MCHB/EMSC Webcast

Pediatric Equipment for BLS and ALS Ambulances

March 26, 2009

DAN KAVANAUGH: Welcome, I'm Dan Kavanaugh the senior program manager for HRSA's Emergency Medical Services for Children program. Thank you for joining us today on our webcast on "Pediatric Equipment for BLS and ALS Ambulances". I'm going to give some brief information about the webcast and then some technical information and then I will introduce our speaker and our contributors.

Some information about this webcast. The current revision of the equipment guidelines -- equipment recommendations for pediatric -- the EMSC program has developed several performance measures for the program state partnership grantees. One of the performance measures evaluates the availability of essential pediatric equipment and supplies for basic life support and advanced life support patient care units. This document will be used as the standard for this performance measure. Our speaker, Dr. Mary Fallat, will be going into the process of how it came about and what the recommendations are.

Before we get into the talk and I introduce more about our speaker, here is some technical information as you're watching or listening to this. First of all, the slides will appear in the central window and they should advance automatically. The slide changes are synchronized with the speaker's presentations. You don't need to do anything to advance the slides, you may need to adjust the timing of the slide changes to match the audio by using the slide delay control at the top of the messaging window.

We also encourage you to ask the speakers questions at any time during the presentation. Simply type your question in the white message window on the right of the interface, select question for speaker from the dropdown menu, and then hit send. Please indicate your state or organization in your message so that we know where you're participating from. The questions will be relayed on to the speakers at the end of the presentation. And if we don't have the opportunity to respond to your questions during the broadcast, we will email you with answers afterwards so again we encourage you to submit questions at any time during the broadcast and we'll collect those and see how many of the questions we can get through by the end of the presentation.

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At the end of the broadcast, the interface will close automatically and you will have the opportunity to fill out an online evaluation. Please take a couple of minutes to do this. Your response will help us to plan future broadcasts in this series and improve technical support.

Now I would like to introduce our speaker and those that will also assist our speaker or contributors to this project in answering questions at the conclusion of the presentation. Our presenter is Dr. Mary Fallat, professor of surgery and division director of pediatric university at the University of Louisville and chief of surgery at Children's Hospital and also the project director for the Kentucky EMSC project and the 2008 heroes award for being the policy leader of distinction. Dr. Marianne Gausche-Hill is director of the EMS and

fellowships at UCLA Medical Center and known as an EMS researcher and educator and her leadership in the field of pediatric emergency medicine. She was awarded the ASEP national education award and 2005 awarded an award from the American Academy of pediatrics. In 2007 was awarded the Emergency Medical Services for Children Heroes award for Lifetime Achievement. In 2008 she was named one of the heroes of emergency medicine by the American College of Emergency Physicians. Mr. Tommy Loyacono is with the partnership stakeholder group and the chief of operations at East Baton Rouge parish in Baton Rouge, Louisiana and a paramedic with 35 years of experience in EMS. In addition I would like to thank the executive director at children's national Medical Center Resource Center for facilitating this effort. And now I would like to turn it over to our presenter, Dr. Mary Fallat.

MARY FALLAT: Thank you very much, Dan. Next slide, please. The equipment list that has been used for the current performance measure is based on a 1996 article that was published in the annals of emergency medicine that describes the pediatric equipment that is needed to effectively take care of children in the field. This list was developed by the national Emergency Medical Services for Children resource alliance.

Next slide, please. I would like to give you a little bit of history and background about the current equipment for ambulances list that has modifications for pediatrics that will be used as the new standard. The American College of surgeons committee on trauma developed the first equipment for ambulances list nearly four decades ago as part of their mission to improve care of the trauma patient. This was well before the birth of emergency medicine. As a specialty. At that time, Dr. Deke Farrington was the president of the American Association for the surgery of trauma and Dr. Farrington wrote an article called to death in a ditch on the subject of trauma care, or lack thereof for patients that routinely

were hurt badly, never made it to a hospital and really didn't get -- didn't receive good care or nor were they properly resuscitated.

Next slide, please. Dr. Farrington established the original 81-hour first aid training curriculum which is the prototype of what later became the EMT ambulance course in 1962. This really marked the beginning of formal training in pre-hospital care of injured patients and Dr. Farrington has been called the father of modern EMS.

