BIOBEHAVIORAL STATES
WHEN ARE THEY READY TO LEARN?

Biobehavorial states are defined as a series of behavioral and physiological conditions that range from sleeping to awake and crying. Wolff (1959) is credited with first categorizing states as specific, observational indices. Research over the past 7 years indicates that biobehavioral state has a significant influence on the levels of alertness and responsiveness of individuals with profound disabilities and therefore, on their learning, development, and overall quality of life.

A typical nervous system exhibits a range of levels of arousal. In all of us there is a structure in the brainstem that controls levels of arousal. If our nervous systems are in the normal range, we spend our day shifting across the states in a typical manner. We sleep at night, are alert during the day, agitated when paying bills, etc. We are able to consciously control some of these states (for example: stop driving when sleepy, listen to music to go to sleep, etc.)

Listed below are two different ways to classify biobehavioral states, with descriptions of the states. Both show the range from sleep through awake and include agitation.

Quiet Sleep:
Generally unresponsive, smooth, regular respirations, occasional startles, lack of body activity, lack of facial or eye movements

Active Sleep (REM)
More body activity, irregular respiration, movements of eyes and face, more responsive.

Drowsy
Variable activity, irregular respiration, delayed responsiveness, eyes glazed with heavy lidded look.

Quiet Alert
Minimal body activity, regular respiration, bright, shiny look to face, most attentive to stimuli.

Active Alert
Much body activity, irregular respirations, facial movements, fussiness, sensitive to stimuli

Crying
Irregular respirations, facial grimace, cries, color changes, variable sensitivity to stimuli.

Sleep States

Asleep-Inactive – eyes closed, little or no motor activity
Asleep-Active – sporadic movements, facial expressions

Indeterminate States

Drowsy – eyelids appear heavy, delayed responses
Daze – non-orientation to visual, auditory, or tactile stimuli predominates

Preferred Awake States

Awake Inactive-Alert – active visual or auditory orientation, brief movements,
Awake Active-Alert – attempts to engage, eyes bright, body movements

Other Awake States

Awake-Active/Stereotypy – self-stimulatory behaviors, rhythmic movements
Crying/Agitated – intense vocalizing, increased tension in body tone

For all of us the only time we can learn new information is when we are able to achieve and maintain an alert state. This is why it is difficult to remember anything after something traumatic throws you into an extremely agitated state, Have you ever become drowsy in a warm room after lunch? How attentive were you? The ability to attain and maintain an alert state is essential for understanding and learning.

Children with profound disabilities may not exhibit the typical range of states. They may be drowsy much of the time or chronically anxious (We don't want to set them off). They may only have brief cycles of alertness. They often can't maintain the alert state. Overstimulation often causes shutdown. Take time when you are trying to get children to go from one state to another. Use variety to awaken and repetition to soothe.

The following articles explain more about biobehavioral states:

Assessment of Individuals who are Deafblind and Have Multiple Disabilties
This a form by Cathy Nelson and Dr. van Dijk (two of the leading experts in the field of Deafblindness). Use it as an assessment form and write down answers while you are observing the child.

Thoughts on the Assessment of the Student with the Most Profound Disabilities – this excellent article is written by Robbi Blaha from the Texas School for the Blind and Visually Impaired, Deafblind Outreach.

Assessment of Biobehavioral States and Analysis of Related Influences
This excellent article also comes from Texas and has some example forms included.

ASSESSMENT OF INDIVIDUALS WHO ARE DEAFBLIND AND HAVE MULTIPLE DISABILITIES

Biobehavioral State

What is the individual's current state?

Is the individual able to control or modulate his/her state?

How much time does the individual spend in an alert state?

What range of states does the individual show and what is the transition pattern between states?

What variables affect the individual's state?

Orienting Reflex

What factors elicit an orienting reflex?

How does the individual exhibit an orienting reflex?

What sensory channels appear to be associated with orienting reflex (sensory information that triggers the reflex, and the senses the individual uses)?

Learning Channels

How does the individual appear to take in information?

How does the individual react to sound?

How does the individual react to vision?

How does the individual react to touch?

Does the individual use more than one sense at a time?

Does the individual exhibit engagement or disengagement cues in response to particular sensory information?

Appetite-Aversion

What are the individual's engagement cues?

What are the individual's disengagement cues?

What appears to motivate the individual?

What does the individual seem to turn away from?

Memory

Does the individual habituate to familiar stimuli?

How long, or how many presentations of stimuli are necessary before there is habituation?

Does the individual attend again if the features of the stimulus change?

Does the individual react differently to familiar and unfamiliar people?

Does the individual appear to have object permanence (understands that something still exists even if it is not currently visible)?

Does the individual associate a preceding event with one that follows?

Does the individual appear to anticipate an upcoming event?

Does the individual react when there is a mismatch to expectations?

Does the individual demonstrate functional use of objects?

