JUDY DETTMER: Welcome, everyone. Thank you for attending the session. And I know that you've had a long time of conference already and I'm on the last day, so I appreciate that you were willing to stick around and listen to this presentation.

I just want to give you a sense of what we'll talk about today. I'll explain the national picture of brain injury as far as incidents that we're seeing, both related to CDC data and then Department of Education Data. And then I brought that into Pennsylvania to look at the data here, and Brenda Egan Brown, who's sitting in the back, with BrainSTEPS, helped me pull together those numbers.

And then I'm going to talk a little bit about what the issues are. Why are we seeing what we feel is like a lack of under-identification or lack of identification of kids with brain injury and give you a glimpse of what Colorado's trying to do to address that issue. And then, at the very end, I'll show you a website that we developed that hopefully you all can find as a tool and useful for your own purposes. And Brenda will come up and talk about the BrainSTEPS program because I wanted to make sure everybody knows your own local resources.

I just want to put a pretty picture of this, you know, country up there. More to come. Okay. So brain injury is a leading cause of death and disability in children in the United States. The Center for Disease Control, which is where we get most of our statistics, they report that the annual incidence of brain injury for children zero to four, and I don't know why they break it down, or 0 to 14, I'm sorry. I don't know why they break it down 0 to 14, but they do. So I just did that for you to give you a glimpse of what that looks like.

There's 2,685 deaths annually from brain injury in that age group, 37,000 hospitalizations, 435,000 emergency department visits. And I just want to stress the emergency department visits, especially in this picture of identification because what we find is that kids get treated and released from emergency departments, no documentation. You all know that documentation is pretty necessary in a school system, so we'll talk more about that in a minute.

The other thing is that these numbers do not include kids who are not seen in emergency departments. And we also know that, for a variety of reasons, sometimes parents don't take their children to the emergency department. They don't have the resources, there's fear, there's other things going into why they might not take their child to the emergency department. So I think there's a lot of unreported even in these numbers.

I should also give a little caveat here. The definition of brain injury that I'm using, how many of you have heard the term traumatic versus acquired brain injury? Okay. These numbers are all traumatic brain injury. And the reason I go that route is because the federal IDA specifies traumatic brain injury, so an external blow to the head. Acquired is an all-encompassing term that includes both traumatic and non-traumatic causes to brain injury. So non-traumatic could be stroke, aneurysm, brain tumor, some physiological internal cause. So, just as you know, as I'm talking through today I'm talking about traumatic brain injury, for the most part.

So, as I said, each year on average 475,000 children are sustaining brain injury in the United States. Most children who sustain a brain injury, 91.5%, were treated and

released from the emergency department. And that's without any further follow-up or treatment, okay?

This slide is kind of hard to see maybe where you're at, but I like this slide because it tells you the age range where we're seeing the highest incidence of brain injury. And if you think about this in terms of identification, so zero to four is the highest as far as emergency department visits, so zero to four has the highest ED visits. And actually, it is the highest rate of brain injury, too, and shaken-baby syndrome being the number one cause, so abuse of children.

The reason I highlight this is because oftentimes what we see with kids with brain injury is that they may have had an injury at this point in their life, and they seem to be recovering okay. But then they get back into school or get into school, get up in the grade ages like third, fourth grade, and we start to see some deficits. And then people are not putting back together, oh, they fell and they were unconscious for a while when they were in this age range. So this is a big category of people that I think are going unidentified.

And then, if you factor in the other issue around child abuse, we don't have parents typically coming forward to say, oh, I shook my baby. I mean there's a lot of shame, there's a lot of issues around that as far as reporting, so I just wanted to highlight that. That's an age group, I think, we're missing later in life.

Okay. So the U.S. Department of Education data, most of you are probably aware that in 1991, that school year, that's the year that brain injury became its own category, traumatic brain injury. And it's the same year that autism also did. So, during the 1991-92 school year, there were a total of about 4.5 million kids in special education. Out of that, only 245 were identified as having traumatic brain injury. And so you can say, well, you know, it's the first year it was an identifying category. We all know that the trickle down and putting into effect takes a while from the federal down to the schools. So it doesn't, that doesn't surprise me, that low number.

But now we're talking about eight years later during the '99-2000 school year. There were a total of about 5.7 million kids in special ed, so you can see higher special ed numbers are rising. And then there were 13,874 identified with traumatic brain injury. So that's a pretty good jump, right? I mean that feels like a jump. But yet eight years' worth of kids, and we'll kind of look at how it's kind of plateauing here.

2005 data show that 6 million kids, again we have an ever-increasing population in special ed. Only 23,449 served under the traumatic brain injury category. And then in 2007, so now we're looking at a year at a time, 23,864, okay?

I think it's interesting to look at brain injury in the context of autism because there's a lot of similarities as far as how do we truly identify autism. How do we truly identify brain injury? The trip around brain injury is if the injury is not severe oftentimes it won't show up on imaging. There's no real hard-fast medical test to really determine brain injury for those kids with mild-to-moderate brain injury often. Same with autism.

Autism is something that we're having to do good history-taking. We're having to really understand the full picture of the child and make some assumptions. Would you agree with that? Okay. Same with brain injury. But it's interesting that with brain injury, brain injury has gotten put into this medical world, and it's stuck there. And what it's done is really made educational staff feel like they don't have the expertise to really identify brain injury. And we'll talk about Colorado in a bit but, you know, really, you do.

I mean it's the same as autism, ADHD. You have those qualifications to really understand that picture. And I'm not saying a medical diagnosis, but an educational identification.

So, if you look at autism, autism became a disability same year as I mentioned. There were 15,302 that first year identified. By 2000 there were 79,000 students identified with autism. Now, remember the brain injury picture I was showing you? There were 243 or some-odd, and then 13,000 eight years later. In 2005, 192,643 identified with autism, and then in 2007, 258,000. So you can see this tremendous growth in identification of autism. And we're not there with brain injury, yet brain injury is considered the leading cause of death and disability in kids.

Okay. So if you recap and do the math, as I said, each year an average of 475,000 identified by CDC, and that's that 0 to 14, so you can bump that number up for the rest of the ages. National Pediatric Registry, which is really no longer in existence, so I just put that out there, but at least it gave us a rule of thumb back when it was, estimates that about 19% of youth who sustain a moderate-to-severe brain injury will have long-term effects from that brain injury.

So if you look at the data and you say in 2006 there were 23,777 students with brain injury receiving special education services, and that jumped up by 23,864 in '07, so that's a total increase in one year of 87 students. So, math is not my strong suit, just so you know. That's why I'm a social worker.

But if you conservatively use that 19% as your guideline, and you think about how many kids are out there that could have long-term effects from brain injury in the United States, and looking at that 475,000, 19% of that is 90%, 250. But yet in one year we only increased by, what is it, 87 kids, right? So we could be missing 90,000 kids. Could be, as far as identification for special education.

So where does Pennsylvania stand in this picture? And actually, I'm going to tell you I think Pennsylvania's doing a better job than most, and I'm going to credit Brenda. Nice job, Brenda, and your teams, because you guys are kind of in line, I still think under-identification is occurring, but you're higher than a lot of states.

So CDC, I'll do this in a different way to give you a sense. Some people like to know in a population how many kids would have brain injury. CDC indicates that about 1% to 2% of the general population has had a brain injury, okay? So that gives you a sense in your own population. And again, that 19% will come into factor here.

So the 2008 census data, or the report came out in 2008, and we'll find out what our census is coming up here again soon, Pennsylvania had 12 million, 12.5 million basically, people. 22.2% were under 18, so that's 2.7 million. So about 1% of that is 27,000, right? And that's who you can expect maybe have experienced a traumatic brain injury in your state. And if you take that 19% again from that, that gives you a total of 5,000.

And just to get more specific, you do have data that shows 25,900 or so were hospitalized. I mean not hospitalized, that's mild, moderate and severe, so that's including ED and hospitalization of brain injury in Pennsylvania. And let me tell you, ED visits are really hard to calculate and catch. We don't have good surveillance data around ED. And Pennsylvania does not have a surveillance, yeah, surveillance program through the Department of, or CDC, so you're having to extrapolate national data to make it fit for you.

The Department of Health said, in 2006, 3,938 kids were hospitalized with TBI. If you look at your Department of Ed data, so you have 3,938 who were hospitalized, but you have 788 who were, in 2008, under traumatic brain injury for special education. And Brenda, what's the number this year?

BRENDA E. BROWN: 731, I think.

DETTMER: So it's dropping, which we're finding kind of interesting, but we'll talk about that in a little bit. If you look at Pennsylvania's Department of Ed data, your identification brain injury has steadily been going down. That's not necessarily a bad thing. We're really trying to figure that out. It's an interesting case because, you know, RTI is meant to help early on, right? Do that early intervention and then, with Brenda's work and the team's work, you're catching kids as they come in from the hospital, right, and trying to catch them as soon as possible.

Some of that early up-front work might actually be helping to prevent that need for special education. So, and to me, I think that there's a strong case for why the brain injury teams really need to be in place that Brenda will talk about a little later. And a position such as Brenda's where you have someone in your state really focused on kids with brain injury is also very critical.

So we're still trying to make sense of these numbers. I think that probably we're under-identifying kids with brain injury, as we are nationally. But just to give you a sense of that. Any questions around some of the numbers? I know that can be pretty dry, but I think it helps to really illustrate the picture we're dealing with. Yes?

WOMAN: I'm sorry, you might've already covered this, but when you were talking about the numbers, were you talking about the . . . mild-to-severe or only severe or how . . .

