

**CDC/MCH EPI 2008 Conference**

**Scientific Writing Communicating Research Investigation Effectively  
to Expedite Publication, Programming and Policy in Public Health Training II a**

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PAUL Z. SIEGEL: What I'd like to do is to start out even just while the slides going up if you could turn to page two in your handout. Get you started with a warm up exercise. This is just to get you...and again you don't need the slides for right now you can just look at page two. We'll go through this and this is a list of phrases and for each phrase I'm going to ask you to think about a single word that would be essentially the equivalent of the phrase. So for example, "in close proximity to" would be "near". And then I'll ask you to take the rest of them so "predominant number of" what would be the example of a one-word equivalent?

UNKNOWN SPEAKER: (Inaudible)...

PAUL Z. SIEGLER: Excuse me?

UNKNOWN SPEAKER: Majority.

PAUL Z. SIEGLER: Yes, majority would be a good one, but even a more simple word would be “most”. Next “in a large number of cases”? Many could be often or frequently, right? “On a previous occasion”?

UNKNOWN SPEAKER: Before?

PAUL Z. SIEGLER: Before, right. “In the absence of”?

UNKNOWN SPEAKER: Without.

PAUL Z. SIEGLER: Right. “With regard to”? A single word that could mean the same thing as “with regard to”? Is anybody wanting to say regarding? A lot of people say that but there’s actually just an ordinary simple word that really means the same thing as with regard to...it begins with an A.

UNKNOWN SPEAKER: (Inaudible)...

PAUL Z. SIEGLER: Just about. Just about. So just a couple examples of how we often are in the mind frame of using complicated language or language that is more complicated than basic, ordinary language and that’s another example of it. How about “at some future time”?

UNKNOWN SPEAKER: (Inaudible)...

PAUL Z. SIEGLER: Later. "Due to the fact that" Because exactly. Serves the function of being...oh thanks. Hm? Serves the function of being...very simple word?

UNKNOWN SPEAKER: Is.

PAUL Z. SIEGLER: Is exactly. There is for the bold...oh great this is backwards.

UNKNOWN SPEAKER: And the middle of the red button is the laser.

PAUL Z. SIEGLER: Great, okay. Good, get out of here...got it thanks...

UNKNOWN SPEAKER: (Inaudible)...?

PAUL Z. SIEGLER: Well that's what I'll be talking about today and tomorrow. That's one of the main themes of the whole course is to encourage you and to make some suggestions and give you some suggestions and give you some examples for how you can take language that is more complicated than necessary but appears commonly in the scientific literature and help you just get a sense to develop some tools and the habit of using simple language when it's possible. So we'll be talking about that as a theme throughout the entire two days. Now this principle of taking phrases down to single words applies across and throughout scientific writing so it could be the example of a sentence that can be made into a short phrase, a paragraph that could be just one

sentence. Sometimes a whole page can come down to just one paragraph and sometimes very complicated words can be exchanged for simple words. And for me my hero of the example there of a complicated word heretofore could simply be until how, theretofore could be before then. So there you're taking one complicated word and changing it into two simple words. Remuneration is really just a fancy way of saying payment. Promulgate is a fancy word for publish or to make widely known. And my hero for explaining this principle is Winnie the Pooh. Does anybody know what Winnie the Pooh said about this? He said "I am a bear of very little brain and long words bother me." So that's to me a great example or...role model for us. And when I talk of bear of simple brain what I'm not...I'm not saying to think of your readers as people who are simple minded but rather to recognize that when you do a study you're working on something and thinking about something for weeks, months maybe even years and so a lot of the vocabulary and the expressions become second nature to you. But that's not the case for the reader. That language, those expressions that are so familiar to you that just roll off the tip of your tongue without thinking that it might mean something different to somebody else or it might not be clear to somebody else. It's important to recognize that those things...they're clear to us partly because we're so familiar with them. So...I'd like to encourage you to think of your readers not as bear of simple brain but to remember that they're just not as familiar with the terminology as you are and to try and remember that as you are writing.

So here's another example of useful phrases that appear often in the literature...has anybody seen this one before? It has long been known...? And what that often really

means? In more simple ordinary language? Well it might mean something like this...it has long been known...might mean just that the person who is writing the paper assumes this to be true, maybe he has never checked to see if it really is true. It is believed that...could really mean...what do you think?

UNKNOWN SPEAKER: Well it might not be true and it might just mean I think. I'm sure you've all seen this people will say things like oh, it's believed that. Well they may just be expressing their opinion and yeah if they believe it then it is believed but it doesn't mean that it's a fact. It is generally believed that, so that's even a bigger statement might mean something like; well my friends think so, too. "Correct within an order of magnitude". Well that could easily be what it really means and a statistically oriented projection. I'm sure you're getting the general theme by now. That could be something like a wild guess. So this is another category of what you read and what authors write is often kind of a code language for something that's not exactly what appears on the page.

