONS: How does implementing the Model for Improvement in Healthy Start projects affect the delivery of services, and the health and well-being of women participants during the interconception period?

METHODS: This project uses the Institute of Healthcare Improvement learning collaborative model for health care quality improvement (QI). The 102 Healthy Start projects are organized into 16 QI learning collaboratives, bringing together geographically disparate teams to achieve common goals and change projects. Each learning collaborative focuses on one content area and change concept. For example, one learning collaborative is focused on increasing linkages and partnerships with Healthy Start amenable family planning providers in their communities. Our quality improvement approach examines processes and aims to make them more effective through peer sharing and teaching, intensive focus on a specific aspect of service delivery, and implementation of best practices.

RESULTS: Each Healthy Start project is implementing a Plan-Study-Do-Act cycle, meeting regularly with its Learning Collaborative. Each project collects data to measure its change. Collectively, the collaboratives employ peer sharing and learning; identifying and incorporating evidenced-based protocols for low-income, at-risk women during the interconception period.

CONCLUSIONS: With adaptations, it is feasible to implement the Model for Improvement on a large scale with case management-oriented public health organizations.

PUBLIC HEALTH IMPLICATIONS: The current administration and many MCH programs are interested in advancing interconception care through experiments like the ICC LC. We describe tangible community-based work related to interconception care, incorporating evidence-based techniques. Most quality improvement projects focus on action inside the clinical setting, which have less relevance to Title V work. Our project demonstrates the importance of strengthening public health systems and improving quality of care using the learning collaborative model.

RESULTS AND LESSONS LEARNED FROM THE HEALTHY BABIES ARE WORTH THE WAIT INITIATIVE

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March of Dimes, March of Dimes Foundation, J. Solomon Consulting, LLC, Johnson and Johnson Pediatric Institute, Kentucky Department for Public Health, Department for Public Health, Cabinet for Health and Family Services

BACKGROUND: Although the preliminary 2008 US preterm birth (PTB) rate decreased to 12.3%, it remains 62% higher than the 7.6% HP2010 objective. The 2008 Kentucky PTB rate was 14%. Late PTB (34-36 weeks) accounts for the majority of PTBs (~75% in Kentucky). Healthy Babies are Worth the Wait (HBWW) was implemented to determine whether a collaboration between medical and public health services, using extant resources and bundled, evidence-based interventions, could reduce PTB.

STUDY QUESTIONS: Can singleton PTB rates in three Kentucky sites be reduced by preventing late preterm births (LPTB)?

METHODS: HBWW, a 3-year (2007-9), ecological design, "real-world" initiative targeted 3 intervention and 3 comparison sites in Kentucky. Anonymous baseline surveys of pregnant women and perinatal provider were done in all HBWW sites to ascertain KAB regarding preterm birth in 2007 and 2009. Univariate, bivariate and multivariate analyses of selected birth outcomes (PTB, LPTB, cesareans, inductions, and maternal smoking) aggregated from the intervention and comparisons sites utilizing the Kentucky natality files were done to evaluate changes that occurred to singleton, inborn deliveries during HBWW. Provider trainings and education, development of HBWW materials, and implementation of bundled evidence-based interventions targeting modifiable risk factors and QI occurred for 2.5 years. Limitations of the study included the ecological design, the short timeframe of 2.5 years, the inability to link records over time, and restricted generalizability of findings.

RESULTS: Survey data provided strong evidence of program penetration in the intervention sites and anticipated contamination also occurred. PTB and LPTB rates decreased 8.9% and 9.1%, respectively, in intervention sites and declines also occurred in comparison sites. Cesareans increased 2.2% in intervention sites vs. 11.9% in comparison sites. Prenatal maternal smoking rates decreased by 10% in intervention sites. Analyses of surrounding states supported a strong HBWW effect.

CONCLUSIONS: Successful clinical, public health and social evidence-based interventions implemented through the collaboration of medical and public health services resulted in enhanced coordination of prenatal services and significant reductions in PTB outcomes.

PUBLIC HEALTH IMPLICATIONS: HBWW provides a model for collaboration to tackle PTB. Expansion of the initiative to address the challenging risk factors for communities with more diverse populations is a key next step.

MATERNAL SYSTEMIC LUPUS ERYTHEMATOSUS AND BIRTH OUTCOMES IN ATLANTA, GEORGIA, 1997–2005

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BACKGROUND: Systemic lupus erythematosus (SLE) is an autoimmune connective-tissue disorder with great variability in clinical manifestations. The disease is most prevalent in women, particularly those of childbearing age. Multiple factors can complicate pregnancy in women with SLE, including increased risk of disease flare and use of potentially teratogenic medications.

STUDY QUESTIONS: We conducted a population-based examination of the risk of birth defects in the offspring of female SLE patients in metropolitan Atlanta, Georgia.

METHODS: We linked data from two active population-based surveillance systems – the Metropolitan Atlanta Congenital Defects Program (MACDP) and the Georgia Lupus Registry (GLR) – and Georgia vital records (birth and fetal death certificates). Using the recently developed Fine-Grained Record Integration Linkage Tool, we performed an automated linkage of the datasets using woman's last name, birth date, and social security number; we then linked unmatched records manually.

RESULTS: There were 1.18 million Georgia births in 1997-2005, 15,585 children with birth defects in the five metropolitan Atlanta counties, and 1,067 females with SLE (prevalent 2002 or incident 2002 to 2004) diagnosed between ages 13 and 50 years in DeKalb and Fulton counties (Atlanta). Our data linkage procedures identified 10 women who delivered children with birth defects during the study period; each infant (n=10) had a unique defect profile with no common defects identified. Three of the 10 women delivered up to 3 years prior to their SLE diagnosis.

CONCLUSIONS: Using linkage of available data, we did not observe a common pattern of birth defects or multiple infants with any specific major birth defects among pregnancies of Atlanta women with pre-existing SLE.

PUBLIC HEALTH IMPLICATIONS: Although our findings do not suggest an association between maternal SLE and birth defects in this population, this relationship deserves further investigation through well-designed epidemiologic studies, which should consider the influence of concomitant immunosuppressive medication use. It is possible that SLE and adverse birth outcomes share common inflammatory pathways to disease causation, and understanding their overlap might inform new strategies for prevention of both.

RACIAL AND ETHNIC DISPARITIES IN MATERNAL MORBIDITIES AND PREEXISTING MEDICAL CONDITIONS DURING LABOR AND DELIVERY HOSPITALIZATIONS IN WISCONSIN

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BACKGROUND: Maternal morbidities (MM) and preexisting medical conditions (PMC) during pregnancy are important measures of maternal health and perinatal outcomes. Although mostly preventable, these conditions are increasing, costly, and often contribute to disparities in adverse perinatal outcomes.

STUDY QUESTIONS: To compare MM and PMC during labor and delivery among racial/ethnic groups in Wisconsin.

METHODS: Retrospective analysis of 206,428 pregnant women aged 13-53 years included in the 2005-2007 Wisconsin Healthcare Cost and Utilization Project State Inpatient Dataset. Logistic regression models were estimated for MM and PMC. Covariates included race/ethnicity, maternal age, socioeconomic factors, and comorbidities.

RESULTS: About 29% of L&D hospitalizations had > or = 1 MM and 8% had > or = 1 PMC. For MM, adjusted results showed that black women had significantly higher likelihood of infections (OR = 1.74;1.60–1.89), preterm labor (OR = 1.42;1.33–1.50), antepartum hemorrhage (OR = 1.63;1.44–1.83), and hypertension complicating pregnancy (OR = 1.39;1.31–1.48) compared to white women. Hispanics, Asian/Pacific Islanders and Native Americans had significantly higher likelihood of infections, postpartum hemorrhage, and gestational diabetes than Whites. Major perineal lacerations were significantly higher among Asian/Pacific Islanders (OR = 1.53;1.34–1.75). For PMC, Blacks had significantly higher likelihood of asthma (OR = 2.18;2.03–2.34), diabetes mellitus (OR = 2.09;1.79–2.45), chronic hypertension (OR = 2.39;2.16–2.63), and obesity (OR = 1.67;1.50–1.86) than Whites. Diabetes was significantly higher for Hispanics and Native Americans. The likelihood of > or = 1 MM was significantly higher for Blacks (OR = 1.28; 1.23-1.33), Hispanics (OR = 1.05;1.01-1.09), and Native Americans (OR = 1.31;1.20-1.44). Blacks were more likely to have > or = 1 PMC (OR = 2.11;2.00-2.22) compared to Whites.

CONCLUSIONS: Findings suggest significant racial/ethnic disparities in MM and PMC. These conditions may be contributing to the high infant mortality and adverse birth outcomes in Wisconsin, and suggest missed opportunities to identify and manage the conditions early.

PUBLIC HEALTH IMPLICATIONS: Better screening, management and timely referral of these conditions, particularly among racial/ethnic women, should be implemented.

UNDERSTANDING DISPARITIES IN CHILDREN'S ACCESS TO A MEDICAL HOME: A MULTILEVEL MODEL INVESTIGATION

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BACKGROUND: Research indicates that access to a medical home (continuous, comprehensive, coordinated, family-centered, compassionate, and culturally centered care) corresponds to positive health outcomes for children, especially children with special health care needs. Research has begun to uncover racial, ethnic, and socioeconomic disparities in children's access to a medical home. However, little research has examined contextual and individual predictors of disparities and the extent to which predictors of disparities vary across contexts. For example, the possibility exists that minority children living in states with more minorities may have a particularly lower likelihood of receiving a medical home.

STUDY QUESTIONS: This examined whether a variety of individual and contextual variables accounted for disparities in children's access to a medical home and whether the strength of these relationships differed across states.

METHODS: I used multilevel modeling and data from the 2007 National Survey of Children's Health (NSCH: n = 87,963), a cross-sectional random-digit-dial telephone survey sponsored by the Maternal and Child Health Bureau and conducted by the National Center for Health Statistics, to investigate state and individual predictors of disparities in parent's self-reported access to a medical home.

RESULTS: According to parents' self reports, minority children, children from low socioeconomic backgrounds, and Spanish speaking children were less likely to have access to a medical home. Both contextual (e.g., the proportion of minorities in a state) and individual (e.g., family income, insurance status) variables predicted access to and disparities in access to a medical home. Additionally, the strength of these relationships differed across states.

CONCLUSIONS: Results show how simultaneously investigating individual and contextual level predictors of disparities in children's access to a medical home reveals significant hurdles to reducing medical home disparities. Minority children, children from low socioeconomic backgrounds, and children from Spanish speaking families all experienced a lower likelihood of accessing a medical home. Several individual and contextual level variables exacerbated these disparities. Moreover, in many cases, the strength of the relationship between predictors of disparities and outcomes varied across states.

PUBLIC HEALTH IMPLICATIONS: Results suggest that targeted approaches, sensitive to both context and the individual, will best ameliorate medical home disparities.

WHAT DO YOU THINK CAUSES BIRTH DEFECTS? A CONTENT ANALYSIS OF MOTHERS' RESPONSES IN THE NATIONAL BIRTH DEFECTS PREVENTION STUDY

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BACKGROUND: While fears about the occurrence of birth defects are quite common, little is known about what women believe are the causes. Most models to predict and influence health behaviors include measures of perceived probability that an adverse outcome is likely to occur and perceived effectiveness of prevention efforts. These perceptions depend on an understanding of what causes a condition to occur.

STUDY QUESTIONS: What do US women believe about the causes of birth defects? How do those beliefs differ by demographic factors and by having a baby with a birth defect? Does Weiner's attribution theory provide a useful framework for interpreting responses to inform development of effective materials about risk factors associated with birth defects?

METHODS: The National Birth Defects Prevention Study is a large, CDC-funded, case-control study focused on understanding biological and behavioral causes of birth defects, to inform policy and prevention efforts. The study has two components: a one-hour telephone interview that includes questions regarding maternal and pregnancy characteristics and a genetic component. The interview concludes with two questions about what the mothers believe might cause birth defects. Their responses are our primary unit of analysis. Words from responses were grouped into themes, and Microsoft Excel was used to count frequency of word usage for each theme. Three reviewers rated the themes as internal/external, stable/unstable and low/medium/high controllability (attribution theory dimensions). Percentages for each theme and dimension were compared by maternal demographic and pregnancy-related factors, including case/control status.

RESULTS: A preliminary analysis of 2672 responses found that among the 52 themes, use of illicit drugs, alcohol, and tobacco were the most frequently mentioned. Genetics and medications were also commonly cited. Women rarely mentioned supernatural influences.

CONCLUSIONS: A large proportion of perceived causes of birth defects can be characterized as internal (locus of causality), unstable (apt to change over time), and of medium controllability, indicating that women may accept prevention messages aimed at modifying these causes.

PUBLIC HEALTH IMPLICATIONS: Beliefs about the causes of disease both predict and influence health-related behaviors. Birth defects prevention efforts can employ established health behavior theories to better understand the implications of causal perceptions.

PREGNANCY OUTCOMES AMONG WOMEN WITH SICKLE CELL DISEASE AT KORLE-BU TEACHING HOSPITAL, ACCRA, GHANA

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BACKGROUND: Pregnancy in sickle cell disease (SCD) patients is associated with increased risk of maternal and fetal mortality. The risk varies greatly in different geographical areas.

STUDY QUESTIONS: The objective of the study was to determine the pregnancy outcomes among SCD patients admitted at the Obstetrics and Gynecology Department of Korle-Bu Teaching Hospital (KBTH), Accra, Ghana.

METHODS: Medical records of pregnant women from 2007-2008 were reviewed retrospectively. Records of 607 women were analyzed, of which 236 SCD patients were compared with 371 women without SCD.

RESULTS: There were 17,781 deliveries with 1.42% prevalence of SCD. The odds of Eclampsia among women with SCD was 9.6 times that of women without SCD (95% confidence interval [CI] = 2.72-33.99, p< 0.001). Compared to women without SCD, women with SCD were less likely to have spontaneous vaginal delivery (OR = 0.26, 95% CI=0.18-0.39, p< 0.001. In this study, babies delivered by women with SCD had an increased risk of grunting respiration than other women (OR=4.4, 95% CI = 1.10-17.87, p<0.036). However, there were no significant association with stillbirth, low birth weight and intrauterine growth restriction in this study.

CONCLUSIONS: SCD was associated with increased risk of eclampsia and cesarean section among pregnant women admitted at KBTH.

PUBLIC HEALTH IMPLICATIONS: Women with SCD can have a good reproductive outcome through systematic application of preventive stretegies using multidisciplinary approach that includes effective management, appropriate counseling, good prenatal care and effective intervention by health care providers with a high index of suspicion for predisposing factors to untoward outcomes.

AN EXAMINATION OF PRECONCEPTION HEALTH INDICATORS OF WOMEN IN LOUISIANA USING THE LOUISIANA PREGNANCY RISK ASSESSMENT MONITORING SYSTEM

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BACKGROUND: Race-based disparities in birth outcomes have long been observed in Louisiana. Surveillance of women's health prior to pregnancy represents one important strategy to understanding how best to intervene and reduce race based disparities. In 2007, the Public Health Work Group of the CDC convened a working group of maternal and child health program managers, epidemiologists, and data managers from seven states to identify core preconception health indicators measurable at the state level.

STUDY QUESTIONS: Are there are differences between Black and White women in Louisiana across select preconception health indicators?

METHODS: This study examines Louisiana women using data from the 2007 Louisiana Pregnancy Risk Assessment Monitoring System (LaPRAMS). Chi square analyses were used to compare select preconception health indicators for Blacks and Whites. All analysis were run using SAS callable SUDAAN to account for the complex design of the survey. The major limitations of this analysis were a low response rate (55%) and the use of self-reported data.

RESULTS: White women were more likely to smoke than Black women 3 months prior to pregnancy (32% vs. 12.3%, $p < 0.001$). Similarly, white women were more likely to drink alcohol 3 months prior to pregnancy in comparison to Black women (31.1% vs. 57.3%, $p < 0.001$). Black women were less likely than White women to start prenatal care in the first trimester of pregnancy (63.8% vs. 81.3%, $p < 0.001$). Blacks were more likely than White women to indicate a mistimed or unwanted pregnancy (70.7% vs. 44.3%, $p < 0.001$). There were no statistically significant differences among White women (23.9%) and Black women (21.6%) in the frequency of daily multivitamin intake prior to pregnancy.

CONCLUSIONS: Based on the indicators examined, overall findings were mixed. Improving early entry into prenatal care and multivitamin use are two interventions that may improve the health of women and as a consequence decrease race based disparities.

PUBLIC HEALTH IMPLICATIONS: Monitoring preconception health indicators can assist in understanding where race based disparities exist and assist in the development of targeted interventions to help reduce disparities.

EVALUATING GROUP-BASED PRENATAL CARE IN A LARGE, DIVERSE SAMPLE: CENTERINGPREGNANCY® IN TEXAS

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BACKGROUND: The prevalence of preterm births in the United States is alarming and has been targeted as one of the primary health indicators that need improvement. Previous studies have suggested that group-based prenatal care is an effective method of improving the health of mothers and their infants, educating mothers about their pregnancies, and improving mothers' ratings of their health care experiences.

STUDY QUESTIONS: A group- based prenatal care model, CenteringPregnancy® (CP®), developed by Sharon Schindler Rising, Executive Director of the Centering Healthcare Institute, has been suggested as an effective program for improving birth outcomes. This study evaluated the effectiveness of CP® with a large and diverse sample compared to a random sample of pregnant women in Texas.

METHODS: Under a three year initiative through the March of Dimes Texas Chapter, pregnant women were recruited from 14 sites to participate in CP® and data were collected on their birth outcomes (N = 363). A random, matched comparison sample was pulled from the Texas Birth Record to compare birth outcomes (N = 750). Multiple logistic regression analysis models the chances of preterm birth for the two groups.

RESULTS: The sociodemographic characteristics of women in the CP® and control groups were relatively similar. However, CP® women were significantly less likely (62%) to have a preterm birth than women in the control group.

CONCLUSIONS: The results from this study highlight that participation in CP®, a group-based prenatal care program, improves birth outcomes even for a diverse group of women. Even after controlling for other important factors that are associated with the chance of having a preterm birth, women in CP® had substantially better birth outcomes. For a diverse group of women, CP® is well received by pregnant women and is associated with improved birth outcomes.

PUBLIC HEALTH IMPLICATIONS: We argue that more efforts should be directed to implementing CP® group-based prenatal care programs, especially for minority, young, and at risk women. Empowering and educating pregnant women is a public health priority and can be done effectively through the CP® model of group-based prenatal care.

PREGNANCY INTENTION AND HUSBAND OR PARTNER-RELATED STRESS

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BACKGROUND: Pregnancy intention is associated with marital status, maternal age, and ethnicity among U.S. women. Some studies suggest intimate partner violence or partner-related stress is predictive of pregnancy intention. Little is known about the strength of this association or how it varies by maternal age.

STUDY QUESTIONS: Does partner-related stress decrease the probability of intended pregnancy, among women giving live birth in NM, and does this relationship differ by maternal life stage?

METHODS: NM Pregnancy Risk Assessment Monitoring System (PRAMS) data, 2000-2007 births, were used to measure the relationship between partner stress (partner did not want a pregnancy and the couple argued more than usual; or partner did not want to use contraception; or partner was physically abusive to girlfriend/wife prior to pregnancy) and pregnancy intention through a main effects model, stratified by maternal age groups. Logistic regression was employed in SAS 9.2, controlling for maternal: age, marital status, race/ethnicity, and food sufficiency.