Is the individual able to (learn a simple routine?

Is the routine learned remembered?

Interactions

Does the individual engage in turn- taking when he/she begins the interaction?

How many turns are taken before disengagement?

In response to partner's interaction, does the individual add more to turn-taking interaction?

Problem Solving

Does the individual demonstrate cause and effect?

How does the individual approach a problem?

Does the individual maintain attention and persist?

C. Nelson and J. van Dijk, 1998

THOUGHTS ON THE ASSESSMENT OF THE STUDENT WITH THE MOST PROFOUND DISABILITIES

by Robbie Blaha, Education Specialist, TSBVI Deafblind Outreach with help from Stacy Shafer, Millie Smith and Kate Moss, TSBVI Outreach

Since the inception of laws providing for the free and appropriate education for all students in this country our schools have seen a steady increase in the population of students who are considered to have the most profound disabilities. Although our willingness to serve these children is evident, our understanding of these students' educational needs, assessment and programming is still very much in its infancy. It is easy to feel we do not know what to do with these students. Developmental checklists and assessment tools used with other populations are not often sensitive enough to provide usable information to those charged with the instruction of this type of student.

The purpose of this article is to: (1) present basic user friendly assessment questions and background information which relates to this particular population, (2) acknowledge the individuality of each of these children by building a personal picture of how they learn, and (3) provide useful information with which to develop programming. This is not intended to be a comprehensive assessment process but rather some questions and background information to consider when planning for this particular population.

WHAT CAN BE DONE TO GAIN AND HOLD THIS CHILD'S ATTENTION?

Attending and Biobehavioral States

A typical nervous system exhibits a range of levels of arousal. In all of us there is a structure in the brain stem that controls levels of arousal (biobehavioral states). Some examples of these levels of arousal states are deep sleep, drowsiness, alertness, anxiousness, and agitation. (Guess, 1988). If our nervous systems are in the normal range, we spend our day shifting across the states in a typical manner. We sleep at night, are alert and absorbed in a good book and drowsy after a big noon meal. We may become very agitated when paying our bills or if a stray dog digs up the garden.

We are able to consciously control some of these arousal states. For example, if we find we are getting sleepy behind the wheel of a car, we stop to get a cup of coffee. We are calmer in a stressful situation if we bring along a friend or wear a favorite outfit. If something agitates us or makes us anxious, we may engage in "self talk" as a form of state management For example, to calm down we might think to ourselves, "I'm not going to worry about it. It's not that big of a deal. If worse comes to worse I'll just..."

For all of us, the only time we can learn new information is when we are able to achieve and maintain an alert state. This is why, after something traumatic throws you into an extremely agitated state, it is difficult or sometimes impossible to remember things that were said or to reconstruct a particular sequence of events. You may also find that, after a big lunch in a warm room, you become incredibly sleepy and have trouble reading a long memo from your boss. The ability to attain and maintain an alert state is essential for understanding and learning.

Children with profound disabilities may not exhibit the typical range of states. This is a characteristic of a number of students with profound disabilities. One student may always seem to be sleeping or drowsy. Another is chronically irritable or anxious, leaving adults fearful of interacting with her lest they "set the child off." Many of these children may have brief cyclical periods of alertness, but seem unable to maintain this state long enough for typical instructional activities. Slightly overstimulating this child can cause him/her to "shut down" to a sleep state. Often these children have difficulty achieving and/ or maintaining alert states. They may experience health setbacks that bring incredible drains on their energies and effectively prevent them from being able to respond to any environmental demands outside their bodies.

In some students with deafblindness the lack of normal stimulation due to an extensive sensory loss causes them to spend much of their time in other than alert states. The key to instructing

these children is understanding the internal influences on the child's ability to attend to instruction. There is a growing interest in the possibility that external factors can have impact on biobehavioral states in these children. During the assessments' we want to learn things about children which might help them develop better control of their states and maintain alert states for longer periods of time. The more adept they become at attending, the more opportunity they have for learning. Therefore assessment should help determine the child's current profile of states and what adaptations to the environment may assist the child in achieving and maintaining an alert state.

The questions related to biobehavioral states which should be answered during assessment are:

What are the range of states the child exhibits across the day or week?
What are the child's most common states?
Is this child able to reach the quiet alert or active alert state?
Can he maintain it?
What problems does the child have in shifting and maintaining states?
What variables appear to effect state in the child (especially attending)?

There are a number of tools which can help in obtaining this information. These include:

Assessment of Biobehavioral States and Analysis of Related Influences (included).
Appetite / Aversion Form (at the end of this article)
Assessment of Voluntary Movement Component (at the end of this article,
Carolina Record of Individual Behavior (CRIB).
Analyzing Behavior State and Learning Environments Profile (ABLE).