So let me take just a brief break now and ask you...to turn to the brief...the one page hand out. Do you have this? The summary of what we'll do for the next two days? It's in there? So page two, okay...so just very briefly...just these few introductory notes and then we'll go ahead...the main sequence for the two days is really the anatomy of the scientific article. Looking at writing abstracts and the introduction section and by the end of the day today we should be through the method section. Tomorrow we'll look at writing the results section, the discussion, crafting an effective title, and then we'll have

an hour or so on the art and practice of getting your work published. The CDC DRH folks did ask me to try and do something that's really directly related to maternal child health so we'll be shifting the schedule a little bit. I've got a manuscript of maternal child health related manuscript that we'll look at pretty carefully tomorrow afternoon. So we'll add that into the program for tomorrow afternoon. So we'll be moving fairly quickly through the rest of the program and also the syllabus is really designed for a full 2 ½ to 3 day course so there are parts of the syllabus that we'll be skipping over as well.

Now in this...opening notes here about notes from the real world, that's my cue to ask you a little bit about what experiences you've had with scientific writing. First of all have any of you published an article in a peer review journal? So some yes, some no. Could I ask those of you, one or two of you who have published to tell us about an experience you had? Something that you think somebody who maybe has not done this before might learn from? If you want to show us the battle scars, that's okay...depending on which part of the anatomy they're located on...

UNKNOWN SPEAKER: I've published a fair amount of...one time I got a response saying we'll accept it if you'll cut it in half and it was pretty amazing that it wasn't that hard to cut it in half. So that was interesting.

PAUL Z. SIEGLER: That's an excellent example. That's actually one of the three or four main themes that I'll be talking about. The idea that no matter what we write, when we write it we often feel okay this is...this is as concise as I can possibly make it. But then

you get the letter from the editors whether it's JAMMA or New England Journal or whatever journal it is that you want to publish and you've spent time sending your article to and they say well we're interested but can you cut it by 25%? Can you cut it by a third? Can you cut it by 50%? And very often the initial reaction is I can't possibly do that. But you're giving us an experience where you've been able to do that. I've had experiences where I've been able to do that and that's really one of the most important things that I'd like everybody who is new to this to recognize that it is very often to make things shorter than you think you can make them. And so as a very practical matter if you get a letter from an editor saying boy, we're interested in your article but can you cut it by 50%, what I'm hoping by the end of tomorrow is that your reaction to that letter will be great. I'm ready to do that. I know how to do that. Not, oh gee, I'm going to have to send it to another journal because I just have not idea how to cut it by 50%. And I think you will feel some of that confidence by the end of the day tomorrow. Anybody else want to give an anecdote or would be willing to give an anecdote.

UNKNOWN SPEAKER: For me my graduate program is very heavily into the quantitative method and not really as much on the writing part and it surprised me how much you really have to pay attention to the writing trying to make things very simple that are complex. So...yeah...

PAUL Z. SIEGLER: Yeah...that's exactly right. The things that we deal with they are complex and part of the challenge is to make them not simple but to make them as straight forward and as easy to understand and part of that we'll talk more about this as

well is to recognize who your audience is so sometimes the vocabulary that you choose will be influenced by your audience. You should always be writing for a specific audience. Okay so uh...those are already some of the points that I wanted to make here about the purpose of the course and you could turn to page four please for this. There are two main purposes of the course...one is to help you learn how to communicate more effectively and we'll talk lots about writing style, we'll talk about this organization of an article abstract, methods, results or abstract and introduction methods, results, discussion. We'll talk about the way most journals would like you to organize a paper. And those are examples of things that will help you to communicate more effectively. But then in addition there's another aspect and one way...an aspect of communicating effectively is to think of yourself as the conductor of a train and you have passengers on a train and your job as the conductor is to keep the train moving forward. The idea of a train...keeping the train moving forward...a train of thought. You're providing the readers with a train of thought. But then in addition to communicating more effectively there's another aspect of the course today and tomorrow which is to help you learn how to publish more efficiently...and that is no...learning how to communicate more effectively will help you to publish more efficiently but there's a whole body of knowledge out there that you could learn about that will help you to publish efficiently that is really not related to effective communication and the one simplest piece of this entire element here of publishing more efficiently is to be familiar with the instructions for authors. Every journal publishes instructions for authors and those instructions are different for different journals. Some journals want a structured abstract. Some journals want an unstructured abstract. Some journals the abstract limit is 150 words and other

