Clinical Report and Algorithm – Overview and Integration into Practice

featured speaker Garey Noritz, MD, FAAP

Webinar One
March 27, 2013
5:00 pm Central
Today’s Webinar and the first Action Period will ......

• Provide project participants with additional education on neuromotor screening

• Obtain feedback from project participants about use of the neuromotor screening algorithm in practice and the results of their action plans

• Review next steps for project participation
# AGENDA

<table>
<thead>
<tr>
<th>Agenda Item</th>
<th>Speaker</th>
<th>Time</th>
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<tbody>
<tr>
<td>Welcome and Project Introduction/Orientation</td>
<td>Pat Heinrich, RN, MSN, QI Advisor</td>
<td>10 min</td>
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<tr>
<td>Educational Content</td>
<td>Garey Noritz, MD, FAAP</td>
<td>25 min</td>
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<tr>
<td>Introduction to Action Plans</td>
<td>Pat Heinrich</td>
<td>10 min</td>
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<tr>
<td>Next Steps</td>
<td>Pat Heinrich</td>
<td>5 min</td>
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<tr>
<td>Questions and Answers</td>
<td>All</td>
<td>5 min</td>
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Webinar Moderator: Paul Lipkin, MD, FAAP
Who We Are: Webinar 1 Faculty

• Garey Noritz, MD, FAAP, Featured Speaker

• Pat Heinrich, RN, MSN, Quality Improvement Consultant

• Paul Lipkin, MD, FAAP, Webinar Moderator
Who We Are:
Expert Group, Webinar Faculty, and Project Staff

Expert Group Members
• Paul H Lipkin, MD, FAAP, Chairperson
• Ted R Abernathy, MD FAAP
• Pat Heinrich, RN, MSN, Quality Improvement Consultant
• Michelle Macias, MD, FAAP
• Garey H Noritz, MD, FAAP
• Mark Swanson, MD, MPH, FAAP

Webinar Faculty
• Garey H Noritz, MD, FAAP, Webinar 1
• Max Wiznitzer, MD, FAAP, Webinar 2
• Dipesh Navsaria, MD, FAAP, Webinar 3

Project Staff
• Rachel Daskalov, MHA, PEHDIC
• Michelle Esquivel, MPH, PEHDIC
• Jill Healy, MS, QuIIN
Who You Are

14 Teams in 11 states

- Genesis Pediatrics, LLC
- Winthrop Pediatric Associates
- Cardinal McCloskey Services

Wind River Service Unit
Aspirus Doctors Clinic
Midwest Community Health Associates

All About Children Pediatric Partners
All Pediatrics
AnMed Health Children’s Health Center
Sheffield Pediatrics

- Westbury Pediatrics
- Danis Pediatrics
## Practice Location

<table>
<thead>
<tr>
<th>Urban</th>
<th>Rural</th>
<th>Suburban</th>
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<tbody>
<tr>
<td>All About Children Pediatric Partners, PC</td>
<td>Midwest Community Health Associates</td>
<td>Genesis Pediatrics, LLC</td>
</tr>
<tr>
<td>District Medical Group</td>
<td>Aspirus Doctors Clinic</td>
<td>All Pediatrics</td>
</tr>
<tr>
<td>Sheffield Pediatrics</td>
<td>Wind River Service Unit-IHS</td>
<td>Westbury Pediatrics</td>
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<tr>
<td>Danis Pediatrics</td>
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<td>AnMed Health Children’s Health Ctr</td>
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<tr>
<td>Cardinal McCloskey Services</td>
<td></td>
<td>Winthrop Pediatric Associates</td>
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<tr>
<td></td>
<td></td>
<td>Fountain Valley Pediatrics</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Practice Type</th>
<th>Solo</th>
<th>Hospital-Based</th>
<th>Large Private Group (5+)</th>
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<tbody>
<tr>
<td>Westbury Pediatrics</td>
<td>Westbury Pediatrics</td>
<td>Winthrop Pediatric Associates</td>
<td>Genesis Pediatrics, LLC</td>
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<tr>
<td>Fountain Valley Pediatrics</td>
<td>Fountain Valley Pediatrics</td>
<td>AnMed Health Children’s Health Center (and CHC)</td>
<td>All Pediatrics</td>
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<tr>
<td>Sheffield Pediatrics</td>
<td>Sheffield Pediatrics</td>
<td></td>
<td>All About Children Pediatric Partners LLC</td>
</tr>
<tr>
<td>Other</td>
<td>Aspirus Doctors Clinic (Large Group Nonprofit)</td>
<td>Cardinal McCloskey Services (Foster care)</td>
<td>Danis Pediatrics (Academic/University Based Teaching Practice)</td>
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<tr>
<td>District Medical Group</td>
<td>District Medical Group (Large Multi-specialty Group, contracted with county)</td>
<td>Wind River Service Unit (Indian Health Service)</td>
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QI Knowledge

