



California
Department of
Health Services

SANDRA SHEWRY
Director

State of California-Health and Human Services Agency
Department of Health Services



ARNOLD SCHWARZENEGGER
Governor

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N.L.: 02-0205

Index: Medical Therapy Program

TO: ALL COUNTY CALIFORNIA CHILDREN'S SERVICES (CCS)
ADMINISTRATORS, MEDICAL CONSULTANTS, SUPERVISING
THERAPISTS, STATE CHILDREN'S MEDICAL SERVICES (CMS)
BRANCH STAFF AND REGIONAL OFFICE STAFF

SUBJECT: FUNCTIONAL OUTCOME MEASUREMENT FOR THE MEDICAL
THERAPY PROGRAM

The CMS Program introduced statewide outcome measurements for the Medical CCS Therapy Program (MTP) effective July 2004. Two tools have been developed specifically for the MTP for the purpose of program management:

- 1. The Functional Improvement Score (FISC)** measures the amount of functional change that a child achieves in a 6–12 month period. This tool applies to all children enrolled in the MTP with CCS Approved Therapy Plans.
- 2. The Neuromotor Impairment Severity Scale (NISS)** measures the amount of neuromotor impairment for children with cerebral palsy or similar upper motor neuron conditions. This tool applies to children 12 months and older.

BACKGROUND:

Three years ago, CMS State staff were directed to develop a process to establish and monitor outcome measurements for the estimated 24,000 children participating in the MTP. As there were no outcome measurement tools existing in the in medical therapy literature or current rehabilitation practice that could be specifically applied to the MTP, the FISC and NISS were developed to be used in correlation with current CCS MTP documentation, policies, and procedures.

The new tools do not eliminate the current requirements that:

- Children receiving physical therapy (PT) and occupational therapy (OT) services shall be evaluated according to MTP policy contained in “Required Testing by Diagnosis.”
- Individual functional goals shall be established based on the results of testing;
- Provision of therapy is based on the child’s response toward individual functional goals.

The FISC tool identifies benchmark skills that are applicable to the children enrolled in the MTP. The NISS uses clinical markers of neuromotor maturity that are common in children with upper motor neuron conditions. The NISS and FISC data will provide consistent statewide information necessary for the management and evaluation of the MTP. This will optimize use of available resources and assure the highest level of physical independence for each child in the MTP.

REPORTING:

County CCS programs will periodically report data collected from these outcome tools (FISC and NISS) to the State. The CMS Branch will define at a later date the method of collection in a separate N.L. The method will be in conformance with the federal Health Insurance Portability Accountability Act (HIPAA).

FISC IMPLEMENTATION:

The FISC is to be used as part of the evaluation of children with an Approved CCS Medical Therapy Plan for PT and/or OT services. A child’s FISC score is to be determined by an MTP therapist at each evaluation. The first FISC score will be considered the Initial FISC score, regardless of the length of time that the child has been enrolled in the MTP. When a child transfers from one county to another the previous FISC score shall be used when calculating units of functional change. A FISC score is not required for children who are only participating in the Medical Therapy Conference (MTC) and have no hands-on therapy or monitoring services prescribed.

FISC scores are to be separately documented by each discipline participating in the preparation for the medical review by the child’s managing physician. The total FISC score can be graphed to demonstrate the child’s functional change over time. The individual FISC score for each functional skill shall be contained in the PT/OT MTU Summary and the MTC Summary.

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The county MTP shall report to the State periodically the FISC score(s) for each child and all units of service provided per discipline since the last FISC score was recorded. As indicated above, instructions for and the format of submission of the data will be forthcoming.

It is recommended that a separate record shall be maintained in the child's chart to document the child's initial and subsequent FISC scores. The type and number of units of service per discipline provided during FISC intervals should be noted on this record for the purpose of data collection. Units of service should be counted in 15 minutes intervals for each discipline; e.g. treatment, evaluation, case conference, consultation, and documentation.

When a child transfers from one county to another, the FISC scores from the transferring county shall be forwarded to the receiving county. The receiving county may subsequently report the individual units of service per discipline based on the date the services were initiated in the new county or may total all of the units of service provided to the child from the transferring county plus the new county since the previous FISC score was recorded.

The State training materials for the FISC are attached to this letter. See Attachments (1-5) and the list of Additional Materials Available

NISS IMPLEMENTATION:

The NISS shall be implemented by each independent county MTP subsequent to county MTP staff having exhibited competency by NISS trainers. The CMS Branch will determine the competency of County NISS trainers who shall be responsible for training, observing, and determining competency of NISS examiners among county therapists. The Branch will periodically monitor the competency of county NISS trainers and examiners.

The use of the NISS by dependent counties will be implemented based on county staffing, completion of NISS training, and competency as determined by CMS Branch.

The Total NISS score, sub-scores, and regional scores shall be recorded in the PT/OT MTU Summaries and the MTC Summary. The NISS Data Sheet should be kept in the MTU chart.

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A child in the MTP shall be evaluated with the NISS at the following ages:

- 12 months (or at program entry if older)
- 2-3 years of age
- 5-6 years of age
- 11-12 years of age
- 18-19 years of age

Additionally, a child shall be evaluated after a significant medical/surgical intervention.

The State training materials and procedures for NISS trainers and examiners are attached to this letter. See Attachments (6-15) and the list of Additional Materials Available.

Questions regarding the implementation, interpretation, and use of the subsequent data for these outcome tools should be directed to the CMS team, James Boyd, M.D., at (916) 327-2681, or by email, at Jboyd@dhs.ca.gov, Kerren Brown, O.T.R., at (213) 897-3282, or by email, at kbrown2@dhs.ca.gov, or Dolores Sweigart, P.T., at (213) 620-6118, or by email, at dsweigar@dhs.ca.gov.

Original Signed by Marian Dalsey, M.D., M.P.H.

Marian Dalsey, M.D., M.P.H., Acting Chief
Children's Medical Services Branch

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MATERIALS ATTACHED:

Attachment #1 FISC Instructions

Attachment #2 FISC Task Chart

Attachment #3 FISC Independence Level Descriptions and FISC Examples

Attachment #4 FISC Score Sheet

Attachment #5 FISC Frequently Asked Questions

Attachment #6 Interactive Skills Inventory Descriptions

Attachment #7 NISS Instructions

Attachment #8 NISS Datasheet

Attachment #9 NISS Positioning Diagrams

Attachment #10 NISS Score Diagram

Attachment #11 NISS Calculator

Attachment #12 NISS Trainer Protocol

Attachment #13 NISS Frequently Asked Questions

Attachment #14 NISS Reviewer Comment Form

Attachment #15 NISS Trainer Protocol Frequently Asked Questions

Additional Materials Available by contacting CCS State Team are:

Power Point Presentation of the NISS Evaluation

VHS tape of NISS Training Presentation (90 minutes)

VHS tape of Overview of FISC and NISS (40 minutes)

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The attachments to N.L.: 02-0205 will be posted electronically with the letter during the week of January 24, 2005.

ATTACHMENT I – FISC DESCRIPTION AND INSTRUCTIONS

FUNCTIONAL IMPROVEMENT SCALE (FISC) MEDICAL THERAPY PROGRAM CALIFORNIA CHILDREN’S SERVICES

INTRODUCTION:

The goal of the California Children’s Services (CCS) Medical Therapy Program (MTP) is to assist each eligible child to reach his or her maximum physical function and independence. Each child is thoroughly evaluated at entry into the program to determine the type of impairment, severity, current functional skills, rehabilitation potential, and medical/surgical needs. Individual goals and objectives are established for each child based upon input from the family, therapists and physician.

The Medical Therapy Conference (MTC) team prescribes occupational therapy, physical therapy, braces, durable medical equipment that is medically necessary to meet the child’s individual goals. The goals and objectives are re-evaluated every 6-12 months to determine progress made and appropriateness of the medical therapy plan. Once the child has reached all of the functional goals that are reasonably possible, evaluation, monitoring and intermittent consultation are provided to ensure that the child maintains his or her skills and that new goals are established when appropriate. As needed, diagnostic tests, referral for specialized evaluation, medical and surgical intervention is recommended.

DESCRIPTION:

The FISC is a tool that identifies the child’s current functional ability and measures change over time in a standardized manner. The FISC has 27 functional skill items that are each scored based on the level of independence demonstrated by the child. The functional items are in three basic categories: general mobility skills, transfer skills, and activity of daily living (ADL) skills. These tasks represent most of the MTP programmatic goals.

There are 9 levels of independence for each functional skill. The definitions for each level of dependence are clearly defined and are consistent with the prevailing use of the terms in the field of medical rehabilitation.

- 0- dependent
- 1- maximal dependence
- 2- moderate dependence
- 3- minimal dependence
- 4- contact guard dependence
- 5- standby assistance
- 6- supervision dependence
- 7- modified independence
- 8- independent.

The functional tasks are clearly defined and have references to the age at which a typical child would be expected to perform the task independently. Each functional task is given equal mathematical value. Each upward step in independence is given a mathematical value of one. The independence number for each functional task is added to give a total functional skill number.

Each child will continue to have individual goals and objectives agreed upon by the family, therapists, and physician. The individual goals will change over time and are not standard for all children. The individual goals will represent the specific needs of the individual child while the FISC system will reflect progress toward Medical Therapy Program Goals.

INSTRUCTIONS:

Each of the 27 tasks is described in terms of set-up, response, and the developmental age when it is usually achieved.

To complete an evaluation each task must receive a number score. “Not tested” cannot be used. “Not applicable” receives a score of “0” or dependent.

Each task must be performed in an appropriate period of time. A child who can do 100% of the effort of the task at a speed that is too slow to be functional should be scored based on the amount of assistance (minimal, moderate, maximal) that is required to do the job at a reasonable speed.

The term “briefly” means at least 5 seconds when referring to a posture that is attained.

The child is scored based upon the level of independence **demonstrated**. The scoring can be based on several evaluations or therapy sessions if necessary. The independence scale is defined specifically.

Braces, splints, durable medical equipment, and adaptive devices may be used by the child in each of the tasks at **any** dependence level except “Independent.” The score of “independent” means that the child can also do the task in an appropriate amount of time without equipment. This is scored as “Independent” even though the child may be instructed to wear the brace or prosthetic device for all activities.

“Modified independent” is used to indicate the child must use a brace, prosthesis, assistive device, setup or a structured environment.

Three of the tasks (#9 curbs, #15 in and out of bathtub, and #26 bathing) involve issues of safety and judgment that go far beyond the physical task and the training received in the Medical Therapy Program. The ability to apply a physical skill in the home or community is learned when the child is developmentally ready and typically this occurs years after the physical ability has been achieved. For these three items a child can only be scored up to the level of “Supervision,” but not a level of “Modified Independent” or

“Independent,” regardless of parent’s report of the child’s independence. For a child to be allowed beyond supervision is the responsibility of the family.

