

Transcription of Assistive Technology for Early Intervention – Part 1
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The first part of the audio from the presentation was not recorded. This transcription starts a couple of minutes into the presentation.

This wasn't an explanation of what data suppressed meant and actually this data for the AT came from the 2004 OSEP Report and this is my guess, what I believe happened is that our data was flawed, couldn't be well established at that point in time and so instead of having inappropriate or inaccurate data reported by OSEP, they referenced it as suppressed. There were about three or four states that that was indicated on. That's only my best guess. Next slide please. One of the important things in early intervention that is really highlighted in the literature is the importance of involving families in the identification of the AT devices. In early intervention, we are required to support family centered services and provide services to children in natural environments. That may be their home, daycare or community. AT devices often need to be specially designed or modified to meet those natural environments. So, it's really important to involve the family in the evaluation process. If you have family buy-in, you can have consistent use of your AT devices and then the child will have successful experience with it. If the families don't get on board with it, when we're not there, they're not going to put the switches in front of the kids so they're not going to utilize the devices and they sit in the corner and get dusty. The other important thing is that our kids change and their skills improve as they get reinforcement and so there needs to consistent support and device modifications. Otherwise the devices tend to go into the cupboard and aren't used. Heather, next slide please. The last thing that kind of goes with the data for the state is that assistive technology devices need to be represented in the IFSP and the easier it becomes for us and as we get accustomed to writing about assistive devices in our IFSP, the more we'll recognize their use for promoting growth in communication, social interaction and cognitive development. It's a challenge to each of our early intervention programs to work internal to our programs and start writing and identifying assisted devices in our IFSP and then for us, work with our state agencies in ways to simplify the criteria so that AT services are identified more frequently as we report our data to the federal government. So you can see a little bit of an example and our IFSP to identify needs, so the parent need might be that Joey's parents want him to learn and play with toys. For an infant or toddler that's way more than appropriate. Then we might write into our outcomes that he will learn to control his mobile device by kicking his legs and activating the switch that is placed in his booty. So we can start AT devices with very young children, but I don't know that we stop and consider those things. So we really need to challenge ourselves to work on expanding the use of AT devices and really representing them. Question? The IFSP is like the Individual Education Plan (IEP). In early intervention for Part 2 services, that's our individualized family service plan, so it has many of the same components as an IEP and it's utilized in the same way if you're from the school program. Any other questions before I turn the time over to Stacey? Alright. Assistive technology into the IFSP, for example, if you're working with a mobility device, it would be nice if you could outline how much time it's going to take you, but generally what ends up happening is it takes a horrendous amount of time initially and

then later on it takes less time. To try to write that into the IFSP, it doesn't happen, because we don't know how much time it's going to take us to adjust something, so it's very difficult and I think that there is an awful lot of assistive technology that's being done that isn't identified – just concept stuff and a lot of the stuff that we're going to be going through in the next half hour or so, so it's a challenge. Heather, we're going to go to the next slide. To identify the major life functions for infants and toddlers, basically what we're doing is we're looking at ways to improve or maintain functional skills. For an infant and a toddler, the child's going to communicate with their parents. Positioning – that's a very important component for a lot of the children with disabilities. Mobility – a major goal for any child from birth to three years old, that period of time where they learn to walk, they ride a trike – every parent wants their child to have mobility. Play and environmental controls are another area for infants and toddlers. Activities of daily living, assistive technology for eating, for bathing, for dressing, and then also technology for learning or pre-academic and early literacy. Those are the ones that we have identified as being early functions. We're going to move on to Stacey who will cover that very important area of communication. She will go through some of the activities that she has done as a speech therapist, as well as what we've been doing in our group called the Techno Tots, which we provide through the Early Intervention Program. Next slide. I'm going to talk about communication and how communication is incorporated into the activities that we help these toddlers learn how to do. What we want to do is really just take their normal daily routines and the games and toys that they play with naturally and turn them into opportunities to communicate as well. We're going to talk for a little while about the basics of communication. When we learn to communicate, all kids learn to use certain behaviors to communicate before they ever learn to talk. The first set of behaviors that they use is primitive behaviors. Developmentally, the first behaviors we all learn to use. Whether that's vocalizing or simple body movements such as smiling or frowning, or using simple actions by looking towards them and reaching for them. These are all types of communication behaviors. As kids learn to develop, they move to more conventional types of behaviors that are more gestural. They may point to objects to be able to communicate to someone about something, they may be able to raise their hands for reaching or to request something, they may be able to shake their head yes or no, or any other kind of gesture such as pushing stuff away, or reaching for stuff. As kids develop further on, they learn to begin to speak then we use more symbolic communication such as using object symbols to represent a word or even picture symbols or sign language, or we use augmentative devices that we can then use to place symbols within them that then the device would talk for the children. There's been a lot of research out there about if we begin to use these different types of devices for sign language or any other support; will it get in the way of the child learning to speak? The research shows that it has not gotten in the way of anyone learning to speak, it actually helps them out. It gives them a way to communicate here and now while their body is learning to develop and if speech is something that will come later on; the supports tend to help increase that opportunity for them to speak. As kids learn these certain behaviors and they move from more primitive behaviors on up to conventional and symbolic, then when they use some type of behavior to communicate, there's usually intent behind that. The list down below is the different types of intent to communicate. We always communicate for some reason. We can communicate for protesting or rejecting, we can communicate to request objects or