RESULTS: From 2000-2007, 56% of New Mexico women with a live birth had an intended pregnancy. Among all NM mothers, those who experienced partner stress were less than half as likely to intend pregnancy (AOR= .44; .39-.50) compared to those who did not. Food sufficiency (AOR 1.2; 1.0-1.4) and being married (2.3; 2.1-2.6) were predictive of intended pregnancy. The relationship between partner-related stress and pregnancy intention differed significantly by age: Among teens, 15-17 years (0.72; .42-1.2), and women 35 years or older (.76; .45-1.3), partner stress was not associated with pregnancy intention. Among older teens and women up to age 34, it was. Marital status was associated with intention among all age groups. Food sufficiency was predictive of intended pregnancy only among women =>35 years (AOR=3.4; 2.1-5.5). Ethnicity was significantly associated with intention among moms 15-17 and 20-24 years.

CONCLUSIONS: Partner-related stress has a significant association with pregnancy intention when controlling for maternal age, marital status, ethnicity and food sufficiency. This relationship differs, though, among maternal age groups.

PUBLIC HEALTH IMPLICATIONS: Successful strategies to address pregnancy intention in NM should target both men and women, and account for ethnicity, food security or poverty, and maternal life stage.

NEONATAL MORBIDITY AMONG LOW-RISK DELIVERIES AT EARLY TERM: NEW JERSEY, 1997-2005

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BACKGROUND: Changes in obstetric practice have caused New Jersey's rates of artificial induction of labor and cesarean delivery to increase steadily from 1997 to 2005. These interventions at "early term" (37-39 completed weeks gestation) among low-risk women have increased markedly. This trend raises concerns about avoidable neonatal complications that are correlated with gestational age.

STUDY QUESTIONS: How do early-term cesarean delivery and induction of labor contribute to neonatal morbidity in a population of low-risk deliveries?

METHODS: Birth certificates from 1997 to 2005 were matched to hospital discharge records for more complete and accurate capture of risk factors and post-partum morbidities. Only "low-risk" deliveries were included, defined as singleton vertex presentations, and excluding prior cesarean, abnormal bleeding, uterine tissue anomaly, hypertensive disorder, large-for-gestational-age and small-for-gestational-age. Morbidities analyzed were: respiratory distress, transient tachypnea, hyperbilirubinemia (ascertainment of each required diagnosis plus a documented intervention) and admission to neonatal ICU. Incidence-by-gestational-age curves were constructed, stratified by spontaneous labor, artificial induction of labor, and no-labor cesarean.

RESULTS: Incidence of each morbidity indicator increased during the study period. Risk of each morbidity declined consistently from 37 through 41 completed weeks of gestation. Cesarean without trial of labor was associated with uniformly higher risk of respiratory difficulty and NICU admission. Artificial induction of labor generally affected morbidity rates only indirectly, via shortening of gestational age.

CONCLUSIONS: Recent trends in early-term deliveries have pushed neonates into higher gestational-age-related risk of morbidity.

PUBLIC HEALTH IMPLICATIONS: The increasing incidence of preventable neonatal morbidity in low-risk populations directly related to delivery interventions suggests the value of educational measures directed at both families and obstetric providers.

CASE VALIDATION FOR A STATEWIDE BIRTH DEFECTS REGISTRY

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BACKGROUND: Approximately 3-5% of babies are born with a major birth defect, amounting to over 120,000-200,000 babies per year in the United States and more than 600 per year in Delaware. There are a variety of case ascertainment approaches used to populate birth defects surveillance systems.

STUDY QUESTIONS: When is medical record abstraction necessary to create a valid and accurate birth defects registry?

METHODS: Case lists based on ICD-9 codes were provided electronically by all birth hospitals, the dominant outpatient pediatric specialty hospital, the maternal fetal medicine group and Level III NICU, and the state vital statistics office for the 2007 Delaware birth cohort. One unduplicated list of potential cases was created after linkage using the Fine-Grained Record Linkage (FRIL) software. Cases were confirmed through medical record abstraction. After review of potential cases was completed for two of the major institutions (40% of cases), the positive predictive value (PPV) of case identification was calculated for each category of defect.

RESULTS: The unduplicated list of potential cases for the 2007 birth cohort in Delaware resulted in 1,738 potential cases from the 11,519 babies in the birth cohort. Of the 22 potential chromosome anomalies reported, 21 were true cases (PPV of 95%); all 20 suspected orofacial clefts were confirmed (PPV of 100%); 312 potential cardiac defects were identified and 143 were confirmed (PPV of 46%), 64 potential eye/ear anomalies were identified with 21 confirmed (PPV of 33%) and 262 musculoskeletal cases were identified with 81 confirmed (PPV of 31%). The major cardiac defects falsely identified by codes were atrial septal defect and patent ductus arteriosus. Positional plagiocephaly and torticollis were largely over-identified for the musculoskeletal defects.

CONCLUSIONS: Unlike the orofacial clefts and chromosome abnormalities, cardiac and musculoskeletal defects and eye/ear anomalies require review of diagnostic testing and evaluation to confirm cases identified by the ICD-9 code.

PUBLIC HEALTH IMPLICATIONS: Review of medical records is needed for confirmation of some defects. Case identification using ICD-9 codes may overestimate the incidence rates of some birth defects.

DIFFERENCES IN THE ASSESSMENT OF INFANT FEEDING STATUS BETWEEN THE BIRTH CERTIFICATE AND NEWBORN SCREENING FORMS IN NEW HAMPSHIRE

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BACKGROUND: Preliminary analysis of a linked birth certificate and newborn screening form data file containing all births occurring in New Hampshire from September 1, 2006 through September 29, 2009 (n=17,338) indicated imperfect concordance of the infant feeding question between the two data sources (82.5%). Understanding the reasons for these differences between these two sources of early infant feeding is important to improve data quality and to assist end data users in selecting the appropriate indicator for their purposes.

STUDY QUESTIONS: How does the recording of infant feeding status differ between the birth certificate facility worksheet and the newborn screening form?

METHODS: We conducted qualitative interviews with 68 individuals responsible for completing these forms at 21 birth facilities across New Hampshire. Respondents were asked when the infant feeding items were recorded at their facilities typically, at the earliest, and at the latest. They were also asked about awareness of policies or guidelines at the state and facility level, and what training they had received around completing these forms. Responses were examined at the individual and facility levels, however this sample is not representative at the facility or the state level.

RESULTS: Respondents reported that the infant feeding question was filled out earlier on the birth certificate (BC) compared to the newborn screening form (NSF) for the three times specified: typical, earliest, and latest (means: 28.1 vs. 36.8, 16.6 vs. 27.1, and 27.1 vs. 59.2 hours postpartum, respectively). Additionally, about 10% of BC respondents and 20% of NSF respondents mentioned that feeding status was captured by intent at admission. Most interviewees were unaware of formal state and facility policies related to completion of the infant feeding items and had not received formal training.

CONCLUSIONS: Differences in early postpartum infant feeding status between the BC and the NSF may be partially explained by their differential recording times. Data recorders on the BC and the NSF receive little guidance on proper completion of the infant feeding question on these two forms.

PUBLIC HEALTH IMPLICATIONS: Stakeholders may want to clarify the goals of these questions, identify preferred data sources and provide data recorders with formal guidance to achieve more consistent reporting.

MILKING THE UMBILICAL CORD AT TERM CESAREAN SECTION: THE EFFECTS ON HEMATOLOGIC STATUS IN THE FIRST 48 HOURS OF LIFE

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BACKGROUND: Immediate cord clamping (ICC) at birth may contribute to anemia of infancy. It can deprive a term infant of 25% of its blood volume which represents up to 50mg/kg of iron. Poor iron stores can affect the developing brain. ICC is routine at cesarean section but lacks scientific evidence. Delayed cord clamping for at least two minutes has been shown to reduce anemia but is not always feasible at cesarean section. Umbilical cord milking (UCM) may offer an alternative for the prevention of anemia.

STUDY QUESTIONS: Does UCM improve newborn hematologic status at 48 hours of age in infants born by cesarean section?

METHODS: A partially blinded pilot randomized controlled trial comparing ICC and UCM in term infants at planned cesarean section. The primary outcome variable was hemoglobin and hematocrit levels at 48 hours of age. The secondary outcome variables were placental residual blood volume and adverse neonatal outcomes. Women and their infants were randomly assigned to ICC (< 10 seconds) or UCM (five milkings before clamping at 16 seconds). Women were excluded if medically ill, severely anemic or known to smoke. Infants were excluded if congenital anomalies or intrauterine growth restriction.

RESULTS: Twenty-four mother/infant pairs were randomized. Analyses revealed no differences in maternal/infant demographic variables. Infants with UCM had significantly higher hemoglobin ($p=0.03$) and hematocrit ($p=0.01$) levels. ICC was associated with significantly greater placental residual blood volume ($p=0.01$). There was no report of symptomatic polycythemia, NICU admission or need for exchange transfusion. Maximum serum bilirubin levels were similar between groups. There was a trend towards anemia (hematocrit < 47%) at 48 hours in infants with ICC ($p=0.07$).

CONCLUSIONS: UCM is a low tech-low cost technique which is easy to implement at cesarean section. It may aid in the prevention of anemia. While some clinicians focus on polycythemia, a parallel concern is the incidence of anemia found in infants with ICC.

PUBLIC HEALTH IMPLICATIONS: Annually, over 1.5 million infants born by cesarean in the US will receive ICC. These infants are at risk for poor iron stores in infancy. UCM appears to accelerate placental transfusion (~ 50 mg/kg of iron) without causing harm.

GRADING PHYSICAL ACTIVITY RESOURCES IN RECREATIONAL PARKS

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BACKGROUND: Childhood obesity is a serious health burden to society. To combat childhood obesity, assessing the capacity of parks to support physical activity would be useful. Although there have been scattered efforts to improve parks in Gainesville, Florida, there has not been a systematic way to identify parks based on their capacity to support physical activity.

STUDY QUESTIONS: What grades can be assigned to parks located near public elementary schools?

METHODS: Using ArcGIS, 22 parks within an approximate half mile radius (walking distance) were identified near 12 public elementary schools in Gainesville, Florida. The Physical Activity Resource Assessment (PARA) instrument was used to assess park features, amenities, and incivilities. The PARA instrument was developed by Dr. Rebecca Lee from the University of Houston over a nine month period during which it was tested for reliability (rs> 0.77) and revised to achieve the final form. University of Florida students visited parks, took photos, and recorded the number of people present. Cumulative scores were tallied by subtracting the sum of the negative features (incivilities) by the positive features and scores were transformed into letter grades. Out of a total of 30 points, an 'A' ranged from 30-21, 'B' from 20-11, 'C' from 10-1, and 'D' less than or equal to 0.

RESULTS: The 22 parks received grades of 'A'(5), 'B'(8), 'C'(5), 'D'(4). We found that a minimal change in incivilities, such as less litter or more planting, could improve a park's grade. These results along with maps of reported crimes were shared with attendees at monthly Healthy Communities Dialogue, a consortium of community organizations dedicated to improving the health of local citizens.

CONCLUSIONS: The grade of the physical activity resources available at parks in Gainesville ranged from excellent to poor. Steps are currently being taken to improve parks with poor physical activity resources and advertise parks with multiple resources.

PUBLIC HEALTH IMPLICATIONS: Using maps as a visual aid and by grading parks near schools, those influenced by the parks such as families, school officials, and community leaders can be educated about the physical activity resources available in their community. Maintaining or improving parks can aid in reversing rates of childhood obesity.

DEPRESSION SYMPTOMS AND PRENATAL TOBACCO USE: DEPRESSION OR BIPOLAR DISORDER?

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BACKGROUND: Prenatal screening for depression symptoms is common and prenatal depression is linked to persistent tobacco use. However, depression symptoms may occur in bipolar disorder and bipolar disorder and tobacco use are strongly linked.

STUDY QUESTIONS: This study explores the degree to which depression symptoms in pregnancy are due to bipolar I disorder rather than Major Depressive Disorder (MDD) and describes associations between bipolar disorder and prenatal patterns of tobacco use.

METHODS: Subjects in this prospective cohort study include 737 pregnant women recruited through WIC program sites and assessed during pregnancy for psychiatric disorders with the DIS-IV. Women were 43% White and 57% Black, and 59% rural and 41% urban. Tobacco use data, drawn from WIC records (prenatal & postpartum), a pregnancy interview and Missouri birth certificate data describe tobacco use persistence and changes in quantity at several points in pregnancy. Analyses consist of Chi square and t-tests.

RESULTS: Bipolar disorder prevalence included 7% lifetime and 5% current. 51.9 % of women with lifetime bipolar disorder smoked even after pregnancy confirmation regardless of current symptoms. Of women with a depressive episode during pregnancy, 16.3% were attributable to bipolar disorder rather than to MDD. Women smokers with bipolar disorder were more likely to persist in pregnancy use and reported higher tobacco use than smokers with MDD. Limitations: These are preliminary findings based on simple bivariate analyses. Tobacco use data was not validated through biological testing.

CONCLUSIONS: Focusing only on depressive symptoms when assessing pregnant mothers in tobacco cessation programs misses an important group of women and misclassifies others. Women with Bipolar I disorder are more likely to smoke and among those that do, to smoke more than women with MDD.

PUBLIC HEALTH IMPLICATIONS: While attention to depressive symptoms among persistent tobacco users in pregnancy is valuable we need to increase the breadth of assessment to include bipolar disorder.

TO SWEAT OR NOT TO SWEAT: PHYSICAL ACTIVITY LEVELS OF SCHOOL AGE CHILDREN BY STATE

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BACKGROUND: Regular physical exercise is beneficial to children's health and well-being. The CDC and Healthy People 2010 recommend that children and adolescents be physically active multiple times per week.

STUDY QUESTIONS: What factors influence engagement in physical activity of children 6 to 17 years old?

METHODS: We analyzed weighted data from the 2007 National Survey of Children's Health conducted via the State and Local Area Integrated Telephone Survey mechanism of the National Center for Health Statistics. This population-based survey of children under 18 years of age with parent-guardian respondents was sponsored by the Maternal and Child Health Bureau. Physical activity was measured using: "During the past week, on how many days did [child] exercise, play a sport, or participate in physical activity for at least 20 minutes that made [him/her] sweat and breathe hard.' Univariate and bivariate analyses, and multiple and multinomial logistic regression analyses (modeling child's days of physical activity, controlling for age, gender, and race) included but were not limited to child's age, BMI classification, child and parent physical activity frequency, neighborhood characteristics, and state of residence.

RESULTS: Of school aged children (6-17 years old), 29.9% participated in physical activity (referring to >= 20 minutes of physical activity hereafter) seven days/week and 10.3% were physically active zero days/week. In contrast, of their mothers, 10.3% reported being physically active seven days/week and 25.1% were physically active zero days/week. States with the highest and lowest percentage of school aged children being physically active seven days/week were North Carolina (38.5%) and Utah (17.6%). Statistically significant factors included mother's exercise and education, child's BMI, language spoken in the household, days of adequate sleep, and child's health status.

CONCLUSIONS: Physical activity is a crucial part of the health and development of children and many are not achieving the recommended amount of physical activity.

PUBLIC HEALTH IMPLICATIONS: Continued efforts to increase physical activity levels of all school aged children can help achieve these public health goals.

A HOSPITAL BASED FIMR PROGRAM

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BACKGROUND: A review of the PPOR (Perinatal Periods of Risk) data for our Region in Northeast Ohio revealed that nearly 28% of the mortality rate was due to large fetal deaths. The current formulation of the County Child death review committees did not address this issue.

STUDY QUESTIONS: Can a review/discussion of large fetal deaths reveal trends/concerns for causation of fetal deaths? If/when trends are identified, can hospital providers link with public health entities to impact these trends?

METHODS: Hospital-based Fetal Death committee structure developed and presented to area hospitals for participation. An electronic data base developed to house aggregate data from these committees. Data reviewed for trends and commonalities. These trends and commonalities will be used to enhance current hospital and public health programs.

RESULTS: The initial results from our fetal death review revealed that in 31% of the fetal deaths the cause was undetermined, 23% were by placental abruption, 23% by chorioamnionitis, 8% by lethal anomaly, and 8% by cord accident. The pre-pregnancy Body Mass Index (BMI) was > or = to 25 in 46% of the women with fetal deaths compared to our historical patient population which was 34.6%. After 30 weeks gestation, the fetal weight decreased to the 10%tile.

CONCLUSIONS: Virtually all of the fetal deaths were known to the delivery staff prior to induction and delivery. Even after autopsy, the primary cause of death could not be determined in nearly 1/3 of the deaths. In review, 46% of the women with a fetal death had a pre-pregnancy BMI > or = 25. The mean weight of study subjects approximated the 10th percentile for gestational age.

PUBLIC HEALTH IMPLICATIONS: Hospital based FIMR can identify trends in the causes of fetal mortality. These committees can increase the awareness among perinatal health care providers about the issues surrounding late pregnancy fetal demise. FIMR can help improve the quality of the information reported on the fetal death certificate.

EXAMINATION OF THE RELATIONSHIP BETWEEN FEEDING PRACTICES AND LATE INFANCY WEIGHT-FOR-AGE

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BACKGROUND: Early childhood obesity is a growing public health concern. Current infant feeding practice guidelines call for 1) no bottle-to-bed, 2) minimal juice consumption, 3) exclusive breastfeeding up to 4-6 months with continued breastfeeding up to one year, and 4) introduction of solid foods no earlier than 4-6 months infant age. However, associations between these recommended practices and weight-for-age in late infancy remains to be identified.

STUDY QUESTIONS: To what extent are bottle-to-bed behavior, late infancy juice consumption intensity, late infancy breastfeeding intensity, and early introduction to solid foods associated with weight-for-age among one year old infants?

METHODS: Data were obtained from the Infant Feeding Practices Study-II, a longitudinal survey administered by FDA and CDC, that followed US mother-infant dyads from pregnancy through one year postpartum. Multiple regression models were used to examine the association between the selected infant feeding practices and weight-for-age among the 691 infants who met inclusion criteria and for whom 12-month survey data were available. A recognized limitation was self-reported data.

RESULTS: Of the 4 infant feeding practice variables, late infancy juice consumption intensity ($p = .003$), late infancy breastfeeding intensity ($p < .001$), and introduction to solid food prior to 4 months ($p < .001$) were each associated with late infancy weight-for-age. In a regression model that included the 4 infant feeding variables and controlled for infant gender and birth weight as well as maternal age, education, race, household income, smoking status, pregravid weight, and weight gain during pregnancy the same infant feeding practices remained significant predictors of baby's weight-for-age at one year. A limitation to generalizability was a disproportionately low representation of low SES and minority groups in the sample.

CONCLUSIONS: Modifiable feeding practices contributed to infant weight-for-age at one year. Future research should examine the relationship between these infant feeding practices and excessive weight gain through the preschool years.

PUBLIC HEALTH IMPLICATIONS: To reduce the risk for excessive weight gain that may lead to later childhood overweight/obesity, recommended feeding practices for the second half of infancy should emphasize continued breastfeeding, minimal juice consumption, and delayed introduction of solid foods (after 6 months).

CHARACTERISTICS ASSOCIATED WITH LACK OF PRECONCEPTION MULTIVITAMIN SUPPLEMENTATION IN OHIO WOMEN

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BACKGROUND: Perinatal consumption of folic acid-fortified multivitamins is protective against neural tube and possibly other birth defects. Public health groups recommend that all women capable of becoming pregnant take daily multivitamin supplements, regardless of pregnancy intention. Yet, little is known about patterns of multivitamin use among fertile Ohio women. Therefore, it was of interest to characterize the prevalence of preconception multivitamin consumption in mothers of recent live born infants and to identify factors associated with multivitamin nonuse.

STUDY QUESTIONS: What characteristics of Ohio mothers of live born infants are associated with self-reported failure to take any multivitamin supplements in the month prior to conception?