- Somewhat Knowledgeable: 14%
- Very Knowledgeable: 86%

Legend:
- Blue: Somewhat Knowledgeable
- Red: Very Knowledgeable
Neuromotor Screening Knowledge

- Somewhat Knowledgeable: 79%
- Very Knowledgeable: 14%
- Not at all Knowledgeable: 7%
Project Overview

• Project Goals
  – Determine if physicians are able to follow the algorithm and whether the algorithm is helping to accurately identify children with motor delay
  – Obtain feedback on the use of the algorithm in practice

• Follows Institute for Healthcare Improvement Web & Action Model
  – Pre-work period, including pre-survey
  – Series of 3 Webinars and Action Periods
  – Post-survey

• Data Collection/Measurement
  – Pre and post survey
  – Action plan brief surveys (3)
Objectives

At the end of this presentation, the participants will be able to

1. Recognize motor delays and specific neurological signs that guide the workup for neuromotor conditions

2. Implement improved motor screening as part of anticipatory guidance and well child care.
Developmental Screening

• In 2006, the AAP published an algorithm for Developmental Surveillance and Screening (DSS) in the Medical Home.

Effects of the Developmental Screening Statement, 2006

The DSS statement calls for:

• Developmental Surveillance at EVERY Bright Futures visit
• Developmental Screening using a Standardized Test at specific visits (9, 18, 30 months) AND anytime surveillance demonstrates a concern

Between 2002 and 2009, significantly more AAP members use standardized developmental screening instruments: 23→48%  -Radecki, 2011
Developmental Surveillance

• “Developmental surveillance is a flexible, longitudinal, continuous, and cumulative process to identify children who may have developmental problems” (DSS, 2006)

• Components
1. Eliciting and attending to parental concerns
2. Documenting and maintaining the developmental history
3. Making accurate observations about the child
4. Identifying risk and protective factors
5. Maintaining an accurate record of the process and findings
## Delayed Diagnosis in Duchenne Muscular Dystrophy: Data from the Muscular Dystrophy Surveillance, Tracking, and Research Network (MD STARnet)

Emma Ciafaloni, MD, Deborah J. Fox, MPH, Shree Pandya, PT, MS, Christina P. Westfield, RN, BSN, Soman Puzhankara, MS, Paul A. Romitti, PhD, Katherine D. Mathews, MD, Timothy M. Miller, MD, Dennis J. Matthews, MD, Lisa A. Miller, MD, MSPH, Christopher Cunniff, MD, Charlotte M. Druschel, MD, MPH, and Richard T. Moxley, MD

<table>
<thead>
<tr>
<th>Event</th>
<th>Mean Age</th>
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<tbody>
<tr>
<td>First Signs or Symptoms Noted</td>
<td>2.5 years</td>
</tr>
<tr>
<td>First reported to PCP</td>
<td>3.6 years</td>
</tr>
<tr>
<td>First Creatine Kinase Sent</td>
<td>4.7 years</td>
</tr>
<tr>
<td>Definitive Diagnosis of Duchenne</td>
<td>4.9 years</td>
</tr>
</tbody>
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156 boys without a family history of Duchenne (2009)
Why is early diagnosis important?

