

**THE JOINT COMMISSION TELECONFERENCE ON  
PREVENTING PEDIATRIC MEDICATION ERRORS  
FRIDAY APRIL 11, 2008  
AT 11:00 A.M. CENTRAL TIME**

**CATHY BARRY-IPEMA:** Welcome to today's Joint Commission news conference about preventing pediatric medication errors.

Two of The Joint Commission's health care safety experts will discuss why pediatric medication errors occur and the steps that health care organizations can take to reduce these devastating mistakes.

With us are Dr. Peter Angood, Vice President and Chief Patient Safety Officer at The Joint Commission, and Dr. Matthew Scanlon who is a member of The Joint Commission Sentinel Event Advisory Group as well as Assistant Professor of Pediatrics and Critical Care at the Medical College of Wisconsin. They will both offer remarks and will answer any questions that you may have.

Before we get started, I wanted to let you know that a complete press kit that includes the *Sentinel Event Alert* on preventing pediatric medication errors and bios of Dr. Angood and Dr. Scanlon as well as other related information is available on The Joint Commission website at [www.jointcommission.org](http://www.jointcommission.org).

Now, I'd like to introduce Dr. Peter Angood.

**DR. PETER ANGOOD:** Thanks Cathy and thank you all for joining us on this call today. This is a very important topic and it really has been in the news quite a lot in the recent weeks and months. Pediatric medication errors, highly important.

This is actually the eighth time that The Joint Commission has issued a *Sentinel Event Alert* about medication errors for all patients, but this particular Alert being released today focuses further on the highly vulnerable patient population, children.

Coincidentally, the recently published study this week from Dakota and others in the *Journal of Pediatrics* and other high profile events has really helped to highlight the importance of recognizing that medication safety is clearly a significant problem for children. There are no easy answers for improving medication safety and the fact that we are still discussing the topic again today clearly demonstrates this.

Several issues are at play here, and one of the most challenging is that most all medications are made and packaged for adults. And, similarly, most of the medications that are delivered in health care facilities; those facilities are primarily built and organized around the needs of adults and not children.

There's also a host of process issues or systems issues that contribute to all medication errors—miscommunication at several levels; a lack of standardization for naming, labeling, and packaging medication; and then a misidentification of medications during their actual delivery and administration. Don't be fooled, these are significant and multifaceted challenges for health care, and so in our ongoing efforts to improve patient safety, The Joint Commission has tapped into the knowledge of recognized patient safety experts and we also continually review the medical literature for the best and evidence based practices for no solutions that work.

We are issuing this medication related *Alert* today not only to further raise the awareness of the problem, but really to also give hospitals and health care professionals some practical strategies that can make a difference to improve pediatric medication safety.

In this regard, one of the first things that organizations and practitioners should recognize and use is The Joint Commission's National Patient Safety Goals program and also reference our medication management standards. These resources offer specific guidance for all medication related issues as well as those included in this pediatric specific *Alert*.

Importantly, as well, this *Alert* also calls for hospitals to weigh the pediatric patients in kilograms or on a metric based system, and this should become the standard of recording pediatric patient weight. This is a global issue. The vast majority of countries utilize the metric system and the recommendations for pediatric medication use are based on the metric system.

Similarly, don't dispense or administer any high-risk drugs until a child has been weighed, and these first two simple steps could really help to prevent the confusion about how to arrive at proper dosing for children.

As well, the *Alert* urges hospitals to require caregivers who prescribe pediatric medications to write out and document exactly how they arrived at these proper medication doses. In other words, show the math. Then clearly document it and show what is the dose per weight or the dose per body surface area. On a practical level this really means that the pharmacists or the nurses who are caring for these patients, preferably both, can easily double check the calculations before any of the medications are administered.

Similarly, hospitals should provide information and pharmacy resources to their providers so that pediatric medication information and backup information is always available. And then, if pediatric specific formulations and concentrations are available, The Joint Commission really encourages these hospitals to use them. Unfortunately, there's not enough of those pediatric specific medication formulations.

So again, there are several opportunities where mistakes can occur but we really have only just mentioned a few at this stage. Warning labels or alerting the practitioners in an organization that there are pediatric issues for any medications are important to provide in a facility, and through all of this, it's highly important to involve the family and, if possible, the child directly in the medication management process and detail for them why the medication is being utilized, potential problems, and have them repeat back the instructions.

There is a variety of other issues and strategies that are nicely contained in this *Sentinel Event Alert* and we'll certainly be happy to detail them further and answer your questions a little bit later.

But overall, an important thing to take away from this *Alert* and from any of this recent attention about pediatric medication is that we can and we're obligated to do better. We really do owe it to those patients who depend on us at all levels.