METHODS: We analyzed data from the 2006-2008 Ohio PRAMS survey to produce weighted estimates of self-reported multivitamin use. Bivariate analyses were employed to assess crude associations between maternal characteristics and multivitamin nonuse (age, race, ethnicity, pregnancy intention, income, education, preconception care, prenatal health insurance, body mass index, and region of residence). We then applied multivariable logistic regression methods to calculate adjusted odds ratios for factors associated with vitamin nonuse.

RESULTS: Only 33.6% (95% CI 31.2-36.0%) of surveyed women reported any multivitamin consumption in the month before conception. Characteristics jointly associated with multivitamin non-use included age <18 years (OR= 2.28; 95% CI 1.10-4.71) and 19-35 years (OR= 1.89; 95% CI 1.25-2.89) vs. age 36 or more years; unintended pregnancy (OR= 1.67; 95% CI 1.31-2.12); lack of preconception care (OR= 4.64; 95% CI 3.56-6.06); family income near or below poverty (OR=1.22; 95% CI 0.95-1.56); high/low vs. normal body mass index (OR=1.35; 95% CI 1.07-1.71); less than high school education (OR-1.42; 95% CI 1.11-1.80) and residence in the Appalachian region of Ohio (1.91; 95% CI 1.35-2.69).

CONCLUSIONS: All women of childbearing age should be encouraged to take folic acid-fortified multivitamins. Interventions to increase consumption rates among younger women, residents of Ohio's Appalachian region, and those living in poverty should be explored.

PUBLIC HEALTH IMPLICATIONS: Adequate folic acid intake may prevent up to 50% of neural tube defects. Effective programs targeted toward increasing perinatal multivitamin use could decrease the prevalence of some birth defects in Ohio.

RISK FACTORS OF SUDDEN UNEXPECTED INFANT DEATH SYNDROME AMONG ASIAN AMERICANS IN METROPOLITAN ATLANTA, GA

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BACKGROUND: Sudden infant death syndrome (SIDS) is defined as the sudden death of an infant under one year of age, which remains unexplained after a thorough case investigation, including the performance of a complete autopsy, examination of the death scene, and review of the clinical history. SIDS is the leading cause of death among infants' ages 1-12 months, and is the third leading cause of overall infant mortality in developed countries. Although the overall rate of SIDS in the United States has declined by more than 50% since 1990, rates have declined less among non-Hispanic Black and American Indian/Alaska Native infants. Rates among Asian Americans have remained among the lowest since 1995. While there is an abundance of information on the risk factors that lead to higher rates of SIDS there is a dearth of information on populations with low rates of SIDS.

STUDY QUESTIONS: Why do Asian American infants display lower rates of SIDS/SUID than other ethnic groups?

METHODS: In-depth interviews were conducted exploring post natal and behavioral risk factors. Eligible participants included women with a least one child under 4 years old. Purposive sampling was used to recruit 20 women and a structured interview guide was developed to facilitate discussion on key topic areas. The qualitative analysis software, MaxQDA, was used to analyze the data.

RESULTS: Extreme exhaustion was reported with co-sleeping by 55% of participants. Children who cried frequently or had trouble sleeping were more likely to co-sleep or be placed in the prone sleep position because of maternal exhaustion. Mothers who reported intergenerational families reported less exhaustion and fewer risk factors for SIDS.

CONCLUSIONS: Factors deemed as problematic by the AAP and other pediatric authorities that are known by participants do not override cultural practices; influences of intergenerational families greatly mediates exhaustion; there is consensus among the group that parents hold the responsibility for infant care and must be watchful and diligent.

PUBLIC HEALTH IMPLICATIONS: Rather than promoting a single list of recommendations, practitioners need to understand the complexity of infant development, sleep practices, and cultural influences. Factors associated with high SIDS rates need to be addressed systemically and through education and behavioral interventions.

THE CHICAGO HEALTHY BIRTHS FOR HEALTHY COMMUNITIES INTERCONCEPTIONAL CARE PROGRAM: OVERVIEW OF PROGRAM MODEL, SERVICES AND EFFECTIVENESS

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BACKGROUND: Improving women's health during the interconceptional period is essential to improving pregnancy outcomes. As such, the Chicago Healthy Births for Healthy Communities Interconceptional Care Project (ICCP) focused on finding women who had recently experienced an adverse birth outcome and providing them with a tailored program of medical and social support services including case-management, in order to improve the outcome of the subsequent pregnancy.

STUDY QUESTIONS: Which medical and social services do women enrolled in an interconceptional care program use? Are participants in an interconceptional care program able to establish self-management and reproductive goals? Do they have decreased repeat fertility and increased interpregnancy intervals?

METHODS: Information from three data sources was used to determine ICCP program effectiveness: a provider service database, a participant interview (at two points in the interconceptional period for a subset of women), and interviews with project staff. Because no comparison group data are available, analyses focused on the relationship between program participation (e.g., dose, duration) and, use of health and social services, contraceptive use, establishment of reproductive and self-management goals, and time to pregnancy.

RESULTS: The ICCP served 298 low-income African-American women in their mid-twenties. Preliminary data indicate that the average number of medical visits was 3.1, while most women saw their case-managers 1 time per month on average. Sixty-five percent of women established reproductive goals within 3 months of enrolling in ICCP and nearly 61% established self-management goals in that time period. Ninety percent of women reported using contraception while in ICCP, with Depo-Provera the most common method. Outcome data suggest a low fertility rate among all ICCP women; 9.4% of women in the program at least six months became pregnant compared to the 2006 Illinois fertility rate for African-American women < 200% Federal Poverty Level and 20-44 years of age of 11.5%.

CONCLUSIONS: Participation in an interconceptional care program supports reproductive goal setting, use of effective contraception, and reduced fertility.

PUBLIC HEALTH IMPLICATIONS: These findings can be used to provide guidance on how to tailor interconceptional care to be both effective and appropriate for a high risk population.

CHARACTERIZATION OF ACTS OF OMISSION OR COMMISSION AS REPORTED IN HAWAII CHILD DEATH REVIEW, 2001-2006

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BACKGROUND: Omission or commission may reflect the contribution of human behavior in preventable deaths. Acts of omission or commission are defined as any act or failure to act which causes (i.e., directly) and/or substantially contributes (i.e., indirectly) to the death of a child.

STUDY QUESTIONS: Does omission/commission contribute to deaths among children in Hawaii and do differences exist by socio-demographic characteristics?

METHODS: Data from the Hawaii Child Death Review database, a standardized data collection tool developed by the National Center for Child Death Review, were analyzed for 1079 deaths occurring from 2001-2006. Omission or commission was specified as: 1) Yes, contributed or was the direct cause leading to the death; 2) Probably contributed or caused the death; 3) No, did not contribute or cause the death; and 4) 'unknown' if contributed or caused the death. Omission/Commission was defined by 1) and 2) as listed above. A total of 331(out of 372) which were reviewed comprehensively had information related to omission or commission.

RESULTS: Overall, omission or commission was a cause/contributor in 191 (57%), probably caused/contributed in 44 (13%),did not contribute in 45 (14%),and 'unknown' in 51 (16%) reviewed deaths. Omission/commission occurred in 71% (n=235) of all reviewed deaths with varying rates in specific sub groups: 80% of reviewed deaths in "Other Pacific Islanders", 75% in Hawaiians,67% in whites, and 64% in Filipinos; 75% of deaths in those 1-4 years of age, 73% in 15-17 years, 72% in 10-14 years, 67% of infants, and 64% in 5-9 years; 71% of reviewed deaths in males and 69% in females. The specific acts were classified as poor/absent supervision (32%), other acts (27%),other negligent acts (13%), suicide (12%), child neglect (8%), child abuse (6%), and unknown/missing (2%). The majority of reviewed deaths with omission/commission were among external causes (n=199) with 94% of weapon deaths, 91% of asphyxia deaths, 80% of drowning deaths, 79% of undetermined deaths, 75% of vehicular deaths, and 54% of fall or crush related

CONCLUSIONS: In 70% of child deaths in Hawaii that were reviewed comprehensively, omission or commission probably or did cause or contribute to the death. The majority of deaths due to external causes had components of omission/commission.

PUBLIC HEALTH IMPLICATIONS: Increased awareness and programs targeting the reduction of omission or commission will likely lead to fewer child deaths, particularly related to external cuases of death in Hawaii.

COMMON CHRONIC CONDITIONS ASSOCIATED WITH BIRTHS, HAWAII HOSPITAL DISCHARGE DATA 2003-2008

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BACKGROUND: Asthma, diabetes, and high blood pressure are common maternal chronic conditions that can impact birth outcomes. Estimates of these and other common conditions reported on the traditional birth certificate are limited and often under-reported.

STUDY QUESTIONS: How common are maternal chronic conditions among women having a birth in the State of Hawaii and are they associated with delivery type, birthweight, and hospital charges?

METHODS: Data from the Hawaii Health Information Corporation (a private non-profit corporation that maintains data on hospital and emergency room discharges in the state of Hawaii) was analyzed for 110,106 births occurring from 2003-2008. Categories were determined using the International Statistical Classification of Diseases (ICD-9) based on up to 12 hospital discharge codes from linked delivery records of mother and infant. Asthma (ICD-9: 493); diabetes (ICD-9: 250,648.0,648.8); and high blood pressure (ICD-9: 401-405,642) as coded on the delivery record were described by outcomes of cesarean delivery, low birthweight (<2500 grams), high birthweight (>4500 grams), and median hospital charges (mother and infant).

RESULTS: Asthma occurred in 4.3% (95% Confidence Interval=4.2-4.4%) of births, and those with asthma were more likely to have a low birthweight infant (11.3% vs. 8.1%,$p<0.05$) and higher median hospital charges ($10,135 vs. $9,017,$p<0.05$) compared to those without asthma. Maternal diabetes occurred in 7.8% (95% CI=7.7-8.0%) of births, was associated with cesarean delivery (36.7% vs. 23.8%, $p<0.05$), low birthweight (11.0% vs. 8.0%,$p<0.05$), high birthweight (2.7% vs. 1.0%,$p<0.05$), and higher median hospital charges ($10,895 vs. $8,948,$p<0.05$) compared to those without diabetes. High blood pressure occurred in 9.5% (95% CI=9.3-9.7%) of births, and was associated with cesarean delivery (34.8% vs. 23.8%,$p<0.05$), low birthweight (20.8% vs. 6.9%,$p<0.05$), and higher median hospital charges ($12,211 vs. $8,860,$p<0.05$) compared to women who did not have high blood pressure.

CONCLUSIONS: Asthma, diabetes, and high blood pressure are relatively common conditions reported on hospital discharge data, and are related to higher hospital delivery charges and adverse birth outcomes. It is important to ensure appropriate monitoring and treatment during the pregnancy to improve birth outcomes.

PUBLIC HEALTH IMPLICATIONS: Increased awareness of the burden of chronic disease and its impact on the physical, financial and emotional cost of pregnancies is needed.

PRECONCEPTION OBESITY AND OVERWEIGHT STATUS AND ADVERSE BIRTH OUTCOMES AMONG HAWAIIAN AND PACIFIC ISLANDER WOMEN, HAWAII PRAMS SURVEY 2004-2008

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BACKGROUND: Being obese or overweight is associated with perinatal complications in mother and infant, but also increases the risk for development of chronic disease such as cardiovascular disease, diabetes, musculoskeletal disorders and some cancers.

STUDY QUESTIONS: What maternal demographic characteristics and risk factors are associated with preconception obesity and overweight?

METHODS: Data from the Hawaii Pregnancy Risk Assessment and Monitoring System, a population-based surveillance system on maternal behaviors and experiences before, during and after the birth of a live infant were analyzed for 2004-2008 for 8654 women. Pre-pregnancy body mass index (BMI) was calculated basing mother's weight and height before pregnancy. Weight status was categorized using National Institutes of Health standard: a BMI < 24.9 were classified as under or normal weight, overweight was a BMI of 25.0–29.9, and obese was a BMI = 30.0. Prevalence estimates and a multivariate generalized logit modeling procedure assessed preconception obesity and overweight, accounting for maternal age, maternal education, marital status, and health insurance.

RESULTS: Preconception obesity was estimated at 15.8% (95% CI: 15.0-16.6) and overweight in 21.4% (95%CI: 20.6-22.3) of mothers. After adjustment, Samoan (AOR=17.7, 95%CI=11.9-26.3), "Other Pacific Islander" (AOR=3.3, 95%CI=2.4-4.6), Hawaiian (AOR=3.2, 95%CI=2.6-3.9), and Black (AOR=2.1, 95%CI=1.4-3.4) mothers have a higher risk of preconception obesity; while Chinese (AOR=0.4, 95%CI=0.3-0.6), Korean (AOR=0.5, 95%CI=0.3-0.7) were less likely, compared to white mothers. Preconception obesity was also more common in women 20-24 years of age (AOR=2.8, 95%CI=1.9-4.2), 25-34 years (AOR=5.4, 95%CI=3.7-7.8), and 35 years and older (AOR=6.3, 95%CI=4.2-9.4) compared to those under 20 years of age in the adjusted analysis. Similar patterns in all subgroups were seen in women who were overweight prior to conception.

CONCLUSIONS: Over 1 in 3 women in Hawaii were overweight or obese before pregnancy with almost 16% being obese. Women of Pacific Islander ancestry, particularly Samoan women and those over 20 years of age are at risk for being overweight or obese prior to conception.

PUBLIC HEALTH IMPLICATIONS: Population level efforts to decrease obesity and overweight could focus on all women to encourage physical activity and optimal nutrition to improve birth outcomes and promote primary prevention of chronic disease.

SOCIAL SUPPORT AND PERSISTENT SELF-REPORTED DEPRESSIVE SYMPTOMS 13-24 MONTHS AFTER BIRTH AMONG OREGON WOMEN WITH PERINATAL SELF-REPORTED DEPRESSIVE SYMPTOMS

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BACKGROUND: Postpartum depression (PPD) has serious health consequences for mothers and babies. While risk factors for PPD have been studied extensively, less is known about risk factors for persistent depression among women experiencing PPD. Social support has been identified as a risk factor for PPD and the relationship between social support and persistent PPD deserves further investigation.

METHODS: The Oregon Pregnancy Risk Assessment Monitoring System Survey (PRAMS) is a population-based sample of Oregon women 2-6 months after a live birth. PRAMS-2 is a follow-up survey of the PRAMS respondents when the baby is 2 years old. Data for this study is from 1,911 women who had live births in 2004-2005 and responded to both surveys. The weighted response rate for PRAMS-2 was 56.6%. Perinatal SRDS was assessed from questions on PRAMS; and Persistent SRDS was assessed from questions on PRAMS-2. Multivariate logistic regression was used to explore the association between social support and Persistent SRDS 13-24 months after birth among women reporting Perinatal SRDS (during pregnancy or up to six months postpartum). All results were weighted to account for the complex sampling design of PRAMS.

RESULTS: 441 women (22.1% of the PRAMS-2 cohort) reported Perinatal SRDS during pregnancy or postpartum. Of these women, 48.3% reported Persistent SRDS (13-24 months following birth) and 13.2% reported low social support. Compared with women with high social support, Persistent SRDS was significantly associated with increased odds of reporting low social support (ORa 5.03; 95% confidence interval: 1.56, 16.24).

CONCLUSIONS: Nearly half of the women reporting perinatal depressive symptoms will report depressive symptoms during their child's second year. Social support was significantly associated with persistent depressive symptoms even after controlling for other covariates.

PUBLIC HEALTH IMPLICATIONS: Screening for low social support may aid clinicians in identifying which women with perinatal depression are at increased risk for persistent depression.

PARENT-CHILD COMMUNICATION ABOUT SEX IN TEXAS: RESULTS FROM THE TEXAS TEEN OPPORTUNITY PROJECT

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BACKGROUND: Parent-adolescent communication about sex delays sexual intercourse and encourages the use of effective contraception among adolescents who are sexually active. We hypothesize that differing norms about parent-teen communication about sex may help explain differences in the teen birth rates of Latinas, African-Americans and Whites in Texas.

STUDY QUESTIONS: What are community norms about parent-teen communication about sex in Texas and what are ways parents and teens recommend improving that communication? Do these norms differ by race/ethnicity, level of acculturation and gender?

METHODS: Forty-nine focus groups were conducted in four Texas cities with parents (13 groups, N=78) and adolescents (36 groups, N=214) who identified as Latino, African-American, or White. Latino parent groups were further stratified by whether they completed their education in the US (3 groups, N=18) or Mexico (4 groups, N=20). Focus group topics included future goals, parent-adolescent communication, teen pregnancy, and contraception. Focus group audio files were transcribed.

RESULTS: (1) While all youth say that parents do not talk to their children about sex, only Mexican-educated parents share this opinion. However, (2) many parents are open with their teens about sex. (3) Teens commonly hear that parents accept or tolerate them having sex as long as they are "protected." Young males, and especially young African-American males, commonly hear this message. (4) Young women commonly hear the message from their moms to wait to have sex. Finally, (5) Young women, and especially young Latinas, commonly hear about the negative consequences about sex. Prescriptions for improving communication from both youth and parents overwhelming endorse calm, nonjudgmental, ongoing conversations in the context of open, involved relationships.

CONCLUSIONS: There is strong normative support from both parents and youth for open communication about sex. We find only weak evidence that norms about parents-teen communication about sex differ by race/ethnicity or acculturation; we find some evidence of differences by gender. Differences in birth rates are therefore likely the outcome of structural differences between the groups.

PUBLIC HEALTH IMPLICATIONS: Raise community awareness that teens want their parents to talk to them about sex and contraception in an open and honest way.

PRECONCEPTION HEALTH - WEST VIRGINIA PRAMS 2004 – 2007

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BACKGROUND: Certain risk factors can play an important role in determining the outcome of pregnancy. Multivitamin use can have a positive influence on pregnancy outcomes whereas smoking and being overweight/obese can have negative influences on pregnancy outcomes.

STUDY QUESTIONS: Are West Virginia women at risk for negative pregnancy outcomes based upon their preconception health indicators?

METHODS: West Virginia PRAMS data 2004-2007 were used for this analysis. Variables include pre-pregnancy BMI, smoking prior to pregnancy and multivitamin use prior to pregnancy. Results were produced using statistical software SUDAAN to account for sampling design and weighted data.

RESULTS: The makeup of women delivering a live infant: 2004, overweight 12% and obese 25.9%, 39.5% smoked before pregnancy, and 28.2% took multivitamins 4 or more times per week before pregnancy; 2005, overweight 12.8% and obese 29.4%, 45.8% smoked before pregnancy, and 25.9% took multivitamins 4 or more times per week before pregnancy; 2006, overweight 13.2% and obese 28.2%, 41.8% smoked before pregnancy, and 27.4% took multivitamins 4 or more times per week before pregnancy; and 2007, overweight 12.5% and obese 28.0%, 40.5% smoked before pregnancy, and 28.5% took multivitamins 4 or more times per week before pregnancy.

CONCLUSIONS: A large percentage of West Virginia women are overweight/obese before becoming pregnant or smoke before pregnancy. But a low percentage of women took a multivitamin 4 or more times a week before pregnancy. These preconception risk factors can result in negative pregnancy outcomes such as low birthweight, prematurity, birth defects, specifically neural tube defects, other infant morbidity and possibly infant death.

PUBLIC HEALTH IMPLICATIONS: Being overweight/obese, smoking before pregnancy and taking multivitamins are modifiable risk factors affecting pregnancy. Being at a healthy weight and decreasing/quitting smoking before pregnancy may positively impact pregnancy outcomes.

STRESSFUL LIFE EVENTS AMONG AMERICAN INDIAN AND ALASKA NATIVE (AI/AN) PREGNANT WOMEN IN WASHINGTON STATE, 2004-2008

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BACKGROUND: Washington AI/AN women have high rates of infant mortality. Chronic maternal stress during pregnancy increases the risk for adverse birth outcomes. Nearly 25% of AI/AN Washington women experience 5+ stressful life events (SLEs) prior to pregnancy; however, little is known about the characteristics of AI/AN pregnant women who experience SLEs.