ATTACHMENT II – FISC TASK CHART

TASK DESCRIPTIONS FOR THE FUNCTIONAL IMPROVEMENT SCALE

	Task	Set-up	Response	Age of independence for normal child
1.	Rolling	Supine	Rolls to prone in either direction without trapping arms under the body. (1/2 tries). Log or segmental roll is acceptable	6-7m (Peabody)
2.	Assume Prone on elbows	Prone	Head moves to vertical position with chest partially raised from mat. Weight is supported on both arms (any arm posture is acceptable). The posture is maintained briefly	3-5m (Michigan)
3.	Assume Quadruped	Prone	Moves to position bearing weight on hands and knees, with hips over knees, maintains briefly or begins creeping.	8-9m (Peabody) 6-8m (Michigan)
4.	Crawling	Prone	Pulls self forward 3 feet using both arms (arms may be in any posture). Legs may assist or be dragged in “combat” style	7m (Peabody)
5.	Creeping	Prone	Uses reciprocal action on 4 points (any arm posture is acceptable) to move 3 feet forward. Knees do not need to be directly under the hips but stomach must be off the floor.	11m (Peabody) 9-11m (Michigan)
6.	Supine to Sit	Supine	Raises self to any style of sitting position on a flat surface and maintains unsupported sitting briefly.	8m (Bailey)
7.	Sit to Stand	Sitting in chair with feet resting flat on the floor	Achieves standing posture briefly. May use arms to push and initiate movement.	8-9m Peabody)
8.	Assume Kneeling	Kneeling	Maintains kneeling position briefly when toy or auditory distraction is presented on both/either sides. Buttocks must be maintained above ground, but any femur and tibia position is acceptable.	14m (Peabody)
9.	Curbs	Curb	Steps up and down on curb maintaining upright posture.	24-30m (PEDI)

	Task	Set-up	Response	Age of independence for normal child
			Child must stop movement once the curb has been ascended and descended.	
10.	Stairs	Standing	Climbs up and down 3-4 steps using upright posture. May hold rail or wall. Leg movement does not need to be reciprocal.	15-17m (Peabody) 18-24m (PEDI) 24-27m (Michigan)
11.	Move across room by Amb or WC	Upright (Standing) or Seated in WC	Moves 10 feet forward	15-17m (Peabody) 14m (Brazelton)
12.	Floor ↑↓ Stand	Sitting on floor	Gets up to standing posture briefly and returns to floor safely. May not use walls or furniture for assistance.	12-15m (Michigan)
13.	Bed ↑↓ Chair or WC	Sitting on edge of bed or raised mat of similar height	Maneuvers to sitting position on chair or WC of similar height.	16-19m (Michigan)
14.	Chair or WC ↑↓ Floor	Sitting on a chair that is age/size appropriate	Descends safely fm chair and returns to seated position.	16-19 (Michigan) 18-24m (PEDI)
15.	In and out of bathtub	Standing or sitting beside tub	Climbs or scoots in and out of standard tub.	36-42m (PEDI)
16.	On and off Toilet (standard toilet)	Standing or sitting beside toilet	Assumes stable seated position on standard toilet and can resume starting position. May use arms.	36-42m (PEDI)
17.	Finger Feeding	Sitting at table	Picks up small pieces of food from flat surface and puts it into mouth successfully.	12-18m (PEDI)
18.	Utensil Feeding	Sitting at table	Uses spoon to load food and deliver to mouth, with some spilling, but can be expected to complete a meal.	18-24m (PEDI) 14m (Brazelton)
19.	Cup Drinking	Sitting at table	Drinks from partly filled cup with one or two hands, with some spilling.	12-15m (Michigan) 18m (Brazelton)
20.	Dressing Upper Body	Sitting with garment	Dons and doffs a pullover garment (T-shirt, sweater or dress) oriented correctly to the body	42-48m (PEDI) 24-31m (Michigan)
21.	Dressing Lower Body	Sitting with garments	Dons and Doffs both socks and pants with elastic waist oriented correctly to the body	36-42m (PEDI)

	Task	Set-up	Response	Age of independence for normal child
22.	Complex Dressing	Sitting with garments	Dons and Doffs all of the following three garments oriented correctly to the body: <ul style="list-style-type: none"> • Shirt with button front • Pants with zipper and snap • Jacket with zipper 	72-78m (PEDI)
23.	Shoes with Laces	Shoes with Laces	Dons and doffs shoes on correct feet and can tie laces effectively	66-72m (PEDI) 72m (Brazelton)
24.	Light Hygiene	Sitting or standing	Effectively performs hygiene in all of three areas: <ul style="list-style-type: none"> • Washing and drying face • Washing and drying hands • Brushing teeth (including preparation of brush with paste and water) 	Hands 54m (PEDI) Face 78m (PEDI) Teeth 78m (PEDI)
25.	Grooming	Sitting or standing	Brushes hair managing tangles and parts	84m plus (PEDI)
26.	Bathing	Sitting in tub or shower stall	Washes and dries extremities, chest and abdomen thoroughly. May simulate in dry setting	72-78m (PEDI)
27.	Toileting	Standing or Sitting	Manages toilet and clothing. Wipes thoroughly (may be by report)	72-78 (PEDI) 48-60 (Michigan)

ATTACHMENT III – FISC INDEPENDENCE LEVELS AND EXAMPLES

INDEPENDENCE LEVELS FOR THE FUNCTIONAL IMPROVEMENT SCALE (FISC)

Note: the child may use an assistive device (including orthotic or prosthetic device) to accomplish the tasks except for the level “8” independent.

8 = INDEPENDENT (I) = The child performs the entire activity in an appropriate amount of time without a helper, assistive device, structured environment, or set-up.
7 = MODIFIED INDEPENDENT (Mod I) = The child performs the entire activity in an appropriate amount of time without a helper, but requires one or more of the following: <ul style="list-style-type: none">• assistive device (including orthotic/prosthetic devices)• structured environment (such as modified room or quiet room)• set-up by therapist or helper
6 = SUPERVISION (SUP) = The child performs the entire activity in an appropriate amount of time but requires a therapist or helper in the same room or general area (but farther away than an arm’s reach) to help stay on task or provide verbal cueing such as sequencing reminders.
5 = STANDBY ASSIST (SBA) = The child performs the entire activity in an appropriate amount of time but requires therapist or helper standing within arm’s reach (but not touching) for reasons such as safety, verbal cueing or pointing.
4 = CONTACT GUARD ASSIST (CGA) = The child performs approximately 100% of the physical effort but requires tactile cueing or light hands by the therapist or helper.
3 = MINIMAL ASSIST (MIN) = Child can perform most of the activity (approximately 75%), and the therapist or helper is required to carry out only a small portion of the activity.
2 = MODERATE ASSIST (MOD) = The child and the therapist or helper each perform approximately 50% of the physical effort.
1 = MAXIMUM ASSIST (MAX) = Child can assist in some part of the activity (approximately 25%) and the therapist or helper is required to carry out most of the activity.
0 = DEPENDENT (DEP) = Child does not participate significantly in the activity and requires total assistance. This score is also used when the task is inappropriate.

EXAMPLES FOR THE FUNCTIONAL IMPROVEMENT SCALE

The following examples represent a few of the possible ways a child can respond to the tasks and provide additional explanation the use of independence levels.

On the task of “moves across room”

- A child can move across the room using a walker and braces. Without the assistive devices the time to cross the room is unreasonable. The score would be “Modified Independent”
- A child can cross the room in good time with and without his AFOs. Normally the AFOs are worn for all upright mobility but this is scored “Independent” because the task can be done without the braces if necessary.

On the task of “dressing the upper body”

- A child can don a pull-over sweater but the garment must be placed front down and opening toward the child so that the sweater end up facing front. This is scored as “Modified Independent” due to the set-up requirement.
- A child can perform the task in a quiet environment during a therapy session but does not do the task at home. This is scored “Modified Independent” due to environmental structure requirement.
- A child needs the therapist or helper to stand in arms range due to risk of falling over backwards. Most of the time the task is done without falling. This is scored as Stand-by Assist.” If light touch is needed most of the time to prevent falling then the task is scored “Contact Guard”
- A child performs the task only if the therapist or helper is very close (within arm’s reach) to keep the child from being distracted or provide a lot of verbal cueing. This is scored as “Stand-by Assist.”
- A child performs the task if the therapist or helper is in the same room (farther away than arm’s reach) but the child cannot stay on task if left alone in the room. Or, the child needs some sequencing instructions that can be given from across the room. This is scored “Supervision.”

On the task of “sit to stand”

- A child sits without support in the chair with feet on the ground, stands up, and briefly maintains standing. The therapist or helper assists the child to lean forward to initiate movement, facilitates knee extension, and guides the child to stand. This is scored “Minimal Assist” because approximately 75% of the work is performed by the child.

On the task “utensil feeding”

- A child brings food to mouth but requires therapist to load the spoon. This is scored “Moderate Assist.”

On the task of “curbs”

- A 14 year old can step up and down from a curb but needs light touch to stop the movement. This is scored “Contact Guard.”
- A ten year old child who has poor judgment but can get up and down a curb stopping movement at completion of the task. With the therapist 10 feet away, using a curb in a patio area the child performs the task completely. This is scored as “Supervision” because that is the maximum level of independence allowed by the FISC
- A 12 year old with severe motor limitation is not tested because the task is beyond his or her motor development. This is scored “Dependent.”

On the task of “bathing”

- An 18 year old child with good cognitive skills is new to the Medical Therapy Unit. She can demonstrate washing and drying the extremities, chest, and abdomen thoroughly in a “dry setting.” Her family reports that she does this by herself at home on a regular basis. This is scored as “Supervision” because that is the maximum level of independence allowed by the FISC.

FISC DATA REPORT SHEET – ADMINISTRATIVE REPORT

Name: CCS#:		
Date of Current FISC:	Date of Prior FISC:	
Type of Service	Units of Service since Prior FISC	
PT Treatment		
PT Evaluation		
PT Case Conference		
PT Consultation		
PT Documentation		
OT Treatment		
OT Evaluation		
OT Case Conference		
OT Consultation		
OT Documentation		
Total Service		

COMMENTS :

Use the score sheet on page one to record the FISC evaluation in the medical record.

Attach the score sheet (page one) to the above administrative report table when submitting information to the State.

Attachment V FISC Frequently Asked Questions

FISC Application within CCS MTP

1. Q: How can we show progress that children make that is not measured by the FISC.
A: Progress that is not documented by the FISC score should be described in the comment section of the FISC form and reported in the MTU Therapy Summary, and the MTC Summary.

2. Q: Is the FISC performed on “clinic only” children?
A: NISS and FISC do not need to be performed on “clinic only” children who have no therapy orders.

3. Q: How do you want us to determine total service hours? Staff recommends to include last evaluation until current but not to include time for current evaluation because they may not document on same day that they perform evaluation.
A: State Staff recommends counting the service delivered the day after the prior FISC through and including the day of the current FISC.

4. Q: For patients who may not have been evaluated for 2+ years due to family’s lack of follow-through, when counting the total service hours, does the therapist go all the way back several years to the last evaluation, or just go back 12 months from the date of the current evaluation? What if the last evaluation was done 13 or 14 or 15 months ago? Do we go back to the last evaluation when counting the total service hours?
A: Go back to the prior FISC whenever it occurred.

5. Q: If one discipline re-evaluates sooner, (6 months instead of one year), and changes only one item, can they keep the others the same, (carry them forward/or the result of the scores forward)?
A: If only one discipline re-evaluates, only the relevant scores and service time for that discipline are recorded. The scores for the other discipline are carried forward and zero units are recorded for the other discipline. The other discipline will update the other scores and service time later.

6. Q: Is counting both direct and indirect time skewing the results under total service hours?
A: All service units are recorded (OT treatment, evaluation, case conference, consultation, documentation, PT treatment, evaluation, case conference, consultation, documentation) It is important that the analysis evaluates all types of service, both direct and indirect.

7. Q: Do you think the FISC score should be included on the patient's evaluation or can the FISC stand alone and not be attached to the patient record?
A. The FISC should be a separate part of the patient record and should be referenced or included in the following documents: OT/PT Therapy Summaries, OT/PT Treatment Plans, and MTC Summary.

8. Q: Should the FISC be distributed to the parents, regional center, primary physician signing the prescriptions and anyone else that we copy the evaluations to regularly?
A: The FISC information should be distributed as part of the OT/PT Therapy Summaries, OT/PT Treatment Plans, and MTC Summary.
9. Q: How will we be submitting the data to the State?
A: You may use your own format for now.
10. Q: Is the staff therapists responsible for determining the FISC change?
A: Yes, subtract the prior score from the current score.
11. Q: When the PT and OT re-evaluation sequence varies due to the level of service, can the FISC be completed by one discipline?
A: The FISC is usually completed by both disciplines and merged to obtain the total score. When the disciplines are working on different cycles (6m v 12 m) you can carry forward the prior scores for the discipline that does not have re-evaluation due. Enter therapy service units only for the discipline responsible for the FISC tasks being scored at that time.
12. Q: Please clarify appropriate amount of time for task. Is this appropriate amount of time compared to a child with normal function at the same age?
A: The amount of time that is reasonable and functional. If the child takes 20 minutes for lower body dressing when given mod assist but 60 minutes if done by self the score is mod assist.
13. Q: Can PTAs and COTAs do the FISC?
A: OT and PT may score the FISC based on their own observations and information from PTAs and COTAs.