journals it's 250 words. The maximum article length might be 3500 words for one journal and 2000 words for another journal. So when you begin writing your article it is tremen...it is...it is a big asset for you if you already know what journal you're writing for. I mean truly and literally before you begin writing the article it's to your benefit to make your decision about what your journal is and go look at those instructions for authors...that way you'll know in advance. Structured abstract, unstructured abstract...200 words, 250 words, article 3000 words, 2000 words, you don't want to have an unpleasant surprise. You don't want to write a 3500 word manuscript and then go look at the instructions for authors for British Medical Journal Lancet and find out oh, 2000 words maximum. You want to know that before you begin writing your article. So there are these two main themes to what we'll talk about today and tomorrow, communicating effectively publishing more efficiently and then hopefully by the end of the day tomorrow what we'll do is to help prevent you from having this experience so what did the editor think of your manuscript and there's the manuscript right there. So I'm hoping that by the end of tomorrow the chances of this happening to you will be dramatically reduced.

So now let's talk more about communicating effectively. Now this is not in your handout so I'd like everybody to really focus your attention up here. This is an excerpt from a paper. To assess reliability from the questionnaire the test retest study was conducted and the agreement was high for socio demographic variables, reliability of information on chronic conditions was also high. Now this I would say looks very simple and I think most of us, most anybody seeing this in a journal article will read through it quickly, feel

completely comfortable that they fully understand what the author is communicating here and move forward. Then along comes our bear of little brain and he actually has a question. And partly he has his question because he's reading maybe more slowly and maybe even more carefully than those of us who are more experienced. And his question is, do reliability and agreement mean the same thing? So I'll ask you that question. What do you think about this? Do you think reliability and agreement mean the same thing? It's not a test it's really just...I'd just like you to react to it.

UNKNOWN SPEAKER: Well I had the same question. I guess test/retest isn't very one to another. If you go through it you think well if they say it in the first one they should say it in the second and that would be agreement and that's how they're defining the reliability but in the scientific world they're not always (Inaudible)...

PAUL Z. SIEGLER: So you're making a good point that the experience level of the reader might influence your interpretation of what is here. Well let's look at the way it's constructed. It says agreement was high for socio demographic variables; reliability of information on chronic conditions was also high. Now when it says also, that is clearly a reference back to the previous sentence. This was also high...well the previous sentence talks about agreement so if we learn here that agreement is high and then reliability...oh excuse me...agreement is high for socio demographic variables, and reliability on chronic conditions is also high. The also to me looks like a clue that there's a reference back to the previous sentence which makes me think it seems like the author is equating reliability and agreement but we don't really know for sure. So let's

just for the sake of this exercise, let's say that they really are the same. Let's say the author intended for agreement and reliability to be synonyms. How would you simplify this? And how would you make it more clear? If agreement and reliability really mean the same thing how would you make this more clear?

UNKNOWN SPEAKER: The agreement must not occur so that (Inaudible)...

PAUL Z. SIEGLER: Exactly. Okay so basically you could just...you chose to use the word agreement but you could also use the word reliability one or the other if you choose one word and use that word consistently either agreement or reliability...in this case I've chosen to use reliability. So now we have...we've replaced agreement with reliability so now it's completely clear. There's no ambiguity because the vocabulary is consistent. It gives us to assess the reliability of the questionnaire a test/retest study was conducted. The reliability was high for socio demographic variables; reliability of information on chronic conditions was also high so I think you kind of addressed my next question which is now that it's clear, do you think it's well written? Or would you make any other changes? You may have already commented...

UNKNOWN SPEAKER: Yeah, I just put it all...

PAUL Z. SIEGLER: Yeah, you could combine these two sentences and say reliability was high for socio demographic variables and information on chronic conditions so it would look like that. So now it's clear. There's no ambiguity and it's also smooth. It's

clear and it's smooth and your reader is really on the train and the train is moving forward and there's no ambiguity and the reader is not confused. So this is just an example of how sometimes when you're doing your revisions it takes two steps. Sometimes step one is take something that's ambiguous, make it clear, but then after it becomes clear the writing style might need some work so just as a general approach, aim for clarity first and then once you think you have things clear then you may look for ways of making the writing smooth but if you start with your emphasis on smooth writing style then it becomes very difficult to really focus on being clear. So think of it as a hierarchy. Clarity first and then writing style second. So here is this example of the train of thought. I think this is an example of where the author is providing a train of thought and then the alternative the other side of that coin is when the language shifts reliability, agreement, back to reliability. This is an example of where the author is really creating a strain of thought. The writing is requiring the reader to work hard and the best writers are able to write in ways that make the reading not so hard so those are some of the thing that we'll continue to talk about the rest of today and tomorrow.