DETTMER: That's a good question. This is actually more moderate-to-severe brain injury. This picture here. To figure out the ongoing, we all have good data, I should say, on how many kids who have had concussions or mild traumatic brain injury that have ongoing and long-lasting impairment related to those brain injuries.

Some of the research shows that kids with concussion should recover within three months of their concussion. We do know that there's those outliers who have ongoing effects from concussion, and the statistic shows it's somewhere around 5% that have that. It used to be that we said 20% to 15%, now it's going to 5%. I just think the science isn't there to really understand concussion as well as we need to and to understand that long-term picture of the child. So it'll be interesting as that research gets done. But these numbers are specifically moderate-severe, and that 19% rule is moderate-to-severe so that you know that if they've had that level of brain injury there's a good chance 19% will have ongoing impairments.

WOMAN: If I could just . . . I'm a . . . forgive me.

DETTMER: Oh, great.

WOMAN: . . .

DETTMER: Nothing to forgive you about.

WOMAN: But it's really, the literature says it's really the mild kids that have functionally most of the problems in terms of schools and schoolwork, and I wonder . . . these numbers are, you were saying it might be kind of under-estimated numbers . . .

DETTMER: Definitely.

WOMAN: . . . under-estimated the numbers because they're trying to treat kids that are having trouble in school but have a mild, have a . . . deny them . . . cannot find, but it's really the brain injury.

DETTMER: Absolutely.

WOMAN: And there's overlap between having to deal with . . . brain injury, but you know there's not. And you know there's . . .

DETTMER: Right.

WOMAN: . . . not the same thing.

DETTMER: Exactly. I'm glad you're clarifying that. We'll talk about that a little bit, but the mild kids are what this whole thing is focused on, honestly, because if a kid had a severe brain injury, not always, but most often, they come back with some medical documentation of that brain injury. You have some kind of profile of what they've been through and what they're going to go through. Kids with mild brain injury are all over the map as far as that's concerned, so you're 100% right about that.

Okay, so you get the picture what we're talking about here. So why are we missing? And that's one piece of why we're missing. But transition support from medical setting is pretty rare and is often poorly coordinated. I don't have the exact statistics, but I've been in this field long enough to know that the hospital stays have decreased dramatically, as you all know as well. Insurance has been slashed as far as rehab and that kind of outpatient rehab efforts, so kids are getting back into school, and they're getting back into school fast.

And so what has happened is our rehab facilities have become the schools. So you all are having to now become teachers, OT/PT and rehab specialists for kids with brain injury. And the other piece is that they're in and out, so there's just such poor coordination between those. And actually, a lot of hospitals don't even have discharge planners anymore or social workers. They're kind of really narrowing down on that field. So it's just poorly coordinated.

Fewer than 2% are recommended for special education out of a hospital setting even though we know about 19% will have long-term deficits. I say that with a bit of a caveat also because when I talk to the hospital staff I try to be very sure to help them understand that school districts make that determination. It's not the hospitals who get to make the determination if they have special ed needs. That's up to you guys. But I

think what's important for a hospital staff to understand is they might want the parents to start seeking out a 504 plan, learning about what special education is so that they come back in prepared. And that's not happening at this point.

And then that treat-and-release from the emergency department that we talked about. I'll just give you a couple of personal stories on that. My sister has a brain injury, and we didn't identify it until she was in her, I guess by that time she was in her 30s. And it wasn't until I got into this field that we truly understood what was going on.

She fell off of a hayloft. I grew up in Minnesota. You'll probably hear the long o come out occasionally. She fell off a hayloft onto ice and cement and was unconscious for several hours, honestly. Now, I am a little bit older than the brain injury boom was, and she's older than I am, so people just didn't know about brain injury at that time. And it was a small, rural town in Minnesota, and my parents took her to the emergency department, which I'm telling you is a miracle in and of itself because you had to be basically be bleeding to death before they took you to a doctor, right? So they were pretty worried. They took her to the doctor and the doctor just said, take her home, keep an eye on her, she'll be okay.

So take her home. About an hour later she's still kind of groggy and pretty out of it, so they took her back. Well, they admitted her in the hospital and then that was it. End of story. Never heard a thing about it again. But yet we saw patterns with her. I mean, I am four girls in our family, so there's a good comparison going on because we're all pretty similar except for her. She's had a longstanding history of issues around fatigue, issues around initiation, disorganization. But she was very bright in school, and so she passed her school with flying colors. But it was the side stuff, the social stuff, the exhaustion, all of that that she dealt with. Depression, that just got ignored. So anyway, I put that out there, and it was very helpful for us to understand that she actually had a brain injury and how to work with her related to her brain injury as an adult now.

And then another story, you're going to think my whole family is full of people who have had brain injuries, but my nephew, her son, so I'm thinking okay, that was I won't tell you how long ago, but a while back that that happened to her. And then her son fell off the slide at his school, elementary school. And again, they were living kind of in a rural part of Colorado at this time, and my sister immediately took him to the emergency department. He was sort of alert but kind of in and out of alertness, and the doctor said the same thing to her, basically, about him.

So I'm thinking we've come nowhere with this, with ED docs really understanding how to treat concussion, what that means, how to tell the family what to look for, what to expect. It's kind of what you were saying as far as, you know, families don't know that there might be some long-term implications related to this ED visit. So this treat-and-release from the emergency department is a pretty critical element as far as under-identification.

Okay. That didn't go. Now I went, okay. The other thing, I mean we know brain injury often goes undiagnosed. The other issue is that it gets misdiagnosed. So the comment about learning disability, we have kids who are all over the map as far as how they're being served in special education. And in some ways we'd say, well, why does it matter? They're getting services. But when you really look at these kids, they're not

doing well with services, and they're always a struggle for the special ed staff. So they're either undiagnosed or they're misdiagnosed.

The effects of brain injury can be really subtle, and it looks a lot like other disabilities. So you can see where there's some confusion about that. Did you have a question, sir?

MAN: Yeah . . . as far as identifying kids, but it seems a lot like it doesn't . . . decisions often based on healthcare and being very treatment-oriented. I have seen kids that are . . . get an MRI, a CAT scan, a . . . comment that they're expensive and that he really wouldn't treat it any differently whether he did . . . he just said don't bother getting one, just take it easy and watch for symptoms, and that's it . . . treatment . . . why do it, and . . .

DETTMER: Oh, interesting.

MAN: . . . secondly, why do it because of the cost . . . in the NHL, NFL, even NCAA when they get . . . tests done all the time . . . improvement in children's health . . . couple weeks that's going to assist in identifying us and making CT scans more prevalent or not really?

DETTMER: You know, it's a really good point you're making. I do think that it will probably make CT scans more prevalent, maybe even MRI. But I don't think, still, that that science is sensitive enough to pick up mild brain injury. Often if you have a mild impact, that term mild is kind of funny, by the way. If you have an impact that's not a severe blow to your head, you're not going to see that on imaging. So even if we're doing CAT scans and MRIs, we're still not going to see the results of that.

I think what needs to shift is more of a philosophical paradigm shift for ED docs and doctors in general to understand that, even though it's not visible doesn't mean that it's not impact in long-term effects. So I think it's more an educational issue. However, it's good if they're doing that, especially with subdural hematoma issues and all that can arise with that with concussion. So good point. Yes?

WOMAN: I just had a personal kind of story that goes along with what you were saying. My son was playing soccer this summer, went up to do some kind of kick where you kick up and your feet land on your back, and he landed on his neck. He didn't lose consciousness, but he got, he lost his short-term memory, he got weird and giddy. He kept playing. I didn't know about it until two hours after it happened.

When he got home he said something happened Mom, and he got real giggly and laughed, and he finally told met his story and I said we're heading to the emergency room. No, we don't have to go to the emergency room. Yeah, we do. Let's go. Spent three hours sitting there before a doctor came to see us.

In the meantime my daughter is an athletic trainer, so I called her and said, you know, Bob's doing this, this, and this and she said, look for this, this, and this because they had a scale, athletic trainers have a scale that they go by to judge. She said just by my report he has a grade two concussion. Is it serious? Emergency room doc said, nah, I don't think he has a concussion. Take him home and see how he does.

DETTMER: Right.

WOMAN: They did not do a CAT scan, but she basically said the same thing, that it might not have shown up anyway, just watch him long-term. He's fine, he's in college, all is going well. His personality didn't change long term, but he really doesn't remember the incident much. He kept telling me the story. In a half hour drive to the hospital he probably told me the story 20 times.

DETTMER: Wow.

WOMAN: He did not remember that he had told me. He truly had a grade two. I did much more research about it. The emergency room docs, the doctor did not, when I said I really think he has a grade two concussion based on my daughter knowing about this and he said nah, we don't really use that scale.

DETTMER: Right. Well, concussion's a whole big area. Next term maybe you guys could have a talk about concussion and sports injuries because it is really a big issue. But good point with that, too. So you can see the examples of how they're getting missed.

Okay. And then the other piece is that family and school personnel will have limited knowledge about brain injury. I know in your state that's changing and you guys are doing a lot of training, but on the whole, that's the case.

The other factor in under-identification is that IDA really kind of plays into this problem. And part of that is the way, I mean IDA is complicated, right? I mean I don't have to tell you guys that. But what the U.S. Department of Ed has done is given discretion to the states as far as how they interpret the definition of traumatic brain injury. They don't have very good guidelines about what constitutes eligibility.

I mean, if you really started doing some research into this, it's really tough to figure out okay, that's a definition, but what do I need to prove it? What do I need to say that substantiates why they need special education. It's very difficult to find.

How many of you know in your state, a couple of questions. One, do you follow the federal definition of traumatic brain injury, which is an external blow to the head? Okay. Some people are saying yes.