FISC General Questions:

1. Q: The original paperwork named the FISC the Functional Improvement Score, we have also seen Functional Improvement Scale, which is the correct name of the tool?
A: This is a typographic error. The scale refers to the evaluation tool and the score refers to the child's scores.
2. Q: Therapists may have different ideas of how long a task should take, would you consider providing guidelines for us to use with our staff to assist with consistency with our staff performing the evaluation?
A: We have not planned to develop standard times.
3. Q: The instructions that state " braces, splints and DME and adaptive devices may be used by the child in each of the tasks at any independence level except "Independent". The score of "independent" means that the child can also do the task in an appropriate amount of time without equipment. This is scored as "

independent" even though the child may be instructed to wear the brace or prosthetic device for all activities.

A: Yes

4. Q: Do you score the FISC based on the child's best performance or the child's average performance?

A: The FISC is scored based on the child's ability to do the task in reasonable amount of time. For children who are inconsistent in their performance due to behavior, distractibility, etc., score their average performance.

5. Q: What if behavior is an obstacle to completing an item and impedes the child from completing the task in an appropriate amount of time, do we grade down, even if we know they have the motor function to complete the task?

A: The child who has erratic behavior and does not typically do the task even with supervision (score 6) or structured environment and setup (7) would have to be scored based on the amount of assistance required to compensate for the behavior. Use the most appropriate score and explain the reason in comments.

6. Q: For children who are cognitively unable to follow commands, what if they will not do lower-level gross motor items because they are performing beyond that skill? For example, what if a child is creeping and the therapist is unable to get him to crawl for 3 feet because he automatically rises to quadruped and creeps?

A: The score can be given based on the expectation that the child can do the task. Children who demonstrate high-level function do not have to be asked to do all of the lower level tasks.

7. Q: There are instances in which it would not be advisable for a female patient to be assessed by a therapist on dressing and toileting issues secondary to previous psychological/abuse history. How would we proceed to score in this case?

A: The therapist may determine that it is inappropriate to assess that skill at the current time. The score would be dependent if the child is dependent in other FISC tasks. The score would be independent if the child is independent in other FISC tasks. The therapist would make a comment on the FISC score sheet indicating how the score was determined.

8. Q: If the OT knows the patient is dependent in all self-care should they still ask the family to bring test items since tasks must be demonstrated?

A: A therapist does not need to see efforts to do high level tasks when a child is known to be dependent in most skills.

9. Q: Do "assistive devices" include DME such as commode chairs, tub chairs, grab bar?

A: Yes

10. Q: Children that are NPO how do we score them?

A: They are dependent in feeding skills due to medical problems. Finger feeding, spoon-feeding and cup drinking are not functional if the child is not allowed to feed by mouth.

11. Q: If a child requires more assistance in one direction than the other which score do we use?

A: Score based on the amount of assistance required to do the task from starting position through initial direction and back to starting position.

12. Q: Is age taken into account as it relates to what the FISC scores actually reveal?

A: There is a comparison score and graph based on age for unimpaired children based on developmental norms.

13. Q: If the child can perform the task without assistance but it increases the amount of time it takes how do we score?

A: Score the amount of assistance the child needs to perform the task in a reasonable amount of time. If dressing the upper body can be done in 60 minutes without assistance but can be done in a few minutes with moderate assistance, the score is 2.

14. Q: How do you score when range of motion is limited and prevents the completion of the task even with assistance.

A: Score dependent due to medical condition and explain in comments.

15. Q: Can N/A be put on the FISC for Level? The directions state that N/A should be given a level of Dependent and a score of 0. But N/A and dependent are not the same thing. So can the therapist put N/A under Level with a comment why it was N/A and score it 0?

A: Score as 0 and put explanation in comments.

16. Q: What if a child refuses to do a task during the initial evaluation?

A: Use your best judgment as to the child's assistance level based on other tasks performed.

FISC Task Specific Questions

1. Rolling

2. Assume prone on elbows

3. Assume Quadruped

Q: How should a highly functional hemiplegic child or person with an amputation be scored if unable to bear weight on Bilateral UE but able to independently attain tripod and creep in tripod well past the distance criterion?

A: Allow one arm support or abnormal posture of affected arm if the functional posture is achieved. Place a comment in the comment section.

4. Crawling

Q: If it's not age appropriate, do we have to make patients roll, crawl, and creep?

A: Score as dependent if the child is not chronologically or developmentally old enough for the task.

Q: What if they bunny hop the required distance?

A: Bunny hopping is not crawling.

5. Creeping

Q: What if the child is an amputee and can creep on 3 point instead of 4 point?

A: Allow the child to perform the task in a tripod posture. This may be scored as independent.

6. Supine to Sit

Q: The item grades support needed to attain, but then requires them to maintain without support for 5 seconds how are they graded if they need support to maintain sitting also?

A: Score based on the amount of assistance for the whole process, moving to the new posture and maintaining for 5 seconds.

7. Sit to stand

Q: Do the child's feet need to be flat to the floor in the starting position on the chair?

A: Yes

Q: Can the child use a table to help move to the standing position?

A: No

Q: Can the child use an assistive device for example a walker to perform the task or should you grade how much the assistance the child needs without an assistive device?

A: The child may use a walker to get to stand. The best score in this case would be modified independence (7).

Q: What happens if the amount of assistance required to stands differs with and without the device, which do you, score?

A: Score the method that gives the highest score.

Q: If a child normally wears braces but can sit to stand or crawl without them, do we score 7 or 8?

A: 8

8. Kneeling

Q: Is the task to assume kneeling or to maintain kneeling?

A: There is a misprint in some of the early FISC instruction packages that says "Assume Kneeling." The task is kneeling. The child is placed in the kneeling position at the start.

Q: How are the highly distractible kids graded that can easily attain and maintain kneeling indefinitely, but are distracted when a toy is introduced?

A: Score based on the amount of assistance necessary to maintain the position when distracted.

9. Curbs

Q: Is there a certain height of curb that you want tested? Some units have 4", 6", and 8" curbs.

A: 6" curb height.

Q: Since the highest level that you can give on this item is a Supervised or a score of simulate the curb with a raised platform that is large enough for the child to walk on and stop and step on/off the edge or does this skill really need to be observed in the community?

A: Yes can be simulated.

10. Stairs

Q: States that the child may hold a rail or wall. What if the child is physically able to climb up/down stairs using 2 railings or a railing and a wall, but not just one? Do you score the amount of assist that they need to use just one railing or do you comment that it takes 2 railings?

A: Use one railing. It is rare for a child to have 2 railings available in the community.

Q: If a child is a LE amputee and can hop up/down the stairs without his prosthesis during the evaluation would he be scored an 8 or do we score him using the prosthesis as a 7 since that is reflective of how he accesses his home environment or community?

A: We usually don't ask the child to hop up/down the stairs but if the therapist knows the child can do this then the score can be independent. You may want to make a comment so that it is clear how FISC was scored.

11. Move across room by Ambulation Wheelchair

Q: How do we score directional control problems for children who cannot move across the room in a straight line? (Ambulating, propelling a manual chair, or steering a power chair)

A: Score is based on how much assistance the child needs to maintain a straight line and get across the room.

Q: How should we standardize the measurement of gait velocity i.e. from a stop, while in stride or at a normal pace versus their best pace?

A: Measure from a stopped position on one side of the room to a stopped position on the other side of the room.

Q: What precision is needed as many children are scoring about 3.5 to 4 seconds?

A: Round off to the nearest second.

Q: What if the child uses both a wheelchair and walks?

A: Score the best method (least assistance or fastest method). The use of a manual or power wheelchair would be a maximum score of modified independent (7).

12. Floor to stand

Q: If the child performs the task independently using a wall or furniture, would this be considered "modified independent"?

A: The task must be done without walls or furniture. If the child uses a walker this may be scored "modified independent" (7)

13. Bed to chair or Bed to/from Wheelchair

Q: Is the bed the same height as the Wheelchair?

A: Yes, the bed should be the same height so that the procedure is a level transfer.

Q: Is a scooting transfer OK?

A: Yes. The child may scoot or use a pivot transfer. If a sliding board or a walker is used then the maximum score would be modified independence (7)

Q: If child is ambulatory, why would we score child for a transfer from bed to chair.

A: If the child is ambulatory and would not need to do this transfer you may score the child independent if this seems likely based on similar activity such as transferring from one chair to another.

14. Chair to and from Floor

Q: Do you want the child to be scored based on what they usually use in their environment or do you want both a chair to floor assessment and a w/c to floor assessment performed?

A: Score the task that is most appropriate for the child.

15. In and out of standard bathtub

Q: If the parents report that their home does not have a bathtub (some apartments and converted garages only have a shower stall) and the child only takes a shower, do we still need to evaluate the child climbing in and out of a bathtub?

A: Yes, the score based on a bathtub.

Q: If the child gets into the bathroom by walking on knees, can this be an acceptable starting position.

A: Yes. The child may start by standing, kneeling or sitting in a wheelchair.

16. On and off toilet

Q: If the MTU has only child-height toilets within the unit, can they use a raised toilet seat on the toilet to get a regular height toilet?

A: Yes

Q: If the child gets into the bathroom by walking on knees, can this be an acceptable starting position.

A: Yes. The child may start by standing, kneeling or sitting in a wheelchair.

17. Finger feeding

Q: What size food for Finger feeding and how much spillage is okay?

A: The finger food is described as small (bite size). Spillage should be low enough to keep task functional or score the assistance needed to keep the spillage reasonable.

18. Utensil feeding

Q: When grading the ability to complete a meal, what food items and textures of foods need to be tested?

A: Foods that are age appropriate and medically appropriate for the specific child.

19. Cup Drinking

Q: What if for swallowing the child uses a straw to drink, how do we score?

A: If not allowed to drink from a cup then score dependent due to medical problems.

Q: How much spillage is allowable?

A: Spillage should be low enough to keep task functional or score the assistance needed to keep the spillage reasonable.

20. Dressing upper body

Q: How do we score if they can do shirt with button front and jacket with zipper?

A: Those garments are scored as part of complex dressing.

Q: Mom reports child is independent with dressing; child is high functioning and refuses to dress during the evaluation. How do we score?

A: Score based on knowledge of child's other skills and record the circumstances in comments.

22. Complex dressing

Q: Why are we averaging score of 3 completing different test skills? They may be able to don/doff clothes, be independent in one fastener and dependent in the other 2 components therefore it doesn't give a true score or give a visual of what this child is able to complete? How are these tasks averaged?

A: Make the score based on best judgment of the assistance needed for the entire process. The therapist may indicate individual scores for each item of clothing in the comments section.

23. Shoes with Laces

Q: Many of the children no longer use shoes that tie, they have Velcro and now some have zippers, do we use the shoes the child normally wears to score the FISC or does the child have to perform donning and doffing shoes that tie?

A: The test is to tie laces. This measures hand dexterity that has additional implications. Have a pair of shoes with laces in the MTU to assess this.

24. Light hygiene

Q: How is min, mod, max assist averaged if they independent with one, min with one and max with one?

A: Make the score based on best judgment of the assistance needed for the entire process. The therapist may indicate individual scores for each item of clothing in the comments section.

Q: If simulated bathing is okay, can simulated tooth brushing be okay too, if the patient doesn't bring their adaptive equipment?