Next slide. In 1988, the American College of Emergency Physicians published a similar equipment for ambulances list that paralleled what was being published and updated by the American College of surgeons. In 2000, the two groups decided to join efforts so there would be one equipment list that was recommended. In fact, this was the first time that the American College of surgeons committee on trauma developed a consensus document with another organization. I might say it wasn't the last time and it led the way for the committee on trauma to develop consensus articles with other organizations on a routine basis. So it was really a great thing for the committee on trauma.

Next slide. In 2005, I had the privilege of being the chair of the pre-hospital emergency services committee for the committee on trauma and we asked the National Association of EMS physicians to join us in the revision of the equipment for ambulances document that was published that year. That particular document added resources for Homeland Security and we looked at the pediatric recommendations but we did not really update them in a constructive way. I was approached by the EMS for children project approximately a year ago with respect to the list and whether we would consider taking it back to the original groups and working with Emergency Medical Services for Children to update the pediatric recommendations. This made sense, since the list was a consensus

document and had sign-on from the pre-hospital care organizations that are preeminent in this country.

Next slide. For purposes of this document, we defined child as follows. In the first year of life the neonate is 28 days of age or less. The infant is 29 days to 1 year. The child is 1 year to 11 years. With the stages of toddler from 1 to 3 years, pre-schooler from 3 to 5 years. Middle childhood from 6 to 11 years and adolescent is defined as 12 to 18 years.

Next slide. However, despite these age recommendations, as we know, children of all ages come in different sizes and length-based systems have been developed to more accurately estimate the weight of children and predict appropriate equipment sizes, medication doses and guidelines for volume resuscitation. Therefore, a length/weight based system is part of the required equipment on the list.

Next slide. As Dan mentioned, this list will be used for performance measure 66B, which falls under the category of operational capacity to provide pediatric emergency care. Specifically, 66b is pediatric equipment for BLS and ALS patient care units according to national guidelines with patient care units generally referring to an ambulance.

Next slide. The list is organized into several components and for those of you who have not already done so, it is downloadable as a pdf file. BLS and ALS recommendations are divided into required equipment and then there is a section on optional equipment and optional medications. And additional sections of the document include interfacility transport. There is extrication equipment and selected references and we'll briefly go through all of these.

Next slide. For purposes of the performance for EMS grantees, ALS ambulances must have all of the equipment on the required BLS list as well as equipment on the required ALS list. And BLS units will need to have all of the equipment on the required BLS list. If you have a situation where there is an intermediate type of unit, then it will be -- it will correspond to your scope of practice what equipment should be carried on the ambulance unit.

Next slide. Our rationale for some of the equipment on the list was to be less prescriptive when it came to devices without good evidence to justify their use. Devices that are rarely used, or devices with multiple sizes where it may be practical to carry only a few functional sizes that will adapt to all age groups. The committee that helped to write this document included 23 individuals representing different organizations. The group included physicians, nurses, pre-hospital care providers. I felt that it was a very good mix of individuals, including those whose day-to-day routine includes taking care of patients in the field. So we tried to weigh in on what would be practical in the field for ambulances to carry for both BLS and ALS units without trying to be overly burdensome and add equipment that really wasn't used very often or didn't seem to be necessary.

Next slide. First we'll review the required equipment for basic life support ambulances.

Next slide. Under ventilation and airway, flexible suction catheters come in many sizes. The tonsillar and flexible section catheters come in two sizes and it was decided that there needed to be at least one catheter available between 6 and 10 French and one between 12 and 16 French and those two sizes would likely be enough to take care of most patients. And so in this particular case, we're not requiring ambulances to carry every size. We're asking that they have one that will be useful for smaller children and one that would

be useful for teenagers and adults. In terms of masks and nasal cannulas you need to have both non-breathing and valveless masks and we made infant optional as the providers on our committee said they rarely used an infant mask. That in infants they were generally either intubated or receiving blow-by oxygen, or they're using a resuscitation bag.