activities, to gain someone's attention, to direct someone's attention, for social interaction, to confirm or deny, which means we can accept yes or no when someone offers us something, to label or comment, or any other attempt such as asking questions, or answering questions. What we want to do is make sure that as children learn to develop language, they have an opportunity to develop opportunities to request, protest, and use all these variety of intents. When we start to work with kids when we use devices, sometimes we tend to fall into the trap of always working on requesting, because it's such a simple and concrete way to work on stuff. Here's a picture of a piece of Play Doh, if you push that button you'll get Play Doh and so we always work on requesting, but it's important to make sure we work on the other forms of intent as well. As we work with certain devices and get a kid to use sign language and symbols, we also want to encourage their natural gestures as much as possible. If someone smiles to indicate they really like what was offered to them, that's extremely appropriate to do so and so we try to work with parents to let them know that to use their child's natural body language, to read their signals and to follow their natural communication with their body. Next slide. What we've done in our Techno Tot class is we try and structure that to help parents learn how to run some activities in their home as well. So we've structured it to allow for communication to be used with a variety of attempts and to help them pay attention to the different behaviors that they are using to communicate with. What we do is we have a free play time, we have some group time and then we have some time at the end to really focus on the parents on some activities that they can do at home for homework. I'll talk about each of these in the next slides. If you'll move to the next slide for free play – what we do for free play is let the kids come in with their parents and have an opportunity to play with a variety of adapted toys and activities so they can learn to control their environment and have an opportunity to communicate as they play. So what we do is let the parents come in and we help teach the parents how to follow their child's signals and follow their lead. In that way, the children learn how to communicate, because if we're just following their lead, if a child doesn't want to do something and they push it away that is communicating. We try to teach the parents to follow that so they learn that if they gently push something away, that can be used as a way to protest. If they're looking towards something and vocalizing for something or they are smiling when we offer them something, those are all forms of requesting and we teach the parents to then honor that and to give them what it is they are asking for. We can just follow whatever they want to do for the first 20 minutes or so of the class. Then what we do is teach the parents to try and establish routines within the different activities. As the children get really familiar with what they're doing over and over and over and over, then they can learn to communicate within those activities. For example, every time we come in we always work on greetings. Hello so and so, hello how's it going, say hi to so and so. We don't necessarily need devices to work on greetings; it's my personal opinion that a wave or a smile is as appropriate as can be, even in adult ages. So that social interactions can be worked on through just working on greetings and then if we say, what games do you want to play with – everyday we have a schedule to work with and so we'll have a couple activities with pictures so as the parents come in, they can show their child, "Here's some activities you can do today. Do you want to play in the swing, would you like to play with the toys, or would you like to get a ride in the wheelchair?" Because the pictures are here, they can either smile as the parents have offered them different