WOMAN: [Unintelligible.]

DETTMER: Okay. And if it's an acquired non-traumatic injury then it's OHI. But a lot of you were silent, and that's kind of the reaction I get from most audiences when I talk about this because we don't know. It's not, I mean you have so many things you have to deal with it's hard to keep track of all the little nuances with every disability. And they're not clearly defined.

The other piece is that what constitutes medical documentation? That's a big question that people have. Is it a neuropsychologist's report? Is that something we would consider medical documentation? Does it have to be from a treating physician? An MD? Those are all questions that states grapple with and try to figure out how are

we doing this in our state. Or they don't and just wing it, which is what I think happens most often.

In Colorado I've worked in many of the school districts, and within school districts from school-to-school people are doing it differently and defining it differently and using whatever medical documentation they determine makes sense. So you can see why we might have some issues around numbers. We don't have any uniform way of dealing with this.

And then the other piece is medical documentation of mild to moderate may not be available. That's what we just talked about. Moderate, oftentimes we get that, but not always. Okay.

I want to talk about what Colorado is doing because, again, this issue of under-identification is a national issue. It's not specific to a state, any state that's really not doing a good job with this. Across the board we're all struggling to do this identification piece.

So, as was mentioned, I've been working in brain injury a long time. And we have been trying for years to look at this issue around kids with brain injury. And understanding, from an anecdotal perspective from all the school district staff, that one of the big issues as to why they're not identifying kids as traumatic brain injury on their IAPs is this criteria that we need medical documentation. Okay? And also not understanding what that medical documentation is.

But that's what we were going with in Colorado. You needed to have medical documentation. Well, we have a pretty large migrant population. We have a very transient state as far as people moving in and moving out. And oftentimes that medical documentation just is not available for whatever reason. So then we started talking about can we do an educational identification?

Colorado does an educational identification for autism, does it for ADHD, not for brain injury. So in 2008 we were able to get that changed, but it's kind of funny how policy changes. Just so you know how, I don't know, how many of you are familiar with like legislation and policy and . . .

Some of you. It's a little scary to me how our laws gets made, how policy gets developed. You think there's this really thoughtful, careful approach to all of this? Not so much. Not so much. And the thoughtful, careful approach we were taking, which was taking a little time, but we were getting close. What it all came down to was timing in Colorado.

So what we did, we did focus groups across the state to talk about what are the issues you're seeing around identifying kids with traumatic brain injury for IAPs. We did, actually we had, a group of students out of Colorado State University did a study, and they interviewed other states. What's your policy around it? And that's how I know we're all over the map nationally. We did really some pretty careful research and studying of this issue.

And then what happened was last year, or 2008, excuse me, time has moved on, in 2008 the IAP was changed in Colorado, and they were drafting new criteria for all the disability categories. And we had a few of our brain injury team members in a psychology, it was a retreat for psychologists and they were going over the new IAP. And at one point one of the psychologists on a brain injury team stood up and said, traumatic brain injury's not in here.

Colorado had taken traumatic brain injury off as a disability category. Not intentionally, so we're told, but I'm a little hurt still, but it was gone. And thank goodness that person was sitting there and like, oh, well we didn't mean to do that. Well, give us, you know, draft up something and get it back to us and we'll get it in there.

And so we have a person at our Department of Ed who's lead nurse, state nurse, and she drafted something, ran it by us and gave it to them and said here's my thoughts on what needs to be included as far as traumatic brain injury. And she changed it from medical documentation to educational identification. So medical documentation or credible history and educational impact.

Well, about two weeks into that process she called them and said, just wondering your feedback on that draft I gave you. And they said oh, that's already to print. She's like, oh my God, you're kidding me. So now, after all these years of careful study, we've got the policy changed, and it's now medical documentation or credible history and educational impact. So, which we are very happy about I will say, even if it was an accident.

You probably can't see that very well, but that just kind of shows you how the eligibility page is laid out. It says basically the same thing the other page just did. What that did for us, though, was put us in kind of now we're kind of back on our heels. And our challenge now is to put into place an effective and efficient identification protocol because now we can't just take everybody's report that their child had a brain injury and say okay, you're good to go, let's qualify you for special education because it is very complicated. And sometimes it is a brain injury, sometimes it isn't, and we have to make some judgment.

So we had school districts calling us in a panic. Oh my God, how do we do this now? How are we supposed to figure out if they're qualified or not qualified if they don't have that medical documentation. So we worked to put a protocol in place, which I'll talk about. But the underlying premise, though, that we keep going back to medical documentation is what we want to get, but we know it's hard to get.

And the other piece about medical documentation, we've all had just a couple stories about, are there any physicians in the room because I don't want to offend anybody. Okay, let's talk about them. No, I'm just kidding. But we do know that, from a medical standpoint, their understanding about long-term impact isn't always there, correct?

So even if a doctor writes they had a brain injury, hands that to the parents and they bring that to the school and say I want an IAP for my kid, that doesn't mean that they need an IAP. You guys really have to do your work to see if there's an educational impact. So we have both ends of that spectrum with the medical world. We have some docs saying get them on an IAP, writing a prescription, I don't know if you guys have seen that here. We get that all the time in Colorado. Here's their prescription for an IAP. It's like, sorry, it doesn't work that way. So we have to establish that there was an educational impact.

That all being said, we still, the gold standard at the Department of Education still is medical documentation, if we can get it. So we're looking at medical documentation via hospital records or from a doctor or clinician whose knowledge, we want them to have knowledge, and we want them to understand what concussion is. We want them to understand what brain injury is, so we're kind of checking to see, do they get those

subtleties? Severe and moderate, we often get that medical documentation, but not always.

Just a little step-back about mild traumatic brain injury. How many of you understand that concussion is a mild traumatic brain injury? Okay, you guys have heard that. What we do know about concussion, as I said, is that most concussions resolve within, at the outset, three months. Okay? There's roughly 5% that have lingering long-term effects from concussion.

And, to me, Brenda and I were having this discussion yesterday, there's a subtle language thing. I think that we're, you know, we are concerned about all kids. We want to know when they have a concussion. We want to be able to help manage during that first three months.

But when it moves beyond that three months, that's when we really need to start paying attention to these kids and making sure that they're getting the services that they need. So someone needs to be tracking kids from the time of concussion out through. What we're finding is that we don't do a good job of that nationally, and then kids come in six months, seven months a year later and they're really struggling, and we've mismanaged that child.

So as far as concussion, there's about 1.6 million to 3.8 million or mild traumatic brain injury per year in the United States, and it's kind of a rough number. Forty-two percent of kids are not seen by emergency professionals. I've been challenged by doctors in our state to say that if it's severe enough they're going to go see a doc. They're going to have that medical documentation. A severe enough concussion, I'm talking about. And I said no, they're not.

And there's been research done in Colorado specifically in a certain high school with some, we use the impact test and they know there's a lot of home-of-the-impact here in Pennsylvania, but anyway, we're using that to kind of track some concussions. Forty-two percent of those kids did not seek medical care. And I am talking about in an affluent school in an affluent area of Colorado. So take that out to the rural Colorado, take that out to less affluent areas, culturally diverse areas, and we're not going to see emergency. So, just keep harping on that issue around mild brain injury.

So our protocol, our first step is we would like to have medical documentation, as I said. If we don't and we get a reported incident of brain injury from a family member or someone, then we need to establish that that's credible, that there's credible history related to that reported incident.

We use a traumatic brain injury screening which I'll talk about all this in a second, and then we have to, the most important thing is establish that educational impact. Because if a kid had a brain injury, how many of you have hit your head and maybe been unconscious? I mean, I definitely was. If you don't have ongoing effects from that, that's great. And we're not concerned. We're not trying to get kids into special ed just for the sake of getting them into special ed. We want to only deal with kids who actually have long-term effects as far as special ed is concerned.

Okay. At the end of this I'll take you to a website that has this on there, but this is kind of our flow chart. And I don't know, can you guys see that at all? Okay. On the left side is if a kid comes in with medical documentation, and then the right side if it's a reported incident. If a kid comes in with medical documentation and they've had a severe brain injury and were hospitalized, use your judgment. Right? Definitely get

them into special ed right away. You don't have to do the whole RTI process if you feel like you understand they're going to have an impact from that brain injury.

However, if they have medical documentation related to a concussion, or they have medical documentation maybe they spent a night in the hospital, I think you want to go through the same process that we do when they come in with credible history, which I'll talk about.

So on the right side is reported incident. When we have a reported incident of brain injury we're looking at conducting a comprehensive health assessment, doing a brain injury screen, really doing some good, solid work to see if that brain injury might be causing some other issues.

Then we move on down to conducting functional assessment, etc. And that's how we're going to determine if they need 504. Or maybe they don't need anything intervention-wise. Maybe it is some general ed intervention, maybe it's special education. So go into these more specifically.

Okay. So the gold standard again, and this is from the literature. John Corrigan and Jennifer Bogner are big into the literature as far as screening and identification. So if you want to learn about screening tools and screening and anything around that, John Corrigan is the most published that I know of. They say that the gold standard for determining prior traumatic brain injury is self- or parent-report, which is also a little scary in and of itself.

If you had a brain injury and were relying on your report, you gave the example of your son who didn't remember anything, it's part of the course with brain injury. But unfortunately, sometimes that's all we have because they were by themselves, etc. So I have, you know, that's what you have to go with. Or if the parent is aware. So we need to do an in-depth interview to really understand what that picture looks like.