The Key to Attending- the Orienting Reflex

People have a subconscious monitoring system which is working at all times. If this system detects something that needs our immediate attention, it pulls us to attention with the powerful orienting reflex. The orienting reflex is just that: a reflexive alerting to significant things. It tells us when to pay strict attention so that we may make a decision whether or not to defend ourselves or to get more information. It alerts the senses to the fact that they need to pay attention, so that survival matters and novel things can be handled. (Silverrain, 1991)

All of us have orienting reflexes throughout the day. As an example, say that you are driving along listening to the afternoon news. The words roll by you until suddenly you hear your street address being said over the air. You snap to attention, lean forward, and turn up the dial to take in every word. You reflexively oriented to something that is important to you. The orienting reflex is powerful because it is the prerequisite to the alert state in the array of biobehavioral states. (Rainforth, 1982) It pulls you to the alert state from another state. Parents use this reflex all the time. If you have a fussy (agitated stale) child in the grocery store, you try to distract her so she will calm down ("Do you see that man with the funny hat? What do you think his name is?"). What you are actually doing is trying to trigger the orienting reflex in the child so she will shift from an agitated to a calm state.

In the area of attending, a critical component in both assessment and instruction is the orienting reflex. (van Dijk, 1985). It is important to consider because the orienting reflex can potentially be used to help the child who is usually in "other than alert states" shift into attending. The hope is that you can capture their attention on a reflexive level, then provide instruction. (See "associative learning" discussion page 16.)

If the child shows an orienting reflex in response to a change in position, a particular scent, or colored lights, these materials or strategies can be embedded in lessons to try to gain the child's attention and help him shift to an alert state. Once he makes that shift, you have a brief window of opportunity to provide further information and to attempt to extend the amount of time that he attends.

An important thing to note: There is a difference between the orienting reflex and a defensive startle. Overhearing your name in a conversation produces an orienting reflex. "The orienting reflex readies the nervous system for further learning." (Silverrain, 1991) The blare of a fire alarm

typically produces a defensive startle. A startle indicates an overload of the nervous system which is aversive rather than appealing. The result is not "attending", but rather physical agitation and/or disorientation and/or withdrawal. The child who experiences a defensive startle during an interaction with his instructors or his environment feels under assault rather than invited to participate.
If the stimulus is perceived as aversive, you are less likely to attend and more likely to spend your energies trying to get away from the stimulus. Children who can not physically get away from an aversive stimulus may literally shut down into sleep to escape. That is why it is critical to determine what the child tolerates or is attracted to (appetite) versus what repels the child (aversion), (van Dijk, 1985)
Families as well as other members of the child's team often have valuable pieces of information related to the things which seem to catch his attention or deeply bothers him. In the assessment process you need to identify things that elicit an orienting reflex so that you can embed those in your lesson to help the child maintain attending. You also need to assess what things are aversive to the child so you do NOT inadvertently include these things in lessons or social interactions with him and take away his ability to attend.

The questions related to orienting reflex which must be answered during assessment are:

What does the orienting reflex look like in this child?
What elicits an orienting reflex in this child?
What does the defensive startle look like in this child?
What elicits a defensive startle in this child?

There are a number of tools which can help in obtaining this information. These include:

Assessment of Biobehavioral States and Analysis of Related Influences
Appetite / Aversion Form,
Assessment of Voluntary Movement Component

HOW DOES THE CHILD TAKE IN INFORMATION?

Preferred Sensory Modalities
We all use our senses to gather information from our environment. These senses include: visual, auditory, vestibular (related to balance primarily through receptors in the inner ear), proprioceptive (related to movement and spatial orientation sensed through muscles, tendons, joints, and the inner ear), kinesthetic (related to bodily position, weight, or movement sensed through the muscles, tendons, and joints), olfactory (smell), and gustatory (taste).
We also have preferred senses for taking in information which impacts how we best learn. Some of us learn new material best by listening, others prefer to read the information, and others may need to write new information down. It is important to determine which sensory channel(s) the child with profound disabilities prefers to use and then provide instructional activities and information through those preferred channels. For example, a child may alert to a change in lighting. She may attend longer if there is some music involved in the lesson. She will accept certain types of tactual input in the palm of the hands but never on her mouth. Looking at the self stimulatory behaviors (i.e. rocking, flicking, etc.) can also give you some information about which sensory systems have value to the child. (Moss & Blaha, 1993)
It is helpful to systematically test across all sensory channels with tools like Every Move Counts and to compile and analyze anecdotal information from families and staff who have daily interactions with the child. These observations contain clues about sensory input that work or fail to work for the child. For example, the child notices and likes things involving water. You observe that the one sound that seems to "tune him up" (bring him to attending) is the sound of water running from a faucet. That piece of information tells you that the child recognizes a consistent and distinct auditory cue and associates it with something that he really enjoys.
The strategy of "multisensory approach" is sometimes recommended for this population. There seem to be different working definitions for this term. This approach is sometimes perceived as stimulating all the child's senses at the same time with the same level of intensity. This version of

multisensory approach assumes a couple of things:
(1) All senses are triggered in pleasant ways. This may not be true for these children. A child may orient to music through the auditory channel but find tactile information through his hands frightening. Combining these with equal intensity in a lesson may throw the child for a loop.
(2) The child can combine completely different sensory input into a meaningful whole. This may not be possible for all children. For example, some students may need to focus on one channel at a time to understand what is happening. It may be better to pace the lesson so the child can have a longer time to look at or touch something before you start talking about it. You can relate to this need, if you think of the times you have turned off your radio, when you were looking for a freeway exit in a large unfamiliar city.