choices, or they can reach for a picture, however that we are working on the child's communication at their level. They have opportunities to choose the activities that are available. We provide a variety of activities and they can even protest. Sometimes we get started with an activity and we try to honor it when they protest it, and they always do. Then what we do sometimes is we hope we can work on a clean up time and it's not so much that the kids learn how to cleanup, because then they learn how to follow a routine and when a kid can then touch a button, if you'll look at this device here, the simple little button you can record in a message and we would just start recording a little song that would say, "clean up, clean up, everybody clean up your toys" kind of a song. It's more for the child to have an opportunity to push the button and control their environment. When the song is hit and starts singing, they are the ones that are basically singing the song and everyone starts to move and clean up and they've controlled their environment by accessing the switch and they are the ones commanding everyone what to do. It gives these children great power by giving them an opportunity to command everyone's movements. So if we establish a routine in the classroom, we hope that the parents will then use that in their own home – that they sit and just play, that's what you do at home is you play. The children should have opportunities to play with whatever they way. We've given them opportunities to get symbols into their home and devices into their home to where they can set up situations where their child can just request whatever toys they want to play with at the time. After the children have learned to play, we like to sit them in front of each other and play with each other. It really helps to get the kids to play with each other and we really like this group idea. We have one little girl that if we stick her up to the computer and she hears anyone else in the classroom doing anything else, she won't play on the computer, she wants to be playing with the other kids and so we've learned that we really need to put the kids together. You'll find that sometimes when we have such specialized toys, we want to sit the kid up to the toy to access the toy over and over and over and we think that's playing and it is for a little while, but if no one is there to play with then it's no fun any more. So it's important that as we use these adapted toys that we allow the children to play with them, let other siblings play with them as well, because they should be fun. It shouldn't be work, it should be play and explore and have opportunities to play and communicate as they go. Another thing we do is once routines are really established, the kid knows what they are doing, they've done this over and over so many times we tend to sabotage those routines, and we encourage more communication. We might break the toy by unplugging it and when they hit the button, it no longer works. We offer them another symbol or another device that they can then ask for help to fix the toy. We may walk away from the child and leave them alone for just a few minutes and give them a symbol that they may request, "hey come back and play with me" to teach them how to gain attention and request someone to come play with them. We may offer the child a different toy than what they requested so that they can then protest and work on fixing and solving problems. These aren't done until the child is really established in the routines in the classroom or at home. It's actually really fun to see the child problem solve and work out the situation when new symbols are given to them. Then if you'll move to the next slide. During part of the class we take some group time where we work together on a theme centered activity and I really like using theme centered activities, because as a professional running from one theme to the next, number one, it's impossible to keep up with all the symbols that have to be made from

one toy to the next, from one story to the next song. When we work within themes, it makes it possible to run with the same vocabulary with the same symbols and do a variety of activities even the same symbols. The next most important thing with that is it is much easier for the children as well. When we use the same theme across a variety of activities, they then learn the symbols much better, because then they can use the same symbols and the same vocabulary across a variety of activities and it becomes part of their language and they start to understand it. We like to use stories. Stories is a great way to work on language. Any kid of story works, especially I love working with birth to three children, because books and toys are their activities. It is always age appropriate and your materials are toys and books. So any book or any toy that is age appropriate you can take it and run with it. We like to use stories that we can then adapt them so that the child can communicate with them as we go. I'm going to place up another sheet. Could you use the Elmo really quick and show people how you would program this for those individuals who aren't familiar with that. Very good idea. Here is a one step communicator; they all have different names, or Big Mack switch. It's a great big button and this one is able to record one message. Some come with the ability to record a sequence of messages, so you could push the button one time and get one message, push a button another time. That's what this one is. I call it a sequencer. It has the ability to sequence in a bunch of different messages. You could record in the whole story, each page at a time and a child who can't flip the pages or who cannot talk and tell us to read it could then have an opportunity to read a book independently by using a device such as this. So I'll show you how to program this one step communicator and what to do. Find the big button here, the recording button, you usually have an on switch, some don't have on and off switches, and you can turn up the volume and you would just push the recording button and hold it down and then you push the button that's going to be the button for recording. So, I would push it and hold down while I am recording like this, "clean up, clean up, put your toys away." So then you hope and you push it again, "clean up, clean up, put your toys away," it should work and they're pretty easy. Okay a question? All over. There's a variety of different companies, this one is from a company called Enabling Devices and they make toys for special children and there's a variety of different companies. Do you know any other names off the top of your head? On one of the handouts that should have been loaded on the computer for you it had resources and you'll find a lot of those listed if you go to those sites. Another question. One button communicators? No. One button communicators – this one just has one button and it's a communicator. We use these for kids who are just starting to communicate with symbols and as they catch onto the idea, if I push this button, it's going to communicate for me, we start moving them up to more complex devices and there's a ton of different devices that can range from one button to two buttons to four, moving on up to even more complex devices and this one has eight and can even go up to 16, so this device goes from 1 to 2 to 4 to 8 to 16, so this device can grow with the child. So we usually start the kids, especially young children, they usually start out with one button. If we present them with a bunch of buttons right up front, then they are confused by it. There's too many symbols, they don't know what it means. We like to start them with one in front of them and some children catch on very quickly and we can move them up to two and three and then move them up to a more complex device like this. So this device was programmed for a song, little teddy bear, teddy bear turn around, teddy bear teddy bear