STUDY QUESTIONS: What are the characteristics of AI/AN women who report SLEs?

METHODS: We utilized 2004 to 2008 Washington Pregnancy Risk Assessment Monitoring System data for AI/AN women (n=1072) to evaluate SLEs. SLEs were categorized by number of events (0-4, 5+) and grouped into four categories: emotional, financial, partner-related, and traumatic. We used logistic regression to evaluate factors associated with each SLE category. Limitations included a low AI/AN response rate and the inability to evaluate political/social influences on AI/AN women that may be underlying the experience of stress.

RESULTS: 43%, 66%, 42%, and 43% of AI/AN women experienced emotional, financial, partner-related, and traumatic SLEs, respectively. In adjusted analyses, emotional stressors were associated with young age (OR =1.96, 95% CI: 1.22, 3.16); financial stressors were associated with Medicaid (OR = 2.45, 95% CI: 1.66, 3.63); partner-related stressors were associated with young age (OR = 2.61, 95% CI: 1.41, 4.84) and nulliparity (OR = 0.55, 95% CI: 0.38, 0.80); traumatic stressors were associated with low education (OR = 1.48, 95% CI: 1.03, 2.13), nulliparity (OR = 0.69, CI: 95% CI: 0.48, 0.99), Medicaid (OR = 1.95, 95% CI: 1.21, 3.12), and physical abuse (OR = 4.10, 95% CI: 2.41, 6.97); and 5+ stressors were associated with Medicaid (OR = 2.30, 95% CI: 1.21, 4.39), nulliparity (OR = 0.55, 95% CI: 0.35, 0.88), and physical abuse (OR = 6.35, 95% CI: 3.91, 10.34). Smoking prior to pregnancy was associated with all measures of SLEs.

CONCLUSIONS: Although women reporting SLEs tended overall to be those at high risk, the characteristics of AI/AN women reporting SLEs varied by type and amount of stressors reported.

PUBLIC HEALTH IMPLICATIONS: Understanding SLEs among AI/AN women will help increase awareness about issues faced by this population and help to develop culturally appropriate strategies to reduce adverse MCH outcomes.

THE IMPACT OF PRE-PREGNANCY BMI ON LOW BIRTH WEIGHT AND PRETERM BIRTH

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BACKGROUND: Pre-pregnancy obesity poses risks not only to pregnant women but to their infants as well. Maternal obesity during pregnancy has been associated with many complications and also increases long-term risks for the fetus. Women with a high pre-pregnancy body mass index (BMI) are already at risk for negative health outcomes, and once pregnant they can become a high-risk obstetric situation.

STUDY QUESTIONS: Is pre-pregnancy BMI associated with adverse birth outcomes and what level of BMI places a woman at highest risk for low birth weight and preterm birth?

METHODS: The data utilized in this study were live birth certificate files from 2004 through 2008 for first time births to Kentucky resident mothers aged eighteen and older. This age group was chosen as there are different BMI cutoffs for younger ages. First time births were considered to eliminate weight carryover from previous pregnancies. Pre-pregnancy BMI was categorized according to the Institute of Medicine recommendations into five groups: underweight (<18.5), normal weight (18.5-24.9), overweight (25.0-29.9), obese (30.0-39.9) and morbidly obese (>=40). Explanatory variables including age, race, ethnicity, education, payer source, WIC participation, smoking status and rurality were summarized for the five groups using descriptive statistics. Multiple logistic regression was completed for the outcomes of low birth weight and preterm birth.

RESULTS: From 2004 to 2008 there was a slight increase in the proportion of Kentucky mothers in the categories of overweight, obese and morbidly obese. Logistic regression analysis revealed that underweight women had the highest odds for low birth weight (O.R.=1.62;1.45-1.83) and preterm birth (O.R.=1.36; 1.21-1.53) compared to normal weight women when controlling for other variables in the model. Obese (O.R.=1.07; 1.01-1.4) and morbidly obese women (O.R.=1.22; 1.15-1.29) had increased odds for preterm birth only.

CONCLUSIONS: Among Kentucky women, being underweight prior to pregnancy is associated with low birth weight and preterm birth. Obesity was associated with preterm birth only in this population.

PUBLIC HEALTH IMPLICATIONS: Preconception health visits provide an opportune time for the health care provider to stress the importance of maintaining a healthy weight during the childbearing years and beyond to reduce adverse health outcomes.

THE EFFECTS OF SOCIAL/EMOTIONAL SUPPORT AND MENTAL DISTRESS ON ANNUAL SCREENING AMONG WOMEN OF REPRODUCTIVE AGE – BEHAVIORAL RISK FACTOR SURVEILLANCE SURVEY U.S. 2009

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BACKGROUND: Mental distress and a lack of social support have been shown to increase participation in health risk behaviors and have negative effects on general health. Screening for these outcomes through an annual examination can improve overall health.

METHODS: BRFSS, a population-based telephone survey of health behaviors, was analyzed among 67,730 reproductive aged women in the United States in 2009. Prevalence rates were calculated for social/emotional support, mental health and life satisfaction. Multivariable logistic regression was used to calculate odds of having been to the doctor within the past year for a routine physical examination. Models were adjusted for age, race, education level, and health insurance.

RESULTS: 32.9% (95%CI: 32.3-33.6) of women aged 18 to 44 had not been to the doctor within the past year for a routine physical. Factors associated with not having an annual screening included: limited (AOR=1.3, 95%CI: 1.2-1.4) and no (AOR=1.5, 95%CI: 1.4-1.7) social support; limited (AOR=1.3, 95%CI: 1.2-1.4) or no life satisfaction (AOR=1.7, 95%CI: 1.5-2.0); and frequent mental distress (AOR=1.2, 95%CI: 1.1-1.3). Additional differences were seen by race and age. Demographic groups least likely to have had an annual screening include White women (AOR=2.5, 95%CI: 2.2-2.8) and women 25-29 (AOR=1.4, 95%CI: 1.2, 1.5).

CONCLUSIONS: Women who experience mental distress, less social support, and less life satisfaction are less likely to have gone to the doctor for a routine physical within the past year.

PUBLIC HEALTH IMPLICATIONS: Further research is necessary to examine the factors that influence the social, emotional, and mental health of these women and identify target groups for intervention.

FACTORS ASSOCIATED WITH FETAL DEATH DECREASE OVER TIME

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BACKGROUND: In 2005, over 25,000 fetal deaths of at least 20 weeks gestation were reported in the US. From 1990 to 2003, the US rate declined by 17%, attributable to a decrease in late fetal deaths (at least 28 weeks gestation) with no change in mortality at 20-27 weeks gestation. It is unknown if this same trend can be seen for Louisiana fetal deaths.

STUDY QUESTIONS: What is the trend in fetal deaths from 1997-2006?

METHODS: Louisiana fetal death, infant death, and live birth certificates from 1997 to 2006 were used to calculate fetal death rates. Joinpoint regression was used to evaluate trends over time. Limitations include potential underreporting, assessed in this study by reviewing gestation-specific trends.

RESULTS: There were 5,159 fetal deaths reported in Louisiana from 1997-2006. The crude fetal mortality rate ranged from a high of 8.4 per 1,000 live births and fetal deaths in 2002 to a low of 6.7 per 1,000 in 2006.The estimated annual percent change (EAPC) was an 0.08% increase from 1997-2000, a 1.2% increase from 2001-2004, and a 10.6% decrease from 2005-2006. Despite the decrease noted from 2005-2006, there was no statistically significant difference in any time period. Gestation-specific trends suggested that decreasing annual percent changes were found at both gestational age groups (EAPC 20-27weeks=0.7%,$p>0.5$; 28+weeks=3.1%,$p<0.006$).

CONCLUSIONS: There was little change in Louisiana fetal deaths from 1997-2004. Despite a meaningful decrease in 2005 and 2006, no statistically significant change was noted. Investigation according to gestational age did not reveal evidence of suspected underreporting, as rates declined within both gestational groups. Results were similar to national data, with a larger decrease noted in late fetal deaths.

PUBLIC HEALTH IMPLICATIONS: Fetal deaths are a common poor pregnancy outcome, yet little attention is given to assessment in rates and trends over time compared to infant mortality. While fetal deaths may be susceptible to reporting errors, employing methods to assess potential reporting problems is key to appropriate use of data. No evidence of underreporting according to gestation-specific rates was found in this study. Additional assessment methods, including possible random case abstraction methods, should be considered where appropriate.

IMMUNIZATION COVERAGE AMONG CHILDREN 19-35 MONTHS AND 3-6 YEARS OF AGE WITH SICKLE CELL DISEASE, MICHIGAN

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BACKGROUND: Children with sickle cell disease are at increased risk of acquiring invasive infections. Timely and complete immunization coverage could reduce the number and burden of these invasive infections.

STUDY QUESTIONS: What proportion of children with sickle cell disease in Michigan is receiving appropriate immunizations in a timely manner?

METHODS: Newborn screening (NBS) records for all children born from 2004-2008 confirmed with sickle cell disease or trait were linked with their live birth certificates. Through live births, NBS data were linked with the Michigan Care Improvement Registry (MCIR), a statewide web-based system where all immunizations of Michigan residents are reported. Immunization data were retrieved for children aged 19-35 months and 3-6 years with sickle cell disease or trait. We further compared that data with the immunization status among all children 19-35 months and 3-6 years old in Michigan. The following vaccines were considered: DTaP/DT/DTP, Polio, MMR, Hib, Hepatitis B, Varicella, and PCV 7/13.

RESULTS: From 2004-2008, 14,811 newborns were diagnosed with sickle cell disease or trait through NBS. Through the linkages, approximately 97% of them were matched with live births, and immunization data were available for 90%. For children with sickle cell disease, the completion rate for all vaccines listed above, the 4:3:1:3:3:1:4 series, was 66.0% among those 19-35 months and 71.3% among those 3-6 years of age. Children aged 19-35 months with sickle cell disease had slightly higher immunization completion rates for all vaccines compared to those with trait and statewide. For children aged 3-6 years, the completion rates were generally higher among those with sickle cell trait and statewide compared to those with sickle cell disease.

CONCLUSIONS: The completion rate for the 4:3:1:3:3:1 series increases with age in children with sickle cell disease; higher rates are seen in those 3-6 years of age compared to those 19-35 months.

PUBLIC HEALTH IMPLICATIONS: The immunization coverage rates for children with sickle cell disease should be improved at younger ages given their risks for infections. Linkages between NBS, live births, and immunization data provide up-to-date, continued information on immunization status that should be used to develop targeted educational materials to meet the needs of specific high-risk populations.

PERINATAL CHARACTERISTICS AND HEALTHCARE UTILIZATION AMONG NEWBORNS WITH SICKLE CELL DISEASE AND SICKLE CELL TRAIT, MICHIGAN 2004-2008

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BACKGROUND: Although thousands of newborns have been diagnosed with sickle cell trait (SCT) since the inception of newborn screening for sickle cell disease (SCD), little is known about their perinatal characteristics and healthcare experiences after birth.

STUDY QUESTIONS: Do perinatal characteristics or healthcare utilization after birth differ between newborns with SCD and newborns with SCT?

METHODS: The study population consisted of all black infants born in Michigan from 2004 through 2008 who were identified with SCD or SCT through newborn screening (NBS). Their NBS records were linked with the Michigan Inpatient Database (MIDB) through live birth certificates, creating a dataset of birth hospitalization records. T-tests and chi-square tests were used to compare the two groups (SCT and SCD) in regards to birth weight (BW), gestational age, one minute Apgar score, type of delivery, and sex. Regression modeling was used to assess the relations between disease status (SCD vs. SCT) and the following healthcare utilization outcomes: NICU admission, length of stay (LOS), and total charges. Crude and adjusted models (controlling for low BW) were constructed using SAS 9.1.

RESULTS: Approximately 94% (n=11,423) of the NBS records were linked to the MIDB. None of the perinatal characteristics or healthcare utilization outcomes differed significantly by disease status. In the adjusted model, newborns with SCD had non-significantly increased odds of being admitted to the NICU compared to those with SCT (OR=1.3, 95% CI 0.8, 2.1). No significant differences were found when mean LOS and mean charges for newborns with SCD [7.3 days (95% CI 6.4, 8.3) and $14,122 (95% CI $10,556, $17,688), respectively] were compared with those for newborns with SCT [7.8 days (95% CI 7.6, 8.0) and $15,149 (95% CI $14,352, $15,947), respectively].

CONCLUSIONS: Perinatal characteristics and healthcare utilization of newborns with SCD are similar to those of newborns with SCT.

PUBLIC HEALTH IMPLICATIONS: Similar short-term follow-up strategies may be used for newborns with SCD and newborns with SCT due to their comparable perinatal characteristics and healthcare utilization. The routine link of NBS data with live birth records allows for linkages with other files (secondary data sources) containing information not available otherwise.

CHANGES IN MATERNAL AND PATERNAL SLEEP: DURING PRECONCEPTION, PREGNANCY, AND POSTPARTUM

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BACKGROUND: Pregnancy is a sensitive period for the onset of sleep disturbance (SD). Reproductive events (REs) are stressful periods possibly increasing risk for SDs. No studies have described men's sleep during REs. The purpose of this study was to explicate gender differences in sleep during phases of a RE.

STUDY QUESTIONS: Does sleep change differently for women and men during phases of a RE?

METHODS: We used a growth-curve approach, based on linear mixed-models for longitudinal data using a generalized form of splines. For each sleep domain, an average curve was estimated from individual trajectories of change. We wanted to test competing hypotheses regarding when changes in sleep take place. Rather than fitting a non-linear-growth-curve to the data for each birth, we adopted an alternative strategy and fit piece-wise splines with segments that had knots at 18-9-3 months before birth and 0-3-6-9-18 months after the birth. Wald tests were used to test research hypotheses.

RESULTS: The sample consisted of 1,517 respondents (845:Females; 672:Males) who gave sleep data relative to the birth of 1840 children (Mean age at birth - 29.55:Females; 32.23:Males). Growth-curve models detected changes in sleep problems (SP) and sleep duration (SD) ($p<.00001$:$p<.00001$) and these changes were distinct during different phases of a RE (i.e., splines were necessary). It was important to include a quadratic term to account for curvature beyond a linear trend for both SP and SD ($p<.01$:$p<.0001$). There were significant gender differences ($p<.0001$:$p<.00001$) and significant effects of time ($p<.05$:$p<.00001$).

CONCLUSIONS: This study demonstrates the need for advanced methods to study the effect of REs on sleep. Although women are at greater risk for SDs due to biological changes it appears sleep changes in men and women in significantly different ways during REs. This study illustrates how the use of splines permits modeling of dynamic changes – using a simpler polynomial approach would have failed to capture important changes in sleep between phases of a RE.

PUBLIC HEALTH IMPLICATIONS: To increase our ability to design effective public health interventions to prevent sleep disturbances during RE's it is critical that we develop advanced methods for explicating typical and atypical changes in sleep.

SICKLE CELL DISEASE AND TRAIT BEYOND CHILDHOOD: DEMOGRAPHIC CHARACTERISTICS OF WOMEN WHO DELIVERED IN 2007-2008 - MICHIGAN HEALTH OUTSIDE PREGNANCY SURVEY (HOPS)

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BACKGROUND: Although the prevalence of all hemoglobinopathies in the United States has yet to be determined, it is estimated that more than 70,000 people have sickle cell anemia, the most common type of sickle cell disease (SCD), and more than 2 million people have sickle cell trait (SCT). Since 1987, when Michigan NBS Program began screening for SCD, 1,400 newborns have been diagnosed, averaging approximately 65 new cases per year. However, little is known about the adult population, including pregnant women, born before or after 1987.

STUDY QUESTIONS: Are there any demographic differences in SCD screening between women born before mandatory NBS and those born after?

METHODS: Health Outside Pregnancy Survey (HOPS) is a structured mail survey developed by DGPHCDE. The sampling frame was drawn from live birth records from 2007-08 with low birthweight and race (African American) oversampled. Survey data were weighted by IPSSR. Due to small numbers we could not use the screening starting date to categorize the two groups, born before and after NBS implementation. Instead, 25 years of age was used as the cutoff (<25; 25+). We conducted bivariate analyses and used crude OR with 95% CI for significance.

RESULTS: Of the 239,078 live births recorded in 2007 and 2008, an estimated 18,939 (8.0%, CI: 5.8-10.8) were to mothers who had ever been screened for and 6,269 (2.6%, CI: 1.4-4.9) had been diagnosed with SCD. When stratified by age (before and after the NBS implementation), the percent of respondents screened were not significantly different [7.2% (CI: 4.7-10.0) compared to 9.4% (CI: 6.0-14.6), respectively]. Crude odds ratios showed no significant differences in characteristics between the two groups: education COR = 1.1 (CI: (0.3-4.8), parity COR = 3.3 (CI: 0.8-13.2), and insurance COR = 1.5 (CI: 0.5-4.4).

CONCLUSIONS: There were not significant differences found between those born before and after the NBS implementation. Further studies are needed to explore in more detail the two groups.

PUBLIC HEALTH IMPLICATIONS: Continued assessment and long term follow up of those with SCD and SCT born before and after NBS implementation would help discover gaps in services and thus improve overall outcomes.

IDENTIFICATION AND MISCLASSIFICATION OF PREGNANCY-RELATED MORTALITY IN CALIFORNIA, 2002-2003

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BACKGROUND: Pregnancy-related mortality rates have risen in the U.S. and California since 1999. The increased pregnancy-related mortality is currently being examined by the California Pregnancy-Associated Mortality Review (CA-PAMR), which has completed a review of maternal deaths occurring in 2002 and 2003.

STUDY QUESTIONS: How accurate is the death certificate in identifying pregnancy-related mortality in California?

METHODS: All deaths among California women up to one year postpartum were identified through a linkage of vital statistics and hospital discharge data for the years 2002-2003. Deaths were reviewed if reported as pregnancy-related on the death certificate, as designated by an ICD-10 obstetric code for underlying cause of death ("O codes"), or when other available data suggested the pregnancy may have directly contributed to the death. The multidisciplinary PAMR Committee of experts determined whether the death was related to or aggravated by pregnancy or its management and identified the specific cause of death based on a systematic review of available prenatal, labor and delivery records, and coroner and autopsy reports.

RESULTS: From the 386 deaths identified in the 2002-2003 linkage file, 98 (25.4%) deaths were determined by the Committee to be pregnancy-related. Of the 98 pregnancy-related deaths, 74 (75.5%) were reported as obstetric deaths on the death certificate and 24 (24.5%) were reported as non-obstetric deaths. In addition, 15.5% of deaths originally reported as obstetric deaths on the death certificate were determined to be not pregnancy-related.

CONCLUSIONS: Our data supports literature showing pregnancy-related deaths are not accurately coded on the death certificate. Medical record review of maternal deaths enhances our understanding of the epidemiology of pregnancy-related deaths in California.

PUBLIC HEALTH IMPLICATIONS: Improvements in the reporting and coding of maternal deaths may be warranted. Improvements in understanding the cause of pregnancy-related deaths are essential for implementing and evaluating initiatives to ultimately reduce maternal mortality and morbidity.

OBESITY AND GESTATIONAL WEIGHT GAIN RELATED TO MATERNAL DEATHS IN CALIFORNIA, 2002-2003

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BACKGROUND: Obesity and excessive weight gain in pregnant women are associated with higher risk for complications of pregnancy. This association was examined as part of the California Pregnancy-Associated Mortality Review (CA-PAMR), which began in 2004, in response to rising rates of maternal mortality.

STUDY QUESTIONS: Were women who died of pregnancy-related causes more likely to be obese or have higher gestational weight gain than a representative sample of women giving birth in California?