A: A toothbrush, paste and water are needed for this task.

25. Grooming

Q: How do we grade managing tangles in hair, as there are a wide variety of abilities to perform this, even among our therapists?

A: Use best judgment.

Q: Can boys with extremely short crew cuts still score Independent even if they can but don't brush their hair?

A: Yes

Q: How do you score a child whose hairstyle is not easily amenable to this grooming task; such as tight braids and very long hair.

A: Score as dependent because it requires another person to do it. Explain in comments.

26. Bathing

27. Toileting

Q: Is there any circumstance when we can use parent report?

A: Use best judgment if it is inappropriate to evaluate a child in this skill, but score based on knowledge of child's other skills.

ATTACHMENT VI – INTERACTIVE SKILLS DESCRIPTION

INTERACTIVE SKILLS INVENTORY:

- Gives eye contact
- Turns toward new sounds
- Imitates motor activity
- Follows 1 step command
- Follows 2 step command
- Takes turns
- Stays on task, in one place
- Easily directed to new tasks
- Indicates basic needs by gesture, sign, communication device or speech
- Responds to questions by gesture, sign, communication device or speech
- Indicates toileting needs in advance

Examples:

Gives eye contact: The child looks at the examiner when first approached and/or when given instructions by the examiner

Turns toward new sounds: The child searches with eyes or head in the direction of sounds presented by examiner. (The child may need to complete a current activity first.)

Imitates motor activity: The child copies movement such as hand clapping, which is demonstrated by the examiner.

Follows one step command: The child responds appropriately when told to “Open your mouth,” “Look at this” (examiner must not gesture or demonstrate)

Follows two step commands: The child responds appropriately when told to “Pick up this block and give it to mommy” (examiner must not gesture or demonstrate)

Takes turns: the child takes cereal pieces out of a dish alternating with the examiner.

Stays on task: the child can maintain attention to a stationary task for five or more minutes, such as block play, toy play, or ADL activity. The examiner may verbally maintain the child’s attention to the task if there is a distraction.

Easily directed to new tasks: at the direction of an adult, the child switches from one type of activity (such as eating or picking up cereal pieces) to another (such as holding or stacking blocks) without significant resistance. If the child appears hungry allow him or her to eat for a minute. NOTE: A child who has difficulty in this area may be described as having “difficulty with transitions.” Also, a child may have difficulty because of a very strong internal drive or motivation and may be described as being “inner directed.”

Indicates basic needs by gesture, sign, communication device or speech: The child points at a desired object, holds out hands to mother when unhappy, shakes head “no,” uses a communication device OR says “I want that.” (Basic needs are hunger, hot, cold, tired, “I want” and leave me alone, etc)

Responds to question (other than yes/no question) by gesture, sign, communication device or speech: The child gives a clear and related answer when asked an **open ended** question such as “What do you want?” Use open ended questions to avoid answers that may be meaningless. Avoid yes/no questions such as “Are you hungry?” Avoid choice of two questions such as “Which shirt do you want?” Responses to these questions may be random.

Indicates toileting needs in advance: The child routinely indicates desire to toilet prior to elimination. The child does not wear diapers for most of the day.

ATTACHMENT VII – NISS DESCRIPTION AND INSTRUCTIONS

**INSTRUCTIONS FOR
THE NEUROMOTOR IMPAIRMENT SEVERITY SCALE
(NISS)**

INTRODUCTION:

The Neuromotor Impairment Severity Scale (NISS) is an evaluation tool for that provides a quantified measurement of severity for children over one year of age with upper motor neuron disorders such as cerebral palsy, traumatic brain injury, and hypoxic-ischemic encephalopathy.

Based on World Health Organization definitions, an upper motor neuron disorder can be described in the following way:

Pathology	Impairment	Disability / Ability	Handicap / Participation
The underlying disease or disorder	The immediate physical consequences (physical findings)	Functional consequences (ability or disability to perform usual daily tasks)	Social and societal barriers to full participation in life activities

The **pathology** would be an abnormality found on MRI scan, CT scan, PET scan, and/or pathology report. **Impairment** would be an abnormality of motor control, posture, persistent primitive reflexes, balance, involuntary movement, tone and/or muscle contracture. **Disability** would be difficulty with self care and/or mobility. **Handicap** would be a community barrier (such as stairs) or a lack of participation in social and physical activity (often due to competitive disadvantage or social stigma).

Note that ability is a more appropriate term than disability. Similarly, participation is a more positive way to look at the concept of handicap. However, impairment does not have a positive counterpart. Despite the negative aspect of impairment, it is important to acknowledge the problem and to have a definable assessment of severity.

Classification of cerebral palsy based on the specific neuromotor abnormality (spasticity, dyskinesia, ataxia, rigidity, atonia) and the affected extremities (hemi, quad, etc.) does not describe adequately the severity of the neuromotor impairment.

There are a variety of tools to measure pathology, disability/ability, and handicap/participation. There are few tools to measure neuromotor impairment. Those that exist consider a single element of the impairment, such as the Ashworth Scale. The Neuromotor Impairment Severity Scale (NISS) is a method which evaluates three critical elements of the impairment (motor control, upright postural responses, and tone abnormality) in a quantitative fashion. The NISS total score ranges from 0-12 in increasing severity.

Individuals with upper motor neuron disorders often have associated cognitive and/or behavioral impairment. These problems can be mild or severe. The ability of the child to perform self care and mobility may be greatly affected by these additional factors. Since these problems are not motor in nature they need to be considered as significant co-morbidities.

Impact of Co-Morbidities Seen in Upper Motor Neuron Disorders	
Neuromotor Impairment	Alters the physical manner in which a task can be approached
Cognitive Impairment	Changes the understanding of the task
Behavioral Impairment	Affects the interest or motivation to perform the task

The NISS measures only the neuromotor component of the child’s overall impairment. In order to obtain a full measurement of the problems facing a child with UMN, each of the co-morbidities must be assessed with an appropriate tool. Note that for an individual child and a given task, any one of the three impairments can be the most important.

GENERAL INSTRUCTIONS:

The child should be examined in a quiet room with minimal distractions. The sequence of the evaluation may be altered to fit the needs of the child. If the child has difficulty cooperating, the examination can be repeated on a different day or time in order to obtain the best results. The evaluation should be completed within one month.

The examiner should have the assistance of another person to maintain and monitor the child’s body alignment and cooperation.

The NISS evaluation tool is focused on three elements of the neuromotor problem: motor control, upright postural response, and tone abnormality. While other impairments may exist and may be recorded as comments, they are not scored.

Materials: a chair of appropriate size with back support (or wheelchair), a table top at appropriate height, small round ½ inch pieces of cereal, an ice cube tray, chocolate syrup, jelly, a mat table, a metronome (battery operated), a tennis ball on a string, a large brightly colored therapy ball, and a bright flashlight.

Please watch the videotape of NISS responses and scoring after reading the instructions and before using the NISS evaluation tool for the first time. Accuracy and reliability of scores depends on your thorough knowledge of the individual tests and how various children perform.

FRONT PAGE OF DATA SHEET:

Fill in the demographic and diagnostic information on the top half of the page. The clinical findings are those that are known or suspected by the physicians or therapists. Mark all boxes that apply and write in “other” information. This information provides a context for the NISS evaluation tool.

The Neuromotor Impairment Severity Score Data Box is completed after the individual sections on the following pages are assessed.

I. MOTOR CONTROL

Motor Control of the Head and Oral Structures:

POSITION: The child is placed in a chair with adequate trunk support and feet flat on the floor, if possible. A wheelchair with head rest and foot rests may be used. AFO's and a spinal brace may be used.

HEAD ROTATION: The child is asked or induced to rotate the head 45 degrees to each side. Verbal, visual, and tactile cues may be used. Do not use the root reflex.

ABSENT: The child does not respond to examiner by rotating 45 degrees in either direction. Head rotation is also considered absent if the movement is random or caused by tone.

UNILATERAL RESPONSE: The child responds to the examiner by rotating the head 45 degrees in one direction only.

BILATERAL RESPONSE: The child responds to the examiner by rotating the head 45 degrees in **each** direction.

NECK FLEXION / EXTENSION: The child is asked or induced to flex the neck, tilting the head forward and then back (extension) to the neutral position without going into hyperextension. Verbal, visual, and tactile cues may be used.

ABSENT: The child is unable to respond to the examiner with 30 degrees of head flexion and return to neutral. Head flexion and extension is considered absent if the movement is caused by gravity or tone, or if the head always extends beyond neutral into extension.

PARTIAL RESPONSE: The child tilts the head forward 30 degrees and then part way back to neutral.

COMPLETE RESPONSE: The child tilts the head forward 30 degrees and then back to neutral without going into hyperextension.

LIP PUCKER / KISS: The child is asked or induced to purse the lips AND make a kissing noise with the lips. Verbal, visual, and tactile cues may be used.

ABSENT: The child is unable to purse the lips AND unable make a kissing noise with the lips.

PARTIAL RESPONSE: The child purses the lips but cannot make an audible noise with the lips OR the child does not purse the lips but makes a distinct kissing sound using both lips. A substitute noise does not count. Watch and listen carefully. Some children use their tongue against the palate or the lower lip against the teeth, etc.

COMPLETE RESPONSE: The child purses the lips AND makes a distinct kissing sound using both lips. A substitute noise does not count. Watch and listen carefully. Some children use their tongue against the palate or the lower lip against the teeth, etc.

TONGUE LATERALIZATION: The child is asked or induced to lateralize the tongue right and left. Verbal, visual, and tactile cues may be used. A spot of food, such as jelly or chocolate syrup, may be placed on the outside corner of the mouth. The response can be expected within seconds of placing the stimulus at the side of the mouth.

ABSENT: The child does not bring the tongue to the lateral border of an open mouth on either side.

PARTIAL RESPONSE: The child moves the lateral edge of the tongue out of the mouth laterally, on **one** side only, far enough to reach the corners of a open mouth.

BILATERAL RESPONSE: The child moves the lateral edge of the tongue out of the mouth laterally, both **right** and **left**, far enough to reach the corners of an open mouth.

Motor Control of the Upper Extremities:

POSITION: The child is placed in a chair with adequate trunk support and feet flat on the floor or wheelchair footrest if a wheelchair is used. A bench may be used if the child has adequate trunk balance. AFO's and a spinal brace may be used, but no orthotics or splints may be worn on the upper extremities. A table or tray is placed in front of the child at a level between the lower sternum and the umbilicus. The amount of motor control that the child can use is being evaluated. Children with normal isolation of movement in the hand can **also** reach and grab objects in a synergistic fashion, particularly when the action is performed quickly. The examiner needs to observe a number of efforts to identify the child's best motor control. The following options may be necessary:

- Demonstrate the grasp for the child
- Ask or induce the child to pick up the cereal more slowly.
- Ask or induce the child to get the piece of cereal out of an ice cube tray or medicine cup.
- Ask or induce the child to pick up a smaller piece of the cereal.
- Ask or induce the child to take the piece of cereal from the examiner's pincer grasp.

PROCEDURE: A piece of cereal (doughnut shaped and approximately ½ inch in size) is placed 4 inches in front of the hand to be tested. (Midline placement is not necessary.) The child is asked or induced to pick up the piece of cereal. Verbal, visual, tactile cues may be used. If necessary the other hand may be restrained.

CAUTION: Do not let the child place the cereal in his/her mouth if swallowing problems are suspected or unknown.

RESPONSE AND SCORE: (Circle the score that best fits the child's response.)

0 = There is completely normal movement. The extension/flexion (E/F) of digits 1 and 2 is not associated with E/F of digits 4 and 5. In other words the radial side digits operate independently from the ulnar side digits. Normal hand posture, speed and agility must be present. In addition, assessment of strength must be performed: grip strength of first 2 digits, and whole hand grip strength. Any method of testing hand and finger strength may be utilized. When any pathologic problem such as spasticity, dyskinesia, ataxia, hypotonia, OR the need to lean the same arm on the table for stability is present in the hand or arm, the extremity cannot be scored as normal.