The questions that should be considered in assessment related to sensory channels are:

What sensory channels are most effective for gaining the child's attention?
What sensory channels are important for conveying reliable information to the child?
What degree of sensory information or pacing of presentation of information helps the child
shift his state to attending?
What channels are associated with orienting reflexes?

Assessment tools that help to provide this information include:

Learning Media Assessment,
Every Move Counts.
Appetite / Aversion Form,
Inventory of Self-Stimulatory Behaviors.

DOES THIS CHILD REMEMBER AND LEARN?

Any type of learning has to do with memory. The following are indicators that a child is remembering specific sensory information.

Habituation as an Indicator of Memory

When I first moved to Austin I rented a home near the airport. It was a great house but unfortunately stood under the flight path. Incoming flights woke me up at night and interrupted phone conversations for the first few days . After a time however, I tuned it out and stopped noticing the noise. When my sister came for a visit she asked me, "How can you stand it?" I honestly had no idea what she was talking about. I had gotten used to the sounds and had stopped hearing them. This is an example of habituation. Our minds unconsciously sort through incoming information. Habituation is an indication of memory because you only get used to things that your system is able to remember. Habituation decides what we should ignore or notice and is characterized by a lack of response. This is very important as it allows the nervous system to focus on relevant events and not be overwhelmed by all the trivial types of stimulation occurring around us all the lime.

Watching for signs of habituation in a child is important because it tells you he is remembering. Many times you hear comments like, "He used to really jump when the intercom came on, but now he doesn't seem to notice it. I don't know if he can still hear it." or "This used to be her favorite tape, but now she doesn't seem to respond to it." These could be indicators of habituation, which signifies that the child views the information as "old news".

Building Associations as an Indicator of Memory

Building associations between two events is a type of learning and remembering. Linking a new fact with a familiar one (associative learning) is one way we grow to understand the things around us. Before we talk about ourselves, however, let's talk about less complex life forms and what they have shown us about associative learning.

"Snails, believe it or not, demonstrate simple associative learning. Recent studies show the effects of learning on the nervous systems of snails. Large groups of sea snails are given a fast spin (simulating the roll of a wave) which makes them contract. Each spin is preceded by a burst

of bright light. Bursts of bright light alone have no effect on snails. After a while, the snails will contract when the light is shone on them, as if a spin were imminent. Researchers have shown that during this learning, new nerve connections have grown that did not exist before. The snails began to react or anticipate the spin simply by association with the burst of light."
"You might find it interesting to know that newborn human infants have also shown the ability to associate a preceding event with one that follows. A hungry, crying baby will become quiet when she hears her parent's footsteps approaching in the night because she anticipates the bottle. We know that the human nervous system is capable of making associations between two events when the final event in the chain relates to basic survival or pleasure needs." (Silverrain, 1991)
A child who dearly loves the taste of pudding initially shows no recognition of a spoon. However, over time, you may see him develop the same level of enthusiasm for a spoon as the pudding because you have repeatedly paired the spoon with the pleasure of eating pudding. That ability to make an association between the spoon and the pudding is an example of associative learning. (Note: We have learned from early studies that presenting the spoon immediately before he tastes the pudding is the way to help the child make the connection.) By building these meaningful pairs in a child's life you are expanding his understanding of the world. Noting any associations that child may have already is important assessment information.

Anticipation as an Indicator of Memory

Anticipation should be considered an indication of learning and memory. When a child feels his bib go about his neck and begins to open and close his mouth, he is anticipating the next step. He is showing us that he remembers. Unlike habituation that is characterized by a lack of response, anticipation is characterized by a "tuning up" of the system and some action on the part of the child that says "Oh yeah, I remember this!" Anticipation tells you that you have been successful in developing associative learning. You have built an association between the bib and eating.
Anticipation of an upcoming event can "rev you up" to maintain an attending state. For example, a person is on a road trip and knows that the exit he must take will be a few miles past a factory on the left. This guy may drive along lost in his own thoughts for thirty minutes or so until suddenly, the factory appears on the left and triggers an orienting reflex. He shifts into the alert state and begins to anticipate the exit. Because he anticipates the exit, he stays alert for a period of time and looks closely for the sign. Using cues with children helps them anticipate and pull to attending so they can learn.