So in Colorado we do a comprehensive health history, and that's on our website. The key here is that it should be done by someone who really understands how to do a good interview. So nurse, social work, psych, I mean pretty much any school staff could do this, but it should be more in person or at least verbally over the phone. Don't just mail the parent the form because part of the trick is to really listen carefully to their answers. Is there consistency in their answers? Do they paint a full picture of the brain injury? You want to make sure there is sufficient detail that the brain injury has occurred. And you're also wanting to ask questions a variety of ways, a variety of times, so try to establish that credibility of the report.

Now I sound like I think parents aren't credible by this, but that's not what I'm saying. Yes?

WOMAN: Are you buying(?) that a non-clinical person like a social worker is strict versus a nurse or a psychologist . . . to provide, to do that credible history? Because I'm telling you right now that I know that the questions I've asked clinically are very different than you as a social worker.

DETTMER: Right.

WOMAN: And I would, and I don't think you'd get as credible a history as I would because I'm looking for nuances. And unless I'm scripting you, you're not going to know what to ask.

DETTMER: Right.

WOMAN: Or you're going to have that awareness because you may not . . .

DETTMER: Absolutely.

WOMAN: So my concern is that you're giving an awful lot of credibility to capabilities in the school system which they aren't trained to do. And I think it's unfair to put that burden on them and expect them to solve all of our social problems.

DETTMER: Oh, absolutely, I agree with you 100%.

WOMAN: I'm listening very carefully and I'm very concerned.

DETTMER: We'll get to the website, but we do have a scripted interview, and we're also doing training with the school personnel about what kind of subtleties to look for. But you're right. I mean there's always going to be that issue, just like there is with autism and ADHD. And we're asking personnel to make the best judgment they can based on as much information as they can gather. So there's always going to be the question about is this really a brain injury or not?

And, you know, honestly, I hear it from my neuropsychological counterparts that they have the same concerns when they make that, you know, that determination. You're doing the best you can with the data that you have. And so we're asking school personnel to use the data they have, get some data that they don't have, and try to make the best decision.

Now, I want to say that we don't say don't get outside support with this. If possible, you want to get outside support. The reality is school districts can't pay for neuropsychological evaluations, which would be wonderful if we could. So they're having to punt in a lot of ways. Does that make sense?

WOMAN: We do pay for our own psychs, but the concern I have is I think that the public health issue . . . too that you have the ability to immediately allow the psychologist and school . . . trauma to then monitor that child and look for those changes . . . three months.

DETTMER: Absolutely.

WOMAN: So you're getting it based on . . . looking at those changes along the way.

DETTMER: Absolutely.

WOMAN: They're so subtle, and that's my concern. We . . . psychs, you know . . . the ways you can get a better assessment by demanding to see a neurologist and saying that if they're refusing to, please document that you refused to go call a neurologist. That's a flag. You'd better believe that I'm going to immediately go well, okay fine, I'll call because you're demanding that I document that I refused services.

DETTMER: Right. That's a good strategy for parents to understand.

WOMAN: [Unintelligible.]

DETTMER: Yeah. That's a very good point, and I appreciate your concerns 100%. It's something that we're dealing with as we try to implement this is to do it in a careful, planned way with support from people who are experts in the field. So we'll talk more about what that history looks like, and then the screening that accompanies it, and then the evaluation that accompanies it as well.

So some of the questions we look at, where were you when the incident occurred? When did it occur? How did it occur? What medical interventions were sought at the time, if any? Did you go later after you realized you had some ongoing problems? We're just trying to get a picture of what happened with that child.

Are the answers that you're getting, are they medically plausible? I mean there's sometimes, you know, I'll give you an example. We were going down this road of looking at credible history in one of our school districts, and the nurse was talking to the family and she said, well, he was run over by a car. I'm like, oh my gosh, you know, that's pretty significant to be run over by a car.

Well, it wasn't until the third time she interviewed the mom that she understood that his foot was run over by the car. He fell backwards. He didn't really have any altered state of consciousness. And so she's like, you know, that's not related to what's going on here. So understanding that maybe there is some other issues going on for this child, it might not be traumatic brain injury.

And so what we've found, actually, you know, in the few school districts that are trying to do this right now, is that school districts have been very careful about their process. And not, I was afraid we would get an over-identification of brain injury as a result of this. So far it hasn't been the case because of things like that where, let's say, you know, he was run over by the car but it wasn't h is head. It wasn't his brain that was involved in that accident, etc. So just trying to figure out what's medically plausible.

The other thing to be really aware of, as I said, how many of you have hit your head? That doesn't mean you have a brain injury, right? Not every head injury is a brain injury. So sometimes people jump to it because they had a scalp laceration or they had some blow to the head, but it might not have caused a brain injury. So being careful about that as well.

So the other pieces, there needs to be a reported incident or incidents. We get this a lot where it's like, well, I think my child had a brain injury. Well, tell us about that. And they can't pinpoint an incident or an actual injury. So again, I think parents are desperate and they're looking for some answers, and so sometimes we have to help them find the best answer.

During the health interview details of the incident should be clear and consistent. We kind of talked about that. We want to make sure they don't vary from report to report. And if there's multiple injuries, which often there are with kids with brain injury, then we want to understand each one of those incidents and the subsequent reaction to it.

So this kind of goes to your point. It is tricky because you're dealing with, I don't know how many school district personnel we have in the state of Colorado, and you guys are a bigger state and you have more. How do you educate people about brain injury to make that determination? It is very tough to do.

And so the idea of, and Brenda will talk about the team model here, is really an important idea because then you can build up your expertise within that team. And that team can be your go-to team for some of this. And that's what we're doing in Colorado is using our teams who have brain injury experience.

Okay. Finally on credible history, what we do, and I just want to be really clear that we are not diagnosing brain injury. School personnel do not diagnose brain injury, okay? We are just looking at an educational identification. We are trying to find the most, most, our best judgment about what is affecting this child the most. It's not a diagnosis.

And that's critical when you're talking to families to make sure they understand that you're not diagnosing, that you're just identifying some of the issues that may be occurring. And it could be related to this brain injury, therefore educational plan is going to take a look at that. Okay? Because I get a lot of feedback about this issue around diagnosing. We are not diagnosing. And so, after the health history is done we also do a screening that is also a tool just to screen. Again, not to diagnose brain injury. And that's the C(?) issue, Colorado State University brain checklist screen, and I'll talk about that in a second here.

So, you've done the credible or you've done the interview with the family, the in-depth interview. You're looking for consistency, etc., etc. Then, to help corroborate that, we're using this screening tool that was developed out of Colorado State University. And this screening tool has these three primary areas that we're looking at.

Injury or illness, so again you have to know that there was a reported incident. We do, now I'm going to shift because I said, remember I said I was talking about traumatic brain injury, we do ask about acquired brain injury on the screening tool because we do want to know if they had an acquired brain injury. We can't serve them under traumatic brain injury for special education, but we still want to know that that's what they're struggling with. So injury or illness, behaviors that affect learning that are typical to brain injury, and symptoms after the injury.

So just to give you some background, this screening tool, there's been research done on the tool. There's some initial validity in reliability, and they're actually in their second phase of research to look at specificity of the tool as far as validity is concerned. What we found is that it does, it does pick up kids who are having problems. It's not sensitive specifically to brain injury, and so we're trying to figure out how to get that sensitivity in place.

This is also on the website but, so I won't go into great detail. It just shows you kind of how it's laid out, and it's for family members to complete on their child. And it asks about the incident, so we're asking questions. I can even see this and I'm, you

know, getting older. Questions about a blow to the head, whiplash, car accident. We're trying to put things in lay terms so the family members can understand. Lack of oxygen, meningitis, questions related to that as far as establishing if there was an incident.

Then we're looking at learning style or behavior, and that's on a scale of no problem to extreme problem. So things like focusing and maintaining attention, understanding others, monitoring own progress on homework, those kinds of behavioral questions, things that you can see and observe in a classroom setting.

I should also say that when this research, I was actually at Colorado State University and a part of this research team, and what we did was brought in some of the leading experts in the state, and John Corrigan among them, but to give us ideas about what questions should we be asking, and then did a lit search to see what kind of things should be involved.

What are being shown in the literature as key symptoms, key characteristics of brain injury rather than me just kind of going off the top of my head because that's what I like to do. But, you know, sometimes it should be backed up by research. So this is more about the symptoms. Do they have ongoing headaches or migraines? Loss of muscle coordination, confusion, change in vision, etc., so we're trying to see what other kind of physical symptoms.

WOMAN: . . . did you say this was for the parents to . . .

DETTMER: Yes.

WOMAN: Do you have one that the school personnel would, that you can . . .

DETTMER: We do. And it's very similar. The only thing we don't ask the school is about the incident. We want to know from their perspective what behaviors and etc. they're seeing. And I'm glad you brought that up because kids are very different in a school setting than they are at home often, and partly it's the structure is there or sometimes they're not as good in school because they're fatigued and overwhelmed and that kind of thing. So it is important to get both sides of that picture. Okay. So now, kind of walking you through this, but . . . yes, sir?

MAN 1: Yeah. Is that the form that . . . the parent actually fill out or is that the form that you said you were using . . .

DETTMER: That is not the one the interviewer uses. That's one that they actually just fill out. There's another form, and I'll get into the website and show you the one the interviewer uses as their guide. This one actually is just a checklist for parents to complete.

MAN 1: Is both of those being used? I mean, like . . . a kid this category that . . . trouble . . . fell off his bicycle in July . . . should I use both the oral interview and the form or just one or the other? How do they work together?

DETTMER: Use both of them. That's what my recommendation is because, again, that personal interview is going to give you more detailed information. And you can kind of check to make sure that that credibility is there in their answers. This kind of helps just to corroborate that they are also saying it again on the screening tool. I think it's just different measures to ask some of the same questions.