- Even incurable disorders, including many neuromuscular disorders, are treatable.
- A delay in diagnosis delays access to information about care options, relevant clinical trials, and support networks for a specific disorder.
- Not having an accurate diagnosis may result in a child missing appropriate therapies or receiving therapies not recommend for a disorder.
- Delays in diagnosis often impede access to services, including Early Intervention and other health care services.
- Early diagnosis facilitates access to genetic counseling to learn about family planning options.
- There can be significant family stress with the delay of an accurate diagnosis. Families often see several clinicians before receiving a referral to a specialist familiar with neuromuscular disorders and may experience unnecessary testing.
Identifying Children With Motor Delays: An Algorithm for Surveillance and Screening

1. Pediatric Patient at Preventive Care Visit

2. Is this a 9-, 18-, 30- or 48-month visit?

3a. NO
   - Perform Developmental Surveillance

3b. YES
   - Administer Screening Tool

4. Does Surveillance and/or Screening Demonstrate Neuromotor Concern?

YES
   - Consider Administering Screening Tool if Not Already Done

5a. NO
   - Perform Remainder of Bright Futures Health Supervision Exam

5b. YES
   - Obtain/Review Expanded History & Perform Neurologic Exam

6. Are the History or Exam Results Concerning?

7. Yes
   - Refer to Early Intervention/Child Find & Consult/Refer to Appropriate Pediatrics Subspecialists & Perform Remainder of Bright Futures Health Supervision Exam **(Red flag conditions necessitate prompt referral)

8. High, Normal, or Low Tone?

9a. YES
   - Consider Neuroimaging

9b. NO
   - Measure CK & TSH

10. High, Normal, or Low

11. Yes
   - Ongoing Developmental Monitoring

12a. NO
   - Is a Developmental Disorder Identified?

12b. YES
   - Schedule Next Routine Well Child Visit
   - Identify as a Child with Special Health Care Needs & Initiate Chronic Condition Management

Legend
- Start/End
- Action/Process
- Decision
Testing for a child with Low (or Normal) Tone

- Creatine Kinase (CK):
  - The CK is significantly elevated in Duchenne Muscular Dystrophy, at least 3x normal
  - Cost (Our lab in 2012): around $40

- Thyroid Stimulating Hormone (TSH):
  - Thyroid myopathy may present with either hypothyroidism or hyperthyroidism, and without classical signs of thyroid disease (likely uncommon)
  - Cost (Our lab in 2012): around $80

- Microarray: around $2200
Cerebral Palsy

- CP describes a group of permanent disorders of the development of movement and posture that cause activity limitations that are attributed to nonprogressive disturbances that occurred in the developing fetal or infant brain. The motor disorders of CP are often accompanied by disturbances of sensation, perception, cognition, communication, and behavior and by epilepsy and secondary musculoskeletal problems.


- With a prevalence of 3.6 per 1000, more than 100 000 children in the United States are affected.
  - Yeargin-Allsopp M, 2008
Diagnostic Testing in Cerebral Palsy

• 70-90% of children with CP have an MRI finding that suggests diagnosis or treatment (but usually not pathognomonic)

• 2004 Practice Parameter from the American Academy of Neurology:
  • Level A: Neuroimaging is recommended, with MRI preferred to CT
  • Level B: In children with hemiplegic CP, diagnostic testing for coagulation disorders should be considered
  • Level B: Metabolic and genetic studies should not be routinely obtained in the evaluation of the child with CP
  • Level C: If the clinical history or findings on neuroimaging do not determine a specific structural abnormality or if there are additional and atypical features in the history or clinical examination, metabolic and genetic testing should be considered. Detection of a brain malformation in a child with CP warrants consideration of an underlying genetic or metabolic etiology.
Changes You May Want to Make in Your Practice