Surprise as an Indicator of Memory

Building in a surprise or what has been called a mismatch of expectations (van Dijk, 1985) is a test for memory and learning. A mismatch occurs for the child when he anticipates his mother picking him up and playing a particular swinging game, but is treated to this same game by his father. The child registers his surprise by fluttering his eyelids and breathing more rapidly. The surprise elicits an intense alert state in which associations previously learned are reviewed and compared with the new experience. Important learning has taken place for him. A child responds to a mismatch of expectations only because he remembers what should have happened.

Questions to ask related to assessing cognition (habituation, anticipation) include:

- Are there things the child used to orient and respond to that he now seems not to notice?
- Does he stop responding after 2-3 times?
- Does he seem to pair things, events, and/or people together?
- Does the child show anticipation of what is about to happen?
- Does the child register surprise when there is a change in a familiar routine?
- Does the child seem to know familiar versus unfamiliar people?

An assessment tool that helps to provide this information is:

* Every Move Counts

WHAT CAN THIS CHILD DO TO IMPACT HIS ENVIRONMENT?

Since learning is something the child does with you and not something you do to him, it is critical to determine the easiest way for the child to respond so that he is able to successfully participate.

Possible responses that these children might make are changes in affect, vocalizations, gaze shift, and body movements. (Korsten, 1993) Even if these responses are not intentional, you should identify a particular response he gives and try to shape it into a purposeful response. Systematically testing for these responses is an important, part of assessment.

Systematic Inventory of Voluntary Movements

It is important to systematically observe the child in all the positions typically used with him and inventory the voluntary movements he can make. Some of these children are said to have no voluntary movements to use for instructional purposes. Typically this is not the case. When a child is observed in a variety of positions he may show a surprising number of movements. From this inventory of voluntary movements, the team can target a particular response(s) which will allow the child to participate in an activity.

Many children can make a particular movement easily in one position but not in another. Some positions are more stimulating or relaxing for a child and this effects their ability to attend. ("As soon as we put him in side-lying, he stops fussing.").

Additionally, some children, when moved from one position to another, experience a significant change in their biobehavioral state. They may find the experience frightening and need a period of time to recover before they can attend. These children could benefit from strategies to make the transition less aversive (e.g., touch cues which signal that they are about to be taken from their travel chair or slowing down the pace of the transition). Other children may be at their most alert following a change in position. It is an individual thing.

Questions related to voluntary movement that can be addressed in assessment include:

- What specific voluntary movements does the child exhibit across positions?
- How do different positions effect the child's level of arousal or biobehavorial states?
- Does transition from one position to another cause a significant change in the child's biobehavioral state?

Assessment tools that help to provide this information include:

- Every Move Counts
- Assessment of Voluntary Movement Component
- Physical Therapy Assessment
- Occupational Therapy Assessment

USING THE ASSESSMENT INFORMATION IN DEVELOPING PROGRAMMING

Programming Strategies

Once this assessment information has been compiled the educational team should be able to draw on it in developing their program. Ann Silverrain suggested some strategies lo follow in her 1991 article. These include:

1) Use assessment data to determine learning media that provides the appropriate level of stimulation—enough to be alert and not enough to cause withdrawal. We must forget about stimulation for the sake of stimulation. "Tolerating stimulation" is not an appropriate goal. Damaged nervous systems need the appropriate type and amount of stimulation; they do not need to be bombarded.

2) Develop activity routines which have a predictable sequence of steps, objects, or actions that evoke the orienting reflex to re-engage the child throughout the activity and provide opportunities for the child to respond or take a turn. Remember pacing is critical in getting child response.

3} Use familiar objects and people in daily routines as a basis for instruction. Evaluate anticipatory responses to sensory cues to determine the appropriateness of the materials or actions used for cuing. As you cue the child, look for orienting reflexes to occur. Remember that you want to get an orienting reflex and not a startle response. When you get an orienting reflex, follow with an activity of high interest or one that comforts or meets a basic need as a way of rewarding the child's response. Over time we should

begin to see the child show signs of anticipation. All the things we want the child to respond to should be real things or actions that are used by or with the child in everyday routines.

4) Design a daily schedule of predictable and pleasurable events or routines. With any activity, if we want to see an anticipatory response (evidence that the child remembers) the activity must have a strong emotional appeal for the child.

5) When we see the child anticipate events and show some awareness of the functional use of objects, then primitive communication choice systems can be used. When a child does such things as gaze at a preferred item then at you; tactually explores two objects and picks the relevant one in context; pushes an object toward you; pulls or pushes your body in a way that says "I want you to do this with me", then you are beginning to move into the realm of intentional conversation.