touch the ground. So they can sing along to the song or after we taught them the song and the routine is established in the song, then we can let the child have an opportunity to touch a button and command everyone else to do all the actions and children think that's really powerful when they can make everyone else wiggle and move. So they can have opportunities to communicate and command everyone what to do. Hope that helps. Let me see where we're at. So songs – sometimes I like to put the songs in a chart. I use BoardMaker. It's a software program that has a bunch of symbols that you just type in a word and it will come up with whatever picture to fit those symbols. So you can type in symbols to go with the song or a rhyming kind of chant. This one's a chant, hen hen count to ten, goat goat get your coat and so by putting the symbols within a song or a chant, children begin to receptively learn what those symbols stand for. As they learn what those symbols stand for, they then can use them to communicate. Not only are we teaching them to communicate with symbols, they've got to understand them as well – a type of language. They've got to be able to receptively understand what it is they're using. By using songs and letting them see as we point to the different pictures as we go, they start to learn to receptively understand them and we can also use it as an activity later on. Our communication chart to say who's going to get their coat and they can point to the goat and that way they are answering questions and you can start to determine if they are understanding the different symbols and following it along receptively. So song charts are a fun way to get them to communicate. Some other activities that I really love to do – I'll give you three examples. Usually what we do within our group time is we just stay within a theme for a month or two and by staying on that theme for a month or two, it allows them to do the activities over and over and over until they are so established that the children can then take it home and do it again. Once they are so established, we can sabotage it just like we do in the free play and start changing things up on them so they have to ask for help and begin to problem solve on their own. One game I love to play is Hide and Seek and whatever the theme is, we like to hide a toy that goes with the theme, so if we were doing a game on bugs – I always hit the buttons when I'm teaching. One thing about these one step communicators is the fact that just like Stacey just did, she was able to change the message that quickly. She had one symbol on there, she changed it and she can readily change the symbol or the communication intent right away. So then I can just pop in another symbol to any type of communication device, reprogram it to say whatever I want it to say. If we do a Hide and Seek game – since we're doing a theme on bears, we hide a couple of bears around the room, help the kids move around the room until we find it and if they find the bear, we help them to hit their switch to say "I found it." For kids who are a little bit higher functioning, we can put it in a device so they have multiple sites to hit and they can say, "I found the bear," and start to combine sentences using symbols. So, it's a fun, easy activity that then we can send it home with the parents – send the symbol home and the device home with the parents and they can start hiding toys or whatever around the house and they can use it at home as well. Another game or activity I like to do is just imagine it as play – I like to take – oh I was going to bring my animals and I forgot. I like to bring just toys just like kids play with and give them symbols to go with it, so instead of having them only just request the pig or a horse, or sheep, or a tractor to play with, we can use those symbols to request to get them, but then we can also program them into a device with speech output to make those farm animal sounds, so we can let them play with the pig and the pig they can hit their

switch to make the pig oink like a pig. We can program another switch to make the sheep baa like a sheep. That way they have opportunity to play and to vocalize and you'll find that for some reason, animal noises and sound effects, kids who can't talk can somehow make animal noises and it gives them opportunity to vocalize and practice those speech skills that will help prepare them for speech later on. So imagine play is a great activity to do on anything and another theme I like to do is coloring. I was just going to ask you, could you talk on what material you've used to make this little board? This little board here on the screen is just made from car carpet. I bought it from Wal-Mart and it comes in a big roll and it was about \$8 for probably 10' x 4' of carpet and so I just cut it with scissors and put a piece of cardboard in between two pieces and sewed it up with my sewing machine, so I was able to make a bunch of big boards and a bunch of little small boards for \$8 and we use these to put our pictures on for the kids who are at the one to two symbol stage. When kids move past the one to two symbol stage, I like to make them in more of a chart so they aren't losing pictures. The chart that's already been stuck together I don't like to cut them up into little individual pieces – I like to keep them in a chart form so we can slip them into their device so we're not pulling the pictures off, we're not losing pictures left and right. When we're working with them at a one to two picture stage, we have them so they can either pull them off the Velcro and put them back on, or we can pop them into a device with a little cover on it so the pictures stay in.