And, you know, we got some feedback from school districts concerned that we're already asking that in the health history. But you want to ask it again. And you might want a different interviewer to do it, if possible, to see what kind of answers you're getting. So good clarification.

WOMAN: Does the BrainSTEPS team do any of this questioning? Because we just had a child that was hit by a car and we had a big consultation with their rehab center, and they, of course, told us to contact the BrainSTEPS people, which we had already done.

DETTMER: Okay.

WOMAN: And I think with the BrainSTEPS team, I believe they did a lot of this research . . . is that right?

BROWN: We don't have anything formalized yet. That's our plan in the coming year to do something more systematic. But the teams do know the right questions to ask. But we don't have anything as formal as their screening tool in Colorado.

WOMAN: Because we called our intermediate unit, and they had a BrainSTEPS team that came out, so to kind of answer . . .

DETTMER: That's a good point. You could get some assistance.

WOMAN: But it was interesting that . . . asked us to call them back after like the child had been back for 30 days or so because we had a better baseline than they did because . . .

DETTMER: Oh, interesting.

WOMAN: . . . the child had been in special education prior to being hit.

DETTMER: Oh, okay.

WOMAN: We already had, you know, a psychological and all those other things done.

DETTMER: Oh, that's interesting. And . . .

WOMAN: Yeah, it was kind of a reverse. They were calling us and saying what did you see initially? This is what we're seeing now. Could you call us back in 30 days after he comes back to see if there's been . . .

DETTMER: That's great.

WOMAN: . . . a change in the data. So . . .

DETTMER: And I think that's the way the communication should flow, back and forth. I mean we should get communication from the medical community as well as offering communication back. And everybody should be monitoring the child. You know, the medical home initiative that's starting out of public health or, well, not starting, it's well underway, is to have that kind of communication, have that center of care. And they would love physicians, primary care physicians, to be that lead with that. And so we offer that help, you know. Here are some of the things we're seeing, here's how you can be very in tune with what's going on with your patient. But it takes a whole team to do that.

WOMAN: This was at Good Shepherd Rehab Hospital. I think they're very tuned in to what's going on.

DETTMER: That's excellent.

WOMAN: It was. It was, we felt as . . . school team, gosh, we felt we had the best of both worlds because we knew the child before it happened, we're going to have an opportunity to see the child after it happened, and we report back to have two(?) meetings about it.

DETTMER: Right. That's great to hear. Excellent.

WOMAN: Not that you want to have a special ed kid be the one who gets hit by a car, but at least you had . . .

DETTMER: But you had some baseline. Yeah, that's interesting. I'd be curious what you found later. But anyway, okay. So once we have established credible history using both the questionnaire, the interview, the in-depth interview as well as the screening tool, then we want to make sure they have some educational impact. I mean, again, that is critical, obviously, when you're looking at 504, special education, any kind of intervention. You need to understand how all of this impacts them educationally. And just to know that presence of a traumatic brain injury does not automatically equal educational impact.

And when we do have kids who do fine, well, my sister is an example of that. She did great, she got straight A's in school. She would not have qualified for any kind of special education support. And she did not need that level of support. Now does that mean she didn't need some support? No. But as far as education she didn't need that level of support.

So some of the things we're recommending for establishing the educational impact is to look at functional observations within the classroom. I think this is a really critical component that is hard because it takes time to do, but it's really important to see

that kind in their environment. You can read all the reports, you can talk all you want with families, etc. It's so helpful to see them actually interact in their environment because that's where you see what some of the root causes of the issues are.

A lot of our kids get labeled as having behavior difficulties, and oftentimes when I go into a classroom setting and take a look, you can see some environmental changes that can be done to help support the child that eliminates, or decreases at least, the behavior. So a lot of times environment is the key.

So the other piece, and in the spirit of RTI, focused assessment. So, you know, how many are psychologists in this room, school-oriented? Okay. How has RTI been implemented in Pennsylvania? Are you guys having to really modify the type of testing you do to look at more focus-specific? No, not necessarily?

WOMAN: Where we are, we don't have any of our districts within our IU that are fully at that RTI level where they . . . what we're hoping for is that when it does come through there really is less testing through the psychologist and more coming directly from classroom and curriculum-based and . . . those interventions so that when we get it, it will be those direct, those, you know, those perhaps, and they say we may not even need to use IP testing. I, you know, we'll probably always do that just to make sure that I'm not looking at something other than a learning disability or whatever.

DETTMER: Sure.

WOMAN: But it should become more focused, and less is what we're hoping for.

DETTMER: Right.

WOMAN: . . . when they are a fully established team.

DETTMER: Okay. That's good. That's kind of the similar way Colorado is working. It's maybe a little further along in implementing it. What it doesn't mean is you don't do any testing. And some people are interpreting RTI as you don't do any testing. That's not necessarily what the intention of RTI is. It's more to get at that focused assessment. So if you're concerned a child has memory issues, if you're concerned a child has beta(?) processing issues, do some focus assessment related to those issues.

And, as I've already said, I'm not a psychologist, but in talking with the psychologists in our state and neuropsychologists, what they're finding are test-makers are adapting their batteries to have focused assessments. So you can pull out specific tests to look at specific issues, which I think is probably smart on their part to adapt to education and what's happening in education, which has allowed some in setting up some good focus assessment related to brain injury issues.

So looking at functional observation, again it's an opportunity to talk with the teacher, talk with the parent and the student and really find out what do you think is going on with this child? Asking the student themselves, what are you understanding? What are some of the things you do very well? What are some of the things you struggle with? Why do you think you struggle with these things?

I think, you know, I don't talk about this in this particular presentation, but bringing the child into the fold is critical. And a lot of times family members are a little hesitant about that, understandably. I totally get that. But we are never going to be able to give them the self-advocacy skills unless we start bringing them in to help them understand why they struggle. They know they're struggling, that's not a mystery to them. They're just frustrated. They've having a hard time. It's better if they have a picture of why perhaps they're struggling. So bring in that child and ask them specific questions because you'll get different answers from the kid, from the parent, and from the teacher. And not because everybody is all over the map and just wacky and nobody knows what they're talking about. Because the kid has a different perception of why they're struggling, the parent does, and so does the teacher, so it's important to have the whole picture.

And then, as I said, we do functional school-setting observations. I will say that our brain injury teams are not as far along as yours, and it's really tough as brain injury team members to get out there and do observations. And I totally get that because they don't have release time, you're, you know, it's very tough to get out there. But if possible, as much as possible, getting out into the classroom and then just kind of summarizing what you're learning through that process.

As far as formal focus assessment, stuff that we're looking at is cognitive, looking at neuropsychological, if we can get that evaluation, or components of a neuropsych eval. Achievement is a critical piece to this picture. Speech/language, occupational therapy, physical therapy, adaptive, what's happening adaptively for the child, emotional, behavioral and executive functions. And that bottom one is probably the most critical when you're talking about brain injury.

Okay. I'm going to wrap up this part and we're going to take a little break and then I'll get into the website. But I'm kind of going back now to my question earlier, why does it matter? If kids are being served under IAPs, and whether they're being served under learning disability or whatever your term is here in the state of Pennsylvania, speech/language, other health-impaired, whether it's one of those different categories, why do we care if they're being labeled as traumatic brain injury? Any guesses? Any thoughts on that? Any feelings?

WOMAN: My . . . the only thing he got . . . some support. Since his accident he's been labeled as PDI. And actually . . . category and he's showing a different . . . for tasks . . . where he can't suddenly form sentences and . . .

DETTMER: Great. That's . . .

WOMAN: . . . and our person from the STEPS program . . . think that maybe he's just shutting down . . . oh, you know. They're not there, they're not understanding because it's invisible.

DETTMER: Right.

WOMAN: It's not . . . or something else. It's invisible and we just . . .

DETTMER: Very well stated. Did you see anything different with your son as far as his attitude related to it? Or did it affect him in any way?

WOMAN: His personality was changed a little bit. But of course he turned 15, so . . .

DETTMER: Never mind.

WOMAN: . . . and he said to me in our meeting, I'm fine. I'm fine. There's nothing wrong with me. Why do you think there's something wrong with me? But yet he just called me and he said, I just failed two classes and I'm so . . .

DETTMER: Oh, okay.

WOMAN: . . . but it's just, it's just difficult. Some teachers are really picking up on it and working with the team and . . . and some, like an English teacher who . . . writing, memory, essays . . . but the personality's already come back . . . you're not going to see a lot of progress for a year . . .

DETTMER: Yeah. Well, good. I'm glad he's involved with that, though.

WOMAN: Oh, you know . . . a hospital or school district are . . . went to another CBI training this summer and it's just, I can't say anything but good stuff about this. I know . . . district . . . it is about helping to understand and . . .

DETTMER: Right. Exactly.

WOMAN: [Unintelligible.]

DETTMER: Thank you for sharing that. Yeah, exactly. Thanks for sharing. Yes?

WOMAN: I think . . . so serious because it leads to our kids dropping out . . . identified as behavioral problems when . . . I often find when I take a history and find that they're, they should have been identified as CBI and they're being funneled into the mental health arena instead of addressing those issues. So maybe . . . diagnosis, I understand that later on because of the lack of support initially that that could happen, but also the level of functionality, even it was a mild one, were those . . . vocational college level . . . transition have tremendous amount, tremendous effect. And without that identification you don't provide enough support. But we also don't provide them their self-advocacy skills.

DETTMER: Exactly.