So, we hope that the hospitals and caregivers really focus on this *Alert* and help to implement some of the strategies or all of the strategies and solutions that are listed there.

Now, I'll finish my comments and turn this over to Dr. Matthew Scanlon, who is a member of our Sentinel Event Advisory Group and a well recognized national pediatrician.

**DR. MATTHEW SCANLON:** Thank you Peter. I guess I'd like to start by thanking Dr. Angood and The Joint Commission for their work in issuing this *Alert*. There's a cliché in health care that children are not just small adults, and that's resulted in the creation of such things as pediatrics as a specialty, the creation of children's hospitals and the like. Sadly, there seems to be a lack of widespread appreciation, even in patient safety circles that children have unique patient safety and medication safety needs, and The Joint Commission's statement on this is another important step in increasing awareness around the unique needs of children as it relates to keeping them safe in health care, as well as pointing out some of the problems. The issues of having to adapt products via technology or medications that were created for adults and then trying to apply those to pediatric patients is terribly problematic, and is the source of a great deal of work that has to be performed on a daily basis among pediatric health care providers.

So, again, I think this is an important step. Dr. Angood articulated a number of these specific concrete steps that both health providers and parents can look for, and I think with that, we'd be open to answering questions.

**QUESTION:** It sounds like a lot of these errors could be kind of mitigated if medications were packaged separately for adults and children. What kind of steps would have to happen for that to take place and is that even at all likely?

**DR: PETER ANGOOD:** It's a critically important question and it is a complicated one to try and answer. The decisions about naming medications and then how different manufacturers go about packaging them and labeling them is really fairly – what's the word I'm looking for? It really is not closely followed. On a global basis there are a variety of regulatory steps that companies need to go through, but country by country, there is a huge variability. As an organization we are designated by WHO, the World Health Organization, as a collaborating center for patient safety, and we have been working over the last half year or so in the beginning steps of initiating a process to help standardize packaging and labeling, and in that, we are working with a variety of well known American as well as other country organizations to begin these steps. This is going to be a long process, however, because it's so complicated. It's got to involve the pharmaceutical companies, the manufacturers, the regulatory groups, as well as accrediting agencies like ourselves in addition to the practitioner professional organizations from a variety of disciplines.

**DR. MATTHEW SCANLON:** The one thing I would add to that is that separate from getting the pharmaceutical industry to address the problem, it's a little less straightforward because of the wide range of patient size and ages that we see in children. So, it's not uncommon to

have an infant in the neonatal premature infant who may weigh 500 grams and then have a patient who may be obese that weighs up to 100 kilograms, so you're talking about a 200 fold weight range that even with the trying to standardize medications, you need to accommodate for. But having said that, the fact that we are left to take the one size fits all adult model and then try and apply it to that range certainly is problematic.

**QUESTION:** Yes, a question for Dr. Scanlon. With the exception of a less threatening emergency, when parents are getting ready to take their child to an emergency room, should they look to find a hospital that has a child emergency room, child trauma center or a children's hospital as opposed to the nearest hospital, because they're more likely to have processes in place that would cater to children and maybe prevent errors?

**DR. MATTHEW SCANLON:** I think at first blush, it's tempting to say yes, that's the case. Having said that, I do know of many community-based hospitals and children's hospitals within larger adult hospitals that have been very progressive about addressing these issues. I guess what I would suggest to parents, rather than purely going to children's hospitals, though I think there's a great deal to be said for that, that they instead ask some hard questions of the providers in their area about the simple points that The Joint Commission has outlined such as, do you weigh your children? Do you refuse to weigh children in the emergency room or in the clinic, yes or no? If so, is that in kilograms or in pounds because weight dosing guidelines for children are all based in kilograms.

And, rather than say that a label will tell them where to go, I think it may be that they could get excellent service near their home in a center that has been progressive if not responsible in addressing these issues.

**DR. PETER ANGOOD:** I'll answer that in a lot of those community-based hospitals, they do recognize that they have to manage the pediatric patients and treat them with pediatric specific practices. But, it is important that parents check that out ahead of time. A very simple question is, do you look after pediatrics? And, do you have any problems or issues in doing so that we should be aware of?

**QUESTION:** I'm just wondering because of these mix ups, how many children are dying? Are children dying? How many a year?

**DR. PETER ANGOOD:** I don't know that we really have the best details on that information. In our Sentinel Event Database and for us a sentinel event is any unexpected death or major disability that occurs in the course of care, medication errors in general are about 9.3 percent of our reported events. We have a voluntary reporting system and we're very certain that we are not getting all of the events out there.

There are other organizations that follow this very closely, USP, the United States Pharmacopeia, as well as ISMP, the Institute for Safe Medication Practices, and when you speak with them as we do regularly, their sense overall is that the pediatric specific morbidity and mortalities are not at a low level.