Question. We would never find a picture of this; oh what would you call it, disco ball toy, so that's what we do. Thank you for bringing that up, that was a great point. We take pictures of the toys that we don't have symbols for and it actually really helps the children who have visual problems or who aren't quite ready to understand symbols to have an opportunity. It's a little more concrete to have a real picture as the symbol, rather than a BoardMaker picture. Thank you very much. Stacey, one other thing that we've done in Techno Tots is where we've taken pictures of the parents – actual people in their environment – that's been really fun too. We do, we take pictures of their family and play Hide and Seek – where's Mom? They love that. Anytime we can get an activity to interact with their family and friends really gets them to learn how to communicate. On the very last group time we do coloring because they can request the color and they can request the crayons or the markers and we can adapt those for them to be able to hold a little bit better. Amy knows more about that. That's why I make her do it. It's a fun, easy activity. You can change from theme to theme and do these same activities with different themes so that you're not scrambling to come up with ideas. The kids now know the routine of the activity and now they can learn more vocabulary because their activity is familiar to them, but now introduce new vocabulary to them. Next slide. One thing we've tried to do is work on giving the parents some homework. When we first started the Techno Tot class I'd say, "Here's a device, here's some ideas, let me know how it goes." When the parents would come back they would say, "Oh ya I don't know, it's going okay, we didn't use it at all." So I've come to find out that I can't just say well come back and let me know which symbols you want. I have to specifically say, "Here's the direction, here's your symbol. This is what we did here. Now you've seen it done, here's your symbol, here's your device. Take it home. Here's your paper, your reminder. Stick it on your refrigerator. I want you to do this three times a day." Give them a recipe basically so that it's done. It sounds easier than it is when you say, "Oh just come up with the symbols and the words to help the kid communicate within an activity," but for some reason, it's

kind of a lot of work. To help the parents do that, we try to make sure their homework is one, we give them the activity that we did in class and two, we try to take a few minutes at the end of class – 10 minutes or more – because we really need to sit and talk with the parents and say what are some routines that you do at home. What symbols do you want? Then we say here's your symbol, this is how I want you to do it and really help them set it up. Program it for them, help them learn how to program it and make them do it within the classroom setting so that they can just take it home and do it. Something else we found as being very helpful is to have the parents report back whether that's a chart saying I've done this 10 times and have them report back to us that we can make adjustments as needed, because a lot of times we send home a single switch device and it stays there for a few months and we find out that what we really need to be sending home was a device that's got maybe four access sites, because the kids are ready to move on at home because they've got such fabulous things at home going that we tend not to do in the classroom setting. It's really important to work with the parents, because in this age the parents are their main providers of services and it's our job to help those parents learn how to provide those services to their kids, because they can have opportunities to communicate over and over and over throughout the day if we can get the parents on board. I want to share one point from a program point of view. I've had great support with the technology from Amy over the years and we have kind of taken a risk and asked our families to come up to the AT Lab here at Utah State and have found some barriers there. Winter time months are hard. Sometimes the kids aren't real healthy and the parents don't want to bring them out. But, the families who have come and come regularly, they have a Techno Tot class once a week. We offer it in the afternoon and in the evenings. We provide child care so that they don't have to worry about finding someone to take care of the siblings. We want our parents to work closely with their Up to Three child. There's some expense involved, but I think the pay off has been really really strong for the kids that have come and come regularly enough to really start building on their children's skills. In fact, there's one little gal who really didn't use many words or much language before she came. We really thought she'd be more of an augmentative device child and now I understand she has quite a large vocabulary of words and we've run the risk of not really fitting into the natural environment, but also the association of having our parents come together where they can talk about and they can see that there are other children who aren't readily learning oral language and it almost acts as a support group for them. I think it's been real successful, so I would encourage other programs to give it a try. The initial start up is a little expensive and again, I've also had the luxury of having the Utah Assistive Technology Program (UATP) here and Amy already having a lot of this equipment. If you buy it a little at a time and then take care of it and make sure you get it back from families when it goes home, it is really worth the cost and the effort, because these children need to be able to communicate as much or more than all the other kids in the program too. Let me back up really fast on the comment that we had about using digital pictures. Another thing we do that we find very, very helpful is to actually scan in the pictures from a book or from a toy or from an activity and we can actually scan in the exact same picture that comes from a book and some kids find that very, very helpful to then have the picture that goes with the book so we can then use it to communicate about the book when it's the exact same picture, instead of another picture – sometimes that's really hard to understand that. So that's just another