1 = There is isolated movement of the fingers as above, but there is abnormal strength, hand posture, speed, or agility. Circle the abnormality on the score sheet

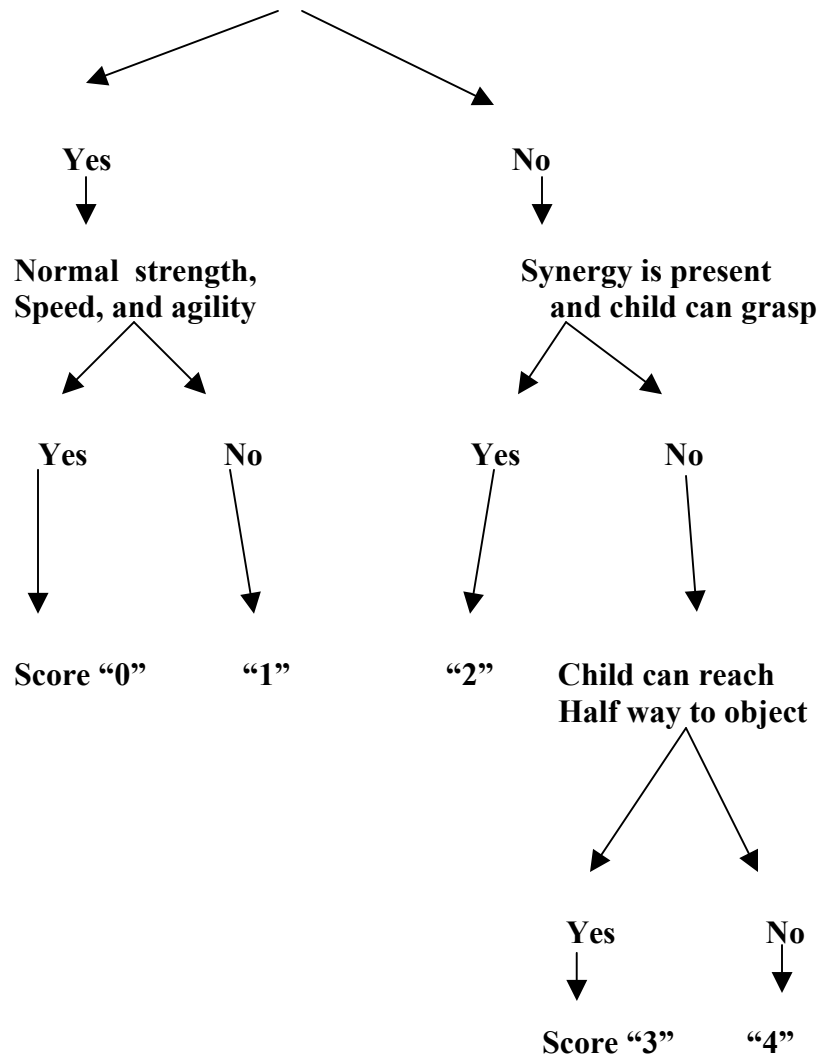
2 = There is a synergistic grasp on all efforts. (E/F of the first two digits is always associated with E/F of digits 3-4-5.

3 = No grasp is seen but the arm approaches the object (moves at least 50% of the 4 inches distance to the object).

4 = The arm does not move significantly (moves less than 50% of the 4 inches distance to the object). The problem can be due to lack of ability, vision, or awareness. (A score of 4 may be given if the caretaker states that the arm never moves voluntarily.)

When analyzing the motor control of the upper extremity this algorithm is recommended:

Movement of digits 1-2 is isolated from 3-4-5



Remember, to declare an upper extremity normal ("0"), strength must be tested.

Motor Control of the Lower Extremities:

POSITION: The child is placed in a chair with adequate trunk support and feet hanging freely with shoes and socks removed. The back should be well supported so that the hips and other leg are not activated by balance reactions. Hips and knees should be as close to 90 degrees of flexion as possible. The trunk must be as straight as possible. The child's usual wheelchair may be used with foot rests removed. Set the wheel chair as upright as possible. The child's head may be supported if necessary. AFO's may not be used. The format and concepts are similar to the upper extremity motor control. Slow, gently movement is more likely to demonstrate isolation of muscle function. A forceful kick will recruit all leg muscles in a synergistic fashion.

PROCEDURE: The child is asked or induced to touch or gently kick a tennis ball (which is suspended by a string) 4 inches in front of the foot at the level of the ankle maleoli. Verbal,

visual, tactile cues may be used. If the child is unable to see the tennis ball or cannot visually track the movement of the ball, a larger ball may be used (such as a red therapy ball placed on the floor in front of the foot). The examiner watches for knee extension but also observes pelvic motion (posterior tilt) and movement of the other leg. A hand may be placed on the sacrum to better detect motion. Be sure that the child has good back support so that the opposite leg does not need to extend for balance during the kick. Note that synergistic knee-hip extension will occur simultaneously, whereas short hamstrings can cause the pelvis to tilt posteriorly **after** the knee extension has already begun.

RESPONSE AND SCORE: (Circle the score that best fits the child's response. These are the Extremity Motor Control Sub-Scores which are taken to the front page.)

0 = Knee extension is normal. The movement can be performed without hip extension or significant movement in the other leg when the ball is kicked gently. The kick must be precise (directed straight at the ball). The examiner **then** checks knee extension strength and speed of movement. All must be normal. When any pathologic problem such as spasticity, dyskinesia, ataxia, or hypotonia is present in the leg the extremity cannot be scored as normal.

1 = Knee extension is isolated from pelvic and other leg movement but is lacking in precision, strength or speed. Circle the abnormality on the score sheet. There may be an "associated movement" of the other leg but the hip should not show extension synergy.

2 = Knee extension is synergistic with hip extension on each effort, but the other leg is not significantly involved. (There may be slight or occasional movement of the other leg.)

3 = Knee extension is synergistic with hip extension **and** there is simultaneous and symmetrical extension of the contra-lateral knee on each effort.

4 = Voluntary knee extension is insufficient to reach to the ball **OR** a **stepping** action is activated. (A score of 4 may be given if the caretaker states that the legs never move voluntarily.)

NOTE: A stepping action (while seated) does not qualify as a kick or knee extension.

II. UPRIGHT POSTURAL RESPONSES

POSITION: The child is seated on a mat table (not a ball) with legs dangling. The examiner provides support of the trunk as noted below.

HEAD RIGHTING RESPONSE: With the examiner's hands on the upper trunk, the child is tilted laterally and slowly 30 degrees in each direction. Visual and verbal cues are allowed.

ABSENT: The child does not return the head to the vertical position.

INCOMPLETE OR UNILATERAL RESPONSE: The head returns part way to the vertical position on both sides or all the way on one side only.

NORMAL RESPONSE: The head returns to the full vertical position from **both** sides. Full vertical position refers to AP and lateral planes. Note that the eyes should return to a horizontal position.

TRUNK RIGHTING RESPONSE: If the child has adequate head responses, the examiner slides the hands down to the pelvis and tilts the pelvis slowly in the lateral direction approximately 30 degrees.

ABSENT: The child's head lags toward the ground or does not change position relative to the trunk. A score of "absent" can be given without testing if the child has an "absent" for the head righting response.

INCOMPLETE OR UNILATERAL RESPONSE: The head and trunk return part way to the vertical position on both sides or all the way on one side only.

NORMAL RESPONSE: The head and trunk returns to the full vertical position from **both** sides. Full vertical position refers to AP and lateral planes. Note that the orbits should return to a

horizontal position. The child may bring the head past vertical toward the other side in order to maintain balance.

PROTECTIVE EXTENSION: If the child has adequate trunk responses, the examiner pushes the mid-trunk toward the side. Lateral protection is tested on each side

ABSENT: The child does not abduct OR extend the arm. A score of “absent” can be given without testing if the child has an “absent” for the trunk righting response.

INCOMPLETE RESPONSE: The arm abducts partially OR extends partially toward the fall but is inadequate to prevent the fall to the mat.

NORMAL RESPONSE: The arm extends and successfully prevents the fall to the mat. The hand and elbow do not have to be fully extended, but the child must be able to prevent the head from hitting the mat.

III. TONE ABNORMALITY

Axial Tone

HEAD LAG TEST:

POSITION: Supine.

PROCEDURE: The examiner pulls the child by the arms toward the sitting position (three trials). Note that the amount of the head lag is the determinant for the child’s score. This reflects the **neck flexor tone**. The amount of head movement toward flexion after the lag has occurred is a measure of **neck flexor strength** and is not the factor that is being tested here. The assistant should observe from the side.

NORMAL RESPONSE: There is **minimal lag** of the head as the child is pulled to sit.

PARTIAL HEAD LAG: The head **lags significantly**, but not into full extension, as the child is pulled to sit.

COMPLETE HEAD LAG: The head **lags into full extension** as the child is pulled to sit.

AXILLARY LIFT TEST:

POSITION: The child is seated on a bench, in the examiner’s lap or in the child’s usual wheelchair with seatbelt unbuckled (three trials).

PROCEDURE: The examiner wiggles the arms to determine whether the tone of the shoulder depressors and adductors is low, normal, or high. Then the examiner lifts the child under the axillae without placing pressure on the thorax, using stiff, straight hands and fingers. The child’s shoulders and ears must be easily visible. If head control is poor an assistant may hold the head steady. Select the best of three responses and score as follows:

NORMAL RESPONSE: The shoulder girdle reacts with downward pressure during the lift, keeping the shoulders at neutral or less than half way elevated to the ears. Initial tone can be normal or low. Be sure that the buttocks are lifted off the mat during the lift.

PARTIALLY ABNORMAL RESPONSE: The shoulder girdle reacts with downward pressure and resists slide through but the shoulder girdle is elevated and stays elevated (shoulders move half way or more to the ears). Initial tone can be either normal, low, or high).

COMPLETELY ABNORMAL RESPONSE WITH **LOW RESTING TONE**: The child slides completely through during the lift.

COMPLETELY ABNORMAL RESPONSE WITH **HIGH RESTING TONE**: The child can be lifted out of the chair and the shoulders do not elevate significantly (move less than half way to the ears).

Extremity Tone Abnormality:

POSITION: Upper extremity tone is examined in a comfortable seated or supine position. The lower extremity is examined in the supine position. **The head must be maintained in neutral position.** An assistant is necessary to maintain the head in neutral, monitor the posture, and keep the child relaxed.

- Shoulder adduction is tested in the lateral plane. All shoulder muscles are tested together and the scapula is not restrained. SEE DIAGRAM ONE
- Elbow F/Es are tested with the shoulder slightly abducted. SEE DIAGRAM TWO
- Wrist F/Es are tested with the elbow at 90 degrees and with the forearm in neutral supination/pronation if possible. The fingers should remain flexed during the stretch. SEE DIAGRAM THREE
- Finger F/Es are tested with the wrist at zero degrees of extension and the forearm at neutral supination/pronation if possible. SEE DIAGRAM FOUR
- Hip adduction is tested with the hips and knees at 90 degrees. SEE DIAGRAM FIVE
- Hip F/Es are tested with the sacrum flat on the mat. SEE DIAGRAM SIX
- Knee F/Es are tested with the hip at 90 degrees of flexion. SEE DIAGRAM SEVEN
- PF/DFs are tested with hip and knee at 45 degrees of flexion. The subtalar joint should be stabilized or locked during the stretch. SEE DIAGRAM EIGHT

The tone scale is designed to assess hypotonia, indicated with an “L” after the number, and all forms of hypertonia (spasticity, dystonia and rigidity), indicated with an “H” after the number. A “4 C” (for contracture) is used if the range of motion is less than 25% of normal **OR** for a joint such as the ankle that has been surgically fused or limited.