6) When the child is consistently anticipating a particular object or action in a routine, toss in a mismatch to test awareness and communication. This check can only occur within the context of a stable routine- For example, the child is routinely expecting to have you present her red bib before meal time, but instead you put a hairbrush in front of her and her bib off to one side. Will she realize there is a problem and try to communicate that to you? Will she try to get your assistance in resolving the problem? These are indicators of a readiness for more complex learning.

CONCLUSION

As the family and the other members of the educational team work together they become more able to recognize and respect the skills and strong personal preferences that children with the most profound disabilities show us. All children have ways of showing us what they want more of and what they would like to avoid. It is our responsibility to develop the assessment expertise needed to be aware of those messages and to use them to build better learning environments for the child.

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Editor's Note: This article was developed in response to requests we have had from teachers who are working with children who have the most profound disabilities. Typical assessment information provided little for the teachers to use in developing programming for this type of child. The sample forms that follow are tools developed by Robbie. Millie, and Stacy to assist in the collection of information to help educational teams develop better learning environments. Give us a call for more information (512) 206-9242.

APPETITE / AVERSION FORM

Fill one sheet out for each child. Over a period of time through listening to stories from others and through observation of the child, simply list things the child likes and things he doesn't like. We all enjoy things that we are good at and that we understand. The child's "Likes" will be his areas of strength and indicates sensory channels that are working. His "Dislikes" will be areas of weakness and indicates sensory channels that may not be working efficiently. The information gathered on this form will give you underlying themes that you can use for modifications, teaching strategies, topics for communication, and activities.

Child's Name: Date:

APPETITE (LIKES)	AVERSION (DISLIKES)
"ROUGH HOUSING" WITH DAD *OUTSIDE – SWING* *TICKLES FROM A PEER IN CLASS* *BATTERY OPERATED TOOTHBRUSH* *BUMBLE BALL* *RIDING IN CAR/BUS* *ROCKING CHAIR* *EATING*	*FIRE ALARM* *PEOPLE TOUCHING HER FACE*

Summary Information:
What sensory channels is the child using the most? *VESTIBULAR, KINESTHETIC*
What are possible topics for communication? *THINGS THAT VIBRATE, FOOD, ROCKING*
What are some activities that the child might find aversive? *FIRE DRILLS, LARGE GROUP ACTIVITIES IN NOISY PLACES, PEOPLE TOUCHING HER FACE*
What other modifications or strategies are suggested by the above information?
INCLUDE MOVEMENT OR VIBRATION DURING ACTIVITIES

INVENTORY OF SELF-STIMULATORY BEHAVIORS

CHILD'S NAME: *SUSIE* DATE: *9/21/96*

Description of behavior	**Sensory Channel**	**Calming Behavior**	**Arousing Behavior**	**How could this be modified to interest the child in instructional activity?**
Sucks her tongue	*Tactile, Auditory*			*Give her interesting objects to mouth. Use Little Room*
Shakes her head From side to side.				*Ask motor staff which vestibular activities are appropriate related to seizure activity.*

ASSESSMENT OF VOLUNTARY MOVEMENT COMPONENT

Adapted from work done by

JANE KORSTEN & DIXIE DUNN of RESPONSIVE MANAGEMENT INC.

By Robbie Blaha and Stacy Shafer: TSBVI Outreach, 1996

NAME: *SUSIE* DATE: *9/18/96* STAFF: *MS. JONES*

	State	Leg	Mouth	Eye	Ear	Cheek	Chin	Neck	Head	Arm	Shoulder	Hand	Foot	Other
Position #1 *Supine*	Initial *D* Changes *MA* Main *MA*	R V	V	V			V		V	R V	R V	R V	R V	
Position # 2 *Side-Lying*	Initial D Changes *MA,FA,AA* Main *AA*	R V	V				V		V	R IN		R IN	R V	
Position #3 *Wheel-chair*	Initial *AA* Changes *D* Main *AA*	R V	V	V			IN		IN					

SUMMARY

Position	Voluntary/Intentional Movements Possible in Position	Goals IEP	Activities for This position	Staff	State	Observations
Supine	R arm, hand, shoulder, leg, foot Mouth, eyes, head, chin		Toileting	Mrs. Ware	MA	Not for instruc. Agitates child Ask PT/OT re: Strategies to calm
Side-lying	R arm, hand, leg, foot, Mouth, chin, head	Comm. Cognitive Motor	PopPopcorn, Dry hair, Cassette Player	Ms. Jones	AA	
wheelchair	R mouth, eyes, chin, Head (a little)	Head/trunk control	Lunch, library Travel to classroom	MS. Jones	AA	

Key: State level from asses. of Biobehavioral States & Analysis of Related Influences (√=seizures; S=sleep; D=drowsiness; QA=quiet alert; AA=active alert; FA=fussy alert; MA=mild agitation; US=uncontrollable agitation). R=reflexive; V=voluntary; IN-intentional (goal directed). R=right; L-left

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Assessment of Biobehavioral States and Analysis of Related Influences

by Millie Smith, Education Specialist and Stacy Shafer, Early Childhood Specialist, TSBVI Outreach

Biobehavioral states are levels of arousal ranging from asleep to agitated. Students with profound disabilities may not respond to the stimulation and interactions around them because they have difficulty establishing and maintaining alert arousal states. They, like any other student, are available for learning only when they are alert. The primary task of teachers serving this population is to become skillful at using environmental management to create conditions that facilitate establishment and maintenance of alert states. Once students are alert, appropriate learning materials and social interactions must then be provided in order for learning to occur.