Okay here's an example again, not in your handout. I'd just like you to focus up here...just please read through that and then comment. Do you think this is an example of a train of thought or strain of thought? ...Yeah okay that's a strain of thought...now I want to look at and comment on why this is a strain for the reader. Two things to consider. One is long sentences are harder to follow than short sentences and there's been research on this and it turns out that something like 25 words is the approximate upper end of sentence length that readers are comfortable with. But it is possible to

write long sentences that are clear. So the length of the sentence contributes to reader strain but it's not the only consideration. Another major consideration in scientific writing is this one here...conjecture. So if you look at this, notice what's in here. It begins with the hypothetical. If heterosexual transmission was in fact the mode of HIV infection and then goes on with another hypothetical that if this were true then this might be true. It's not if this were true then this would be true it's if this were true then this might be true and then these data that are specified here may be attributable to heterosexual transmission. So this is an example of a sentence that is not only long but it is just filled with conjecture. That's very difficult. That creates strain on the reader because the reader...it's very hard for the reader to get their balance when you're confronted with what if, maybe, might, perhaps. So watch out for that. This is a case of an author trying very hard to explain data that they don't understand. Now it's okay to not understand something. But if you encounter data that you don't understand you have I think two good options. One is say we don't understand and this of course is typical for the discussion section of a paper. If you encounter data that you don't understand there are two good strategies. One is to say that you don't understand. The second strategy is to leave those data out of the paper. But that's a judgment decision because if those data are critical to the theme of the paper then...leaving them out might be a bad strategy but if you can focus the paper in a way that you don't need the data that you don't understand that is an acceptable strategy. But try to avoid a situation where you make great contorted efforts to explain data that you yourself don't understand.

Well now we're going to really shift into what I was talking about earlier which is this anatomy of a scientific article which is organized this way...and now we're on page seven of the hand out. Abstract Introduction Method Results Discussion and Conspicuously I've left out number one which is the title and I wrote it that way because I think people don't often think of the title as a section of the paper. People often don't think of the title as something they should think about carefully and construct in a systematic way. Also the title really is the ultimate summary of the entire paper so it might be when you finish writing your paper that you maybe finally realize what is the best title possible. It's always good to have a working title but...when you finish the paper and send it off it's a good idea to re-think the title. Have you really captured the essence of the paper in the title and we'll spend about thirty, forty-five minutes just talking about writing titles tomorrow afternoon.

So now let's go ahead and really focus on abstracts. I think it's helpful to think of the abstract this way. This is page eight of the hand out. That the purpose of the abstract is to highlight the key points from the major sections of the article and those major sections of the article are here in the introduction, the methods, the results and the discussion. Most journals will ask you to write a paper that has those four major sections and a good way to think about the abstract is that your goal is to capture the essence of those four individual sections and put those essential pieces of information together into the abstract. Now the abstract has generally most journals will want your abstract to have four major components and as I said those components are abstracted from the article. So for example the basic procedures abstracted from the methods, the

main findings abstracted from the results section. Principle conclusions abstracted from the discussion and then the major purpose of the study is abstracted from the introduction. And I put that in their last just to emphasize the point because sometimes people forget in the introduction of the paper to describe the purpose of the study and that's a major shortcoming. It's very important somewhere in the introduction portion of the paper to tell the reader here is the purpose of the study and to make a very simple, straightforward statement about the purpose of the study that belongs in the introduction section.

Most journals will ask you to list multiple subject headings a group of key words. Has anybody done this recently? How did you do it?

UNKNOWN SPEAKER: (Inaudible)... what I thought would highlight (Inaudible)...

PAUL Z. SIEGLER: Okay. Did you look at this medical subject headings list? I'm not even sure if your work was in the bio-medical...it wasn't even in the bio-medical realm...so that's a little bit different. Got it. Okay well if you're working in the bio-medical field it's very helpful when you select the key words for your article to make sure that they are words chosen from the MSHD The Medical Subject Headings Dictionary. And there are two basic ways to do that. One is you can go in through this MSHD Dictionary and type in the words that you are thinking of using as your key words and see if they're in the dictionary and then go ahead and use them. If you choose a word that's not in the dictionary the risk that you run is that before the article gets published the abstractors at

National Library of Medicine will look at your key words and if they find one that's not in the dictionary then they will use their judgment as to which word in the dictionary is the best fit for the word that you selected that is not in the dictionary. So you run the risk of the editors there at the National Library of Medicine perhaps making a choice that you would not choose yourself. So one way to ensure that you're choosing words in the MSHD Dictionary is to look at the MSHD Dictionary. Another way to do it which I think is an easier way to do it is to look at the key words in the articles in your own literature review. Because those have already been through this abstracting process so you can just look at the three or four reference articles in your own literature review, look at the key words that were used there and that will probably be a safe choice for you.