Next slide. Bag valve mask devices are required for adults and for children. Once again, it was decided that the infant is optional, so the bag for the infant is optional. However, masks must be carried in all of the sizes. So this is the one situation where you must also have a neonate mask and you must have an infant mask.

Next slide. For NASOPHARYNGEAL airways come in kits. So many services will have the entire kit. However, we have made 12 and 14 sizes optional. OROPHARYNGEAL, the smallest size, which is a OO, is optional. You must have sizes that will accommodate an infant, a child and an adult.

Next slide. For ventilation and airway, pulse oximeter must have both pediatric and adult probes. And we have added saline drops in a bulb suction for infants. An obstetrical kit is always required in this list. Most of those will contain a bulb suction. Some of them are commercially packaged and a unit may not want to open the kit to just get out the bulb suction. So some services may prefer to carry it separately. However, if you have an obstetrical kit that includes the bulb suction, that will satisfy the requirement.

Next slide. For monitoring and defibrillation there must be an automated external defibrillator unless the unit is staffed by ALS personnel and carrying a monitor defibrillator. The AED should have pediatric capabilities including child-sized pads and cables.

Next slide. Under cervical collars, a truck must carry child and adult sizes to properly fit at least the ages 2 years old and older. The group agreed that most of the very small children are difficult to fit to the smallest size collar. And they need to be immobilized, obviously, but we aren't requiring you carry a certain cervical collar that would immobilize the neck in a very small child. Additional devices include a head mobilization device. There must be lower extremity traction and lower and upper extremity immobilization devices in adult and child sizes.

Next slide. This just reiterates that the stakeholder group discussed the commercially available collars that are available and we all recall seeing children come into the emergency department with collars that don't fit properly, recognizing that these small children can likely be immobilized better without a commercially available collar.

Next slide. Also under immobilization devices are impervious backboards long and short and extrication devices. A short board is equivalent to an extrication device, a long board must have at least three appropriate restraint straps, recognizing that the chin strap alone should not be used for head immobilization and we added the clause that there must be padding for children so that the cervical spine will be properly immobilized and hand holds for moving patients.

Next slide. One of the new additions to the list is an arterial tourniquet. This was something that was subjected to an evidence evaluation, arterial tourniquets, as many of you probably know have been found to be lifesaving in Iraq and other military-related environments. They are once again moving into the civilian pre-hospital care arena. There are some articles that have been published that describe their use in the military

environment. And these articles are beginning to provide some consensus about bringing them back into the pre-hospital care environment. It has been added and is in the required list. In addition, there are communication requirements:, infection control and extrication equipment that I previously mentioned. Just another word about arterial tourniquets, the National Registry of EMTs has revised their bleeding management and skill station, instruments to reflect the recommendations of the pre-hospital trauma life support course that has added this to their most recent edition of the textbook. The recommendation is that if external bleeding from an extremity cannot be controlled by pressure, application of a tourniquet is the reasonable next step in hemorrhage control. This is just an algorithm that begins with direct hand pressure and a pressure dressing. If the pressure dressing works, then there is no need to continue to do extreme -- more extreme measures. If it does not work, and it's an extremity injury then a tourniquet is appropriate.

Next slide. This is a reference that is in the reference list of the document. If anyone wants additional information, it provides a very good summary of the use of arterial tourniquets.

Next slide. With respect to the obstetrical kits, the list will reflect that there are obstetrical kits that are commercially packaged and available. However, if the unit is associated with a hospital and the hospital provides them with a sterility packaged kit because it's cheaper that's fine. We want to make sure there is some kind of obstetrical kit available. It usually includes the bulb suction that is required under BLS ventilation and airway equipment. There must also be appropriate heat preserving material to cover a newborn.

Next slide. Under miscellaneous, pediatric and adult blood pressure cuffs are required but infant is optional. And an adult stethoscope is required but we all agreed the adult stethoscope would work just fine in children and infants and we have made the pediatric

stethoscope optional. And to reiterate a length/weight based reference for equipment sizing and drug dosing must be available.

Next slide. Under injury prevention equipment, all individuals in an ambulance need to be restrained. Currently there is no national standard for transport of uninjured children. However, there is a website that provides a list of EMS-approved child occupant protection devices.