little trick to get more pictures available to the children. So we'll go on with Amy. I'm going to go ahead and elaborate a little bit more on what Sue was saying as well. I think one of the reasons that I was interested in doing this presentation was to open up the avenue. There isn't a lot of literature in using assistive technology in early intervention and I know that a lot is being used out there and it's not being reported and I know that we're all doing a lot of different things and it would really be nice if somehow we could develop a channel where we could put all this information together and have a sharing information way of dealing with this. It would also be nice if we could elaborate on going ahead and using the Health Department through the Baby Watch program possibly to develop a lending library, just like they do in the Office of Education where they are able to show a lot of different devices that are available for checkout and do the training. Hopefully, we can prompt some of those things to happen. I'd really enjoy seeing that happen. I also want to talk back and forth with Stacey a little bit and just talk about the kids that don't identify or who are at an object level and how we're transitioning that to pictures. If you wouldn't mind just discussing that a little bit. Sometimes children have a very difficult time to understand, or they don't have the visual skills to understand or discriminate a picture can then stand for something else as a symbol. So we use small objects or even real objects to then be the symbol. So if someone is learning to request food, we may use a spoon as that symbol so they can use the spoon to either show someone, point to someone, hand it to someone to then communicate with that object. In order to transition from one object into symbols or into pictures, it sometimes is kind of tricky. Sometimes we can even take those objects if they're small enough and glue them, Velcro them, strap them right on our one step or whatever type of communication device we have so we can then start putting a picture of a spoon on our device with the real object, so as they reach for that object of the spoon, they are then starting to activate the device to say "I'm hungry, feed me." And as they hear the word, anytime we can use a device with speech output, they then begin to hear the words and the symbols become more communicated to them. You can always teach a kid to use objects or pictures to hand them for communicating, but if they can access the device rather than hearing it actually say, "Feed me I'm hungry," then it starts to become more understandable to them as this is communication. If you compare those objects with pictures, or always just use the objects and stick them to the device that would speak for us, we then begin to get those objects as communication devices. Is that what you were looking for? That's what I was looking for. And then just to go back on the definition of assistive technology – when they talk about assistive technology that is commercially available, this would be the type of object that is commercially available. I found this at one of the book stores. It has really basic simple pictures and they pair up with the little button, so here's the apple and they can push the button that says "apple." That would be an example of a commercially available product. Having a puzzle and then adding knobs to it would be a device that is modified. You can have a puzzle – this one happens to be commercially available, but you could take any puzzle that you have and go down to Lowes or Home Depot and what you do is you buy cabinet knobs and then we just screw them into the back of the puzzle, so we made quite a few of our own puzzles and just add larger knobs to them. In terms of the customized devices, that would be something like a wheelchair or communication system that is designed for a specific child. I just wanted to go back and clarify that since I kind of got off to a jumpy start there. Once again we use assistive