• Implement screening for all developmental delays, including motor delays
• Use a validated screening instrument and carefully assess the child’s tone.
• Begin the initial workup for neuromotor delay in your practice
  • CK and TSH when the child has low or normal tone
  • MRI of the brain when the child has increased tone
• Refer *simultaneously* for diagnosis and treatment
• Look for “red flags” to determine which children with neuromotor delay need expedited referral to specialists
# Action Plan One

<table>
<thead>
<tr>
<th>Topic</th>
<th>Redesigning Office Flow for Neuromotor Screening</th>
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<tbody>
<tr>
<td>Dates</td>
<td>March 28-May 1, 2013</td>
</tr>
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</table>
| Goals | • Launch a multidisciplinary improvement project in your office  
        • Assess current practice and implement changes needed to provide care using the Neuromotor Screening Algorithm |
Action Plan Activities

1. Identify your team
2. Schedule a team meeting
3. Assess your own knowledge and skills performing the neuromotor exam
4. Review Your Care Flow Processes

See Action Plan 1 for suggested dates for these activities.
Flow Chart Your Processes

• Sketch it out
  – Start with an elongated circle - signifies the start or end of a process

• Add other symbols for steps in the process
  – Rectangles, show instructions or actions
  – Diamonds, show decisions that must be made

• Write within each symbol what it represents (the start or finish of the process, the action to be taken, or the decision to be made)

• Connect each symbol to the next step using arrows to indicate the flow of the process.

• Remember to show the end of the process using an elongated circle labeled "Finish".

• Finally, review and challenge each step in the flow chart
Action Plan Activities

5. Plan desired Practice Change Action Steps
   – What
   – Who
   – When

6. Results - What will success look like?

7. Try out your plans with a “mock visit”

8. Document your results

9. Hold a team huddle

See Action Plan 1 for suggested dates for these activities.
Action Plan Activities

10. Test your new process flow and the algorithm on your next visits for appropriate patients.

11. Make any required changes (identified in step 8) and continue testing with additional patients.

12. Complete AP 1 Brief Survey

13. Plan feedback to AAP on next Webinar

14. Link to Resources

*See Action Plan 1 for suggested dates for these activities.*
Next Steps

• May 1 – Complete Action Plan 1 Brief Survey
• May 8 – **Webinar 2**: Neurological Exam and Related Tests
  – by Max Wiznitzer, MD, FAAP
  – 5:00 PM Central
• June 27 - **Webinar 3** - Patient Care if Motor Delay is Identified
  – 11:00 AM Central
• August 15 - **Follow-up Conference Call/Review Action Period 3**
  – 5:00 PM Central
Project Resources

• Project Listserv
  NMS@listserv.aap.org
  – Communicate with other teams and project leaders
  – Be sure to change the subject line if you are introducing a new thread
  – If you have a question or comment directed at 1 person only, ensure that only the intended email address is in the “To” section before sending the email

• Project Web page
  http://aap.org/quiin/NMS
  – Find project materials, tools, Webinar recordings
Contact Us!

• Jill Healy, MS, QuIIN Program Manager
  jhealy@aap.org | 800/433-9016, ext 7122

• Rachel Daskalov, PEHDIC Program Manager
  rdaskalov@aap.org | 800/433-9016, ext 7863

• Pat Heinrich, RN, MSN, Quality Improvement Advisor
  pat@heinrichllc.com | 617/686-6161

• Garey Noritz, MD, FAAP
  garey.noritz@nationwidechildrens.org

Acknowledgement
The development of the clinical report and algorithm that are being tested as part of this project was funded by the American Academy of Pediatrics through the Public Health Program to Enhance the Health and Development of Infants and Children through a cooperative agreement (5U58DD000587) with the Centers for Disease Control and Prevention’s National Center on Birth Defects and Developmental Disabilities.
References

• For more information on this topic, see the following publications:
  • Feldman DE; Mélanie Couture M, Grilli L et al. When and by Whom Is Concern First Expressed for Children With Neuromotor Problems?: Arch Pediatr Adolesc Med 159, 2005; 159 882-886
  • Amiel-Tison C, Grenier A. Neurological Assessment during the First Year of Life. Oxford University Press, New York, 19
Questions