METHODS: Data from medical and coroner records were reviewed for all deaths that were possibly pregnancy related in 2002 and 2003. A multidisciplinary committee identified 98 pregnancy-related deaths. Pre-pregnancy height and weight of women who died were compared to a sample of women who gave birth in California in 2002-2003 (California Maternal Infant Health Assessment (MIHA) data (n=7,668)). Gestational weight gain patterns were also examined using Institute of Medicine (IOM) guidelines.

RESULTS: Pre-pregnancy BMI data was available for 71% of the women who died (n=70). Of these, 36% were normal weight; 37% were overweight and 23% were obese compared to the MIHA sample, in which 55% were normal weight, 24% were overweight, and 16% were obese. A significantly greater percentage of the women who died were overweight or obese (60%) than women in the MIHA sample (40%) ($p<0.001$). The proportion of women who were extremely obese also differed significantly (10.0% vs. 2.3%). Half (n=34) of the women who died exceeded the IOM's recommended weight gain, and most of the excessive weight gain (82%) occurred among women who were overweight or obese when they entered prenatal care.

CONCLUSIONS: Based on the information available, our data suggest that there is an association of higher rates of death among obese women. In addition, overweight and obese women who died exceeded recommended weight gain guidelines.

PUBLIC HEALTH IMPLICATIONS: These findings suggest that public health measures should target women of child-bearing age to promote a healthy pre-pregnancy weight in the preconception and interconception periods. Maternity care practice guidelines should address appropriate weight gain during pregnancy and cautious management of overweight and obese women in pregnancy and delivery.

THE RISK OF BOTTLE FEEDING FOR RAPID WEIGHT GAIN DURING THE FIRST YEAR

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BACKGROUND: Breastfeeding is associated with lower risk of childhood obesity, but few studies exist about the mechanisms. We hypothesized that feeding directly at mothers' breast versus bottle feeding is important for this relationship and tested whether infant growth is affected by the feeding mode.

STUDY QUESTIONS: Will infants growth be affected not only by what type of milk is fed (breast milk vs. non-hman milk), but also by how milk is delivered to them (breast vs. bottle)?

METHODS: The Infant Feeding Practices Study II identified pregnant mothers during their last trimester from a consumer opinion panel of ~500,000 households throughout the U.S. and followed newborns until 1 year old via almost monthly mail questionnaires to their mothers. This study included 2,218 infants who had at least three weight measurements at a clinic setting during the first year. Individual growth curves were modeled to compare weight gain among infants fed by different feeding patterns according to type of milk and feeding mode and by interactions between breast milk feeding and bottle feeding.

RESULTS: Compared to infants fed directly at the breast, infants fed only by bottles gained 78 or 70 grams more per month when fed pumped milk ($p=0.04$) or non-human milk ($p<0.01$), respectively. Infants fed both at breast and with non-human milk only gained 46 grams more per month. While infants fed at breast had the least weight gain comparing to all other feeding methods, the bottle effect on infant weight gain was only observed among infants who were mostly fed by breast milk.

CONCLUSIONS: Infant growth might be affected by both the type of milk and how milk is delivered. Bottle feeding, regardless of milk type in the bottle, could be distinct from feeding directly at breast.

PUBLIC HEALTH IMPLICATIONS: Obesity prevention must start as early as possible. Because bottle feeding may play an important role in infants' rapid weight gain, mothers or caregivers who bottle feed need to pay special attentions to infants' internal feeding cues when feeding infants directly at breast is not feasible.

DENTAL CARE USE DURING PREGNANCY, PREGNANCY RISK ASSESSMENT MONITORING SYSTEM (PRAMS), MISSOURI, 2007-2008

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BACKGROUND: The American Academy of Periodontology recommends preventive dental care and proper periodontal examination and treatment be provided during pregnancy. Little is known about dental care use during pregnancy among Missouri women.

STUDY QUESTIONS: Who are the women in Missouri at increased risk for not receiving dental care during pregnancy?

METHODS: The 2007-2008 Missouri Pregnancy Risk Assessment Monitoring System (PRAMS) surveyed 2,741 women with a recent live birth by mail and phone, achieving a weighted response rate of 64%. Two questions were used to define dental care during pregnancy: "I needed to see a dentist for a problem," and "I went to a dentist or dental clinic." Multivariate binomial regression analysis was used to estimate adjusted prevalence ratios (APRs) and 95% confidence intervals (CIs) for not receiving dental care in relation to maternal characteristics and experiences. Effect modification of having dental problems was examined with each covariate. SUDAAN was used to account for the complex sampling design.

RESULTS: In Missouri, 64.8% of pregnant women did not receive dental care, and 28.8% experienced dental problems. Not receiving oral health counseling during pregnancy was the strongest risk factor associated with not receiving dental care (APR=3.89, 95% CI: 3.30-4.57). Other significant risk factors associated with not receiving dental care included Medicaid or self-pay (APR=1.18, 95% CI: 1.10-1.26), age <30 years (APR=1.12, 95% CI: 1.04-1.20), non-white race (APR=1.10, 95% CI: 1.02-1.18), education =12 years (APR=1.10, 95% CI: 1.04, 1.17), overweight/obesity (APR=1.09, 95% CI: 1.03-1.15), and financial stress (APR=1.07, 95% CI: 1.01, 1.13). An interaction was observed between timing of prenatal care and having dental problems; among women with dental problems, those who received late/no prenatal care were more likely to not receive dental care than women who received prenatal care in the first trimester (APR=1.21, 95% CI: 1.08-1.36).

CONCLUSIONS: Despite national recommendations, almost two-thirds of Missouri women did not receive dental care during pregnancy. Not receiving oral health counseling during pregnancy was the strongest risk factor for not receiving care.

PUBLIC HEALTH IMPLICATIONS: Coordinated efforts among prenatal and dental care providers may help further promote oral health counseling during pregnancy.

HEALTH STATUS MEASURES OF CHILDREN IN U.S. IMMIGRANT FAMILIES

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BACKGROUND: Children from US immigrant families, who are defined as individuals under the age of 18 in families with at least one foreign-born parent, comprised of 22% of all US children in 2008. These children have been shown to demonstrate better-than-expected health despite low socioeconomic status, education level, insurance coverage and healthcare access. However, specific health status measures of children by immigrant family type and race/ethnicity have not been examined.

STUDY QUESTIONS: Are there associations between the joint effects of children's immigrant family type and race/ethnicity on selected health status measures?

METHODS: Using the 2007 National Survey of Children's Health (N=91,532), we examined the relationship between the joint effects of immigrant family types (foreign-born children, US-born children with one foreign-born parent, US-born children with both foreign-born parents, and US-born children with US-born parents) and race/ethnicity and various health measures (parent-reported physical and dental health, obesity/overweight, breast-feeding, school absence, injury and chronic condition).

RESULTS: Overall, nearly one-third of families with both foreign-born parents were poor and one-quarter of the parents in these households did not complete high school. Compared with Non-Hispanic White US- born children, multivariable analyses indicate that all Hispanic children have higher odds of obesity, poor physical and dental health, with Hispanic foreign-born children 8 times as likely to report poor/fair physical health. US-born black also had higher odds of obesity/overweight. Most children of both immigrant parents were less likely to have never been breastfed, while black children with US-born parents were twice as likely to have never breastfed. Children of immigrant parents were also less likely to miss school more than 11 days. Child age and household poverty status were independently associated with most of the health status measures.

CONCLUSIONS: Combined race/ethnicity and immigrant family type categories have heterogeneous associations with each health outcome measure examined.

PUBLIC HEALTH IMPLICATIONS: As the children from immigrant families transform the race and ethnic landscape of the US, it is important to address their health disparities and identify potential protective and risk factors that arise from their immigrant backgrounds. Culturally competent public health interventions and policies should be developed to serve these expanding communities.

TRENDS IN SMOKING BEFORE, DURING, AND AFTER PREGNANCY AMONG OHIO WIC PARTICIPANTS, 2002-2006

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BACKGROUND: While the prevalence of smoking before, during, and after pregnancy in the state of Ohio significantly increased during 2000-2005, little is known about these smoking trends among low-income women.

METHODS: Data from the Pregnancy Nutrition Surveillance System (PNSS) were used to examine trends in smoking among Ohio WIC participants. Smoking before, during, and after pregnancy were defined as 1) smoking during the 3 months before pregnancy, 2) smoking during the last 3 months of pregnancy, and 3)smoking after delivery, respectively. The regions were rural Appalachian, rural non-Appalachian, metropolitan, and suburban. Smoking prevalence was estimated by year for Ohio and each region and linear trends were assessed using ordinary least squares logistic regression with smoking status as the outcome variable and infant birth year as the independent variable. This study was limited to data from 2002-2006; more recent years would provide a better understanding of recent smoking trends.

RESULTS: The prevalence of smoking in 2002 and 2006 among Ohio WIC participants was 44.9% and 43.4% before pregnancy, 25.7% and 23.2% during pregnancy, and 29.7% and 26.9% after pregnancy; each represents a significant decrease ($p<0.001$). However, the changes were not observed in every region. Smoking prevalence before and during pregnancy decreased significantly ($p<.05$) in metropolitan (before: 39.3% vs. 37.5%; during: 37.5% vs. 18.6%) and suburban (before: 53.0% vs. 50.7%; during: 31.3% vs. 28.5%) regions but not in rural Appalachian (before: 52.7% vs. 52.7%; during: 32.8% vs. 31.3%) and rural non-Appalachian (before: 52.2% vs. 53.1%; during: 29.8% vs. 29.9%) regions. The prevalence of smoking after pregnancy decreased ($p=.05$) in rural-Appalachian (37.2% vs. 34.7%), rural non-Appalachian (33.5% vs. 32.8%), metropolitan (25.4% vs. 22.5%), and suburban (36.0% vs. 32.0%) regions.

CONCLUSIONS: Although the overall prevalence of smoking before, during, and after pregnancy decreased from 2002-2006, levels remain high and the declines before and during pregnancy were only present in metropolitan and suburban regions.

PUBLIC HEALTH IMPLICATIONS: Cigarette smoking during pregnancy is a significant risk factor for adverse birth outcomes. Efforts to reduce smoking among Ohio WIC participants, particularly in rural regions are needed.

THE RELATIONSHIP BETWEEN WIC PARTICIPATION AND BREASTFEEDING INITIATION AMONG THE GEORGIA MEDICAID POPULATION

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BACKGROUND: Increasing breastfeeding initiation among WIC participants is a national and state priority. Birth Certificate data is a viable data source to evaluate breastfeeding initiation among WIC eligible and active participants and is a resource in identifying opportunities for improving WIC services.

STUDY QUESTIONS: Is there a relationship between WIC participation and breastfeeding initiation among the Medicaid population?

METHODS: Georgia Birth Certificate data (2008) was limited to resident births paid for by Medicaid. Logistic regression was used to determine the relationship between WIC participation and breastfeeding initiation (SAS version 9.2). Interaction between covariables was examined and interaction contrasts calculated. Significance was determined at $p<0.5$.

RESULTS: Limiting births to the Medicaid population removed demographic differences between WIC participants and non-participants, except maternal age. Of women on Medicaid, 21% were not participating in WIC. Forty percent of the WIC participants initiated breastfeeding compared with 48% of the non-WIC participants. WIC participation was associated with lower odds of initiating breastfeeding (OR: 0.73; 95% CI: 0.70-0.77). Controlling for race-ethnicity, age, marital status, and father's name on the birth certificate reduced the magnitude of this association (AOR: 0.83; 95% CI: 0.79-0.88). Race-ethnicity and father's name on the birth certificate modified the association between WIC participation and breastfeeding initiation.

CONCLUSIONS: Breastfeeding initiation remained lower among the Medicaid WIC participants compared to Medicaid non-WIC participants after adjusting for confounders. Race-ethnicity modified this association positively among Hispanic women, but negatively among black non-Hispanic women. Limitations of this analysis include 15% of Medicaid population missing WIC status, resulting in possible bias; and duration of WIC participation and participation in WIC breastfeeding education and support programs was not available for inclusion in analysis.

PUBLIC HEALTH IMPLICATIONS: Birth certificate data offers a viable and cost effective opportunity to evaluate WIC participation and a variety of maternal and infant health behaviors and outcomes. Culturally focused messages and initiatives that address WIC breastfeeding education and social support services may be opportunities to increase overall breastfeeding initiation in Georgia. To understand the impact of WIC participation on maternal and infant health behaviors and outcomes, linkage of birth certificate and WIC participation data is essential.

EFFECT OF INCREASED SURVEY INCENTIVES ON PARTICIPATION IN MATERNAL HEALTH RESEARCH

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BACKGROUND: For over twenty years, the Pregnancy Risk Assessment Monitoring System (PRAMS) has served as the premier approach for collecting maternal and child health data. With PRAMS, new mothers are contacted by mail and telephone. While the Centers for Disease Control and Prevention prescribes the sampling and surveying methodologies, states are given leeway in determining many of their protocols. Recently, the State of Texas conducted a pilot program with increased survey payments during selected months in an effort to increase survey participation. This study examines the effects of these increased incentives on survey participation and further examines their effect on the mode of participation – mail or phone.

STUDY QUESTIONS: What are the effects of increased survey incentives on participation in PRAMS surveys and do these effects differ between mail and phone surveys?

METHODS: Individual-level data for 9,000 mothers sampled between 2003-2010 in Texas were used to examine the determinants of survey participation. We used multinomial logit models to examine the predictors of three outcomes; participation by mail, participation by phone and nonparticipation (refusal or nonresponse).

RESULTS: 56% of all sampled mothers participated in the PRAMS survey in Texas; 43% responded to the mailings and 13% responded to phone calls. Mothers of a deceased child were more likely to respond to both the mail and telephone survey ($p<.05$). Changing from a phone card to a gift card incentive increased response to both telephone and mail recruitment ($p<.02$). By race/ethnicity, minorities (both African-Americans and Latinas) were significantly more likely to respond to phone surveys, while they were less likely to respond to postal contacts ($p<.01$). Importantly for this analysis, doubling the survey incentive size from ten dollars to twenty dollars significantly increased participation in the mail survey ($p<.001$); however, there was not a significant effect on phone participation.

CONCLUSIONS: Increased incentives foster participation when the respondent has time to ponder participation (mail), but has no effect when respondents must make a spontaneous decision to participate (phone).

PUBLIC HEALTH IMPLICATIONS: Increased survey participation will produce more accurate information, allowing policy to better address the public's needs.

COMPLIANCE WITH DIETARY RECOMMENDATIONS AMONG PREGNANT WOMEN IN THE US

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BACKGROUND: Optimum maternal nutrition during pregnancy is important for maternal and child health. The American Dietetic Association recently published nutritional recommendations for pregnant women based on the Dietary Guidelines for Americans. We evaluated compliance with these recommendations among a representative sample of pregnant US women.

STUDY QUESTIONS: To what degree did pregnant women in the US have optimal nutritional intake?

METHODS: Data were obtained from the 1999-2006 continuous National Health and Nutrition Examination Survey (NHANES), restricting to 1238 pregnant women 16 years. The dietary intake data are used to estimate total intake of energy, nutrients, and non-nutrient food components from foods and beverages that were consumed during the 24-hour period prior to the interview. Estimates were weighted to reflect the United States population.

RESULTS: Approximately 42% were 16-25 years old, 27% had household income <$35 000, and 76% were married. The racial distribution of the mothers was White (55%), Black (16%), Hispanic (21%) and other races (8%). The proportion of women meeting requirements was 83.6% for carbohydrates, 42.7% for protein, 40.6% for vitamin A, 52.9% for vitamin C, 47.3-73.7% for B vitamins (except folate), and 46.8-86.2% for minerals (except iron and potassium). The proportion of women meeting requirements was very low for fiber (10.6%), vitamin E (6.5%), folate (19.7%), iron (13.2%), and potassium (6.7%). Approximately 21% of the women in this sample did not take vitamin or mineral supplements. Women not taking supplements were more likely to be younger, 3.5 times more likely to be Black, and 5 times more likely to be Hispanic compared to White women.

CONCLUSIONS: Overall a small proportion of pregnant women in the US have optimal nutrient intake. The very low proportion of women meeting recommendations for nutrients critical during pregnancy (such as iron, folate, and vitamin E) is particularly disturbing. Low potassium and fiber intakes suggest little fruit and vegetable consumption.

PUBLIC HEALTH IMPLICATIONS: Because suboptimal intake of critical nutrients during pregnancy can be the cause of morbidity among mothers and their children, improving the diet of pregnant women, and encouraging use of supplements can reduce morbidity and improve pregnancy outcomes in the US.

AN EVALUATION OF THE USEFULNESS OF PRAMS-2: OREGON'S PREGNANCY RISK ASSESSMENT MONITORING SYSTEM (PRAMS) FOLLOW-BACK SURVEY

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BACKGROUND: The Oregon Department of Human Services has been continuously collecting data for the Pregnancy Risk Assessment Monitoring System (PRAMS) since 1998. In January 2006, Oregon began re-interviewing PRAMS respondents when their baby was two years old, with a survey called PRAMS-2. No formal evaluation of PRAMS-2 has previously been conducted. Since Oregon is one of only four states that conduct a PRAMS follow-back survey, this evaluation may assist other states in deciding whether to initiate their own PRAMS follow-back survey.

METHODS: Thirty two oral stakeholder interviews were conducted, in person or by phone, to determine the usefulness of PRAMS-2. Transcripts of these interviews were created, from which themes were identified and quantified. The usefulness of PRAMS-2 was also assessed by an examination of publications and presentations utilizing PRAMS-2 data.

RESULTS: Seven main themes were identified: potential usefulness of the data, uniqueness, appropriateness of the target population, actual use of the data, ease of data access, cost effectiveness, and limitations of the survey. PRAMS-2 is considered by stakeholders to be potentially very useful, unique, and to have a very appropriate target population. Some stakeholders consider use to be limited by difficulties in accessing the data, and some lack the resources to analyze the data. The cost effectiveness of PRAMS-2 was inconclusive based on stakeholder opinion.

CONCLUSIONS: Overall, stakeholders rated the attributes of PRAMS-2 favorably, but cited access to data and difficulty analyzing it as limitations.

PUBLIC HEALTH IMPLICATIONS: Efforts should be made to increase the accessibility of PRAMS-2 data and to make available the resources necessary for analyzing it to increase the utilization of PRAMS-2 among stakeholders. States considering implementing a PRAMS follow-up survey could benefit by anticipating these limitations and building the capacity to assist stakeholders in accessing and using the data.

POSTPARTUM STRESSFUL LIFE EVENTS AS RISK FACTORS FOR POSTPARTUM DEPRESSION AMONG AMERICAN INDIAN / ALASKA NATIVE MOTHERS OF TWO-YEAR-OLD IN OREGON

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BACKGROUND: The prevalence of stressful life events (SLEs) is disproportionately high among American Indian / Alaska Native (AI/AN) women in Oregon, which may contribute to the similarly high prevalence of postpartum depression within these communities.

METHODS: Analysis was conducted using data from birth certificates, Oregon's Pregnancy Risk Assessment Monitoring System (PRAMS), and PRAMS-2, Oregon's follow-back survey to PRAMS which is conducted when the child is 2 years old. PRAMS-2 asks mothers to self report symptoms of depression occurring 13-24 months after the birth of their child and thirteen separate SLEs. The SLEs were divided into four categories: partner-related, traumatic, financial, and emotional SLEs. Multivariate logistic regression was conducted to determine which categories of SLEs were risk factors for postpartum depression. Covariates such as maternal age, marital status, education, pregnancy intention, and social support were also examined in conjunction with the SLEs.

