Issues Related to Using Sedation in EHDI Diagnostic Procedures

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Diagnostic Testing Goals

Diagnostic testing should be:

- Timely
  - Done as soon as possible after baby fails screening process
- Comprehensive
  - Done by an audiologist experienced in working with infants
  - Done at a location with all necessary equipment to complete a full battery of tests

Timeliness of Diagnostic Testing

Two basic approaches:

- Test as soon as possible after hospital discharge during natural sleep
- Wait until baby is 3-4 months of age and test when sedated
  - Either intentionally, or by default due to wait time to get appointment

Pros and cons are reported for both approaches

Survey (NCHAM, 2009)

- Survey sent to EHDI coordinators to gather preliminary data to better understand current sedation practices
- Questions: Do you know if there are hospitals in your state that:
  - have a policy for doing only sedated testing for diagnostic audiologic evaluations?
  - do not have a policy, but primarily do sedated testing due to long wait lists, audiologist preference, or other reasons?

Survey Findings (n = 24)

- 14 states indicated no known problems/delays in testing due to sedation
- 4 states indicated some problems with delays in testing (wait lists, etc.) resulting in a need for sedation to complete testing
- 5 states reported significant problems with delays in testing resulting in most babies being sedated for testing
- 1 state reported that at least one hospital only provides sedated testing

Natural Sleep: Preparation

- Specific instructions needed
  - Sleep deprived and hungry
  - Bring what is needed to keep baby comfortable (e.g., pacifier, bottle, blanket, etc.)

Natural Sleep: **Pros** and Cons

- Timely - can be done on very young infants (1-2 weeks)
  - Intervention can begin earlier
- No risk to infant
  - Resulting in less anxiety/fear for families

Natural Sleep: **Pros** and Cons

- *0-6months we tell parents to sleep deprive them and don't feed them after midnight; we then schedule them for 8:00. We first feed them and with them being tired and full, sleep typically is not a problem*
- *Our goal is to see the babies for follow up within the first month of life and almost all of my ABRs are done without sedation*
- *We do not have a long waiting list (generally two weeks or less). No one under the age of 6 months (adjusted age) is sedated, all those ABR's are in natural sleep*

Natural Sleep: **Pros** and Cons

- *We perform ABRs 2 days per week, which provides no wait time [for now]; we evaluate wait time and if it gets too long we add another day to the schedule*
- *We do ABRs without sedation whenever possible; if multiple tests have failed to produce useful information we recommend sedation; only children over 6 months of age are sedated*

Natural Sleep: Pros and **Cons**

- Infant may wake up / time lost
  - May need to re-schedule if full battery of tests not completed
  - Noisy test, may be inappropriately interpreted
    - Potentially resulting in misdiagnosis and mismanagement

Natural Sleep: Pros and **Cons**

- *I see too many ABRs on children who are inadequately prepared, the ABRs are noisy, unreliable, and generally junk*
- *I know of more than a couple of cases that have gone to the state licensing board due to mis-diagnosis because the ABR was absurdly noisy, and audiologists have attempted to peak-pick based on noise*
- *We usually get enough information unsedated, but sometimes it takes 2-3 appointments, which is hard on families and delays treatment (we prefer sedation)*

Issues that lead to delay and need for sedation

- *It is taking too long for our failed kids to get through the diagnostic process (too much repeat screening, timid diagnosis, possibly too few infant/pediatric audiologists)*
- *System of referral is slowed down because:*
  - *many hospitals do not do rescreens*
  - *in some places multiple rescreens occur*
  - *sometimes it is how long a child has to wait*
  - *sometimes PCP tells family there is no need to worry*
- There are several places that "force" sedation due to long wait times, repeated re-evaluations without diagnosis, and at least one audiologist that prefers sedation

Sedation: Preparation

American Academy of Pediatrics Guidelines for Conscious Sedation (www.aap.org/policy)

Pediatrics Volume 89, Number 6 June Part 1, 1992, p 1110-1115

Guidelines for Monitoring and Management of Pediatric Patients During and After Sedation for Diagnostic and Therapeutic Procedures

Pediatrics Volume 110, Number 4 October 2002, p 836-838

Guidelines for Monitoring and Management of Pediatric Patients During and After Sedation for Diagnostic and Therapeutic Procedures: Addendum

Sedation Requirements

- Facilities
- Equipment
  - Age- and size-appropriate
- Back-up emergency services
- Informed consent
- Responsible adult
- Documentation/instructions
  - Prior to treatment
  - During treatment
  - After treatment
- Personnel
- Monitoring procedures

- Needed to protect safety of baby, but:
  - Increase costs
  - Causes delays

Sedation: **Pros** and Cons

- Infant remains asleep
  - can often complete full battery
    - no need to re-schedule
- Confidence in obtaining needed results for families traveling long distances
- Testing can be completed in less time

Sedation: **Pros** and Cons

- *Unsedated ABRs are very time consuming and sometimes results in more than one session; it is hard to support keeping an audiologist on one patient for a ½ day. We sedate patients over 3 months of age*
- *I have tried unsedated ABR's in the office with generally poor results. This requires a much larger available time slot, and is really only done at the request of a parent who does not want their child sedated. A further limitation of unsedated ABR is that we are lucky to get information with a click stimulus and rarely, if ever, are able to obtain frequency-specific information.*
- *I perform sedated ABRs before the age of 3-6 months in some cases. Recently I performed a sedated ABR on an 8 week old infant.*

Sedation: Pros and **Cons**

- Delay in age of identification
  - need to wait until child is at least 3 months of age
- Increased health care costs
- Adverse effects of sedation
- Unnecessary procedure
- Limited locations for testing
  - Special equipment and monitoring required

Sedation: Pros and **Cons**

- *Most hospitals can accomplish initial ABR without sedation, but perform confirmatory ABRs to get additional information under sedation*
- *One hospital only does sedated ABRs*
- *We only do sedated ABRs one day per week*

Actual Hospital Procedure

- Non-sedated ABR: babies <3 months, only 1 appointment a week available
  - (Note: appointments typically not available until 3 months out – results in not doing unsedated testing)
- Sedated ABR: >3 months
  - if outside referral, baby must be 6 months of age for pulmonary to clear baby for sedation
  - If inside referral, baby can be scheduled before 6 months of age, does not go through pulmonary

Natural Sleep versus Sedation: What has your experience been?

Statement Needed?

- Is guidance needed for audiologists on when it is appropriate to consider use of sedation when testing infants following NHS?
  - There currently are no such guidelines

Future Survey:

What do we need to know and who can tell us?

- Who:
  - Pediatric audiologists
  - Others?
- What:
  - How often audiologists is testing infants
  - Percent of tests done in natural sleep/sedation
  - How often results not obtained due to noise
  - Wait time to their 3rd next appointment
  - What else?