Many external as well as internal factors influence arousal states. All significant factors must be considered in determining the best way to facilitate alert states with any given student. For that reason, biobehavioral state assessment is crucial before interventions occur. Under no circumstances should it be assumed that a student is nonresponsive under all conditions before biobehavioral assessment and subsequent intervention has been provided.

Two of the most well known biobehavioral assessments that have come from the research and literature developed during the last twenty-five years are the Carolina Record of Individual Behavior (CRIB) and the Analyzing Behavior State and Learning Environments Profile (ABLE). Each of these tools has strengths, but cost and accessibility limit their use for some teachers. The informal, teacher-made assessment tool which follows this article attempts to assist teachers in their efforts to identify factors influencing their students' arousal states. Teachers are encouraged to change this tool as needed to meet the unique needs of an individual student. Teachers are also encouraged to read the resource material listed and to take advantage of training opportunities related to these tools as they arise.

The success of this type of assessment is highly dependent upon the sharing of information. Parents and staff members who will be recording states and other information should plan the assessment together. All assessors must agree on the characteristics of each state for the student they are assessing. Using a video tape of the student to practice recognition of states before the actual assessment takes place is very helpful.

Resources

Guess, D., Mulligan-Ault, M., Roberts, S., Struth, J., Siegal-Causey, E., Thompson, B., Bronicki,
G.J., & Guy, G. (1988). Implications of biobehavioral states for the education and treatment of

students with the most handicapping conditions. JASH, 13 (3), 163-174.

Guy, B., Ault, M., & Guess, D. (1993). Project ABLE manual: Analyzing behavior state and learning environments profile. Lawrence: University of Kansas Department of Special Education.

Rainforth, B. (1982). Biobehavioral state and orienting: Implications for education of profoundly retarded students. TASH Journal, Volume 6, Winter, 33-37.

Simeonsson, R.J., Huntington, G.S., Short, R. J., & Ware, W. B. (1988). The Carolina record of individual behavior (CRIB): Characteristics of handicapped infants and children. Chapel Hill: Frank Porter Graham Child Development Center, University of North Carolina at Chapel Hill.

Editors note: If you have questions regarding the forms that follow contact Millie Smith at (512) 206-9271 or write to her at TSBVI Outreach, 1100 W. 45th Street, Austin, TX 78756, Attention: Millie Smith. The actual forms may be found in Teaching Students with Visual and Multiple Impairments (1996). Austin, TX: Texas School for the Blind & Visually Impaired, Austin, TX.

Assessment of Biobehavioral States and Analysis of Related Influences

by Millie Smith and Stacy Shafer

Student's Name: Catherine Date of Assessment: 3/5/95

Name(s) of Assessor(s): M. Smith, P. Castro (mother), N. Jones

Assessment Period

School day starts at: 8:15 a.m
School Day ends at: 3:30 p.m.

Nonschool environments:
Place: Home From: 4:00 p.m. To: 8:30 p.m.
Place: From: To:

The total assessment period should be at least one school day. Assessment of the student in nonschool environments on the same day would be extremely helpful.

Recording Schedule

Indicate the length of the interval between recordings in Part II. Intervals should be no shorter than one minute and no longer than 15 minutes. The intervals should be consistent throughout the assessment period. Part II information will be recorded every 15 minutes.

Part I

Provide the information called for in the grids for the 24 hours preceding the beginning of the assessment and throughout the assessment period. Under "Comment" indicate any significant factor that comes to mind and be sure to note when the recorded information is a departure from the student's typical routine. If there are significant departures or if the student is ill on the day of assessment, postpone the assessment.

Note: This is an informal teacher-made assessment based on the Carolina Record of Individual Behavior (CRIB), by R. J. Simeonsson et al. and the Project ABLE Manual: Analyzing Behavior State and Learning Environments Profile by B. Guy et al.