Now next point here is to emphasize what is new and useful. This is really critical because if you just go back to this structure here maybe you can imagine that it's possible to write an abstract which is well organized, well written scientifically credible. But if there's not something that is really new and useful it could be a well written abstract that's going to struggle in the peer review process. So when you write the abstract try to include this element. Whatever you think is new and useful try to write the abstract in a way that emphasizes that point. It might be related to the results of the study but it could also be related to the methods of the study. Maybe you've implemented some innovative method and perhaps that's the element of the study that really stands out as especially new. Well if that's the case then look for a way to say something about the study method in the title...in the abstract...title as well and we'll talk about that later but in this case whatever you think is most important about the

study, whatever you think is new and useful, try to capture that concept in the abstract. So now I'll be saying this over and over again during the two days but excuse me if you get bored of it but I think that this is one of the most critical elements of writing papers that get accepted for publication.

Now I'd look you to look just briefly not to read but just to look briefly at page nine which is a commentary from British Medical Journal in which they emphasize please get the abstract right because we may use it alone to assess your paper. So just imagine you send in your article to a journal. The journal editor looks at the abstracts...in some cases if they think the abstract is not strong they won't even read the paper. So writing good abstracts is not an academic exercise. It is a practicality that is firmly rooted in...and to...and good papers with weak abstracts is not a formula for success in scientific writing.

Okay now we're going to do an exercise which I think will illustrate a lot of these points. The abstract that we'll use for the exercise is on page ten. The title of it is, "Reliability of Information on Chronic Disease Risk Factors Collected in the Missouri Behavioral Risk Factor Surveillance System" and this initial draft which is what you're looking at you'll see that you have the published paper a little bit later in the syllabus but what you're looking at on page ten is an earlier draft of the abstract that was later published. Now some background things before I ask you to read this abstract. First of all behavioral risk factor surveillance systems some of you probably know what it is but maybe some of you don't and more importantly if you're writing an article some of your readers will

know what it is and some of your readers won't know what it is so behavioral risk factor surveillance system is a population based telephone survey of risk factors that are associated with leading causes of mortality and morbidity. It's an adult survey. People ages 18 and older, people who are in what's called a non-institutionalized population, so people in hospitals are not included, people in nursing homes are not included I don't think...people in prisons for example are not included so it's an adult survey of health related behaviors that are associated with leading causes of morbidity and mortality among adults. When you read the abstract you'll see it talks about validity and reliability so some of you I'm sure are familiar with it but for some of you who may not be I want to just briefly summarize what is the difference between validity and reliability. Reliability is the more simple of the two concepts it's strictly associated with...in this case strictly associated with survey epidemiology and it is referring to the concept that a good survey question should elicit the same answer from the same person if you repeat the survey. So for example if I call 100 people on the telephone and ask them do you smoke cigarettes, I collect those answers and then a few days later or a week later call that same group of people I should get the same answer from all or most of those people. If everybody gives the same answer then that's a 100% agreement between the two surveys and there's a statistical measure for that called the Capa value which honestly I don't understand it complete but if everybody gives the same answer then the Capa value is 1.0 and if everybody gives a different answer the second time from the answer they gave the first time the Capa value is zero and if 50% of people give the same answer then it's approximately 0.5 but honestly I don't know exactly how it's calculated. So the Capa value is a measure of the extent to which people give the same

answer the second time that they give the first time. Now when you're editing, these are things that I'd like you to focus on...look for things that you think might be mistakes, ambiguity, missing information that you think is key, extraneous or misleading information and then empty statements. So those are five categories of things that I'd like you to think about and to look for as you're reviewing this abstract. I mentioned style because style is important but there are so many elements of style that I didn't even try to make a list of them. So that's the background now here's the exercise...I'll ask you to divide into four groups, I'll ask everybody to read the entire abstract, and then when you get in your groups, I'd like each of the four groups to focus on one of the four elements of the abstract. So one group will focus on the purpose portion of the abstract, one group on the methods portion, one group on the results portion and one group on the conclusion portion of the abstract. And this could be very complicated and arduous but I don't want it to be that way. I'm not going to ask you to rewrite the abstract; I would just like each group to come up with two, three or even just two ideas...things that you think could improve the abstract...the portion that your group is working on. Now I've made here...mistakes or uh...missing key information as two of the categories now it might be very difficult reading an abstract without other background knowledge to figure out if something is a mistake or if there is a key missing piece of information. So that's why the syllabus has the full manuscript in there so you'll be able to refer to the published manuscript and you might find something or some things that are in the manuscript which you feel are missing from the abstract because they maybe fall into one of these categories. Maybe there's a mistake or maybe there's some missing key information. So I think that's it for the background...yeah...so before we break up into groups does