NISS TONE SCALE	
4 L	Atonic (there is no opposition to gravity)
2 L	Low tone
0	Normal
1 H	Fast stretch (one second stretch or less) meets a slight muscle catch or slight resistance, and best range of motion is easily achieved
2 H	Slow stretch (two seconds stretch) achieves the best range of motion
3 H	Very slow stretch (three seconds stretch) achieves the best range of motion
4 H	Extremely slow stretch (four seconds stretch or greater) achieves the best range of motion
4 C	Range of Motion is less than 25% of normal

Selection of flexor or extensor muscles is done in the following way. **Before testing** the amount of muscle resistance, observe the posture of the extremity. Test flexors when the joint is in flexion and test extensors when the joint is in extension. If the posture is neutral gently move the limb 10 to 30 degrees in each direction from its resting state. If the muscles are both hypotonic choose the most hypotonic. If the muscles are both hypertonic select the most hypertonic. If one is hypertonic and the opposite muscle group is hypotonic, score the hypertonic one. If unsure about the muscle group that should be tested, select the flexors. In the case of the ankle choose the plantar-flexors. Circle the tested muscle group on the score sheet.

A series of stretches at successively slower speeds is then provided. The most reliable way to pace the stretch is to use a metronome set to a speed of 60 to match a count of “GO, ONE, TWO,

THREE, FOUR.” Alternatively an assistant can provide the count. Self pacing is difficult because stretching at progressively slower paces tends to slow the counting pace.

The evaluation of tone is performed with sequentially slower stretches. For accuracy and reliability the stretches must be done exactly as described. Note that after doing a fast stretch one is tempted to do ONE very slow stretch and count the seconds to full range. That is not the method described below and will likely give spurious results.

The first step is to provide a fast stretch. Attempt to move through the entire normal range of motion in approximately **one second**. If the muscle is hypotonic, there are only two levels: low tone (2 L) and atonic (4 L). Atonic means NO tone (there is no opposition to gravity.) If full range of motion is obtained with the one second stretch then no further stretch of that muscle group is needed. The score is “0” if the resistance is normal and the score is “1 H” if there is abnormal resistance or a muscle catch. If the muscle group is hypertonic and full range of motion has been achieved, the fast stretch may be repeated to be sure there is a catch or abnormal resistance. However, from this point onward steps cannot be repeated.

The second step is to provide a slow stretch (**two second stretch**) to determine if better range of motion can be achieved. Turn on the metronome at this time and leave it on for the remaining steps. **Do this stretch one time** to avoid relaxing the muscle by the stretch itself. If the range achieved is better than the last step the score is “2 H” or higher. If the range is still not normal, the examiner continues.

The third step is to provide a very slow stretch (**three second stretch**). **Do this stretch one time** to avoid relaxing the muscle by the stretch itself. If the range achieved is better than the last step then the score is “3 H or higher.” If the range is still not normal, the examiner continues.

The fourth step is to provide an extremely slow stretch (**four second or greater stretch**). **Do this stretch one time** to avoid relaxing the muscle by the stretch itself. If the range achieved is better than the last step then the score is “4 H.” If the stretch takes longer than 4 seconds this can be written as a comment on the score sheet but the score is still recorded as “4 H.” Some children have very severe muscle, joint, and/or soft tissue contracture. The resistance within the available range may be anywhere from low to high with an extreme or sudden resistance at end range. Regardless of the muscle resistance, a “4 C” (referring to **contracture**) is to be used when the range of motion is less than 25 % of the normal.

At this point, repeating the procedure is not possible since the stretches already provided may have relaxed the muscles and a different score would result. If the test needs to be repeated this should be done on another day.

When totaling the tone score for the extremity ignore the “L” and “H” designation and add all numbers. A “2 L” is the same value as a “2 H” The “L,” “H,” and “C” is placed on the score sheet to indicate the reason for the numeric value.

CALCULATIONS:

The calculations are described on the Neuromotor Impairment Data Sheet and are performed automatically by the NISS calculator.

CONCLUSION:

Check that all computation is correct. Check that all scores are placed in the appropriate boxes on the front page. Add the Motor Control, Upright Postural Responses, and Tone Abnormality scores together to obtain the total NISS score. These are not averaged.

Check the “Clinical Findings” Section to mark additional boxes for any new findings discovered while performing the NISS

Attachment VIII NISS Data Sheet

NEUROMOTOR IMPAIRMENT DATA SHEET Date:

Name:		CCS Number:	
DOB:	Chronological Age:	Corrected Age:	
County:		Examiner(s):	OT:
MTU:			PT:

PRIMARY DIAGNOSIS: _____
TREATING DIAGNOSIS: _____
OTHER DIAGNOSES: _____

SURGICAL HISTORY WITH DATES: _____

NGT <input type="checkbox"/> GT <input type="checkbox"/> FUNDOPLICATION <input type="checkbox"/> TRACHEOSTOMY <input type="checkbox"/>

CLINICAL FINDINGS (Known or suspected)			
Motor Findings: <input type="checkbox"/> Spasticity <input type="checkbox"/> Athetosis <input type="checkbox"/> Chorea <input type="checkbox"/> Ballismus <input type="checkbox"/> Dystonia <input type="checkbox"/> Ataxia <input type="checkbox"/> Rigidity <input type="checkbox"/> Hypotonia	Abnormal Postures: <input type="checkbox"/> Decorticate Posture <input type="checkbox"/> Decerebrate Posture <input type="checkbox"/> Other: Persistent or Abnormal Primitive Reflexes:	Non Motor Impairments: <input type="checkbox"/> Vision <input type="checkbox"/> Hearing <input type="checkbox"/> Proprioception <input type="checkbox"/> Sharp/dull sensation <input type="checkbox"/> Stereognosis <input type="checkbox"/> 2 point discrimination Other Comments:	Interactive Skills: <input type="checkbox"/> Gives eye contact <input type="checkbox"/> Turns toward new sounds <input type="checkbox"/> Imitates motor activity <input type="checkbox"/> Follows 1 step command <input type="checkbox"/> Follows 2 step command <input type="checkbox"/> Takes turns <input type="checkbox"/> Stays on task, in one place <input type="checkbox"/> Easily directed to new tasks <input type="checkbox"/> Indicates basic needs by gesture, sign, communication device or speech <input type="checkbox"/> Responds to questions by gesture, sign, communication device or speech <input type="checkbox"/> Indicates toileting needs in advance

NEUROMOTOR IMPAIRMENT SEVERITY SCORES (NISS)									
TOTAL SCORE:			Ranges: Mild: 0.1-3.0 Moderate: 3.1-6.0 Severe 6.1-9.0 Very Severe: 9.1-12.0						
SUB-SCORES:		Normal = 0 Mild = 1 Moderate = 2 Severe = 3 Very Severe = 4							
Motor Control		Upright Postural Responses		Tone Abnormality					
NISS-O-GRAMS /REGIONAL SCORES: Normal = 0 Mild = 1 Moderate = 2 Severe = 3 Very Severe = 4									
Head/Oral MC					Axial Tone				
MC RUE			LUE MC			Tone RUE			LUE Tone
MC RLE			LLE MC			Tone RLE			LLE Tone

I. MOTOR CONTROL

HEAD AND ORAL: Circle the description that best describes the motor skill

TESTS	0 points each	0.5 points each	1 point each
Head Rotation, 45 degrees, voluntary	Bilateral	Unilateral	Absent or involuntary
Neck Flexion 30 degrees and return, voluntary	Full return	Partial return	Absent, involuntary, OR unable to stop at neutral
Lip Pucker/Kiss	Pursed lips and lip sound	Pursed OR Lip sound	Absent
Tongue Lateralization	Bilateral	Unilateral	Absent

Calculations:
Add the 4 head and oral scores. This is the **Head / Oral Motor Regional Score:**

RIGHT UPPER EXTREMITY: Circle the number that best describes the motor skill.

SCORE	Reach and Grasp
0	Normal movement, strength, hand posture, speed, and agility
1	Digits 1-2 have E/F isolated movement from digits 4-5 but movement is abnormal due to strength, hand posture, speed, and/or agility (circle abnormalities)
2	Synergy E/F movement of grasp is noted on all efforts
3	No grasp is present but arm approaches object
4	No significant response (moves less than 50% of 4 inch distance to object)

Place the extremity scores in the boxes below: These are the **Extremity Regional Scores:**

RUE / LUE:

<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>

RLE / LLE

LEFT UPPER EXTREMITY: Mark the box that best describes the motor skill

SCORE	Reach and Grasp
0	Normal movement, strength, hand posture, speed, and agility
1	Digits 1-2 have E/F isolated movement from digits 4-5 but movement is abnormal due to strength, hand posture, speed, and/or agility (circle abnormalities)
2	Synergy E/F movement of grasp is noted on all efforts
3	No grasp is present but arm approaches object
4	No significant response (moves less than 50% of 4 inch distance to object)

RIGHT LOWER EXTREMITY: Mark the box that best describes the motor skill

SCORE	Kick with Knee Extension
0	Knee extension can be isolated and is normal in strength, precision, and speed
1	Knee extension is isolated from hip movement but is abnormal due to strength, precision, and/or speed (circle abnormalities)
2	Knee extension of the kicking leg is synergistic with hip extension
3	Knee extension is synergistic with hip and symmetrical extension of other leg
4	No significant voluntary response (moves less than 50% of 4 inch distance to object)

Add the 5 Regional Scores together and divide by 5. Round off to one decimal place. This is the **Motor Control Sub-Score:**

LEFT LOWER EXTREMITY: Mark the box that best describes the motor skill

SCORE	Kick with Knee Extension
0	Knee extension can be isolated and is normal in strength, precision, and speed
1	Knee extension is isolated from hip movement but is abnormal due to strength, precision, and/or speed (circle abnormalities)
2	Knee extension of the kicking leg is synergistic with hip extension
3	Knee extension is synergistic with hip and symmetrical extension of other leg
4	No significant voluntary response (moves less than 50% of 4 inch distance to object)

II. UPRIGHT POSTURAL RESPONSES

Mark in the box that best describes the reaction.

RESPONSES	0 points each	0.5 points each	1 point each
Head Responses	Normal	Incomplete or unilateral	Absent
Trunk Response	Normal	Incomplete or unilateral	Absent
Left Lateral Protective Extension	Normal	Incomplete	Absent
Right Lateral Protective Extension	Normal	Incomplete	Absent

Note that a reaction that is present but much slower than normal must be considered incomplete.

Calculation:

Add the 4 scores together to obtain the **Upright Postural Reaction Sub-Score:**

III. TONE ABNORMALITY

AXIAL TONE ABNORMALITY: Circle the best description of the child's response

TEST	0 points each	1 point each	2 points each
Head Lag	Normal : minimal or no head lag	Partial: significant head lag but not full extension	Complete: head lag into full extension
Axilla Lift	Shoulder girdle reacts normally : During the lift the shoulders elevate less than half way to the ears during the lift.	Shoulder girdle reacts partially , preventing slide through but the shoulders elevate half way or more to the ears. (Resting tone of the shoulder depressors and adductors may be normal, low, or high)	Resting tone is low and arms slide through completely during lift OR Resting tone is high and the child is lifted into the air with shoulder elevation less than half way to the ears

Calculation:

Add the 2 scores together to obtain the **Axial Tone Regional Score.**

Place this score in the box on the next page.

EXTREMITY TONE ABNORMALITY:

Use the tone score that best fits the muscle group.

NISS TONE SCALE	
4 L	Atonic (NO tone or flaccid)
2 L	Low tone
0	Normal
1 H	Fast stretch (one second stretch) meets a slight muscle catch or slight resistance, and best range of motion is easily achieved.
2 H	Slow stretch (two second stretch) achieves the best range of motion
3 H	Very slow stretch (three second stretch) achieves the best range of motion
4 H	Extremely slow stretch (four second or greater stretch) achieves the best range of motion
4 C	Range of motion is less than 25% of normal

For each side select flexors or extensors (which ever is more abnormal) and place the score in the box. Use the "L" for low tone, "H" for high tone, and "4 - C" when the range of motion is less than 25% of normal. Circle the muscle group that is scored.