Next slide. It is also important to note that a safety seat that has been involved in a crash should not be used either in an ambulance or to continue to transport the child. Also, the American Academy of pediatrics recommend the child safety seats not be used after a crash.

Next slide. Next we'll turn to required equipment for advanced life support ambulances. Under ventilation and airway, laryngoscope blades must include sizes 0-4 and curved or McIntosh sizes 2-4. Endotracheal tubes need to be sizes 2.5 to 5.5 millimeters uncuffed. And sizes 6 to 8 millimeters cuffed. And there should be two of each. Magill forceps must include adult and pediatric sizes.

Next slide. Under end tidal C02 detection capability. There is a choice. If the ambulance has a colorimetric, both must be present. If the unit has a qualitative or digital, then only one is required.

Next slide. For vascular access the range of sizes from 14 to 24 gauge need to be present. And intraosseous needles or devices must be appropriate for both children and adults.

Next slide. There must be both microdrip and macro drip intravenous administration sets and appropriately sized arm boards that would fit both adults and pediatric patients.

Next slide. Under cardiac equipment, there needs to be a portable battery-operated monitor defibrillator that includes both adult and pediatric chest attachment electrodes and adult and pediatric paddles. A transcutaneous cardiac pacemaker must include pediatric pads and cables and a stand-alone or integrated -- it must be stand-alone or integrated into the monitor defibrillator. Next slide. A new entry in advanced equipment is a large bore needle that must be at least 3 1/4 inch dimension in the event of pneumothorax and also needed in a larger adolescent.

Next slide. The medication list includes categories. The caveats are that the medication should be compatible with current guidelines and updated as appropriate when new guidelines come out. The national organization can be of the unit's choice or the American heart association. The medication list may vary depending on state requirements. However, drug dosing in children should you processes that minimize the need for calculations, preferably a length-based system.

Next slide. Optional equipment is not required, but I wanted to reiterate the equipment that will be optional and it includes an infant oxygenation mask, an infant self-inflating resuscitation bag. 12 and 14 Nasofar, Inc. gee all airway. Neonatal and infant blood pressure cups and a pediatric stethoscope. An instant cervical immobilization device, pediatric backboard and extremity splints have been made optional as long as what you carry can be used in children. A new addition to the optional basic equipment list is a topical homostatic agent and I'll spend a minute discussing this on the next slide.

Applicable chemical antidote auto injectors should be appropriate for adults and children. Again this is optional equipment.

Next slide. One of the other areas that seems to be coming back into the civilian pre-hospital care arena is hemostatic agents. Many of these agents have been tested in the military environment. Some have been tested and have decided not to be useful or they've been painful or there have been other extenuating circumstances that have now caused them to be taken off the market. I'm not going to deal with proprietary agents that are available, but suffice it to say that if your truck chooses to carry a hemostatic agent there is literature available that would give guidance to what would be appropriate. The most appropriate use for the hemostatic agent would be in a torso penetrating injury that does not respond to direct pressure.

Next slide. There is a hemostatic agent available that is impregnated with kaolin, which is clay, it's the active ingredient in Kaopectate. It is absorbent, tested in animals and one of the agents that might be acceptable.

Next slide. And the paper will have a couple of references that would give further guidance and information the use of hemostatic agents in trauma.

Next slide. Under optional basic equipment is alternative airway devices. Some rescue airway devices, such as the EDTLA, the tube or airway may be used by services who have had appropriate training and have been approved by their boards of EMS and local medical direction.

Next slide. Alternative airway devices for children was subjected to an evidence evaluation for purposes of this document. There are very view that have been appropriately studied

in children or approved. In those that have been studied such as the LMA, have not been adequately evaluated in the pre-hospital setting. It is clear that mastering bag valve mask techniques may be lifesaving in children. Some of these alternative airway devices may be useful under certain circumstances but they do require additional training.

Next slide. I would refer you to this article, which is also listed in the manuscript, and Dr. Gausche-Hill, who is on the line, is one of the co-authors. If you have specific questions about alternative airway devices in children, I'm sure she would be happy to answer them at the end of this summary.