technology to improve functional skills. The next area that we're going to go into is positioning. What we do with the positioning devices is that we look at two different things. We're looking at function and development. The first developmental position that kids are in are either supine, which is lying on their back, or prone, which is lying on their stomach. So some of the common devices that we use for that are: the boppy pillow and there's a picture of that on your PowerPoint. Everyone's seen the boppy pillows. There available at Wal-Mart now, they're at Shopko, they are at a lot of the hospitals. You could pick up a boppy pillow at a lot of different places. They are really nice for a lot of different positioning, but the reason we want to look at positioning in supine is oftentimes for the children who are coming out of an NICU, neonatal intensive care unit or have neuromuscular disorders tend to be quite flat on the floor and any of you who have children of your own know what when you bring a newborn baby home, it's all in this nice little physiological flexion, because it's been in a little ball in the mother's stomach, so when you put those babies down, they're not plastered to the floor, they're legs are up, their little pelvises are tilted. We want to elicit some of those positions for the kids that are at home, so what we can do with that is by using a boppy pillow, we can position the kids so they get a nice midline position and they have a little bit of chin tuck, it brings the shoulders forward which allows them to have better view with their hands. It tilts the pelvis up in that position and brings their legs up. If you don't have a boppy pillow, you can do a lot of the same things using towels. What you do is you fold the towel either in half or in quarters or thirds, whichever size you need for the child that you have and you can use anything from a bath towel to a beach towel and you go ahead and roll up the towel and then you can stick it under the shoulder, under the pelvis, a little bit behind the head, so you can get some of those positions and getting them away from just being flat on the ground. For a lot of those kids, gravity can be their enemy, so when they're on the floor, they are just stuck to the floor, they can't really move. We want to get them away from that position. Another position that I really like are those little swing seats, the ones you can purchase with a little vibrating seat and what's fun with a vibrating seat is you can actually interface it with a switch. You can go ahead and use one of the battery interrupters, put it in where the battery is and then hook the switch to it so if the child wants vibration, they can hit the switch and it will vibrate. This is what they call a switch latch timer and I was going to show it more with the toys, but you can also use it with that with the vibrating feet and what it allows you to do is allows you to either set it so it goes on for a short period of time and then turns off so that the child has to reactivate the switch, or you can set it onto a setting called "latch" which turns the device on. Now normally for the kids that I work with, we're always trying to train them to use the switch, so we would only use that for a short period of time, have it turn off and hopefully through some random movement that they make, they would activate the switch. It was really interesting because we had our assistive technology class today and we hooked up a 2 ½ month old to the disco light using the environmental control to access a switch and basically what we did is just set it in a position so that as he moved, he would just hit the switch and it would turn off and he would start moving again and hit the switch. So that's how you're teaching that switch use. You're taking that random movement, you're finding a consistent movement that the child's making, as Sue said, possibly putting a switch into a booty where they kick their feet and it activates something. You're taking those random movements and training those movements. The one other thing that I like about the sling

seats is that the child is tilted a little bit upward and once again because of gravity, oftentimes if you can get kids up a little bit out of that gravity prone position, all of a sudden, you'll start seeing a lot more movement. So for those children who are just stuck on the floor and can't move, that's a nice option. Another option that's available at a lot of the hospitals and the nurseries are these little sling carriers that they have now. Those are really nice. They are a way that you can put the child into a nice flex position. They're moving with you, they're responding to your physiological state and you can help them calm and stay into a rhythm, but also gives them a lot of movement experiences. So as the parent is moving around the house, the child is getting a lot of what we call vestibular input, which is the response to movement. For kids who later on might want to use powered mobility, oftentimes those types of children haven't had a lot of opportunity to move, so oftentimes when you're starting with powered mobility, you have to help them break through that whole sensation of movement. Oftentimes what we'll see with kids when we put them into a powered wheelchair is if they're using a joystick, they'll grab the joystick, move it and pull back into a reflex position and they'll just go backwards into a circle and go around and around and around and they love it because they haven't had that opportunity to have that type of movement. Once again, just for infants, we're looking for midline positioning; we're looking at bringing the shoulders forward, bringing the pelvis up and beneath them. On the next page you'll see infants in prone and once again the first picture is of a child on a boppy pillow and once again, you can use your towel rolls. Fold up a towel, roll them up and put them under the child's upper chest and their arms over the top of it. Oftentimes, the real young infant's center of gravity is on their chest and as they develop, the center of balance moves back so they are able to lift themselves up. A lot of our children, when you put them on their stomach, they are just plastered to the floor and they pretty much hate it. They'll start crying and fussing. Any of you who have had children who have gone through just laying on their backs because of the SIDS situation where you just are constantly putting kids on their back, know that if you leave them in that position, they don't want to get on their stomach. We figure that by two months of age if you haven't had those kids on their stomach, they're really resistive and we've had a lot of problems with deformities of the skull, because kids get in on their back, they don't want to go into another position. It's real important to get kids on their tummies right away. From a therapy standpoint of course we always use wedges. They are just a little slant board that they can reach over and then we've also made some prone boards. Another way I like to tell parents at home is what I call the "no tech way" is having them position their children over the arms of the chairs so you're eliminating some of the effects of gravity. You're helping them shift their way back so all the pressure isn't on their chest and a lot of those kids that don't like to be on their tummy, if you position them more on a slant, they are much happier. We're really limited on time. We told Heather today when we came in that there is no way we're going to cover all this information, so this is early intervention 1 and we have a lot of other topics to go through. She would like me to remind you to please fill out the evaluation forms, that would make our administration very happy. Some of them were sent by email and the other ones are on the file share. So if you could please fill those out, it would be really helpful to us. We really want to come back; we have a lot, a lot of information. It's actually an all day workshop and we're just really hoping that we can make this a sharing opportunity and that you'll share your ideas with us, because we don't have all the ideas, there are a lot of