RESULTS: 226 AI/AN women with live births in 2004-2005 responded to PRAMS-2; 29.4% of them reported having been depressed in the baby's second year. During this time period, 42.7% of the women reported experiencing partner-related SLEs, 36.4% reported traumatic SLEs, 68.0% reported financial SLEs, and 64.9% reported emotional SLEs. Two categories of SLEs were statistically significantly associated with an increased risk of postpartum depression among this population. These were partner-related SLEs (Adjusted odds ratio (AOR) 3.75, 95% Confidence Interval (CI) 1.88, 7.50) and traumatic SLEs (AOR 2.89, 95% CI 1.44, 5.85). No other covariates were statistically significantly associated with an increased risk of postpartum depression.

CONCLUSIONS: Partner related and traumatic SLEs are statistically significant risk factors for postpartum depression among AI/AN women in Oregon.

PUBLIC HEALTH IMPLICATIONS: The high prevalence of postpartum depression among AI/AN women might be addressed by developing interventions that target mothers experiencing partner-related and traumatic SLEs.

IMPACT OF DATA SYSTEM CENTRALIZATION AND INCREASED COORDINATION ON HEARING SCREENING, DIAGNOSIS, AND INTERVENTION

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BACKGROUND: Beginning in fall 2009, follow up coordinators in Georgia's Universal Newborn Hearing, Screening and Intervention (UNHSI) program were hired in each of 18 Georgia health districts. In October 2009, Georgia's UNHSI program data system was centralized and standardized follow-up protocols implemented. The system was designed to reduce loss or interruption of service when families move between health districts, improve information efficiency and quality, and meet Early Hearing Detection and Intervention (EHDI) timeliness guidelines.

STUDY QUESTIONS: What are the differences in the percent of infants that 1) met EHDI screening, diagnostic, and intervention goals and 2) were lost to follow up before and after the introduction of system centralization and enhanced coordination?

METHODS: UNHSI program performance was compared between October 15, 2008 through April 15, 2009 (baseline) and October 15, 2009 through April 15, 2010 (comparison). UNHSI follow up coordinators began work and the system was centralized one month before the comparison time period began. Pending and lost to follow up were combined to make a fair comparison between groups. Chi Square Tests or Fisher's Exact Tests were used to identify significant differences.

RESULTS: Screening goals were met 91% of the time in the comparison period and 90% of the time in the baseline period (P-value 0.323). Diagnostic goals were met 87% of the time in the comparison period and 55% of the time in the baseline period (P-value <.0001). Intervention goals were met 88% of the time in the comparison period and 50% of the time in the baseline period (P-value 0.06). 59 cases of hearing loss were reported for 2008 before the coordinators began work, 201 cases were reported for 2008 after the coordinators began work. Lost to follow up was 20% in the comparison period and 22% in the baseline period (P-value 0.097).

CONCLUSIONS: System centralization and enhanced coordination improved diagnostic and intervention program performance. Hiring of coordinators led to an increased reporting of diagnosed cases of hearing loss but did not impact loss to follow-up.

PUBLIC HEALTH IMPLICATIONS: System centralization and enhanced coordination can improve EHDI system performance.

POSTPARTUM DEPRESSION AFTER EXPOSURE TO VIOLENCE DURING PREGNANCY: WHO IS AT RISK?

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BACKGROUND: Violence during pregnancy is increasingly associated with adverse maternal and newborn outcomes.

STUDY QUESTIONS: In a nationally representative Canadian sample we studied the association of family violence with postpartum depression

METHODS: We utilized data from the Maternity Experiences Study, a stratified random telephone survey of women at 5-10 months postpartum drawn from the 2006 Canadian Census. Contact was made with 85% of women in the sampling frame, and 99% among them participated. Depression was assessed by the Edinburgh Post-Natal Depression Scale. Odds Ratios with 95% confidence intervals were obtained with bootstrap methods to account for the stratified random sample design.

RESULTS: Physical or sexual abuse perpetrated by a husband, boyfriend or family member was reported by 10.9% of the 6,421 women interviewed. Seven percent of the sample experienced postpartum depression. Among abused women, young maternal age (15-19) was associated with postpartum depression, adjusted Odds Ratio 2.58, 95% CI (1.29-5.16) as was low income, 1.78 (1.01-3.14), and depression prior to pregnancy, 2.83 (1.75-4.57). Immigrant women 1.94 (0.92-4.07) and women experiencing unplanned pregnancies 2.02 (0.94-4.31) also appeared to be at elevated risk although these differences were not statistically significant. Compared to women not experiencing abuse, exposure starting postpartum was more strongly associated with depression 3.79 (1.91-7.52) than abuse starting during pregnancy 2.11 (1.04-4.26). Highest risk was observed among those experiencing abuse during all stages of pregnancy 6.92 (3.22-14.86).

CONCLUSIONS: Among abused pregnant women, subgroups defined by sociodemographic characteristics and exposure onset are at particular risk for postpartum depression.

PUBLIC HEALTH IMPLICATIONS: Identification of vulnerable groups has implications for targeted screening and intervention.

NON-INITIATION OF BREASTFEEDING AND ASSOCIATED PREGNANCY-RELATED FACTORS, GEORGIA PRAMS, 2004-2006

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BACKGROUND: Based on the 2006 National Immunization Survey, 37.5% of Georgia children were never breastfed. Increasing breastfeeding rates has been identified as a priority issue during Georgia's Title V Needs Assessment process. There is a need in Georgia to better understand which pregnancy-related factors are associated with breastfeeding non-initiation.

STUDY QUESTIONS: Which pregnancy-related factors are associated with non-initiation of breastfeeding?

METHODS: Analyses used the Georgia PRAMS data merged with the birth files, 2004-2006. Study variables were grouped by relevant time periods (preconception, prenatal, and intrapartum). Univariate, bivariable, and multivariable regression were conducted using SUDAAN 10.0.1. Demographic variables were held consistent across period-specific models. A limitation of this study is that causality cannot be inferred since the PRAMS survey is cross-sectional.

RESULTS: 30.9% of women did not initiate breastfeeding. In the preconception model, mothers' pre-pregnancy body mass index (BMI) was significantly associated with non-initiation: underweight women (Adjusted odds ratio (AOR): 1.76; 95%CI: 1.20-2.59); overweight women (AOR 1.56; 95%CI: 1.10-2.22); obese women (AOR: 1.46; 95%CI 1.09-1.96) have greater odds of non-initiation compared to women with a normal BMI. Women who did not use contraception and whose pregnancy was unwanted (AOR: 2.18; 95% CI: 1.37-3.46) and women who used contraception and whose pregnancy was unwanted (AOR: 1.70; 95% CI: 1.06-2.71) have greater odds of non-initiation than women who were trying to get pregnant or who had an intended pregnancy. In the prenatal period, women who smoked in the last three months of pregnancy have a greater odds of non-initiation (AOR: 1.92; 95%CI: 1.29-2.85) compared to those who did not smoke. In addition, women who were enrolled in the Women, Infants and Children's (WIC) program have a greater odds of non-initiation (AOR: 1.51; 95% CI: 1.09-2.08) compared to those not enrolled. There is no significant association with any intrapartum factor.

CONCLUSIONS: An unhealthy weight and unintendedness of pregnancy are preconception factors associated with non-initiation. Smoking in the last three months of pregnancy and WIC prenatal participation are also associated with non-initiation.

PUBLIC HEALTH IMPLICATIONS: These results point to specific factors that may help guide state efforts in the preconception and prenatal period to increase the proportion of women initiating breastfeeding.

THE PROSPECTIVE ASSOCIATION BETWEEN YOUTH ASSETS AND SUCCESSFUL TRANSITION TO EARLY ADULTHOOD

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BACKGROUND: Considerable research has shown that youth assets (e.g., responsible choices, family communication, community involvement) can protect youth from participation in risk behaviors. Much less is known about the role of assets in promoting positive outcomes.

STUDY QUESTIONS: Do youth assets predict successful transition to early adulthood (STEA) as defined by a holistic measure of health?

METHODS: Data were collected via in-person interviews that were conducted annually for four years. Participants were youth/parent dyads living in randomly-selected census tracts in Oklahoma City. Youth participants 18 years and older at wave 5 of the study were included in the analyses (N= 620; Mean age = 19.2 +1.1, 55% female; 41% white, 26% African American, 26% Hispanic). Fourteen assets were categorized into youth-, family-, and community-level asset groups. STEA was assessed via four items that determined physical, mental, social, and financial health (range = 7 (poor) to 20 (best)). Youth asset groups assessed at wave 1 were included in linear regression analyses, controlling for several demographic variables, to predict STEA assessed at wave 5 four years later.

RESULTS: All 3 asset groups significantly ($p<.05$) predicted STEA and the association was linear indicating that the more assets a youth possessed the better the STEA outcome. For example, compared to youth with 0 or 1 community assets, youth with 4 or 5-6 community assets improved their STEA outcome by 1.1 and 1.6 points, respectively. Similarly, youth with 3 or 4 family assets improved their STEA outcome by 1.0 and 1.6 points, respectively. For the individual-level assets, compared to youth with up to 2 assets, youth with 3 or 4 individual assets improved their STEA outcome by 0.5 and .78 points, respectively.

CONCLUSIONS: Assets significantly predicted STEA 4 years later and the more assets youth possessed the better the STEA score. Community and family assets appeared to be particularly strong predictors of STEA.

PUBLIC HEALTH IMPLICATIONS: The results suggest that asset building programs not only protect youth from harmful behavior but that they may also promote positive health outcomes in early adulthood.

ESTIMATION OF LABOR INDUCTION RATES USING ADMINISTRATIVE CLAIMS DATA IN A COMMERCIALLY INSURED POPULATION, 2006 TO 2009

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BACKGROUND: Nationally, rates of induced labor have risen from 9.5% in 1990 to 22.5% in 2006. Induced labor is clinically indicated by conditions such as pre-eclampsia, but carries increased risks for the mother (increased c-section rates after failed induction, uterine rupture) and infant (iatrogenic prematurity). Increasingly, induction of labor is considered to be performed out of convenience or fear of litigation rather than for clinically-indicated purposes despite the associated risks of induction.

STUDY QUESTIONS: What is the rate of induced labor in our commercially insured population and can it be reliably measured from administrative claims data?

METHODS: 121,111 deliveries were identified from facility claims for maternity-related admissions between 2006 and 2009. Induced labor was defined by ICD9 procedure codes (73.40, 73.01) for induction procedures typically performed prior to active labor. Rates of induced labor were stratified by the weekday of the maternal admission date. Alternatively, day-stratified birth rates were used in conjunction with weekend ICD9-based labor induction rates to estimate the rate of labor induction and then compared to the procedure code-based estimate.

RESULTS: Between 2006 and 2009, induced labor was recorded by procedure codes for 18,709 deliveries (15.4%). ICD9-based labor induction rates on the weekend (10.7%) were significantly lower than during the week (16.5 percent). The index of occurrence varied between the weekend (65.7) and weekdays (113.7). The estimated labor induction rate was 20.5% based on the observed birth differential between weekdays and the weekend, assuming there would be homogeneity in the day-stratified birth rates without induction.

CONCLUSIONS: Administrative data likely underestimates the labor induction rates. Stratification of labor induction by weekday may be useful for estimation of the actual labor induction rate. While the differential in labor induction between weekdays and weekends is indicative of electivity, inductions performed during the weekdays could also have been planned clinically-indicated labor inductions at the convenience of both the patient and the physician.

PUBLIC HEALTH IMPLICATIONS: Evaluation of variation in obstetrician practice patterns and patient attitudes regarding induction of labor may identify opportunities to reduce health risks associated with elective labor induction. However, evaluation requires adequate ability to identify elective labor induction which may currently exceed the scope of claims data.

VALIDATING PREGNANCY AMONG AMERICAN INDIAN/ALASKA NATIVE PREGNANT WOMEN AT RISK FOR INFECTION WITH PANDEMIC (2009) H1N1 INFLUENZA

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BACKGROUND: Pregnant women and American Indians and Alaska Natives (AI/AN) are at elevated risk of severe disease and mortality from pandemic (2009) H1N1 influenza (pH1N1). The Indian Health Service (IHS) made pregnant women a focus of their surveillance of the H1N1 2009 pandemic, adapting an existing algorithm that used medical record codes in electronic health records (EHRs) to identify pregnancies.

STUDY QUESTIONS: How effective is the algorithm used by IHS to identify pregnancies?

METHODS: From December 2009—February 2010, we conducted chart review at 3 facilities: 1 urban IHS-administered (IHS-urban), 1 rural IHS-administered (IHS-rural), and 1 rural tribally-administered (Tribal-rural). Patients whose electronic medical charts contained at least 1 of the medical record codes used by IHS to identify pregnancies were considered positive for the "pregnancy algorithm." At each facility, we identified patients who were positive for the pregnancy algorithm and randomly selected a subset (N=82 at IHS-urban, 90 at IHS-rural, 114 at Tribal-rural). We reviewed electronic medical charts to determine whether these were actual pregnancies. To identify pregnancies not captured by the pregnancy algorithm, we reviewed electronic medical charts that were negative for the pregnancy algorithm but contained at least 1 of the following: positive pregnancy test, obstetric ultrasound, spontaneous or induced abortion, or delivery (N=118 at IHS-urban, 43 at IHS-rural, 23 at Tribal-rural). We calculated the positive predictive value (PPV) and sensitivity of the pregnancy algorithm.

RESULTS: 1636 patients at IHS-urban, 359 patients at IHS-rural, and 189 patients at Tribal-rural were positive for the pregnancy algorithm. The PPV of the algorithm was 96.0% (95% CI: 95.0-96.9%) at IHS-urban, 94.4% (95% CI: 91.5-96.6%) at IHS-rural, and 98.4% (95% CI: 95.4-99.7%) at Tribal-rural. The sensitivity of the algorithm was 94.1% (95% CI: 92.8-95.2%) at IHS-urban, 97.1% (95% CI: 94.8-98.6%) at IHS-rural, and 97.4% (95% CI: 94.0-99.1%) at Tribal-rural.

CONCLUSIONS: The pregnancy algorithm used by IHS performed comparably at all 3 facilities. Its high PPV and high sensitivity demonstrate its value for surveillance.

PUBLIC HEALTH IMPLICATIONS: The pregnancy algorithm used by IHS may prove helpful for surveillance during future epidemics that affect pregnant women and for targeting interventions to improve the health of pregnant women and infants.

INDICATORS OF HEALTHY ACTIVE LIVING IN CHILDREN WITH MENTAL HEALTH CONDITIONS

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BACKGROUND: To improve health outcomes in children, efforts have been aimed at addressing factors related to healthy and active living. Such factors include indicators of physical activity and behavioral well-being such as exercise, TV viewing, sleep habits, and also exposure to tobacco smoke in the home. Children with conditions such as mental/behavioral disorders are at increased risk for poor health outcomes. The present study examines whether children with select mental/behavioral disorders experience lower rates of indicators for healthy active living.

STUDY QUESTIONS: Do children with mental/behavioral disorders differ from children without such disorders on indicators of healthy active living?

METHODS: Parental report data from the 2007 National Survey of Children's Health were included for a nationally representative sample of children age 6-17 (n=54,915). Mental/behavioral disorders included current diagnosis of ADHD, anxiety, depression, or behavior problems. Indicators of healthy active living available in this survey were =5 days of sufficient sleep in the past week, =3 days with at least 20 minutes of vigorous exercise in the past week, weekday TV viewing <2 hours, weekday computer use <2 hours, no TV in the bedroom, and lack of smoking in the home. A multivariate weighted logistic regression analysis was performed, comparing the frequency of each reported indicator among children with mental/behavioral disorders to those without while controlling for age, family structure, poverty, parental education, race/ethnicity, and current health status.

RESULTS: Parents reported that children with mental/behavioral disorders were significantly more likely to have insufficient sleep (OR=1.48, CI=1.29-1.70), less vigorous exercise (OR=1.34, CI=1.14-1.58), watch more than 2 hours of TV a day (OR=1.19, CI=1.02-1.39) and live with someone who smokes at home (OR=1.47, CI=1.28-1.69). TV in the bedroom and excess computer use were not individually significant.

CONCLUSIONS: The parents of children with mental/behavioral disorders were significantly less likely to report indicators of healthy active living among their children.

PUBLIC HEALTH IMPLICATIONS: Healthy active living may improve child functioning and may protect children from poor health outcomes. Public health efforts aimed at improving healthy active living among children with mental/behavioral conditions may confer important gains in health and functional outcomes.

THE IMPACT OF DEPRESSION AND DEPRESSIVE SYMPTOMS ON HEALTH BEHAVIORS AND PRENATAL CARE UTILIZATION DURING PREGNANCY

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BACKGROUND: Depression is often undiagnosed during pregnancy because many indicators of depression resemble the discomforts of pregnancy. Depression during pregnancy impacts maternal and fetal well-being and is associated with adverse pregnancy outcomes. Studies focusing on the impact of depression among low-income African-American women are limited. As this population faces major health disparities including poor maternal and fetal outcomes, further research on the impact of depression and depressive symptoms on barriers to care and health behaviors is needed.

STUDY QUESTIONS: Are low-income, African-American women with depression/depressive symptoms more likely to face barriers to care during pregnancy? Are low-income, African-American women with depression/depressive symptoms more likely to have negative health behaviors?

METHODS: Three hundred and thirteen women participated in a postpartum survey which queried them about their health and mental health as well as services used during pregnancy. Over 90% of all participants were on Medicaid and over 60% had a household income of less than $1,000 per month.

RESULTS: Sixty-three women self-reported depression/depressive symptoms during pregnancy. These women were more likely to report facing barriers to PNC; they were over 3 times more likely to report transportation as a barrier (CI.95 =1.77, 5.72), and 2.6 times more likely to report clinic hours as a barrier (CI.95 =1.36, 4.81). Women with depression/depressive symptoms were more likely to exhibit negative health behaviors; they were over 3 times more likely to smoke and use drugs (CI.95 2.02, 6.43 and CI.95 1.33, 8.24, respectively) and over 2 times more likely to consume alcohol (CI.95 1.11, 4.41) during pregnancy. Furthermore, women with depression/depressive symptoms were more likely to miss a PNC appointment, state the need for, and receive mental health services.

CONCLUSIONS: Low income, African-American women with depression/depressive symptoms during pregnancy appear more likely to face barriers to PNC and exhibit negative health behaviors.

PUBLIC HEALTH IMPLICATIONS: The findings of this study indicate the need for depression screening upon entry into PNC and throughout pregnancy as well as underscore the importance of coordinated PNC for women with depression/depressive symptoms.

WHAT ARE THE CHARACTERISTICS OF YOUTH WITH SPECIAL HEALTH CARE NEEDS WHO RECEIVE TRANSITION SERVICES WITHIN A MEDICAL HOME?

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BACKGROUND: Youth with Special Health Care Needs (YSHCN) require specific transition services related to medical, educational, work, and independence needs. Transition services are a component of the American Academy of Pediatrics Medical Home (MH) model of comprehensive care.

STUDY QUESTIONS: 1. Rank all states by prevalence rate for receipt of transition services within a MH among YSHCN. 2. Determine which youth and family characteristics are associated with transition receipt for the total population and by race/ethnicity.

METHODS: The 05/06 National Survey of Children with Special Health Care Needs data were used. YSCHN with a MH were grouped as receiving transition or not. Youth characteristics included race, ethnicity, sex, age, health condition effect, and the five special health care need screener questions. Family characteristics were family structure, education, poverty, type of insurance, adequate insurance, census bureau region, and metropolitan status. Observations were limited to youth 12 to 17 years old. Nested T-tests were done to rank states and calculate differences from national average. Chi-Square and logistic regression were conducted to define associations between characteristics with transition receipt. Alpha was set to .05.

RESULTS: Nationally, about 57% of YSHCN with a MH received transition. Five states had transition prevalence rates below the national average, and six above. Rates by race/ethnicity were 59% among white, 45.5% among black, 60.2% among multiple race, 41.9% among other race, and 44.6% among Hispanic YSHCN. All characteristics except age and metropolitan status were associated with transition. Only education, primary language, and adequate insurance were associated with transition for all race/ethnicity groups, except among black YSHCN. Overall, each race/ethnicity group indicated disparate influences for each characteristic.