WOMAN: Because when you can't(?) self-advocate, at a certain age. . . self-advocacy does not . . . teen(?) self-advocate who doesn't happen.

DETTMER: Right.

WOMAN: . . . very early. And it's a tough cycle. And I think it's truly this self-awareness, that piece of teaching . . . and also that social skill . . . maybe affected that causes them to have peer relationship issues that are significant.

DETTMER: And talk about job loss, I did job work a long time and that was the biggest issue, why our young adults, and even older adults, with brain injury got fired. That social component, not being able to read social cues, not being able to understand how to work within a team in your environment. Very good points. I think that's all very critical to understand. Yes?

MAN 2: This . . . do you remember . . . your head . . . you don't remember . . .

DETTMER: That's a complicated question you're asking. Do you remember the trauma when you're hit in the head? And, you know, now with veterans coming back with co-occurring PTSD, traumatic brain injury, there's a lot of issues around sorting out is there PTSD? Can there be PTSD if you don't remember the trauma, which is a part of the definition for posttraumatic stress disorder.

I think sometimes as far as just brain injury is concerned, sometimes memory is affected and sometimes it's not. I don't think you can say across the board people will never remember that trauma. Many do, some don't, you know. It's all over the map. Would you agree with that because you see these guys all the time, complicated? So it's not an easy answer as far as will they remember or not. Yes?

MAN 1: . . . why it's important that . . . two big reasons . . . school. Number one is the attitude, really, of regular ed teachers. I mean you've got a kid with special needs . . . back in the . . . about it. Teachers . . . or, you know, why isn't he doing that. He's, you know, more than capable of it. He did a great job in September, why is he falling apart now? He must be focused on the basketball team and that kind of thing and not really understanding the long-range impact that it could have over the course of . . . three months, a year or more.

And the other thing is the tailoring the education to what they need. I mean, as most people know . . . parts of the brain control . . . where that injury occurred, this might . . . disability. It's not to say your learning disability, it's not to say you're learning disabled . . . more auditory or more visual, more . . . same thing with a brain injury. Depending on where the injury occurred in the brain, that may . . .

DETTMER: Very good points. And I think, you know, all of you summarized this all very well as far as why we care. And, you know, the number one thing I heard each of you say is the behavioral component and this kind of misunderstanding of if a child's not doing well or appearing not to try hard or whatever, that they not get labeled as having a behavior problem. And that's the slippery slope because I've seen that happen a lot with kids with brain injury.

And, you know, our criminal justice system or youth correction system is overloaded with kids with brain injury, and our adult correction systems as well. So we

aren't talking minor consequences of not understanding this, we're talking really severe social consequences when we don't understand brain injury and treat brain injury.

Okay. I'm getting the time for a break. I'm just going to click, make sure we've covered all this, which I think we did. The only thing we didn't cover, which is my own soapbox, is identification drives numbers, drives money. I hate to say that, but if we don't have an accurate count of kids with brain injury, when I go to a school district special ed director and say, you know, you guys really need a brain injury team in your school district, and they'll say why? We have ten kids identified with brain injury. It's like yeah, good point. But that's because you're missing all the kids that are out there with brain injury.

But they're looking at the raw data. They have to make decisions based on data. That's the reality. That's fact, that's life, that's the way it goes. I'm an administrator, I understand that. So we have to do our part to make sure we're accurately identifying so we can justify why we need these supports out there and so we don't have these kids going down this path for years and years, etc.

Okay, so we talked about preventing that cycle of failure at the advocacy skills, all that, so you guys covered it all. Let's take, how long of a break do you think we should take?

WOMAN: Ten.

DETTMER: Ten-minute break and come on back. So I want to show you the website that we developed. Oops, thank you. Forgot to turn my mic on. I want to show you the website that we developed out of Colorado. Before I do that, though, I do want to clarify something because of the question about school personnel and ability to identify brain injury.

The reason we developed this website and kind of what we've done in response in Colorado, our school districts will very seldomly pay for a neuropsychological evaluation. It has to be a pretty extreme situation in which they'll pay for that. And so, just to, I don't know what Pennsylvania does. Every state does different things.

So do you guys find that school districts pay for neuropsychs? I mean I know that you said that school districts do.

WOMAN: On occasion.

DETTMER: On occasion.

WOMAN: Well, it's not unheard of . I mean it's not rare.

DETTMER: It's not unheard of, it's not rare, it's just not always, right?

WOMAN: If the team is really strongly suggesting, then . . .

DETTMER: Okay.

WOMAN: And if there's an attorney involved that might have . . .

DETTMER: That's what we're missing are some attorneys.

WOMAN: . . . from being on the other side of . . .

DETTMER: Okay, interesting.

WOMAN: School psychologists are also being treated . . . school psychologist . . . program based on . . .

DETTMER: Okay. I don't know if everybody heard her. She said school psychologists are being certified as neuro or school neuropsychologists. And I'm aware of that program, and Colorado has a certification in brain injury, not . . . school psychologists, not to be neuropsychologists but to give some insight. Yes?

MAN 1: That's the thing. I mean if the school recommends it, then they have to pay for it. That's the wrong . . . like she said, unless it's an extreme case or a lawyer is involved, they . . . expensive.

DETTMER: It is expensive.

MAN 1: And once that the kid gets into college, there's no way that they . . . disability services office. They definitely will not do that, so that's the other issue.

DETTMER: Okay. I just wanted to clarify that because that is what we've, I think we have a similar picture in Colorado as here, and so, in response to that, what we are finding is school districts being very frustrated because they felt like they didn't have the tools necessary to make a judgment call about whether or not this might be related to a brain injury or not.

So as we've been going through this whole process from a reported incident, even if it was medical documentation, school districts are still like, well how do we know if there's an educational impact related to that? How are we supposed to make that judgment? And so we developed this website kind of in response to that question and to hopefully give school districts some tools that they can use within their school setting and that they're qualified to use.

So, if you look at it, there's a bunch of things on this website. We have a manual that's being revised, so that's not there yet, but the TBI identification protocol is on there. We have a matrix which I'll go to in a minute. We have some stuff around mild concussion. I'll show you all that. Well, actually, it just popped up so I'll show it to you now. And you guys can download this from here. Let me make this . . . okay, sorry. It's www.cokidswithbraininjury.com. So c-o-k-i-d-s-w-i-t-h well, I'm not going to spell the whole thing, cokidswithbraininjury, and withbraininjury is all one word or flows together with cokids. So everybody got that? Cokidswithbraininjury.com. Okay.

So the reap(?) manual, this was a product developed from a clinical psychologist who's working as a mental health director in one of our school districts, and she did a study with impact that I kind of referred to earlier. And out of that study, this is kind of

what she felt our best practices related to helping people with concussion as they reenter school.

Well, she found with impact was that the focus was on return to play, but a big side was missing as far as that return to academics and the full-life picture. And so she wrote this manual to help schools, parents, and medical professionals understand how to best transition the kid back into full activity. I have a few of them. I've left them in the room, but I'm going to give them to Brenda, and then if you like them you can download this copy from the website. But it's a really pretty straightforward, easy-to-use manual on how to help manage concussion.

So I just want to go into this identification protocol for a second and show you the things I was talking about. I don't know, can I get rid of this somehow? I'm trying to figure out how to make this bigger. Is it maximized? That was max? Oops, there's China(?). Bringing that back. Okay, we'll just deal with it. You guys can play with this obviously on your own. I think you'll find it pretty easy to get into.

So that comprehensive health assessment was developed by school nurses, and we just kind of took from all the various ones that were being used out there. And our state lead nursing consultant summarized that into this health assessment. The thing about the health assessment is that we are not just looking at brain injury because the key is we're trying to get the full comprehensive health picture. Again, we're trying to understand are there other issues that are going on that may not be brain injury-related that could be influencing this picture?

So you can kind of see we look at what happened during the birth process, developmental history. And again, this is by interview, not by checklist. Illness, hospitalization, surgeries, what's the picture there for the child? Baby systems(?) history, I mean these are kind of like well-baby checks, just kind of what nurses look at. They do have eyes on there, but I don't think it's specific to the vision questions. Anyway, looking at the full system of the body and then trying to understand this medical picture that the child has been through.

The other piece is getting as much medical documentation, as much medical records. So that just gives you an idea of what is involved with that. And then, if you click on this, it gives you records as possible. And the nurse, then, does a thorough review of all those medical the brain injury screening tool, which you can see better on here than my little snapshot on the PowerPoint. Or not. I think I interrupted its thought process. I understand that. Calm down, patience not my virtue. Talk amongst yourselves.

Anyway, so this is just meant for a guide for schools to be able to kind of go through step-by-step this identification protocol. And trying to have some systematic method for this because what we've found is, like I said, all over the map. Some school districts were doing a comprehensive process, some weren't doing any kind of comprehensive process. We're just trying to figure out how to best do this. So that'll give you the screening tool, which we talked about, but you can kind of see better up here.

And we're using the screening tool right now even though the specificity is not there. It's still a good guide for us to use. We're hoping that that research wraps up in a year, so we should even have a more refined tool when that's all said and done. Okay.

What else did I want to show you? I mean there's just, everything I talked about is within this protocol.

Functional observation. This is just the simplest form on the planet, but what I have found is teachers have said, or school personnel, that it just helps them to get a sense of what they're looking for when they go out to do an observation. And the back, the last page, shows kind of what we're looking at. Don't get sick watching that. So it just kind of tells you what kind of things are typical that you're going to see influence a child with brain injury.

I'll tell you, to be very honest, that this works really well on an elementary setting. Somewhat in middle school. Once you get into high school it's really tough to do functional observation to see what's really happening with that kiddo. But it's still important to see the environment and see what's happening.