**QUESTION:** I was wondering what role you see technology playing in the prevention of these errors?

**DR. MATTHEW SCANLON:** I think that there's tremendous potential for technology, but my comments and Dr. Angood's comments that apply to the drug industry I think could equally be applied to the technology industry. Let me give you two specific examples.

One technology that's been widely touted as being beneficial is computer order entry of medications, and the thought being that you can have guidelines and calculations to help make medication prescribing as safe as possible, yet when the organization I've been working at eight years ago implemented a computer order entry system, most of the systems you could buy off the shelf did not have weight base dosing as a routine factor. So pediatric providers were left to cobble together weight based dosing even though the vendors were manufacturing these products.

Similarly, bar coding of medications and bar coding wrist bands for children have been identified as another potential solution. Yet, if you think about the range in wrist size from an infant to an adolescent, you get tremendous curvature of the bar codes and often they won't be readable. So, the answer I believe is that technology holds great promise. Unfortunately, to date it hasn't largely been realized and again, the lack of explicit attention to the needs of children certainly has not helped that matter.

**DR. PETER ANGOOD:** Technology represents tremendous potential out there but unfortunately it is used as a lay on. It's just put over the existing systems and processes of care provision. And, what really is more important is to have facilities look critically at how they deliver their care, the processes, the policies, et cetera. And then, they can choose more accurately which types of technology are applicable for their needs and work with the vendors to make sure that it is customized specifically for their systems as best possible, especially in these pediatric patient populations.

**QUESTION:** One of the things you note in the *Alert* is the importance of the repeat back of orders which other institutions have obviously addressed as well. Can you talk about how

challenging that is? To get providers to actually do that and whether there are unique situations in pediatric world that make it more difficult?

**DR. PETER ANGOOD:** The issue of trying to get repeat back or read back for providers as well as patients is a hugely complicated issue, because the basic practices under which we've all been trained and educated are that it's more of a paternalistic strategy. Here's what I'm giving you, please take it. And, when you actually look at the study that evaluates how humans function in these types of communications, it's not as simple or straightforward.

In general, compliance with medications is at around the 50 percent mark. The number of patients that actually fill their prescriptions is somewhere between 50 and 60 percent. And so, it's important to take this step at the point of getting ready to provide a patient with a prescription or a medication, to explain it to the patient, ask them to try and repeat back to you what it is that you just asked them to do, and then ask whether or not they have any questions.

Now providers in general are busy, they don't have this in their training, and so it's an active effort that institutions and practices need to take in order to make this a part of their day-to-day routines.

**DR. MATTHEW SCANLON:** I would agree with Dr. Angood's point. I think the other confounder in all this is this phenomenon that it may not have been written about widely in the daily press, something called medical literacy, where often people in the non-health care environment have trouble understanding our jargon and our instructions. And so, even though we may try in very clear terms, take two teaspoons two times a day, how that translates into actions may not be what we intended. And because of that, the temptation is that they do they understand these instructions, yes or no, and the family member says yes.

Okay, we're off the hook. We're okay here. But, that doesn't mean that they can actually translate that into an action. To assess that, it really takes more time and a conscious active effort by the provider, which is something that shouldn't happen but again, as Dr. Angood mentioned, it is not the way the majority of practicing physicians have been trained, and you're talking about undoing in some cases decades of behaviors that we've learned, that are less than ideal.

**DR. PETER ANGOOD:** Yes. Communication is more than just talking at you. It's making sure there's a comprehension level and that's what we're trying to drive home here.

**QUESTION:** First, what barriers exactly exist that prevent hospitals from uniformly using the metric system? And, what would have to happen to get hospitals to finally use the metric system? And also, I'm interested in one of the recommendations out of The Joint Commission's adjusted actions was doing an independent double check after the doctor decides this is the correct dosage, having a nurse or pharmacist double check their math, and how many hospitals are doing that now? And, how likely is it that the hospitals would start doing that because of these recommendations?

**DR. PETER ANGOOD:** Trying to answer how likely questions are always difficult. A metrics based set of practices has been something that the education systems in all of the health care disciplines have been struggling with for quite some time, and the reality is that the rest of the world functions on a metric based system for health care. And so, it's going to take an ongoing specific effort by not only educational facilities but the health care facilities themselves to really continue integrating metric based practices for all types of care and not just specific for medications.

Now, the how likely of your other question, again, it's really difficult to get a good strong handle on that. In the ideal world, institutions would go along in that direction but it's difficult to measure or to assess on a day-by-day basis.

**DR. MATTHEW SCANLON:** It gets back to – we've referred several times to the systems based problem of a lot of these safety issues, and right now a lot of our systems of care are so complicated that to even find a second person to independently review that can be often very daunting. I think that's where one of the roles of technology, doing those checks automatically so that you don't have another person who is ultimately potentially fallible making that double check, is probably preferable.