Right	MUSCLE GROUP WITH THE MOST ABNL TONE		Left
	Adductors	Shoulder	Adductors
	E F	Elbow	E F
	E F	Wrist	E F
	E F	Finger	E F
	Upper Extremity Totals		
Right	MUSCLE GROUP WITH THE MOST ABNL TONE		Left
	Adductors	Hip	Adductors
	E F	Hip	E F
	E F	Knee	E F
	DF PF	Ankle	DF PF
	Lower Extremity Totals		

CONCLUSION:

Add the Motor Control, Upright Postural Responses, and Tone Abnormality scores from the **bold** boxes together to obtain the total NISS score. These are not averaged. Place all of the scores from the calculation sections on the front page.

Check the "Clinical Findings" Section to mark additional boxes for any new findings discovered while performing the NISS.

Calculations:

Enter the **Axial tone Regional Score** here.

Add the 4 scores for each extremity and divide by 4. Round off to one decimal place. These are the **Extremity Tone Regional Scores:**

RUE / LUE:

<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>

RLE / LLE

Add the 5 Tone Regional Scores and divide by 5. Round off to one decimal place. This is the **Tone Sub-Score:**

ATTACHMENT IX – NISS Positioning Diagrams

DIAGRAM ONE:

Shoulder adduction is tested in the lateral plane. All shoulder muscles are tested together and the scapula is not restrained. The child may be supine or sitting.

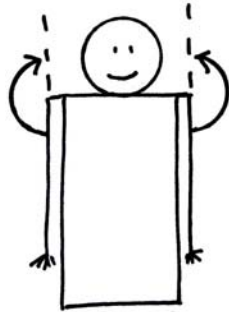
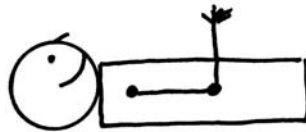


DIAGRAM TWO:

Elbow F/Es are tested with the shoulder slightly abducted. The child may be supine or sitting.

Testing position to select elbow flexors or elbow extensors:



Elbow Flexor Stretch:



Elbow Extensor Stretch:

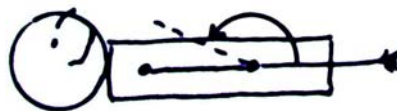
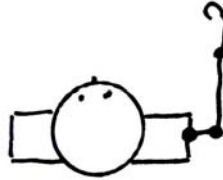


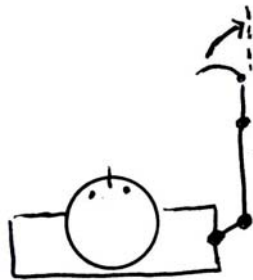
DIAGRAM THREE:

Wrist F/Es are tested with the shoulder in slight abduction, the elbow at 90 degrees and with the forearm in neutral supination/pronation if possible. The fingers should remain flexed during the stretch. The child may be supine or sitting.

Testing position to select wrist flexors or elbow extensors :



Wrist Flexor Stretch:



Wrist Extensor Stretch:

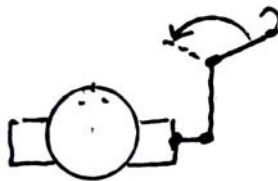


DIAGRAM FOUR:

Finger F/Es are tested with the shoulder in slight abduction, the elbow at 90 degrees flexion, the forearm at neutral supination/pronation if possible, and the wrist at zero degrees extension. The child may be supine or sitting.

Finger Flexor Stretch:

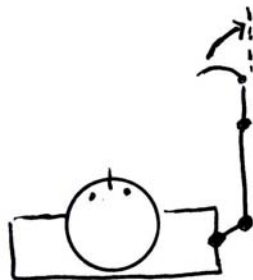


DIAGRAM FIVE:

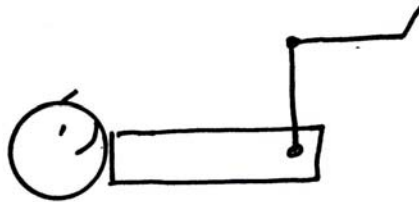
Hip adduction is tested with the hips and knees at 90 degrees. The child should be supine.



DIAGRAM SIX:

Hip F/Es are tested with the sacrum flat on the mat.

Testing position for selection of hip flexors or extensors. Hips at 90 flexion, 0 degrees abduction, and knees at 90 degrees flexion:



Hip Flexor Stretch (The opposite leg is not shown but is held against the abdomen in order to maintain the pelvis flat against the mat during the stretch.):



Hip Extensor Stretch. (The opposite leg is not shown but is held in extension against the mat in order to maintain the pelvis flat against the mat during the stretch.):

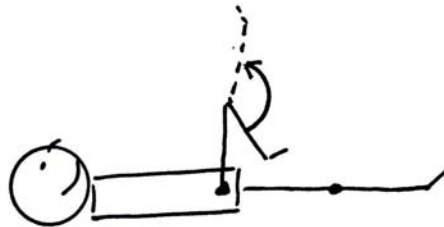


DIAGRAM SEVEN:

The testing position for selection of Knee Flexors or Extensors. The hips are at 45 degrees flexion, 0 degrees abduction, and the knees are at 90 degrees of flexion:



Knee Flexor Stretch. The hips are at 90 degrees flexion and 0 degrees abduction (The other leg is held against the mat to hold the pelvis flat on the mat during the stretch.):



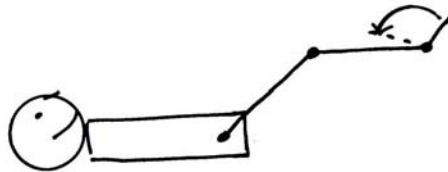
Knee Extensor Stretch. The hip and knee begins at almost full extension (The other leg is held against the mat to hold the pelvis flat on the mat during the stretch.):



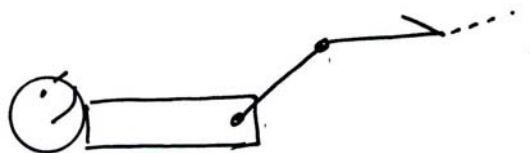
DIAGRAM EIGHT:

PF/DFs are tested with hip and knee at 45 degrees of flexion. The subtalar joint should be stabilized or locked during the stretch.

Plantarflexor Stretch:



Dorsiflexor Stretch:



Attachment XII PROTOCOL FOR TRAINERS

Functional Improvement Scale

The Functional Improvement Scale (FISC) does not require state approved competent trainers and will not be addressed in this protocol.

Neuromotor Impairment Severity Scale

The following protocol will be used by county Neuromotor Impairment Severity Scale (NISS) trainers effective March 2004. This protocol will assure statewide quality assurance of the NISS evaluation, interpretation, and data collection performed by county Medical Therapy Program (MTP) staff. The Chief/Supervising Therapist shall assure the county's compliance with the MTP Outcome Measurement Tools; e.g. NISS and the Functional Improvement Scale (FISC) in consultation with the CCS State team.

The Chief/Supervising Therapist of each NISS trained county will identify at least one occupational therapist (OT) and one physical therapist (PT) NISS trainer for the county. These therapists are required to complete the following criteria prior to becoming competent NISS county trainers:

- Complete a self-study of NISS training materials provided by the State that includes written guidelines, training video, Frequently Asked Questions and Power Point Presentation.
- Submit a (VHS tape) videotape* of themselves conducting the complete NISS on two clients and the corresponding NISS data sheets to the State team to the attention of:

Kerren Brown, OTR
State CCS Therapy Consultant
Southern California Regional Office
311 South Spring Street, Suite 01-11
Los Angeles, CA 90013

- The VHS tape must be labeled:

INITIAL THERAPIST COMPETENCY TAPE
Therapist Name Child Name
County MTU
Submission Date

- A member of the State team will review each video*.

- The State reviewer will return the videotape* to the therapist with a statement that the therapist is competent NISS examiner or request the therapist to practice and resubmit another videotape*.
- The NISS examiner will then instruct and observe another therapist in the use of NISS. When the NISS examiner determines that the trainee is competent, a videotape* of the trainee performing the complete NISS on two clients with the NISS examiner acting as the coach is to be submitted with the corresponding NISS data sheets to the State Team to the attention of:

Kerren Brown, OTR
 State CCS Therapy Consultant
 Southern California Regional Office
 311 South Spring Street, Suite 01-11
 Los Angeles, CA 90013

- The VHS* videotape must be labeled:

INITIAL TRAINER COMPETENCY TAPE

Trainer Name	Therapist Name
Child Name	Submission Date
County	MTU

- A member of the State team will review each therapist's videotape* and provide feedback as to the trainer's teaching methods for the NISS.
- The State reviewer will return the videotape* to NISS examiner with a statement that the therapist is a competent NISS trainer or request the NISS examiner to practice and resubmit another videotape.
- An approved county NISS trainer will then be responsible for instructing, observing, and determining the competency of county staff therapists in the performance, interpretation, and data collection of the NISS. It is optional, but recommended by the State, to videotape each staff therapist employed by the county for the purpose of trainer to trainee feedback regarding their techniques/decision making.
- Six competency areas will be used to determine that a staff therapist is a competent NISS examiner; e.g. Setup & Equipment, Instruction to Child, Techniques of Testing the Child, Decision Making, Analysis of Child's Response, Calculation. The NISS trainer must observe and document that the individual therapist consistently understands and demonstrates correct NISS evaluation procedures using the NISS Reviewer Comment Form.

- The NISS Reviewer Comment Form shall be returned to the therapist with a copy sent to the Chief/Supervising Therapist.

Each county NISS trainer must keep an ongoing log identifying each therapist determined to be a competent NISS examiner. This log shall contain the NISS trainer's name, therapist(s) name, discipline, date of observation, and date of competency determination.

Beginning fiscal year 2004-05 and each July thereafter, the Chief/Supervising Therapist will submit to the State team, a list of all county staff therapists currently employed who are competent NISS examiners and trainers each year. This list will identify the therapist name, discipline, NISS trainer, and the date of competency determination. From these lists submitted by the NISS trained counties, the State team will select a small sample of staff therapists throughout the State and request the NISS examiner(s) to send a videotape* performing the complete NISS on two children and their corresponding data sheets. If the State Team determines that there are significant errors, the county NISS trainer will be asked to review the videotape with the therapist and coach the therapist until able to demonstrate competency.

The county NISS trainers will serve as the local resource for questions and issues regarding the NISS and be the NISS liaison with the State team. NISS trainers will participate in statewide teleconferences with the State team at least once a year for consultation and updating of NISS materials and resources.

As necessary the county Chief/Supervising Therapist shall identify new NISS trainers. Previously determined NISS trainers can determine competency of potential new NISS trainers. From the annual list of competent NISS trainers, the State team may randomly request videotapes of new NISS trainers for review and comment.

As the county MTP assumes the responsibility for competency of NISS examiners and trainers, any disagreements shall be referred to the State team for review and final determination.

* The purpose of the State videotape review is to give feedback in the six areas of competency, monitor competency of staff therapists and NISS trainers, provide an opportunity for the staff therapist to ask questions specific to a single child, and save travel expenses for the State team.

Attachment XIII NISS Frequently Asked Questions

NISS Application within CCS MTP:

1. Q: Is the NISS to be performed on all children with upper motor neuron disorders such as cerebral palsy, brain injury, encephalopathy, degenerative cerebral disorders, etc?
A: Yes, with the exception of children who are in the MTP for “clinic only” services and who have no therapy orders.
2. Q: When evaluating a child on the NISS and one discipline is scoring while the other is handling the child, do both the OT and PT record evaluation time on the CCS Patient Therapy Record (PTR)?
A: Both should record the time and activity in the PTR. NISS evaluation should be performed by an OT and PT whenever reasonable. The NISS evaluation can be performed jointly in several ways. One discipline can handle the child for all tasks with both observing the responses; or the child handling can be divided between the disciplines according to the preferences of the examiners. BOTH are still observing the responses.