anybody have any questions about the exercise? No, okay. So we've got one, two, three, four, five, six, seven, eight, people. One, two, three, four, five, six, seven, eight. So that would be really two people for each group. Next question...who among you feels that you've got some epidemiology background? One, two, three, four...perfect. So I'll ask those of you...the four of you who have some epi background to split up into the four different groups and to pair yourself up with somebody who doesn't have the epi background because I think that will be important...that each group has somebody with some epi background. Okay? So I'll just ask you to pair yourselves up physically I want you paired up and you'll become groups one, two, three, and four. So let's begin and start with group one make your comments about the first part of the abstract related to the purpose of the study.

UNKNOWN SPEAKER: Well (Inaudible)... as far as the parts of the study...even though we felt like the abstract could have certainly been written much better than it was um...it says in the second sentence despite the wide use of the word (Inaudible)...the liability and the validity and they don't actually address validity and that was probably the best way I could think...(Inaudible)... um...and that was the main thing...it was all about reliability.

PAUL Z. SIEGLER: So I'll just ask...and the point is the introduction part of the abstract talks about reliability and validity and then as you read through it becomes clear that the study is about reliability only. Did anybody after you started the abstract go back to the beginning and look to see if you missed something about validity? That's the point that

I'm trying to emphasize that this is an example where there's no mistake there. I think the statement is absolutely true that at that time there were few studies on reliability and validity so it's not a mistake but it's a piece of information that leads the reader in a certain direction so when they get to that place they find out it's a dead end so it's misleading. Anything else? That's fine that was great because I think that's probably the most important point. So let me go ahead and add a couple of comments. In this first portion of the abstract there were four things that I'd like to focus attention on. One is they say the study is on Behavioral Risk Factor Surveillance System but don't give any background information. And like I mentioned when I gave you the introduction there will be some readers who know who BRFS is and this is going back to 1993 so at that time many fewer people knew what the system was but even now the BRFS is more widely known. There will be people reading a paper like this who won't know what it is so it's better if you can give a brief description in the abstract about the data system that you're working with. There is a statement that it's widely used but to me it hangs out there a little bit as an almost empty statement. It's widely used...well what do you mean by widely used? And I'll show you in a minute an example of how you could include a little bit of information to reinforce the widely used point. Now it says few studies exist. So a question for you. Few studies exist is that a good reason for doing a study? Does that justify doing this study? I see a head shaking no so I'll ask why do you think that that statement does not give a strong rationale for doing the current study?

UNKNOWN SPEAKER: It's just not specific. It doesn't I mean...even one study and it's a study its okay it doesn't give a reason.

PAUL Z. SIEGLER: Exactly. That's exactly what I intended to say. The number of studies is not the issue. The issue is, is there something that we want to know or need to know that we don't know. And so in the abstract your challenge is do your best job of explaining...what is it that is missing from our knowledge base that we want to add to the knowledge base and to try to articulate that point as concisely as you can and it's...it may be related to the number of studies, but the number of the studies published doesn't capture the concept of what's the gap in the literature and you're always in one way or another trying to fill some sort of a gap. And then you already did a great job of addressing the reliability and validity point. So now the next slide and you won't need to take any notes on this because there's a revised version of the abstract a couple pages later which contains all of the revisions so you're welcome to take notes but you'll have a fully revised...you have a fully revised abstract in your hand out. So here are some suggestions for handling these four issues. One is brief statement Behavioral Risk Factor Surveillance System it's a population based telephone survey that helps related (Inaudible)... adults ages 18 and older. Used by nearly all state health agencies so that's not a very specific statement but it's more specific than simply widely used so to me that's an example of where you can add a few words and take a very general statement and at least provide some specific information and then as group one talked about papers about reliability only not about validity and then I would say instead of a statement like few studies exist, it's better to say something like reliability of BRFS collected data is not well described, or not well understood or well characterized. Be as

specific as you can about the gap that you're trying to fill. Okay. Any questions about this portion?

So let's go ahead now and before I ask group two, you can go ahead and pass the microphone over...before I ask group two to make your comments about the methods portion of the abstract, I'd like to make a couple comments. Abstract says test/retest study was conducted. The authors conduct the telephone re-interviews. Now it says the authors conducted. What do you think about that? Who here has had a grant to do a survey? Did you conduct the interviews?

UNKNOWN SPEAKER: No.