As far as the metric system, there are hospitals that for years have been using solely metrics. You have to have conversion charts to translate all our metrics to English for the parents and families who don't understand metrics, but it is very doable. I think it really just takes the organizational leadership to say that this is important and one could argue, if you're going to care for kids it's a minimum one should take.

**DR. PETER ANGOOD:** That's right. And I want to add that there is a fairly significant movement going on out there for pharmacists to become more involved in hospital based care, and those facilities that are utilizing them are finding the benefits many times over in terms of safety and efficiencies in the delivery of medications.

**QUESTION:** I wanted to take it back to the questions that parents can ask, because I think that our readership would be very interested in that.

So, you've said, ask if the child was weighed and was he or she weighed in kilograms? You've said, ask the hospital do you take care of pediatric patients and do you

have any problems? Well, it's unlikely they would tell you. What other questions, whether you're at your child's bedside in the hospital, in a physician's office, would you suggest that parents think to ask in order to be vigilant about the medication given their children?

**DR. MATTHEW SCANLON:** I think there's a couple of other things. Beyond just saying do you take care of kids, you could ask, who at your facility takes care of children? What kind of training do they have? So, it's not uncommon for adult trained or emergency medicine specialists that care for children in certain hospitals, and while they may have maintained additional training so that they're skilled at doing that, that's not necessarily a substitute for someone with pediatric specialty expertise.

Similarly, there are adult hospitals that keep children in adult ICU's, which as a pediatric ICU physician, I find very difficult to reconcile. So, I think it's being a critical consumer, I think encouraging families that the days of we know best are over, at least that aura of that and families should feel empowered to ask questions particularly when things don't make sense or don't seem right. So, if a nurse appears to be administering something that is different than what your child got the day before, there's nothing wrong with saying, hey, is this the right thing? Or, did something get changed that I'm not aware of?

Another thing that I think is widespread in many children's hospitals, but not necessarily outside of those for inpatients, is asking to be present as a family member on rounds. So, when the physician comes around to make a plan for the day, ask to participate in that. As someone who just rounded on 14 children in our ICU, I look for and ideally expect the families to participate, so that we can address their questions, we can understand what's going on from their perspective, and then at that point, I can explain in comprehensible language what's going on with their child.

**DR. PETER ANGOOD:** In the outpatient office based settings, if a family practitioner or someone of that level is helping to treat your children, then the adult should be asking whenever medications are a part of the treatment, what's the medication really for? Is this an adult dosing? Or, what have you done to show that this is the right dose for my child? And then, try to get to some specifics and parents shouldn't hesitate to ask the questions.

I think the other piece in terms of facilities that Dr. Scanlon was highlighting were really learn who are the pediatricians, who are the pediatric specialists and, if needed, you can get into more details about volumes of pediatric cases that hospital look after. And then another important one is if there are problems with the care, who is it that they refer the patients to as a transfer for ongoing care?

**QUESTION:** I want to come back a little bit to the technology question, and in particular, as you were talking about metrics and the use of metrics and other issues, is there a concerted effort to work with the technology vendors to improve their products or gear them more towards the pediatric community?

**DR. MATTHEW SCANLON:** I don't know of any national concerted efforts. I think as a provider who has been very passionate and outspoken on this issue, there are a number of us who are trying to come together to get an audience for that. What often happens is that a given institution, be it a large clinic or hospital, runs into problems and then when they meet with the vendor, they're told typically one of a couple of things. Well, no one else has had that problem or you guys just didn't use it as we told you to. And, that begs the question of things that just are difficult to use, especially when using them with children.

So, no, I'm not aware of any national effort. The FDA has a spin off project called MedSun which is actively soliciting issues around youth and they have a pediatric focus, and

they will actually take actions with vendors whose products are less than ideal. But short of that, it really is an area of health care that I think both on the adult and the pediatric side, it has not been well understood and certainly not been addressed in a concerted effort.

**DR. PETER ANGOOD:** As I'm sure you're fairly certain, there are several federal based initiatives on trying to transform health care information technology overall, and they continue to have difficulty gaining some transaction. The Joint Commission participates in a variety of public policy initiatives, and we have a variety of external advisory groups, and we have specific and focused efforts on the whole issue of health care information technology. In our discussions, the issue of pediatrics does come up, but certainly as Dr. Scanlon just highlighted, it is a void on many levels at this stage.

**CATHY BARRY-IPEMA:** Thank you everyone for participating in today's call. There is a playback of today's call that will be posted on our website at [www.jointcommission.org](http://www.jointcommission.org), and there is additional information should you need it. Please call us if you have any other questions, or if we can help in any other way. Again, thank you everyone and have a good day.