CONCLUSIONS: Almost three-fifths of YSHCN with a MH received transition. Transition rates and characteristic associations differed for each race/ethnicity group. Understanding why and how some variables are concordant between race/ethnicity groups, while others are not, may illuminate which factors are global, and which are race/ethnic specific, in order to design appropriate interventions.

PUBLIC HEALTH IMPLICATIONS: Rates for disability-adjusted life years for the US may increase as a consequence of the low transition prevalence rate among the largest proportion of Children with Special Health Care Needs.

TELEVISION AND VIDEO TIME AMONG CHILDREN AGED 2 YEARS - OREGON, 2006-2007

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BACKGROUND: Excessive exposure of children to television and videos (viewing time) is associated with impaired childhood development and childhood obesity. The American Academy of Pediatrics recommends children watch no more than 1–2 hours of quality programming/day.

METHODS: Data were obtained from the 2006–2007 Oregon Pregnancy Risk Assessment Monitoring Survey follow-back survey (Oregon PRAMS-2). Among the 3,883 mothers who had participated in Oregon PRAMS in 2004 and 2005, the weighted response to Oregon PRAMS-2 when their child was age 2 years was 56.6%. Viewing time was assessed from the question, "In a typical day, how much time does your two-year-old spend watching TV or videos?" Multiple logistic regression was used to calculate adjusted odds ratios (AORs) for =2 hours viewing time. All analyses were weighted to account for the complex survey design, nonresponse, and noncoverage.

RESULTS: In a typical day, 19.6% of Oregon children aged 2 years spent =2 hours watching television or videos. Moreover, 18.2% of children had a television in their bedroom; these children were twice as likely to have =2 hours daily viewing time compared with children without a television in the bedroom (34.1% versus 16.3%). In multivariable analysis, =2 hours viewing time was associated with having a television in the child's bedroom (AOR=2.9; 95% confidence interval [CI] 1.8–4.5), being a non-Hispanic black mother (AOR=1.9; 95% CI 1.2–3.0 compared with being a non-Hispanic white mother), and taking the child on <4 outings during the previous week (AOR=1.6; 95% CI 1.1–2.4).

CONCLUSIONS: Approximately one-fifth of Oregon children aged 2 years have =2 hours daily viewing time. Having a television in the child's bedroom is a particular risk factor for more viewing time.

PUBLIC HEALTH IMPLICATIONS: Health care providers and health departments should reinforce messages to parents and caregivers to reduce excessive viewing time for children, including removing televisions from children's bedrooms, restricting television viewing, and encouraging outings that promote childhood development.

REPRODUCTIVE HEALTH OF URBAN AMERICAN INDIAN AND ALASKA NATIVE WOMEN

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BACKGROUND: There is limited information on the reproductive health of urban American Indians and Alaska Natives (AI/AN). When available, research has shown high rates of unintended pregnancy, sexual violence and risky sexual behavior among AI/AN both nationally and those in urban areas. This is the first analysis ever to examine the AI/AN population using the National Survey of Family Growth (NSFG) to describe disparities in reproductive health.

STUDY QUESTIONS: What are the disparities in reproductive health between AI/AN and non-Hispanic (NH-) white women in urban areas?

METHODS: Data on urban AI/AN and NH-white women participating in Cycle 6 (2002) of the NSFG were analyzed to examine intended and unintended pregnancies, births, sexual history and behavior, contraceptive use and non-voluntary sexual intercourse.

RESULTS: Out of 7,643 females interviewed in the 2002 NSFG, 299 urban AI/AN and 3,173 NH-whites were included in the study. Findings show AI/AN women in urban areas were more likely to report that their first sexual intercourse was non-voluntary (17% vs. 8%), had higher rates of unintended (31% vs. 21%) and teen pregnancies (13% vs. 4%), had more unprotected first sex (52% vs. 31%) and had older partners at first sex (28% vs. 13%) compared to NH- white women. Rates of female sterilization and use of Depo-Provera were also greater among AI/AN compared to NH- whites.

CONCLUSIONS: This is the first study to provide information on the reproductive health of urban AI/AN women nationally. Risk factors associated with contraceptive use and sexual behaviors are seen, especially among young urban AI/AN women. High rates of sexual violence seen among urban AI/AN women are striking. Rates of Depo-Provera use and female sterilization among urban AI/AN are also high and warrant further examination.

PUBLIC HEALTH IMPLICATIONS: Findings offer critical baseline data and guidance for development of programming priorities. Study topic areas, such as fertility, birth outcomes, contraceptive use and sexual violence, need continued and improved surveillance among AI/AN. Resources must also be identified and set aside for programs to work with urban AI/AN youth and those affected by sexual violence.

PREDICTORS OF PREGNANCY LOSS IN AFGHAN WOMEN PRESENTING TO TERTIARY CARE HOSPITALS- KABUL AFGHANISTAN

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BACKGROUND: To determine factors associated with stillbirths and miscarriages in women presenting to tertiary care hospitals in Kabul Afghanistan

STUDY QUESTIONS: what are the risk factors associated to pregnancy loss in Afghanistan?

METHODS: Case control study design was carried out to achieve the study objectives. A total of 156 cases (51 stillbirth and 105 miscarriages) and 373 controls (live births) were selected and interviewed, between July to September 2007 at two tertiary Care hospitals of Kabul City Afghanistan. We developed three models, one for women who had miscarriages with live births, second for women who had stillbirths and live births and third for combination of stillbirth and miscarriages as a case with live births (Controls). We have done descriptive analysis with univariate and multivariable logistic regression analysis for each model.

RESULTS: We have found the significant association of not attending antenatal care visit with pregnancy losses, Odds of not attending antenatal care visits among women who had pregnancy losses as compare to women who had live births (Adj OR= 2 95% CI: 1.26 3.12). Older age had significant association with pregnancy losses. odds of having age less than 20 years among women who had pregnancy losses was not different as compare to women who had live births (Adj OR=0.9 95% CI: 0.43, 1.69), and odds of having age greater than 35 years among women who had pregnancy loss was higher as compare to women who had live births (Adj OR=2 95% CI: 1.03, 3.86). Exposure to fuel smoking has significant association both stillbirths and miscarriage. The odds of one hours increase in exposure to fuel smoking were higher among women who had miscarriage then who gave live births (Adj OR=1.2 95% CI: 1.03, 1.33)

CONCLUSIONS: We have found association of at least one Antenatal care with pregnancy losses. We found a higher risk of having stillbirth and miscarriages in women who had higher exposure to fuel smoking. Extreme Age of reproductive life, previous stillbirths or miscarriages, and increasing number of pregnancy are associated with pregnancy losses.

PUBLIC HEALTH IMPLICATIONS: this study finding will help the policy makers to develop policy for pregnancy loss.

TEMPORAL ASSOCIATION OF BODY MASS INDEX AND DEPRESSION AMONG RURAL WOMEN

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BACKGROUND: Cross-sectional evidence has established that body mass index (BMI) and depression are related; however, results from longitudinal studies in the relationship between BMI and depression are scant and inconsistent.

STUDY QUESTIONS: Are changes in BMI over time associated with an increased likelihood of elevated depressive symptoms (EDS) in a rural sample of women?

METHODS: A secondary longitudinal analysis from three waves of data of the Walk the Ozarks to Wellness Project including 12 rural, Midwestern communities was conducted (n = 1,194). Eligible participants were women with at least one complete wave of data for depression and at least two for BMI. Multilevel mixed modeling was used to estimate the effect of BMI changes over time on the likelihood of EDS, adjusting for age, education, employment, race, marital status, income, regular physical activity, history of chronic disease, and smoking status. The presence of depressive symptoms was assessed from the Patient Health Questionnaire – 2, from Waves 2 and 3, where a total score of three or more indicated EDS. BMI category at baseline was evaluated as a potential effect modifier.

RESULTS: The proportion of EDS for Waves 1, 2, and 3 were 19.6%, 19.7%, and 18.0%, respectively. Average BMI (SD) for Waves 1, 2, and 3 were 27.3 (6.6), 27.6 (6.9), and 27.6 (6.9). Bivariate analyses showed that for each unit increase in BMI (i.e., about 5.8 lbs) from baseline BMI over time, a woman had an average 6% increased odds of EDS (OR = 1.06, 95% CI = 1.01, 1.11). Adjusted estimates showed a similar association (OR = 1.06, 95% CI = 1.01, 1.11). Finally, the effect of changes in BMI over time on EDS did not vary by different BMI category.

CONCLUSIONS: This study found that increases in BMI over time are associated with a higher probability of depression for women.

PUBLIC HEALTH IMPLICATIONS: Prevention programs aimed at healthy weight maintenance need to also disseminate information on the mental health sequelae of changes in BMI. Treatment for depression may also benefit from including weight management guidelines.

DIVERGENT TRENDS IN BIRTH OUTCOMES IN WISCONSIN: TALE OF TWO CITIES

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BACKGROUND: We have previously shown that sustained decline in black infant mortality (BIMR) in Dane County, Wisconsin is predominately driven by decreasing prematurity rates.(MMWR, May 29, 2009) For 2002-2007, 34 additional babies survived, 45 additional babies were born at term and $7.4 million in hospital charges were averted. In contrast, Racine County BIMR increased in recent years.

STUDY QUESTIONS: 1. Is Racine's increasing BIMR also driven by changing very premature birth rates (VPB = <32 weeks gestation)? 2. Has appropriate prenatal care impacted extreme prematurity rates in both counties?

METHODS: Approximately 200,000 birth, infant and fetal death records for Dane and Racine Counties 1990-2007 were analyzed for outcome trends by race. Crude and adjusted relative risk analyses of infant mortality and preterm rates were conducted. Potential confounders or effect modifiers included birth weight/gestation age, maternal risk factors and 'appropriate' prenatal care, derived from the Kotelchuck Index, (appropriate = adequate + adequate plus + intermediate prenatal care).

RESULTS: 1. Driving the divergent BIMRs, Dane's VPB rate fell from 5.8% to 4.2% (1999-2007 population attributable fraction = 61%), Racine's VPB rate rose from 4% to 5% (PAF = 53%). However, in both counties, proportions receiving 'appropriate' prenatal care increased. 2. During 1990-1999, for Dane and Racine counties, 'appropriate' prenatal care did not correlate with fewer VPB (RR vs 'inappropriate' care = 1.3 and 1.2). However, during 1999-2007, Dane VRB rates for those receiving appropriate care declined 31% (RR = 0.8) Racine appropriate care VPB rate rose 15%. For mothers receiving inappropriate care, for both counties, there was no significant change over time in VPB rates.

CONCLUSIONS: The majority of black infant deaths are attributable to very preterm births. Access to 'appropriate' prenatal care, per se, may not decrease VPB rates. However, the quality of appropriate prenatal care can improve. Improvements in Dane County, during 1999-2007, were associated with 51 additional black women carrying their babies to term.

PUBLIC HEALTH IMPLICATIONS: Association between truly appropriate prenatal care and decreased very pre-term births shows change can happen. In-depth analysis of vital records engages academics, policy makers and community members in the struggle for better birth outcomes.

DECLINING TRENDS IN FETAL ALCOHOL SYNDROME PREVALENCE IN ALASKA: SETTING SURVEILLANCE STANDARDS TO MORE ACCURATELY ASSESS TRENDS AND EVALUATE PREVENTIVE STRATEGIES

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BACKGROUND: Population-based estimates of fetal alcohol syndrome (FAS) birth prevalence are higher for Alaska than in other states using consistent surveillance methodology. Trend analysis, critical to evaluating FAS prevention programs, is problematic because of diagnostic and surveillance factors that affect the probability of being confirmed as an FAS case.

STUDY QUESTIONS: The objective of this study was to establish standardized criteria for evaluating trends in FAS prevalence during a time when prevention efforts were extensively practiced in Alaska.

METHODS: During 2009, medical record abstractions for all potential FAS cases identified by the Alaska Birth Defects Registry were completed for children who were at least 6 years of age (birth years 1996-2002). Data files for FAS medical record abstractions, reports to the Alaska Birth Defects Registry and birth certificates were linked to calculate standardization variables. Potential cases were grouped by surveillance criteria and prevalence estimates calculated for children meeting standardized criteria.

RESULTS: Application of standardized criteria resulted in a marginally significant overall decline in FAS birth prevalence during 1996-2002 (p=0.5). Population-specific FAS trend analysis demonstrated a significant 49% decline (p=.003) for Alaska Native infants and a non-significant 64% increase for non-Native infants during the study period (p=.18). The increased FAS risk for Alaska Natives fell from 17 times that of non-Natives in 1996-1998 [relative prevalence (RP)=17; 95% confidence interval (CI): 8,36] to five times higher in 2000-2002 (RP=5.3; 95% CI:7.16).

CONCLUSIONS: FAS prevention activities likely contributed to a substantial reduction in FAS risk for the Alaska Native population during 1996-2002 but had no measurable effect on reducing the prevalence of FAS among non-Native infants.

PUBLIC HEALTH IMPLICATIONS: Methods for standardizing prevalence estimates to reduce time-dependent surveillance bias should be identified and applied consistently when evaluating trends in preventable conditions over time.

DOES POVERTY EXPLAIN RACIAL/ETHNIC DISPARITIES IN NYC YOUNG TEEN BIRTHS? A DECOMPOSITION ANALYSIS USING AREA-BASED SOCIOECONOMIC MEASURES

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BACKGROUND: Almost all births to young teens (15-17) are not intended. Birth rates for non-Hispanic (NH) black and Hispanic young teens are 7-11 times higher than for NH whites in NYC. The role of poverty in racial/ethnic differences in the teen birth rate (TBR) is not well described.

STUDY QUESTIONS: To what extent are racial/ethnic disparities in the TBR 15-17 attributable to differences in the distribution of poverty vs. poverty-specific TBR?

METHODS: Teen births 2000-2008 were from vital statistics. Population of NH white, NH black and Hispanic female teens (15-17) by NYC census tract was from US Census 2000. The area measure of poverty was the percent of the race-specific population in a census tract below 1999 federal poverty level (5 categories: <10%, 10-19%, 20-29%, 30-39%, 40%+). We used linear regression to model the effect of poverty group on race-specific TBR. Racial/ethnic differences in TBR were decomposed into differences in proportion of the population living in poverty and differences in poverty-specific TBR using the Kitagawa method.

RESULTS: The TBR 15-17 was 3.1 per 1,000 for NH whites, 21.5 for NH blacks and 34.7 for Hispanics. The teen population 15-17 by neighborhood-poverty differed significantly by race/ethnicity: 6.1% NH white, 19.0% NH black and 34.0% Hispanic teens lived in neighborhoods with 40%+ poverty. The TBR was significantly associated with poverty group for NH blacks (TBR increased 5.6/1,000 per category of poverty, 95% CI=4.5-6.6) and Hispanics (5.6, 95% CI 4.5-6.7) but not NH whites. In decomposition analyses, ~20% of racial/ethnic differences in TBR were due to higher proportion of NH blacks and Hispanic teens in poorer neighborhoods, and ~80% to higher poverty-specific TBR.

CONCLUSIONS: Differences in the racial/ethnic distribution of poverty account for a small proportion of disparities in the young TBR. Most can be explained by differences in the poverty-specific TBR although use of area-specific as opposed to individual-level measures of poverty may overestimate the contribution of this component.

PUBLIC HEALTH IMPLICATIONS: The impact of poverty on TBR is greater for NH blacks and Hispanic teens. A better understanding of how poverty differentially impacts the options and choices of young teens is needed.

THE EFFECTS OF WIC AND HOSPITAL ASSISTANCE ON BREASTFEEDING INITIATION AND CONTINUATION IN LOUISIANA, 1998-2007

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BACKGROUND: The benefits of breastfeeding for both mothers and babies have been well documented. Rates of breastfeeding initiation and continuation in Louisiana are lower than national levels.

STUDY QUESTIONS: (1) What were the trends of breastfeeding initiation and continuation from 1998 to 2007? (2) What were reasons for never initiating breastfeeding? and (3) What were the relationships between WIC participation during pregnancy and hospital assistance after delivery with breastfeeding initiation and continuation in Louisiana?

METHODS: The 2000-2004 and 2007 LaPRAMS data, including only whites and blacks, were used. Women whose babies died or who did not live with their babies were excluded from the study. Breastfeeding continuation was evaluated at four months after delivery. Logistic regression, Kaplan-Meier survival estimates, and Cox regression were applied. SAS-callable SUDAAN 10.0 was used for analyses. There was unavailability of 2005-2006 data due to affect of the hurricane Katrina.

RESULTS: Both rates of breastfeeding initiation and continuation increased from 2000 to 2007. The most common reasons for never breastfeeding for both races included taking care for other children, embarrassment to breastfeed, and disliking breastfeeding. Women with WIC participation during pregnancy were more likely not to initiate breastfeeding (OR=1.25; 95%CI=1.1, 1.5) and also more likely to discontinue breastfeeding early (OR=1.1; 95%CI=1.0, 1.2). Assistance from hospital staff after delivery, such as helping with breastfeeding, giving information about breastfeeding, and putting baby in the same room with mother, were associated with higher rates of both breastfeeding initiation and continuation; however, giving a gift pack with formula had opposite effects. Those effects were different between whites and blacks.

CONCLUSIONS: WIC participation during pregnancy and gift package with formula given by hospital staff after delivery possibly contributed to low rates of breastfeeding and continuation. Meanwhile helping with breastfeeding, giving information about breastfeeding, and putting baby in the same room with mother during postpartum may encourage mothers to breastfeed their babies as well as keep breastfeeding longer.

PUBLIC HEALTH IMPLICATIONS: Changing breastfeeding behaviors in population, health education regarding breastfeeding during WIC visits, and hospital supports during postpartum are necessary to improve breastfeeding practice in Louisiana.

EVALUATION OF HAWAII CHILD DEATH REVIEW PROGRAM

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BACKGROUND: A child death is considered a sentinel event, one that should alert a community to evaluate methods of protection for children to prevent such events from recurring in the future. The Hawaii Child Death Review System (CDR), a multi-agency collaborative, attempts to understand the burden of deaths to children under the age of 18 in order to provide prevention recommendations to decrease this burden.

STUDY QUESTIONS: Has the Hawaii CDR process changed the rate of child death in Hawaii? Has Hawaii CDR met their objectives? What recommendations can be made to improve Hawaii CDR?

METHODS: Data from personnel interviews, surveys of CDR participants, and data accessed from the national CDR database was evaluated from 2001-2007 for 1253 deaths in Hawaii using the CDC framework Updated Guidelines for Evaluating Public Health Surveillance Systems.

RESULTS: The Hawaii child death rate was 13.7 per 100,000 population in 2001, and 14.3 per 100,000 population in 2007. There was a large percentage of missing data from key fields, ranging from 10% to 60%. Two of seven state objectives had been met. Budget cuts, training of personnel, data quality, timely reporting and dissemination of recommendations hindered CDRs ability to reduce child death. Major barriers preventing CDR from meeting its objectives were: 1) a lack of quality control for data entry; 2) improper data form completion; 3) unclear case definition; 4) minimal training of CDR local team members; 5) a lack of trained forensic pathologists for case investigation and autopsy; 6) little coordination between neighbor island efforts and State Council; 7) failure to disseminate results; and 8) lack of initiatives focusing on recommendations developed by the CDR process.

CONCLUSIONS: The rate of child deaths had not changed since 2001 and major barriers were identified. Recommendations for improvement include; 1) production of Annual Report; 2) stronger State Council lead for prevention; 3) additional training for CDR personnel; 4) institute data quality control; 5) include near-death review.