Next slide. Optional advanced equipment also includes a respirator volume cycled with on and off operation capable of 100% oxygen delivery and have child and infant capabilities. Blood sample tubes for adult and pediatrics may be carried if the unit routinely draws blood samples.

Next slide. Nasogastric tubes have been moved to the optional equipment list. As many of the grantees found that they were out of their scope of practice. Those that are available include pediatric feeding tubes from 8 French and 5 French and then the sump or suction tube sizes are 8 French to 16 French. Remembering that a feeding tube will decompress the stomach only if you aspirate it. The sump tubes would be required if you're going to apply suction. Pediatric laryngoscope handle is optional. And the committee also did an evidence evaluation for cuffed endotracheal tubes and their use in children in the pre-hospital care environment. There are a few papers that describe their utility in the field. However, this does require specific training, particularly with respect to inflation of the cuff and it was not felt appropriate to add them to the required list at this point. However, with appropriate training, a unit may carry these cuffed endotracheal tubes.

Next slide. There are theoretical advantages of cuffed endotracheal tubes in small children including the fits can be better adjusted. It may decrease the unplanned rate of extooubaitions and the seal can prevent aspiration. It requires specialized training, however.

Next slide. Here are a couple of salient references that I refer you to if you are in a situation where you would like to consider this or where your service would like to consider this.

Next slide. Optional advanced equipment also clues needle cricothyrotomy capability. A surgical cricothyrotomy can be performed in older children in whom the membrane is easily palpable. This will vary somewhat, the development of the child. Usually by the age of 12 years this technique can usually be employed.

Next slide. Optional medication list includes under basic life support medications the use of Albuterol, EP I pins, nitroglycerin tablets or paste. We also have anxiousio lit particulars and neuromuscular blockers noting the use of these agents requires specific training.

Next slide. We added brief section on interfacility transport not to outline what should or could be done but to recognize that specialty transport teams, including pediatric and neonatal teams, may include other personnel including respiratory therapists, nurses and physicians and training and equipment needs may be different depending on the skills needed during transport of these patients. A reference is provided that describes the use of interfacility transfer and this reference is developed by the American Academy of Pediatrics.

Next slide. To reiterate the topics that were subjected to an evidence evaluation, these included child safety and booster seats approved for EMS use, alternative airway devices, spinal immobilization devices including collars, the pre-hospital use of cuffed endotracheal tubes. Next slide. Arterial tourniquets and hemostatic agents. The first four, which really are more specific to children, will be written up as a separate manuscript and will provide more insight into the references that are available regarding these topics and the discussions involving their use.

Next slide. Next slide. I would like to give credit to all of the individuals who spent their time reviewing the various drafts of this document, providing input. I think that it is a document that has been very thoughtfully put together. Anything that was controversial has been discussed at length and we hope that this document will provide us with the standards that will allow us to provide excellent care to children in the pre-hospital arena. Next slide. That concludes my portion of the presentation. And I will turn it back over to Dan.

>> Dr. Fallat, thank you very much. We do have a number of questions that have been sent in so I'm going to scroll through them and then I will -- between you and Dr. Gausche-Hill and Mr. Loyacono we'll see how many we'll get through. Saline drops, will the usual saline bullets used for nebulization be satisfactory and the comment I'm assuming they will but this may be a question from providers.

>> Yes. That's perfectly fine.

>> Okay. And there was a question also, can you be -- asking if you can be more specific about the padding for children on an immobilization board.

>> Mr. Loyacono may which the augment this. Since the child's head is proportionately larger. The padding involves -- it can be a sheet,
involves propping up the torso that it allows appropriate spinal immobilization. Generally a sheet on the backboard will accommodate these needs once you put the cervical collar on. So this would mainly be used in a trauma patient who needs spinal immobilization. Tommy, would you like to add to that?

>> Yes, I would. You know, we were intentional about being general on the list but if you're going to use an adult board for a small child, the axiom is make the board fit the child, not the child fit the board and we need padding that goes out to the edges of the board on each side so the straps are able to do their job and hold the child during movement.