PAUL Z. SIEGLER: No. And I think it's 99.99% certain that the authors did not conduct the interviews. So okay...it's a mistake now it's not a grave error because it's...it probably everybody or nearly everybody reading the paper will understand that it wasn't really the authors and it's not a huge error but it is inaccurate and so what do you think you could do to fix that?

UNKNOWN SPEAKER: (Inaudible)...

PAUL Z. SIEGLER: Well you could take it out but you might want to include some information about the conduct of these telephone interviews.

UNKNOWN SPEAKER: (Inaudible)...

PAUL Z. SIEGLER: Okay so you could say they were conducted which in grammatical terms is the passive voice. Okay so this is an example where in this case instead of saying authors conducted you could say the telephone interviews were conducted and that's passive voice rather than the active voice. Now has anybody ever heard somebody say never use the passive voice? You have heard that, right? So I think that's not good advice to never use the passive voice. I think it has a role to play.

UNKNOWN SPEAKER: (Inaudible)...

PAUL Z. SIEGLER: Well let's see...right now when you're reporting something say for example about a system where there are many publications already you can use a reference. But now of course not on the abstract. You would not give a reference in the abstract. So it's all a question of how important is the information because in any abstract you have a limited amount of space. Your goal...the goal that I suggested earlier is to capture the essential information from the introduction, the methods, the results and the discussion. So it's a judgment that the author makes. Is it a critical piece of information to describe that? Now in this case this is a special study it's not the...it's not the behavioral risk factor surveillance system so you can't just expect your reader to assume that the methods that...or in this case these authors can't just assume that...or the reader shouldn't assume that it was conducted the same way as the behavioral risk factor surveillance system because it's a special study. So this is I think an example

where the passive voice is useful. So I want to take a moment to talk about the passive voice and so if you turn to page sixteen in the handout we'll just take a couple minutes to talk about passive voice. Passive voice expresses action without specifying who or what performed the action. The agent of the action is omitted and an example not from scientific writing...said that you give that in the active voice it would become the Nobel prize committee awarded James Watson the Nobel Prize so that obviously becomes stylistically awkward. So that's just another simple example of where there are times when it's helpful to use the passive voice. And I'll give you one example from the published literature. Again this one I think is not in the handout so if you'll just please look up here it comes from a paper, the title is "A Controlled Trial of Web-based Diabetes Disease Management". And this is not a quote from the paper this is just a description. It involved one group of physician's that was called the intervention group that was trained to use a web-based information management clinical support tool and then there was a second group of physicians that was the control group which did not receive that training. So there were two groups of physicians. One received a certain kind of training and the other group did not receive the training so there's just these two groups of physicians in the study and the study was a group randomized controlled trial. Now this is a quote from the paper. The study was a group randomized control trial. A coin was tossed to select an intervention group and a control group. So there you have an intervention group and a control group. That's the passive voice. Now to put that into the active voice you would have to give the name of the person or the initials of the person who tossed the coin which clearly is not an essential piece of information. So the general rule that guides passive voice is how essential is the information? The who is

the essential information. The what happened or is the essential information the who did it? It often is the what happened. But if in addition it's essential to communicate who performed the what then you should use active voice. But there are times when it's not essential to communicate the who or the what and those are situations when it's okay I think to use the passive voice. Now there's another practical setting for this and this comes up mostly when you're writing the methods section of a paper because the methods sections is usually a sequence of events that took place and each of those events or procedures is performed by somebody and so if you have say three paragraphs of methods and three sentences in each of three paragraphs obviously it would be very boring to begin nine consecutive sentences with the words we did this, we did that, we did something else. You start to run out of ways of saying that so I think the method section is the most frequent place where you'll find it helpful to use the passive voice and one strategy is let's say you've got three paragraphs, three sentences in each paragraphs and they're all methods you could begin each paragraph with we did such and such and then switch to the passive voice for the remainder of that paragraph and then go back to we did such and such at the beginning of the second paragraph then switch to the passive voice. That's one strategy you could use but it's very difficult if people refuse to use the passive voice.

UNKNOWN SPEAKER: (Inaudible)...

PAUL Z. SIEGLER: Now of course if they won't allow you to use we and they do allow you to use passive voice then you don't have a problem. If they won't let you use we and they won't let you use passive voice then I think you...

UNKNOWN SPEAKER: (Inaudible)...