PUBLIC HEALTH IMPLICATIONS: Conducting comprehensive review of child deaths, and translating the findings into effective interventions, is a complicated process that involves a great deal of coordination and dedication from a breadth of agencies.

SEXUAL VIOLENCE AMONG HIGH SCHOOL STUDENTS IN HAWAII AND ASSOCIATED RISK BEHAVIORS, HAWAII YOUTH RISK BEHAVIOR SURVEY, 2005, 2007, AND 2009

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BACKGROUND: Victims of sexual violence (SV) have been shown to engage in a myriad of negative health behaviors including substance abuse, suicide ideation, eating disorders and risky sexual activity. Engaging in negative health behaviors may also perpetuate a cycle of SV or contribute to further victimization.

STUDY QUESTIONS: Do high school girls in Hawaii who experience SV report more substance abuse, suicide ideation, eating disorders and risky sexual activity than girls without a history of SV?

METHODS: Secondary data analysis was conducted using the Hawai'i Youth Risk Behavior Survey, a surveillance system monitoring the self-reported prevalence of high school student behaviors that most influence health. HYRBS data of 2,335 female students from 2005, 2007, and 2009 were analyzed. Prevalence estimates of SV and risk behaviors including alcohol and marijuana use, suicide ideation, engaging in sexual activity with multiple partners, and anorexic and/or bulimic behaviors were calculated. Multivariate logistic regression modeling was conducted to determine odds of risk behaviors of those who reported sexual violence compared to those who did not.

RESULTS: 12.4% (95% CI: 10.8-14.2) of public high school girls reported having been forced to have sexual intercourse at some point in their lives when they did not want to. After adjustment for sociodemographic factors, girls who had reported SV compared to girls who did not report SV had a statistically significant increased odds of reporting: 1) suicide ideation (aOR 2.6, 95%CI: 1.6-4.4); 2) more than 5 lifetime sexual partners (aOR 4.6, 95% CI:2.5-8.5); 3) being younger than 13 upon first sexual intercourse (aOR 3.7, 95% CI: 2.6-5.4); 4) symptoms of eating disorders (aOR 2.4, 95%CI:1.6-3.4); and 5) lifetime substance use (aOR 2.3, 95%CI: 1.5-3.4).

CONCLUSIONS: Girls who reported sexual violence also reported engaging in several risk behaviors, particularly sexual risk behaviors.

PUBLIC HEALTH IMPLICATIONS: This is an understudied field of adolescent health, and additional research using prospective data collection is needed to establish temporality of these findings. Whether SV may predict risk behaviors or the converse, prevention is needed to protect adolescent girls from sexual violence and these risk behaviors. This may include empowerment messaging for girls, as well as education of boys to reduce perpetration.

PRECONCEPTION HEALTH INDICATORS AMONG WOMEN RESIDING IN APPALACHIAN AND NON-APPALACHIAN COUNTIES IN OHIO AND PENNSYLVANIA

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BACKGROUND: Preconception health among reproductive aged women affects both fertility and pregnancy outcomes. A 7 state work group developed preconception health indicators (PCHI) to be used by states to assess, monitor, and evaluate preconception health. Persons living in Appalachia are generally known to have disparate health outcomes and examining PCHIs could suggest ways to improve health care.

METHODS: Data from the 1997-2004 Behavioral Risk Factor Surveillance System (BRFSS) were used to estimate the prevalence of PCHIs among non-pregnant women aged 18-44 years residing in Ohio (n=7,391) and Pennsylvania (n=9,921). PCHIs include measures of education, income, access to and utilization of health care, tobacco and alcohol use, chronic conditions and immunizations. Chi-square tests were used to investigate differences in PCHIs among Appalachian and non-Appalachian women. Separate analyses were conducted for Ohio and Pennsylvania. Limitations to BRFSS include use of self-reported data and recall bias.

RESULTS: In Ohio, weighted estimates indicate that, compared to non-Appalachian women, Appalachian women were less likely to have greater than a high school education (44.8% vs. 58.8%, $p<0.001$) or to have health care coverage (78.7% vs. 86.1%, $p<=0.001$), and more likely to have a lower income ($p<0.0001$) and to smoke (39.7% vs. 31.5%, $p=0.001$). In Pennsylvania, Appalachian women were less likely to have greater than a high school education (56.6% vs. 58.2% , $p=0.001$) and more likely to have a lower income ($p<0.001$) and to smoke (32.4% vs. 28.4%, $p=0.001$). In both states, there were no differences between groups for having had a routine checkup in the past year, being overweight or obese, alcohol consumption, diabetes, asthma, or having received influenza vaccination within the past year.

CONCLUSIONS: The data demonstrate some important differences in the indicators for preconception health between Appalachian and non-Appalachian women, but patterns vary by state.

PUBLIC HEALTH IMPLICATIONS: The results suggest that Appalachian women would benefit from targeted preconception interventions to ensure that they enter pregnancy in optimal health, especially with regard to reducing smoking prevalence. Strategies to improve preconception health should recognize population and cultural differences to improve their effectiveness.

RISK BEHAVIORS AMONG ILLINOIS AND CHICAGO HIGH SCHOOL STUDENTS BY SEXUAL ORIENTATION

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BACKGROUND: Research has shown that youth who describe themselves as gay, lesbian or bisexual are at an increased risk of a number of negative health outcomes including increased risk of suicide attempts, sexually transmitted infections and eating disorders.

STUDY QUESTIONS: This analysis aimed to determine whether Illinois and Chicago students who identify as gay, lesbian, bisexual or who are unsure of their sexual orientation (GLBU) have a higher prevalence of reported risk behaviors compared to students who identify as heterosexual.

METHODS: Analysis was conducted combining weighted data from the 2009 Illinois and Chicago Youth Risk Behavior Surveys to develop statewide estimates for Illinois. High school students who reported that they were gay, lesbian, bisexual or if they were unsure about the sexual orientation were compared to those who reported to be heterosexual.

RESULTS: Approximately 9% of high school students report that they are GLBU. Compared to students who report that they are heterosexual, GBLU students are more likely to report (1) carrying a weapon at least one time in the past 30 days (30.9% versus 14.7%); (2) having been threatened at school at least one time in the past 12 months (25.5% versus 7.3%); (3) having been hit by a boy/girlfriend in the past 12 months (29.4% versus 12.6%); (4) being sad for two weeks (54.7% versus 25.5%); (5) attempting suicide in the past 12 months (29.7% versus 7.2%); (6) using drug, especially 'harder' drugs, such as cocaine (10.4% used in past 30 days versus 2.1%); (7) using extreme weight loss methods, such as vomiting (19.6% versus 4.5%). Overall, GBLU youth did not vary from heterosexual youth in reported level of sexual activity. Comparisons between youth in Chicago and in Illinois but outside Chicago will also be discussed.

CONCLUSIONS: GLBU students are more likely to participate in a wide range of risk behaviors compared to heterosexual students.

PUBLIC HEALTH IMPLICATIONS: Schools would benefit from having teachers, counselors or social workers who are trained to help gay, lesbian and bisexual youth reduce risk behaviors and increase positive outcomes. Support groups for gay, lesbian or bisexual students would also serve to benefit these youth.

PROGRAM EVALUATION WITHOUT THE SMOKE AND MIRRORS: FINDING A VALID STATISTICAL MODEL FOR TIMELY EVALUATION OF MCH PROGRAMS WITH A LIFE-COURSE PERSPECTIVE

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BACKGROUND: MCH policy-makers are bringing a life-course perspective to program planning. MCH epidemiologists need to join this conversation early. Barriers include the difficulty in evaluating life-course models within the time-frame of most programs, problems developing evidence to demonstrate causality or link results to population outcomes, and delay in joining program planning early enough to assure the necessary design and data components.

STUDY QUESTIONS: Is there a program evaluation methodology that meets the criteria of timeliness, economic and programmatic feasibility, validity of theoretical framework, and linkage to desired population outcomes?

METHODS: We conducted a review of life-course epidemiology in the US and Europe seeking models that address complex program evaluation components over time and across a variety of events and clients. Our criteria for success included those in the study question plus the adaptability of methodology to MCH best practice standards; validity of statistical approach; and likely generalizability of methods and results. Limitations include scope and reviewer bias.

RESULTS: We identified two very different approaches to life-course program evaluation: the standard event-based, conditional or joint models that identify risk and protective factors as statistically predictive of adverse or desired outcomes; and an algorithmic or 'holistic' focus on segments of the life-course trajectory. The event-based approach seeks discrete components of causality, with varying complexity, and often requires a longitudinal analysis. The algorithmic approach uses, for example, a sequence analysis to examine the effects of duration and sequencing of choices/events on the life-course trajectory. Some epidemiologists suggest combining these approaches in program evaluation. To date, we find no pilot program testing this suggestion.

CONCLUSIONS: Program planning that includes the life-course perspective for a community, family, and individual has required decades to show evidence of its success using an event-based evaluation. Adding an algorithmic approach to evaluation could yield the more immediate performance results that programs need, while paving the way for event-based monitoring of risk and protective factors over time.

PUBLIC HEALTH IMPLICATIONS: The life-course approach to MCH program planning represents a paradigm shift toward long-term community and individual health improvement. Proper evaluation in a time-frame that assures ongoing program improvement and funding may require a paradigm shift in evaluation methodology.

THE ROLE OF HOSPITAL AND WORKPLACE SUPPORT IN MEETING WIC PARTICIPANT BREASTFEEDING GOALS: FROM THE BIRTHPLACE TO THE WORKPLACE – TEXAS, 2009

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BACKGROUND: Research shows that hospital practices and employment affect breastfeeding. Texas is the only state with a recognition program for hospitals implementing evidence-based breastfeeding policies and was the first state to adopt a program to recognize employers with supportive breastfeeding policies.

STUDY QUESTIONS: Among a population of Texas mothers receiving WIC benefits during pregnancy, what is the association between hospital and work factors and achievement of individual breastfeeding goals?

METHODS: From April to July 2009, 5,427 mothers of one-year olds receiving Texas WIC services were surveyed regarding their infant feeding practices. Chi-square tests of association and multivariate logistic regression were used to examine hospital and work factors associated with a mother reporting she did not breastfeed as long as she wanted to, adjusting for maternal socio-demographic characteristics.

RESULTS: Almost half of women (48%) who breastfed reported that they did not breastfeed for as long as they wanted, with prevalence of 67% among Whites, 50% among Blacks, and 43% among Hispanics (chi square $p<0.0001$). Women reporting they were given instruction to breastfeed whenever their baby wanted (AOR: 0.81, 95% CI: 0.67-0.97) or that their infants were exclusively breastfed at the hospital (AOR: 0.79, 95% CI: 0.66-0.96) were less likely to report that they did not breastfeed for as long as they wanted adjusting for maternal age, race/ethnicity, and acculturation as measured by mother's place of birth. Additionally, women who returned to work postpartum for 10 or more hours per week (AOR: 1.3, 95% CI:1.1-1.6) were more likely than those who returned to work for fewer than 10 hours per week to report that they did not breastfeed for as long as they wanted.

CONCLUSIONS: Women who experienced pro-breastfeeding hospital practices were less likely to report that they did not breastfeed for as long as they wanted. Women who returned to work 10 or more hours per week were more likely to report that they did not breastfeed for as long as they wanted.

PUBLIC HEALTH IMPLICATIONS: Assistance should be provided to hospitals to implement evidence-based maternity practices and to employers to accommodate flexible return-to-work arrangements to allow women to carry out their infant feeding decisions and fulfill their breastfeeding goals.

THE ASSOCIATION BETWEEN PRENATAL CARE CONTENT AND QUALITY WITH PRETERM BIRTH AND MATERNAL POSTPARTUM HEALTH BEHAVIORS

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BACKGROUND: Health policies that seek to improve pregnancy outcomes focus on increasing the availability and access to prenatal care (PNC) services based on studies that support an association between insufficient PNC and adverse birth outcomes. These studies employ PNC utilization indices that measure the adequacy of PNC use, but these indices fail to account for the content or specific components of PNC.

STUDY QUESTIONS: Does the content and quality of prenatal care in Virginia impact preterm birth and maternal postpartum health behaviors?

METHODS: Virginia Pregnancy Risk Assessment Monitoring System (PRAMS) data from 2007 was used. Multiple logistic regression was used to adjust for factors associated with content and utilization of prenatal care and preterm birth.

RESULTS: Inadequate PNC was associated with nearly a three-fold increase in risk of low birth weight (OR=2.8, 95% CI=1.5, 5.2), but not preterm birth. Women with adequate-plus PNC were more likely to deliver infants who were preterm (OR=10.2, 95% CI=4.3,24.4) and low birth weight (OR=6.3, 95% CI=4.2,9.4). After adjusting for method of payment, income, and reported problems during pregnancy, women with lower income and no private insurance were more likely to have inadequate PNC (OR=1.4, 95% CI=0.5,4.1) and (OR=8.8, 95% CI=1.3,59.8), respectively. Provider discussions were not different based on adequacy of PNC. In addition, among women who received adequate PNC, those whose providers discussed postpartum birth control use were 4.5 times more likely to use birth control after delivery compared to women who did not receive education (95% CI=1.7,11.8).

CONCLUSIONS: The lack of strong associations between adequacy of PNC and birth outcomes indicate that there are other factors (intergenerational, stress, cultural) that may play a more prominent role in predicting maternal and infant health.

PUBLIC HEALTH IMPLICATIONS: Policymakers should support greater investments in community health and improving social conditions with the goal of reducing allostatic load over the lifespan.

CESAREAN AND EARLY DELIVERY AMONG LOW MEDICAL RISK WOMEN, FLORIDA, 2006-07

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BACKGROUND: Previous Florida studies using birth certificate information have demonstrated an association of primary cesarean delivery without labor symptoms among low risk women and early delivery: late preterm (LPT—34 to 36 weeks gestation) and early term (ET—37 to 38 weeks) births. Recent studies recommend using linked maternal hospital discharge and birth certificate data in these studies.

STUDY QUESTIONS: What is the association of primary cesarean section by labor status among low risk women and early delivery using linked files?

METHODS: The study uses linked maternal hospital discharge and birth certificate data for all live births in Florida from 2006-2007. The study population consisted of 176,122 live singleton births between 34-41 weeks gestation to women with low risk pregnancies and no history of prior cesarean. Low risk was defined based on a combined algorithm using Joint Commission, Leap Frog, and prior Florida investigation recommendations. Binominal logistic regression was used to determine the association of cesarean delivery with LPT or ET birth adjusting for socio-demographic and pregnancy factors.

RESULTS: Cesarean without labor accounted for almost twice as many LPT births as cesarean with labor (6.2% vs. 3.2%) and 60% more ET births (8.0% vs. 5.0%). Compared to women with term vaginal births, women with cesarean with labor were less likely to have LPT births (AOR 0.47 [95% CI 0.41-0.53]) and ET births (AOR 0.75 [0.72-0.79]). Women with cesarean without labor were not significantly associated with LPT birth (AOR 1.06 [0.95-1.16]), but were associated with ET birth (AOR 1.35 [1.30-1.40]). Other significant risk factors for LPT were: low education level, multiparity, male infant gender, and smoking during pregnancy. Additional risk factors for ET were: commercial insurance, multiparity, male infant gender, and smoking.

CONCLUSIONS: Cesarean without labor increases the odds of LPT or ET birth when compared to cesarean with labor among low risk women, and increases the risk of ET overall. Further research is needed to understand the factors associated with cesarean births among low risk women and early delivery.

PUBLIC HEALTH IMPLICATIONS: Cesarean may play a role in LPT and ET births. Quality improvement programs may be beneficial.

FACTORS AFFECTING UTILIZATION OF MATERNAL HEALTH SERVICES AMONG URBAN SLUM DWELLERS IN GHANA

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BACKGROUND: Researchers often neglect the health and service issues of urban poor. In spite of the recognition of the importance of maternal health, very little is known empirically about current factors influencing the utilization of maternal health care services in Ghana.

STUDY QUESTIONS: i. Examine the determinants of utilization of maternal and child health services among residents of Chorkor; ii. Assess the current state of utilization of maternal and child health services among residents of Chorkor; iii. Make relevant policy recommendations aimed at improving maternal and child health services and their utilization among urban slum dwellers in the country.

METHODS: Survey data were collected using household-based questionnaire conducted with women of reproductive age (15-49). In all 374 respondents were sampled. A dichotomous dependent variable was constructed to indicate whether or not the woman used services. In assessing the effects of the determinants on use of maternal health services, logistic regression models were estimated given that the indicator is dichotomous. The estimations were done using SPSS. Respondents reasons for not using services, was categorized according to six dimensions: socio-economic, psychosocial, cognitive, physical, administrative and demographic factors.

RESULTS: This study's findings showed that highly educated women are usually well enlightened and may have a better understanding of the significance of using maternal health services. The major barrier identified to maternal health service use is administrative barriers followed by psychosocial barriers, cognitive barriers and socio-economic barriers. Reporting of administrative barriers declined with husband's education and increased with woman's education.

CONCLUSIONS: Results of this study have provided some useful insights into the significance of demographic, cultural, social, cognitive, psycho social and economic factors in influencing the utilization of maternal health care services in Ghana. The findings of this study therefore have policy implications since improving maternal health care utilization would contribute to reducing maternal and infant mortality in Ghana.

PUBLIC HEALTH IMPLICATIONS: There should be policies directed at empowering women economically to be able to access quality maternal health care and to realize their full social and economic potential.

BREAST-FEEDING MAY AMPLIFY THE HIGH RISK OF CHILDHOOD OVERWEIGHT ASSOCIATED WITH HEAVY MATERNAL SMOKING

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BACKGROUND: Maternal smoking during pregnancy is associated with high risk of overweight in children. Tobacco and its metabolites from smoking mothers are readily available to the infants via breast milk. Little is known regarding the effects of breast-feeding of smoking mothers on childhood growth.

STUDY QUESTIONS: Does the exposure to tobacco products in breast milk impact childhood growth and the risk of overweight?

METHODS: The sample included 20,936 mother-child dyads in the Collaborative Perinatal Project. Biochemically validated maternal reports of smoking were collected during late pregnancy and women were classified as non-smokers, light (1-9 cigarettes/day), moderate (10-19 cigarettes/day), or heavy (>20 cigarettes/day) smokers. After delivery, women were classified as exclusively breast feeding or bottle feeding. Multiple indicators of childhood growth were obtained from birth to age 7, including body mass index at 1 and 7 years of age. Overweight was defined as a body mass index >=85th percentile by sex and age within the full cohort.

RESULTS: The association between heavy maternal smoking and high 7-year BMI was greater among breast-fed children than among bottle-fed children. Among bottle-fed children, the adjusted odds ratios (ORs) of overweight at 7 years of age were 1.24 (95% confidence interval, 1.12 to 1.38) for light, 1.43 (95% CI, 1.25 to 1.63) for moderate, and 1.46 (95% CI, 1.28 to 1.66) for heavy maternal smoking. Among breast-fed children, the adjusted ORs of overweight were 1.33 (95% CI, 0.96 to 1.84) for light, 1.86 (95% CI, 1.27 to 2.73) for moderate, and 2.22 (95% CI, 1.53 to 3.20) for heavy maternal smoking. There was positive interaction between breast-feeding and heavy maternal smoking on childhood BMI and the risk of overweight at 7 years of age.

CONCLUSIONS: Exposure to tobacco and its metabolites via breast milk is associated with higher childhood BMI and an increased risk of overweight. Breast-feeding may amplify the high risk of childhood overweight associated with heavy maternal smoking.

PUBLIC HEALTH IMPLICATIONS: Smoking mothers should be provided with smoking cessation service, and advice on preventing relapse after delivery if they quit during pregnancy. Those who cannot quit successfully should reduce cigarettes smoked and also separate smoking away from breast-feeding schedules.