Okay. Oops, knocked myself completely out. Okay, please hold again while Judy does technology. That's China. You probably knew that by the wall. Okay. I just want to show you a couple other things on here, and then I'm going to have Brenda talk about the BrainSTEPS program.

I want to show you the matrix because this is what, in talking to our school district staff, they felt is the most helpful to them in working with kids with brain injury. Developing this matrix was a huge community effort. We have the traumatic brain injury networking team and we have a steering committee that involves school personnel, clinical psychologists, neuropsychologists, Department of Ed folks, myself. Community health, public health folks were on this team to develop this matrix.

So what we tried to do was figure out what are the areas commonly affected by brain injury? What are the questions we're getting most often from school personnel? So, you know, we know new learning memories, speed of processing some of those things. So if you have a child and you're questioning is this related to memory? Is this related to speed of processing? This matrix is there to help guide them, understand that picture a little better.

So let's go to memory, actually. So if I suspect my child has issues with memory, memory is hard to understand. It's hard to know, is that related to memory? Is that attention? What is this? So it gives a little insight about what might look like memory issues. So you click on it and it shows you behavioral impacts. So what are you going to see in the school setting? Can't remember more than one thing at a time? Doesn't remember recent events? Disorganized? Looks spacey? Appears manipulative? Just some subtle things that we see.

As far as cognitive and academic impact related to memory, you can see can't retell a story, forgets assignments, forgets events, difficulties with spelling, retaining new skills. Those are all things that can be part of memory.

And then what we do, as we're trying to make this identification, in working with the neuropsychologists and some of the school psychologists understand what can people in the school systems give as far as focused assessments, these were some of the key ones that were identified as subsets that can be helpful in understanding that picture of memory.

So you'll see the whisk(?) for and, again, I'm not a psychologist so I hope I don't misspeak here, the Ramal(?) NEPSY. There's just various tests that psychologists can

administer in a school setting. You do need special certification for some of these, but school psychologists can get that certification.

And then we also, this is, I was saying earlier that this is a work in progress. It's something we just got up and running, really. So if you go on this, and if you're in a particular discipline and are like, well, they don't have this on there, give me a call because we will add it. You were mentioning vision and the impact of vision and how do you test for some of those things. What can the schools do to understand that picture better? We want to add those kinds of things.

I'll be very honest that our committee was heavily weighted with psychologists, so we have better psychological evaluations-focused assessments than we do speech/language, OT/PT, those kinds of things. So if you have specific suggestions, please do call us and give them to us because we're trying to build this up as much as possible.

Then the other piece is looking at environmental supports. What are some things that you can do to help accommodate some of the memory issues? And then resources. So how many of you heard of BrainSTARS manual? Okay. Dr. Jeanne Dise-Lewis, who is on our committee, we get the good fortune of her living in Colorado, wrote the BrainSTARS manual, and it's a really comprehensive manual about intervention and strategies for working with kids with brain injury.

This is kind of BrainSTARS' manual online a little bit. She has these tabs, so if you, problem-solving index. So if you have a kid who has memory you go to the memory tab and it tells you kind of strategies for how to deal with that. It gives you background on what brain injury is, some of the developmental stages and how that relates to a kid with brain injury. It's a really good, comprehensive book.

Now, you used to be able to get it at Lash & Associates. They stopped carrying it, so now you have to go through Jeanne. So if you guys are looking for it, actually Brenda, I'll get her that information as well about how you get those manuals now. But excellent resource.

LearnNet is another excellent resource, and that came out of Mark . . . who recently passed away, which is really unfortunate for the brain injury world, developed this website called LearnNet. To me it's BrainSTARS on steroids and on the Internet. You go there and it's such excellent problem-solving. He walks you through all the steps for how do you identify is it related to memory? Is it related to attention? What are some of the strategies you can use, etc.?

So those are just some excellent resources for you guys to be aware of. Any questions about the matrix and kind of how that works, etc.? Okay. As you're working through it, please do give us feedback. Like I said, we're trying to make sure this is as user-friendly as possible. Okay. I think that's, we have a blog, and I believe our friend Brenda was the first one to blog me, if that's what the proper term is on the blog. Whatever. I'm not a blogger, can you tell? But anyway, so you can always write your suggestions there as well and we'll pick them up that way. Okay.

I would like to actually ask Brenda to come up and talk about the BrainSTEPS model here in Pennsylvania because you guys have a really tremendous resource going on here in your districts. And we're trying to replicate that in Colorado, so I'm learning a lot from her, picking her brain while I'm here. Okay. Oops, please hold while we transfer. I've got to dig into my shirt now and . . .

BROWN: Is it on? Okay. Well, thank you. This is so important, I feel, that you are here today because this is such an important topic. And not just even in the educational realm, but if you're watching TV and Ben Roethlisberger and his brain injuries, and it's really in the news a lot now with the veterans returning because, you know, we know that the brain doesn't fully develop until about, you know, age 23, 24, 25. So the majority of the veterans who are returning are, you know, ages 18, 19 through 25. And the ones that are returning, a lot of them have severe concussions.

And just another thing I would like to mention is that it's hard to cross over because we're talking a lot about mild brain injuries, which are concussions, moderate brain injuries, and severe brain injuries in the medical definition, okay? So those are all medical definitions, but those do not translate to the educational effects a child's going to have. And we have learned through our program over the past three years that we have been serving students who never lost a second of consciousness and have just as severe effects sometimes as a student who was in a coma for a week. So it's very varied, and that makes it very confusing.

But a little bit about me. I live north of Pittsburgh in New Castle. I direct the BrainSTEPS program, which is the brain injury school re-entry program here in Pennsylvania. And I was a special education teacher for several years in Fairfax, Virginia.

And my brother, when he was 13 and I was 14, he was riding his bike up in New Castle in the summer, July 2, 1987, and he was hit by a car, not wearing a helmet because it wasn't required. It started to rain, a lady had been drinking on her way home from work, hit him, and among multiple broken bones he had sustained a severe traumatic brain injury. So I watched what my family went through in the hospital thinking he was going to die for a long time, and then, when he did live, he had brain surgery, woke up from the coma, didn't know who anybody was, went to Harmarville Rehabilitation for almost a year.

And when he went back to school he did look normal. He looked completely normal. He had a limp because he almost lost his femur bone, so that was the biggest issue was that orthopedic impairment. And when he went back to school, you know, he looked normal but he was not normal. Lost all his friends. Everyone rallies at first, and you'll see that in your schools. When an injury first happens everyone's there, all the friends are rallying. That's a big deal, which is great.

But then over time, when they come back, and maybe they're a teenager, they don't get those nuances, they don't get the jokes maybe anymore, their voice may be more monotone. Any little, anything that sets a student aside and makes them different tends to turn friends away.

So a big focus of BrainSTEPS is also on peer intervention and understanding because, as I was just telling Dave Cattell(?), one of our team members, it's so important for kids to have those friendships because things aren't the same. And someone had said before it would be so nice if we could just write friendships into an IAP. That would solve so many problems.

So the BrainSTEPS program, it is funded by a Title V federal maternal, child, and health grant from the Pennsylvania Department of Health. But I am ecstatic because yesterday I found out that the Pennsylvania Department of Education, Bureau of Special

Education, is including us for the next two years, at least, in a professional, see now I can't think of the name.

WOMAN: [Unintelligible.]

BROWN: State personnel, yes . . . yes. So we will be doing a lot more training and capacity building on brain injury around the states. Very excited. So they are now involved in our funding. Prior to that we were partnered from the very beginning with the Pennsylvania Department of Education. And the program is implemented through the Brain Injury Association of Pennsylvania, which is essentially where I work.

How many of you in here are familiar with the BrainSTEPS program? Okay, great. Wonderful. How many of you in here are team members? Yes. Well, these people, hold your hands up, these team members are actually the backbone of this entire program. This program is completely voluntary, so asking people to do things on top of their already overloaded work, you know, daily routines and what they are required to do for the Department of Education is a difficult position. And they have taken it and really run with it. Without them, this program would not be where it is today.

What we've essentially done, we looked at Pennsylvania and we thought, okay, we have 29 intermediate unit regions. Let's start there because a lot of the states who have done this program in the past utilized teachers. And their programs didn't work. They weren't longstanding because teachers have trouble getting out of classrooms and can't really consult regionally. So the intermediate units make good sense.

Our teams serve as consulting teams to the school district teams, so we don't provide direct service. We aren't like a therapy, we don't accept insurance. And they're extensively trained on the educational aspects of brain injury. Now, we not only do traumatic brain injury, we do all brain injuries. Non-traumatic, so any point from birth on, after birth. There has to be some period of normal development. It could even be a few hours. Shaken-baby syndrome, all of that can be included in the students that we serve.

Our members are based out of the schools, the intermediate units, medical rehabilitation facilities. We have neuropsychologists in our teams. We also have a lot of medical-based therapists that serves the bulk of our teams besides the educational professionals. A lot of community agencies and institutions. We have OVR representatives on some of our teams, a lot of professors at universities on our teams.

And I feel one of the most important parts are the family members that we ask every team to include on because, unless you've been there, you can, you just really, those parents need that parent contact to say, you know what? I have been there and I know what it's like to have a child who is normal and to have goals for them, and then one day you get a phone call and that child has gone through the worst nightmare any parent could ever experience.

They survive it, thank goodness, but then to have to go back into school and have people not understand it because the training just isn't out there on brain injury. So no one's faulting the school system that they don't understand it, it's just not available out there to everybody.