>> Thank you. Another question that actually I'm going to answer is people had questions as to where the pdf document is available to download from. It's actually available at the website of the Resource Center which is children's national.org/emsc and emailed out to state partnership grantees. I believe it was emailed out yesterday. There may be other places will it will start showing up. But it is residing at children's national.org/emsc for those asking where to download the document from. Another question is, are there pediatric-specific arterial tourniquets available or are the available products adaptable for use in children?

>> I do not know of a specific pediatric product. So I would say that the current one would have to be adapted for use in children. The commercially available. Obviously you can also make a tourniquet out of a pen rose drain or out of a sheet, so there are other ways to make a tourniquet. IV straps might be suitable. The objective being to tighten it only just enough to stop the arterial bleeding.

>> Okay. Thank you. This is a question regarding a link based tape. The question was basically should link based resuscitation tape be a required piece of equipment or optional? The person noted that it's currently not required as the other person quotes, appropriate reference material is listed as an option. The question should link-based resuscitation tape be a required piece of equipment or optional?

>> Dr. Gausche-Hill might want to answer this, but what the committee felt is that if the tape wasn't available, there has to be some type of evidence on the patient care unit that the paramedics or EMTs are going to use an acceptable way of providing scientifically the dosing requirements or tube sizes that would be required for a child. The length-based system is probably the best that we have available right now. In the hospital, we have printout sheets that we use based on the patient's weight. But that's not generally carried in an ambulance.

>> Just a couple of comments. It's Dr. Gausche-Hill. I agree with what you said. There are systems that could use a tape that has the length in son meters and that could be used to estimate weight. That's the whole purpose of the use of the length-based system is to estimate sizes. As we know, children aren't a one size fits all. So the length-based resuscitation tape has been used successfully because it's very portable. It is easy to use and train paramedics and EMTs on and it also has pre-calculated drug dosing. Some

systems such as in Los Angeles county uses the tape mainly for the color zone and then the -- all the drug dosing that's appropriate for that particular EMS system is pre-calculated and those charts are available both in the pre-hospital setting and in, say, a base hospital for reference. So I think, you know, the spirit behind this guideline for it to be required is that every EMS system, every paramedic when faced with a child must have a way to rapidly assess weight and sizing of equipment. And as long as that is able to be done, I think that's acceptable. However, we recognize that the length-based system seems to be the most rapid and easily portable to the out of hospital setting.

>> Thank you. This is a question regarding the ALS list. The question is, are you specifying that a plain needle be used for chest decompression as a posed to a catheter over needle device and I.V. catheter?

>> There are commercially available catheter over needle devices that are that length. But in an urgent situation, a needle will suffice. So the catheter over needle devices, I think they're no longer called intravenous catheters, they're called catheters for special techniques. Those are commercially available. But just having the needle will suffice.

>> And this is actually a question related to the BLS list. The question is was nitrous spray intentionally excluded from the BLS optional medication list or was there a reason for the exclusion?

>> It was not intentionally excluded.

>> Not intentionally excluded. Okay.

>> Didn't he say this -- I'm sorry was that the nitroglycerin spray?

>> Yes.

>> Okay. All right.

>> It wasn't intentionally excluded meaning we didn't discuss it and didn't write it down. It doesn't mean that it can't be used or shouldn't be used.

>> Right.

>> And I think -- this is Marianne again. We do as optional medication to support the BLS provider may -- may assist patients in taking their nitroglycerin, with a tablet. In the hospital setting we tend to have a spray. Probably either one would suffice. If that makes sense.

>> This is Tommy. I'm reading the version of the list and it actually has the nitroglycerin listed as an optional basic medication.

>> It's optional.

>> Right. I think the question was why isn't the spray there. And the spray is not listed simply because we didn't list it, not because we intentionally left it off the list. So if the spray is what is preferred, then the spray is fine.

>> It's Marianne again and commenting the reason the spray -- we did not add that is most -- this is BLS assists patients with their own medication and typically speaking, patients are discharged with tabletsing not with sprays. When we use it in the hospital and in the system for ALS providers they will use the nitroglycerin spray. It's covered there, it's just, I think, that's probably one of the reasons why it's listed like this is because this is not typically what patients are sent home with.