Food and Liquid Information

Each time the student eats something, drinks something, or is tube fed, enter the following information on the grid:
(the grid has five columns titled Type, Start Time, Stop Time, Amount, and Comment)

Type	Time Start	Time Stop	Amount	Comment
Ensure.	8:20	8:40	16 oz	
Water.	8:40	8:45	6 oz	
Ensure	12:30	1:20	16 oz.	
Water	1:10	1:15	6 oz.	
Ensure	4:30	4:50	16 oz.	
Water	4:50	5:00	6 oz.	
Ensure	8:00	8:20	16 oz.	
Water.	8:20	8:25	6 oz	

Medication Information

Each time the student takes a prescription or over the counter medication enter the following information on the grid:

Type	Time	Amount	Comment
Tegretol Suspension	8:20 a.m.	200 mg	
Dimetap Elixir	8:20 a.m.	10 cc	for congestion
Dimetap Elixir	12:30 p.m.	10 cc	
Tegretol Suspension	4:30 p.m.	200 mg	
Dimetap Elixir	4:30 p.m.	10 cc	

Seizure Information

Each time a seizure occurs, enter the following information on the grid:

Start Time	Stop Time	Description	Comment
		none observed	

Sleep Information

Each time the student sleeps for more than five minutes, enter the following information on the grid. If the student's sleep is interrupted for longer than three minutes, enter a stop time and begin a new sleep episode on the next line:

Start Time	Stop Time	Location	Comments
9:00 p.m.	12:00 p.m.	Bedroom	Cried to request in bed change in position
12:15 p.m.	3:20 p.m.	"	"
3:28 p.m.	6:15 p.m..	"	Playing quietly in bed when checked at 6:15

Part II - Instructions

Time: Record the clock time for every third interval recorded. This will help show the continuity of the assessment.

State: Record the state at the moment of observation, not the prevalent state for the entire interval.

Position: Indicate the position the student is in at the moment of observation (e.g., sitting, side-lying, prone, supine, standing).

Specific External Stimuli Available: Describe the specific external stimuli available to the student at the moment of observation (e.g., music, vibrator, swing, water, food, Little Room, mobile). If no material is available, enter a zero.

Ambient Conditions: Describe the characteristics of the surrounding (e.g., room temperature, noise level, conspicuous smells, lighting) for the first state recorded and whenever conditions change. When no change occurs, put ditto marks in the column.

Social Conditions: Record the name of the person interacting with the student at the moment of observation. The person must be talking to the student, touching the student, and/or co-actively manipulating an object with the student. The passive presence of another person

should not be recorded. If no person is interacting with the student, enter zero.

Key to Part II Assessment

State Key: _ = Seizure; S = Sleep; D = Drowsiness; QA = Quiet Awake;
AA = Active Awake; FA = Fussy Awake; MA = Mild Agitation;
UA = Uncontrollable Agitation.

Time	Activity	State	Position	Spec. Ext. Stimuli Avai.l	Ambient Conditions	Social Conditions
8:15	Arrival	QA	Seated	0	Outdoors cold, windy, noisy chairlift in bus	Greeted by TA Linda
8:30	Breakfast	D	Supine	0	Normal temperature and lighting	0
8:45	Tooth-brushing	MA	Seated	Toothbrush, toothpaste, water, towel	Noisy bathroom,very bright lighting	Hand-over-hand manipulation; L
9:00	Hair Drying	QA	Seated	Hairdryer, mousse, brush	Normal temperature and lighting	Talking; Linda
9:15	Hair Brushing	QA	Seated	Hairdryer, mousse, brush	Normal temperature and lighting	Talking; Linda
9:30	Drama Class	AA	Seated	Papier mache material	Dark stage area, echoes	Surrounded by peers
10:00	Changing	AA	Supine	Cold wipes, talcum powder	Normal temperature and lighting	Patting, talking; Linda
10:15	Mail Delivery	AA	Rolling prone stander	Variety visual & auditory stimuli avail.	Many changes; different noise levels	Interaction with 6 different adults
				Remainder of day not shown		

Part III - Summary

Typical duration of alert states: *15 to 20 minutes*

(Note: If the student is typically alert less than one minute, a different type of biobehavioral assessment will be necessary. Consider assessing one activity at 30 second intervals. The purpose of this assessment would be to try to determine what influences cause state changes

and to provide modifications associated with changes to more alert states.)

Positions during alert states: *Seated, standing (in prone stander)*

Specific external stimuli available during alert states: *Movement; tactual materials (e.g., paper, hairbrush); auditory, especially human voice*

Ambient conditions during alert states: *Normal lighting, temperature, low noise level*

Social conditions during alert states: *Talking and touching*

Less than alert states typically occurred when: *There was no social interaction*

Agitated states typically occurred when: *There was too much noise or strong smells and just before feeding*

If you have concerns about food and liquid intake or medications, talk with parents and other team members about getting more information.

Do you have concerns about food and liquid intake being adequate for maintenance of alert states:

___X__ Yes _____ No

Do you have concerns about medication and/or medication schedules facilitating alert states at optimum programming times:

___X___Yes _____ No

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Example Form: Assessment of Biobehavioral States and Analysis of Related Influences

by Millie Smith and Stacy Shafer

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Date of Assessment: 3/5/95

Name(s) of Assessor(s): M. Smith, P. Castro (mother), N. Jones

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