ideas out there. So thank you very much and hope to see you soon. Are there any other questions that we can answer? Amy, this is Sachin. I have a question for you. What's the price range of most of those low tech devices that you showed. I'm trying to remember. The One Steps are like \$89. This communicator which has a lot of different levels and can go from one message – what we mean by levels is that you could have a child that just has one message, but you might have seven one messages, so it's capable of having levels like that. What is the price of these? Like \$250 I think. They're very pricey and that's why I think we've really been at an advantage here in Logan, because we have the Assistive Technology Lab to help us fabricate objects and we also have the program that has a lot of lending devices. So I would really like to see the early intervention program be able to come up with a lending library, because the costs for a lot of early intervention program – these products are really cost prohibitive. If you have five or six kids like we do in Techno Tots and they're all taking home a single switch communicator, that's close to \$600, so that's pretty pricey, so we're going to have to figure out some better ways of doing that. You can also buy small individual switches – these are cheap, I think they're probably \$10-15. Thirty dollars – oh, not that cheap. You can adapt some toys with it pretty simply that can then be moved from toy to toy as you go with a battery interrupter, so just to get kids playing and being able to control their environment is not impossible. And the idea of using digital pictures for communication is really a nice way of looking at some of those – coming up with symbols, because you can buy a pretty nice digital camera for \$100. If you go out and want to buy Boardmaker, it's \$300-\$350, so there's quite a jump there. Thank you. You guys did really good. Thank you. We were sweating it Sachin. I have another question (inaudible). We have talked about possibly burning some CDs, because there are a lot of photographs on this PowerPoint, so anyone who would like copies of the PowerPoint, we'd have to send them a CD; however, we could probably send you the written outline. That would work thanks. Alright. Another question. What changes are being made for children who have limited or no vision ability? That one is actually a very hard one. So the question is, what kind of changes do you make for children who have very limited or no vision abilities. It's actually I think very hard. To give them symbols almost makes it impossible unless we use real objects that they can feel and they can touch. Anytime we can give them a device with speech output with those real objects then they're hearing what they are communicating with. Anytime we can adapt toys for them that they can touch and feel and play and help them move and hear the sounds of the toys and feel the toys move – anytime a toy can move and make a sound is that much more entertaining and rewarding for them. I also think that you end up having to use a lot of tactile types of materials, so felt might be a symbol for something that's pudding because it's smooth, or Dad's got a rough beard so we have a texture that's rougher. You would have to pair some type of tactile material along with your symbol. Something we have to work on very first with kids with poor visibility is just getting them to answer yes and no. When we hand them a toy into their hand, let them feel it and give them that "Do you want to play with this bunny rabbit toy?" and then they can feel it and then really watch for their signals. Do they smile because they want it, do they nod yes because they want it, and do they push it away. We can give them opportunities to feel those things, hear what they are and then ask them what they want, but then to turn it around to where they can make choices, they really have to be able to feel and hold those objects. I think another thing that we've

talked about and we've used are just activity boards where you have like a certain activity, say brushing your teeth or getting ready for bed. You know you're getting ready for bed, go in the bedroom, we're going to put on your pajamas, we're going to brush teeth, we're going to read a story, so you can have a little sequence of symbols for specific activities and they're just called activity boards for specific activities that way. Any other questions? I'm sorry we didn't do very well at getting through all our information, but we knew we wouldn't. Do you have any idea when we could be scheduled Heather? Soon. We'll try to do it soon.