>> Okay. Thank you. Another question if you want to address it, this conversation came up with the committee. If you want to give some of the background as to why adult equipment is incorporated into the list even though we're saying it's a pediatric equipment

for ALS and BLS ambulances. The reasoning behind the adult equipment that's used on children.

>> Because children come in all sizes and we seem to be growing them bigger these days also. Many teenagers are adult sized and so, in fact, the list is the pediatric list because it encompasses all sizes and this may be a good segue into discussing what the final checklist might look like. There has been a little bit of controversy as to whether the checklist should just be the equipment list for smaller children or it should be the checklist for the entire equipment list which would accommodate all pediatric sizes. And the reason that we don't have a draft checklist for you today is because we were still thinking about that but I think the inclination is to make the checklist the required equipment which would include all sizes of child including teenagers. But Dan should be the one that should speak to this.

>> Yeah. This is Dan. I think in our discussions that's what we have decided to use the total list as the required equipment due to the fact, just like you said, that's why I wanted you to address that, due to the fact that there are, for example, you know, teenagers who would really be using what we would call adult sized equipment. So in that sense they are children but they need the larger size equipment and the list really should address all children. So I know we've had that question from some of our grantees. That's why I wanted to put it as part of this discussion so that they could hear that. Another question that has come is that is there the requirement for a thermal absorbent blanket and head cover under OB equipment above and beyond what is already packaged in most commercial OB kits?

>> No, as long as it accommodates an infant.

>> As long as it accommodates an infant. Okay. Another question is can a BROSLOW kit be carried on an ambulance for appropriate sizing and drug dosing? The answer is yes, correct?

>> Yes.

>> Yes.

>> Okay.

>> Sorry, you're still going to need -- you have the equipment but you still need to assess the size of the child even though you'll have all the equipment.

>> I thought you said tape, Dan.

>> Actually the question was can a bros low -- it just says the kit asking can it be carried on a unit and used for appropriate pediatric equipment sizing and drug dosing?
>> Yes, that presumes that they have the tape so that they are able to appropriately size the child.

>> Right.
>> That was my comment as well. This is Marianne. It depends, it may have equipment only, equipment medications and you still need to size the child to figure out, you know, what part of that pack you're going to use.

>> This is Tommy. I think when they're talking about those equipment bags that are commercially available for pediatrics, the real test is making sure you actually have all the sizes that are specified within the document available. If they aren't all in that kit you need to supplement it.

>> Well, that's all -- those are the questions that we had from our audience and this webcast will be archived so those that weren't able to attend it live will be archived and definitely at mchcom.com. I want to ask our presenters and contributors if you would like to give any final thoughts.

>> Well, I would just like to thank the EMS for children stakeholders group for the privilege of working with you and being able to develop this list. And I know there will be additional feedback but we would be glad to answer any questions off line as needed and Dan can forward them to us for comment and we'd be glad to answer your questions later.

>> This is Marianne, I wanted to thank the EMS program as well as Mary for her leadership in this endeavor. It seems like an easy task but it actually isn't. And that's mainly because there is a relative lack of evidence for the use of almost everything that we do and just encourage people to continue to seek answers and evidence for the things that actually work in the pre-hospital setting.

>> This is Tommy, I would echo the thanks for the program. For taking this project on. I think this is a step toward providing a reasonable list that is going to be beneficial for children of all sizes and ages.

>> Yes, I would like to thank Dr. Fallat, thank you for leading this effort and for all the various organizations as members of the partnership for stakeholders group who contributed to this process. One final note I would like to make to our audience is a reminder to please take a couple minutes to fill out the online evaluation. And again your response will help us to plan future broadcasts in this series and also improve the technical support and please go to mchcom.com for a listing of all upcoming webcasts. You might find others that are of interest to you there that are being conducted by various programs within HRSA's Maternal and Child Health Bureau and our next one for EMSC is going to be Monday, April 20th at 1:30 p.m. Eastern which we'll be talking -- looking at AfterTheInjury.org website out of Children's Hospital of Philadelphia. That information, if it's not on there now, will be up there shortly at mchcom.com. I would like to thank the presenters and for our participants, thank you very much. This conclude our webcast.