NISS General Questions

1. Q: Why do you recommend an OT and PT do the evaluation together?
A: The combination of both disciplines improves the accuracy and reliability of the score. There are two viewing angles to observe the child’s response.
2. Q: When an OT and PT do the NISS, who handles the child and who scores the child?
A: Either therapist can handle the child and the tasks can be divided up according to therapist preference. Both therapists should agree on the child’s response.
3. Q: Can the examiner use tactile or auditory cues?
A: Yes, verbal, visual, auditory, and tactile cues are all allowed. Each child responds differently to the various cues. The purpose is to give the child the best opportunity to perform the task.
4. Q: Is the NISS appropriate for children with traumatic brain injury?
A: Yes, the NISS is designed to evaluate neuromotor impairment severity in children with upper motor neuron disorders such as cerebral palsy, brain injury, encephalopathy, degenerative cerebral disorders, etc.
5. Q: When should the NISS be performed?
A: The child’s neuromotor impairment can be assessed at any time. Since it is likely to change slowly up to age 6 years of age when myelination of the motor systems occurs and is much less likely to change after that time the following schedule is recommended:

- 12 months of age or at entry into treatment program if already older than 12 months age.
- 2-3 years of age
- 5-6 years of age
- 11-12 years of age
- 18-19 years of age
- Before and 3 months after a significant medical/surgical intervention (such as complex orthopedic surgery, selective dorsal rhizotomy, and intrathecal baclofen infusion).

6. Q: What do I do if the child does not cooperate?

A: The NISS can be performed in several sessions over as much as a month's time. If the child does not cooperate for motor control and upright postural responses, write the reason or problem on the data sheet and score as an ABSENT response. If tone evaluation is impossible, state the reason on the data sheet and do not put a score in the tone sub-score box. In this case you will not be able to obtain a total NISS score.

7. Q: What if a child suddenly demonstrates a skill that was scored differently on a recent NISS evaluation?

A: The NISS score can be revised if the skill demonstrated occurs within one month of the other parts of the NISS evaluation and the child is still in the age window for recommended testing. Or the whole NISS evaluation can be repeated. There is no significant learned response. It is unlikely that a child will learn how to do one of the tasks because of prior experience with the NISS evaluation.

8. Q: Is the NISS score going to be used to determine Medical Therapy Program (MTP) eligibility or to determine whether a child can receive therapy.

A: No, eligibility for MTP is defined in State Regulations. The type and amount of therapy that is provided is based on multiple factors: prior progress, rehab potential, and establishment of realistic goals for physical function. The NISS tool is designed to assist the therapy and medical staff to understand the child's severity level and compare the child's progress to other children with similar severity. The impairment severity is only one factor in determining rehabilitation potential.

9. Q: What do I tell parents about the NISS evaluation?

A: You would explain that this is an evaluation tool. You would explain it the way you explain other evaluation tools.

MOTOR CONTROL:

1. Q: What if the PROM for head rotation is less than 45 degrees.

A: Then the response is impossible (absent) in that direction.

2. Q: Must the child be upright to test head rotation.
A: Test the child as close to upright as possible. If no upright positioning is possible the child may be tested semi-reclining or supine. Be sure the head rotates and returns to neutral voluntarily and not by gravity or tone.
3. Q: Why is head flexion extension tested by looking down and then up.
A: This is the most important range for eye gaze. Be sure to have the child looks DOWN 30 degrees before looking UP. Be sure the child can stop when returning to neutral and not continue into hyperextension.
4. Q: How much lip pucker is required?
A: Look at the lips from the front and determine if the child brings the outer borders significantly toward the center. It does not have to be perfect and the lips do not have to protrude forward.
5. Q: If a child can pucker and can kiss with both lips but cannot do both at the same time can this be scored as "0."
A: No. This would be scored as a partial response.
6. Q: What if the child refuses to pucker lips or kiss when asked (several times) but later in the evaluation, the child is observed to pucker their lips while doing another totally different task? Do you go back and give the child a partial response for puckering their lips, even if it was not in response to your request?
A: Score the puckering of the lips if the effort was voluntary.
7. Q: In tongue lateralization does the tongue tip need to touch the side of the face.
A: No, but the tongue needs to protrude out of the mouth, deviate to the side, and touch the lateral border of the open mouth.
8. Q: If a child demonstrates good isolation of finger movement playing with another object, does s/he need to demonstrate the isolation when picking up the cereal.
A: If the child picks up the cereal piece without demonstrating isolation but the examiner sees that the child has the capacity to do so based on observation of toy play then the score can be 0 or 1 depending on strength, speed, agility, precision, etc.
9. Q: The instructions say to place the cheerio on a table or tray in front of the child, but in the video, Dr. Boyd held the Cheerio in front of a couple of children using a pincer grasp. What if the child rakes the Cheerio using a synergistic grasp if the Cheerio is on a tray, but when the Cheerio is held in front of the child with a pincer grasp, the child uses an isolated abnormal pinch 1 time?
A: Score this as isolated movement. The cereal can be offered in several different ways to determine the child's best hand control.
10. Q: What is normal pinch and whole handgrip strength for all ages?
A: Normal values are not available for all ages. Use best judgment.

11. Q: If a child obviously has no ability to move arms or legs because tone is greater than 4H, do we really need to try to get them to reach for a cheerio or kick the ball?
A: Yes you may be surprised by the result. However, the instructions say you may score the motor control as 4 if the caretaker says the child never reaches or kicks.
12. Q: What do you do if the child cannot be placed at the 90-90 hip/knee sitting position for evaluation of LE motor control?
A: Place the child as close to the 90-90 position as possible.
13. Q: What if there is not enough PROM for the child to extend the knee and touch the tennis ball?
A: The foot only has to go forward 4 inches. If the child is unable to do that the score is "4."
14. Q: Can you use a seat belt when testing LE motor control?
A: Yes. Be sure to have your hand on the pelvis to identify synergistic tilt of the pelvis. The seat belt will not prevent you from feeling this movement.
15. Q: When a child uses stepping action to touch the ball, isn't this voluntary?
A: Yes, the response is a volitional activation of hip-knee flexion withdrawal followed by extension. Both the flexion and extension are synergistic (E/F) but this is not the movement requested and reflects less motor control than the "3" response. So the stepping action is scored as "4" if it is the only response.
16. Q: If the other leg extends equally and simultaneously, is this scored as "3" synergy.
A: Only if the pelvis tilts simultaneously (hip extension synergy). If the pelvis/hip is stationary then the other leg movement is considered "associated movement" and the score is "1" because there is no synergy with the hip. Synergistic movement of the pelvis/hip is the crucial distinction in the evaluation of motor control in the lower extremities.

UPRIGHT POSTURAL RESPONSES:

1. Q: Does head and trunk response need to be immediate?
A: No, if the response is not immediate ask the child to look at something straight ahead or say, "hold your head up". Many children will let you rock them to the side and enjoy the tilted position or think it is a game.
2. Q: How do you score the head and trunk responses if the eyes do not return to horizontal?
A: The head must return to vertical for a complete head response. In this case the eyes are horizontal. When testing trunk responses the head may over correct, particularly if the pelvis is tilted more than 30 degrees. This is acceptable. Also, the child may be looking somewhere other than straight ahead. If the shoulders return to horizontal this is acceptable as a complete response.

3. Q: If the head response is absent, how is the trunk response or protective extension tested?
A: If the head response is absent, do not test trunk response and protective extension. Score them as absent.
4. Q: How do you score the trunk response if the therapists hands need to be on the trunk instead of the pelvis?
A: This cannot be considered a complete response. Place hands on the pelvis and tilt to see if the child has a partial response.

TONE:

1. Q: What if the child anticipates being pulled up in the head lag test?
A: Ask the child to wait until you start to pull. If the movement continues to be anticipated score as normal.
2. Q: When pulling the child up by their arms, what if there is very high axillary or head/neck tone, or if the cervical neck area is fused so that there is no head lag?
A: The child would be scored as if normal but make comment of the circumstances.
3. Q: What do I do if the child lifts his/her arms out of the way during the axillary lift?
A: Tell the child to "hold on we are going up" or "I am trying to lift you." A child who slides through abnormally has no choice.
4. Q: How do you do the Axillary lift with large or heavy children?
A: Two people may be needed, one lifting under each arm. Four people may be needed with 2 lifting under each arm. Use good judgment and safety precautions in planning this lift. If axial lift is not tested then the tone sub-score and the total NISS score cannot be obtained.
5. Q: Dr. Boyd in the video says if either shoulder is partially abnormal, then score a 1= [partially abnormal] even if the other shoulder is normal. What if one shoulder either completely slides through or is rigid, is that scored a 2?
A: The score is based on the most abnormal side. This example would be scored as a 2.
6. Q: Sometimes the tone may feel normal, but when you look at the resting posture of the extremity, it's in more of a hypotonic-appearing position (for example, the wrist is postured in end-range flexion at rest, but when you move the hand, the tone feels OK). Do you score by what you feel when moving the hand = normal tone or go by what the posture of the hand is always in = 2L?
A: If the examiner finds normal resting resistance to movement score the muscle group as normal.

7. Q: If you decide that the tone is normal, do you still need to do the 1-2-3-4 second stretch test?
A: No
8. Q: What do you score for the patient who tries to help with the movement or who purposely resists your movement, even though you try to wait them out and try to get them to relax? What do you score when you feel that the increased resistance between 1-2-3-4 is due to resistance or purposeful muscle activity rather than just tone?
A: Try again another time. If the child cannot cooperate enough to assess resting tone do not score the muscle group. You will not be able to calculate a sub score for tone and a NISS Total Score. Other parts of the NISS are still useful.
9. Q: On the video, the test for shoulder adductors is done bilaterally at the same time. For a very large or tall patient, can we test the shoulder adductors unilaterally one at a time or does this affect the results?
A: Yes, the sides can be done individually.
10. Q: Which extremity muscle group (extensors or flexors) do I test when both are low tone?
A: Be sure to test the most abnormal muscle group – the ones with the lowest tone or least resistance.
11. Q: When testing adductor tone in lower extremities, how are we to keep the knees flexed at 90 degrees in large individuals with severe impairment? Is it ok to flex the knees greater than 90?
A: You may use an assistant and if necessary you may flex more than 90 degrees.
12. Q: What muscle group do I test if one is high tone and the other is low tone?
A: Test the high tone muscle group.
13. Q: If the child has hip flexion contractures and you are unable to fully extend the contra lateral leg to test NISS tone, can you still test and note the contracture?
A: The extension of the contra lateral leg when testing the opposite hip and knee for either flexion and extension tone is for the purpose of stabilizing the pelvis. You can still do this with contractures present.
14. Q: How do you score NISS tone for a child who cannot move an extremity against gravity?
A: If the child has hypertonicity (spasticity, rigidity, or dystonia) as the cause use sequentially slower stretches (1H, 2H, 3H, 4H, or 4C). If the child has low tone and weakness as the cause, determine if the muscle group can oppose gravity (2L) or the distal limb falls into a fully dependent posture (4L).

Attachment XV NISS Trainer Frequently Asked Questions

1. Q: Does the trainer need to personally film the staff person they trained or can the staff person have someone else do the filming and then send the video to the trainer for review?

A: It is preferred that the trainer be present during the videotaping of the examiner to demonstrate dialog between the trainer and examiner. If the trainer does not participate at the time of the videotape the feedback and suggestions made to the examiner needs to be attached to the video sent to the state team.

2. Q: Can the trainer be able to train therapists of either discipline?

A: Yes.

3. Q: Should the therapist being trained perform the entire NISS exam for the trainer?

A: Yes