PAUL Z. SIEGLER: Okay...and one more point about passive voice is that it comes off in public health a lot because very often in public health we're generating recommendations and the essence of the recommendation is in a service that a specified group of people are supposed to receive. And so the person or the practitioner who delivers the service is really not the essence of the message it's the recipient of the service and so here's an example of that. All children aged 23 months or less should be vaccinated with PCV7. It doesn't say doctors should do this, nurses should do this, public health departments should do this, parents should make sure it happens, the point is that the service should be delivered. That group of people should receive the service and the person who delivers the service is not the essence of the point. So that's just a quick run through passive voice and this term is called diffusing the locust of responsibility. This idea of emphasizing service to be delivered and not the who delivers the service. So quick run through in passive voice and so I want to come back to our example this abstract and hopefully at this point you're feeling comfortable that it's a good idea to replace the oops sorry...the...good idea to replace the authors conducted with the interviews were conducted. So now I'd like to turn it over to our next group to see if you have any additional comments about the methods portion of the abstract.

UNKNOWN SPEAKER: So we actually rewrote those two (Inaudible)...

PAUL Z. SIEGLER: Okay...

UNKNOWN SPEAKER: (Inaudible)... was we re-interviewed (Inaudible)... respondents...first interviews during March and April 1993.

PAUL Z. SIEGLER: Okay good. So key point is you added 252 which is the denominator which enables the reader to understand the response rate so that's very important and you used we which I think is okay because when you use we it's a more general term and it doesn't...it includes the authors as well as other people who worked on the study. So I think that's okay. Now you could also say the Missouri Department of Health interviewed would be another way to use the active voice. Any other comments?

UNKNOWN SPEAKER: (Inaudible)... real changes to the second sentence but we just said the second interview was completed 30 days after the first interview. I ended up I guess...and then we also added a section on the statistical (Inaudible) which is good (Inaudible)...

PAUL Z. SIEGLER: Okay very good. So here instead of saying between six and thirty days of the first interview you use after which really is the better preposition. After is just more explicit in terms of conveying passage of time. So I think that is an improvement

and you included a brief sentence about the statistical method which is perfectly appropriate and it's a matter of do you have enough space. The original is 183 words so I don't know exactly what the limit was but if the limit was say 200 words then you could comfortably fit in those eight or ten words describing the study method so I think that's great, good job.

I'd like to add a couple other points. One is this word re-interview you know if you do go to this mode...oh actually it doesn't. Very often you'll see this little squiggly line it's not there now I'm not sure why but what does that mean when Microsoft Word gives you a squiggly line? It's not a word, okay? And re-interview is not a word. It's not in the dictionary and so I make this point to encourage you to stick with words that are in the dictionary. There are times when you might have to come up with a new term but I don't think this is one of them. There are really adequate words in the dictionary to handle this situation and so re-interview, using words that are already in the dictionary can describe what is a re-interview. How would you describe a re-interview? It's a repeated...exactly. It's a repeated interview so you could make that change which I guess comes up here. So that comes up this way. 222 of, 252 respondents. Response rate 88% who completed the survey during March and April were repeated so the interviews, here we have interviews repeated so the interviews were repeated. Simple way to re-write that so that it's using words that are already in the dictionary.

Okay so this is one revision. Test/retest study was conducted. Let's look at this...okay this version still has the re-interviews in it but I'd like you to look at that for a moment

and then let's see we come here and we've taken out the re-interviews, we've put in the 252. We have the response rate. We've made this other change here the six and three...between six and thirty days after the original interview so this is a revision of that original which I think is quite good. Now let me just pose you this hypothetical let's say your abstract now has 210 words including this statement and your limit is 200. What could you do with this to make it even shorter? Now I'm not saying there is anything wrong with this. I think it's perfectly okay but hypothetical but very real world situation. Maybe you're ten words over the limit; could you find ten words in here that you could take out without losing important information?

UNKNOWN SPEAKER: (Inaudible)...

PAUL Z. SIEGLER: So you would say just were repeated? Okay you could do that you could just say were repeated. Now I would say it is helpful to know this time frame because if it had been three months or six months that elapsed after the original survey then as a reader you would wonder about...

UNKNOWN SPEAKER: Now the phrase before completed the survey during March and April of 1993 just take that out.

PAUL Z. SIEGLER: Oh, okay completed the survey were repeated between six and thirty days so you're saying take out the during March and April?

UNKNOWN SPEAKER: Yeah.

PAUL Z. SIEGLER: Okay you could do that...you could do that or you might just limit it to 1993 is a possibility. There is some value in specifying a time frame so I'll ask you to look for other things that you could do here to make this shorter and really not remove any important information at all?

UNKNOWN SPEAKER: You could say up to 252 (Inaudible)... 88% completed the survey.

PAUL Z. SIEGLER: Got it. Okay so this 252, its important information but that the idea now really appears twice. You have 2 of 252 and the 88% and that's a very simple calculation so you could either just say 88% of 222 or one or the other so you don't need to repeat that point. Oh, we've go to take a break to change tapes.