So our objectives, we want to increase that awareness in the schools. We provide training and technical assistance to the schools, to the families, to the

healthcare providers, to hospitals. BrainSTEPS information is included on Children's Hospital of Philadelphia and Children's Hospital of Pittsburgh's emergency room discharge forms for children who have brain injuries and the trauma unit forms. So, even though a lot of people don't read those, we are making headway with those hospitals.

We are partnered with all five children's hospitals in Pennsylvania and also every single pediatric rehabilitation facility. So anyone, whether it's the Children's Institute, who we have a bulk of our therapists from in Pittsburgh, or just centers like, I can't even think off the top of my head, but anyway, any pediatric rehabilitation facilities we have on our teams. We can do any number of things. We help with the IAP planning. If they don't need that, 504s. Just offering teachers suggestions.

Currently we have, we started in September 2007 when we received our grant. And our first cohort, we have three cohorts, we can only train so many teams each year, and the first year we trained the red, yellow and blue teams. These are the IU breakdowns. So regular and blue were trained the first year, and then the blue, the green, and the purple were trained the following two years. Now we have, let's see, Skukle and Berks are training. They're already on board to train this coming fall. We already have their applications in. We really want to get the remaining intermediate units on board. It's a totally free program, so if you're from any of these regions or anything, please contact me. I will be doing a training this fall.

We currently have about 250 active team members, so we, you know, we try to keep track of that. I just want to talk a little bit about it. We do offer our team members training every year, so our next training will be at all three patent sites April 26 and 27. We bring in experts in pediatric brain injury to build a capacity of our teams because that's so important, you know. We can't just swoop in there and then be gone.

And another thing to remember is it's important, and our BrainSTEPS team know, that once they do swoop in and fix things, it's a temporary fix because the brain, as it matures and develops, new problems arise. So every year our teams are asked to check in with the students who are on their rolls.

There is also a concussion bill I wanted you to know about. A concussion in youth sports bill that has been introduced by Representative Briggs from Montgomery County. And we will be really pushing that because what it will do is it will say that all students in youth sports in high schools or anywhere will need to, their coaches will need to be trained on concussions, parents will have to sign off saying that they understand about concussion effects, and that student cannot be returned to play until they are cleared by a healthcare provider, which is very important. But that's a whole other presentation.

The Low Incidence Institute that is coming up in April. It will be held in Penn State. If you liked what you heard here today, we are bringing in two other speakers on traumatic brain injury. One will be focusing, Dr. Perry Zirkel, he was here, he's actually presenting in another room right now. He is presenting on laws relating to education, specifically to traumatic brain injury. And also Dr. Tim Feeney from New York will be coming in to present on executive functioning and self-regulation. So this is a really great time if you want to come and learn more. It will be fantastic. Two full days.

WOMAN: It's August, not April.

BROWN: Did I say April?

WOMAN: Yeah.

BROWN: August.

WOMAN: The week of August 2nd.

BROWN: Thank you. Thank you. Also, BrainSTEPS will be expanding in the next two years starting this year. We are adding a disability support coordinator from one college or university in each of our BrainSTEPS regions as a peripheral team member, just so we have someone to guide the families for the students that are going onto college because we're seeing that disconnect. Or they go and the disability support coordinators have no clue about brain injury, so now we're hoping if we have at least one on every team, that professional can work with the universities to help them better understand, you know, brain injury.

And then all that you can do is make sure that every child in your region is referred to BrainSTEPS, and I'm going to show you exactly how to do that. Judy? How do I get on the Internet? If you go, write this down, if you go to the address www.brainsteps, b-r-a-i-n-s-t-e-p-s.net, the Pennsylvania Department of Education, which is really exciting. This past year we debuted a database so that we could start tracking our outcomes for our teams. But if you go this website, all you need to do, this is our flier right here. You can click and download. And right below that, right here, is make a student referral to BrainSTEPS. So if you click that, we have all of our teams broke down by county, so you can just look and determine, you know, where if there's a team in that student's county. You can call that team leader or email that team leader directly, and then they will get started on the process.

We do have best practices that we came up with last July through, with the Department of Education, because all of our teams, as you know, intermediate units all function completely differently, which I didn't realize at first because I was from Virginia, so I thought this would be so easy and systematic.

They were functioning very differently, but they all had the same common goal. So we came up with these best practices that we asked, you know, you can do however you'd like, however it's working for your team, but we do want these certain things. And one of those certain things that we want everyone to follow is charting their student. So every time they get a student referral the information goes into our database by the teams. And then every activity performed, whether it's whatever it may be, the minutes get logged. So we're really excited to see what this is going to show in the future.

But currently, 69% of all the students that are team C have traumatic brain injuries. And of that 69%, half of them have severe concussions effects. So it is very alarming that the students are not getting better. So people are like, well, why now are we just seeing all this? Well, we aren't just seeing it, but if you think about it, you know, maybe 10, 15 years ago, before we understood these concussion effects, the doctors say they're going to be fine, there's no showing on a CAT scan so they send them home.

So when the student starts having these severe behavioral outbursts or, you know, all of a sudden failing, the parents don't know to even connect it with that concussion. But now there's research out there, so we know, hey, this is serious. This is true.

So lots of good stuff coming out of Pennsylvania. Pennsylvania is considered, the BrainSTEPS program in Pennsylvania is considered a national model. So other states are starting to really look at our program to replicate. And there's just a lot of attention on the good work that all of you are doing, so please refer these kids because they really need us. Yes?

WOMAN: Is there any data that shows that these children turn toward addictions(?), whether(?) you're in high school or as they get older because of the frustrations of having the brain injury?

BROWN: Yeah. I know Dr Wayne Gordon did a whole paper, was it in the *Wall Street Journal* last year? I don't know. Dr. Wayne Gordon out of New York. He's done a lot of research on the social ramifications of not identifying adolescents with brain injury and what, you know, the dropout rates and all of that. So if you Google him, Dr. Wayne Gordon. Yes.

WOMAN: The other is Dr. John Corrigan, who . . . substance abuse . . .

BROWN: Yes. John Corrigan. It's C-o-r-r-i-g-a-n.

WOMAN: Thank you.

BROWN: Any other questions about the BrainSTEPS program or anything? And as, I think Judy mentioned earlier, it's not the students who are severely injured. They're really easy to program for, for the most part. It's the students who have the mild, moderate. I don't even believe in mild. If that student is presenting with concussion effects, that's a medical term. That is not, that does not mean that they are not going to have these severe effects in school. But they are so hard to program for because they look normal. And a lot of these kid are gifted and it's, you know, so they drop down to the average level of functioning. And that can be devastating. Yes?

MAN: . . . question. Number one, you said that if the . . . past is all . . . to get third party . . . training by the BrainSTEPS team . . . or is it something different than that?

BROWN: Well, you know, it's very vague right now. They're throwing a lot out there about this bill. And I've been asking the same question about that. Where is this funding going to come from? And I know our BrainSTEPS teams will definitely be called upon because they are the one that have been trained on concussion effects. I don't know systematically how they're going to do that. I know, I think Washington state already has this bill in effect. It's going to take a lot. And also, you know, healthcare provider, that means athletic trainer too. So it's not just medical doctors that will be clearing, so it will be a lot of training.

MAN: I have the other thing related to that . . . or any other governing body . . . USA hockey making it required that we . . . as part of a yearly physical get a baseline testing . . . of kids' brains or not? Because I think that is also really important, and that should be part of a yearly physical. But again, the cost(?).

BROWN: See, that would be fantastic. And the thing that I think of, like even for football players, the impact test is a lot cheaper than the best helmets or the helmets, new helmets. I know that the Little League and all of that are starting to look at these concussion baseline tests. There are several out there.

We're most familiar with the impact because it is used by the Olympics and NFL, NHL, and they're right in Pittsburgh. So I don't know, you know, who's best, per se. I know what we use and what everyone else considers to be the best. It would be perfect if in this bill, and I did let them, the representatives, know that, as did other people, that really there needs to be some type of baseline in order, because there's a chemical cascade that occurs in your brain. So you're not just going to have physical effects like a headache after a concussion, there's actual documented, a cascade, a metabolic cascade that occurs after a concussion.

So these effects only show up on neuropsych-type testing. So it would be good if every school did this. But yes, there is a cost involved. But I think that's the direction we're heading in, especially with all of the news right now about returning veterans. And you know who has the most updated resource of anybody? The veterans. If you go look up veteran's concussion, they have the latest protocols, and they have the money for that research. So anything you ever read about veterans, that's the protocols that you really need to look at because they know what they're talking about.

But thank you. This is my passion, I love it, so I'm so glad you're all here. If you ever have any questions in the future, feel free to call me. I don't know, or email me. You can just Google my name or look on BrainSTEPS.net. Yes?

MAN: [Unintelligible.]

BROWN: It's not a lot. I think he said it's a couple hundred dollars for the program. Carol, do you remember?

DETTMER(?): It's $500. At least the last time I checked, it was a couple years ago, $500 per school.

BROWN: Per school.

DETTMER(?): The cost of this isn't(?) necessarily in the test, the cost is really in having people trained and . . . the test. And that's also the . . . out there because it's a very dynamic test, and people are very interested in it, and there's a lot of potential for it. But the issue that we're finding is that people will pick up impact and then not really know or have the skills how to interpret the baseline data that they're looking at. And then the post-concussive data and return, they're using as return to play, but not really understanding how to interpret it.

So that's the only caution. So the cost comes in that you're supposed to have someone who's certified to interpret it, read it, and understand and give you guidance. And not every school district's using it that way, at least in Colorado. I don't know, here maybe there's closer control.

Other questions for Brenda or for I? Okay. Thanks, everyone, appreciate your attention.