

Development and Application of a Primer and Reference Assessment Tool for Neonatal Abstinence Syndrome: A Phase I Pilot Study

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Background

- Neonatal Abstinence Syndrome (NAS) is postnatal opioid withdrawal which affects up to 70% of newborns born to women using drugs (e.g., illicit drugs such as heroin or opioid medication either prescribed or not) during pregnancy.
- In 2014, an estimated 32,000 infants were diagnosed with NAS in the United States, with an aggregate associated hospital charge of \$1.5 billion.
- Symptoms of NAS are highly variable and its symptoms often mimic other conditions such as infection, hypoglycemia, hypocalcemia, and hyperthyroidism, making it challenging to treat.
- Use of a strict protocol to treat NAS is associated with reductions in length of opioid withdrawal and hospital stay for newborns, yet no national standardized education, diagnosis or treatment strategy is available.

Aim

- To describe the development and preliminary usability of an electronic bedside primer and decision support tool for NAS nurses and clinicians, with embedded interactive education and reference modules.

Methods

- A panel of NAS experts established a standard operating procedure for the best practices of NAS management and developed an interactive mobile primer and reference assessment tool to assess NAS with a curriculum and decision support system.
- We tested the feasibility and usability of this tool with n=8 users, including registered nurses, last-year undergraduate nursing students and neonatal physicians.

Results

- We developed an educational curriculum for NAS recognition and management and incorporated this curriculum into the interactive course which contains 7 lessons and an overview.
- The combined video length is approximately 1 hour and 45 minutes.
- Participants rated the usability of the modules positively, with an average rating of 4.5 (scale of "1=Strongly disagree" to "5= Strongly agree").
- Seven users noted that the electronic device entry would be as accurate as paper or computer-based Electronic Medical Records entry and one user indicated it would potentially be more accurate during post-usability interviews.
- Users recommended several improvements to the curriculum, including increasing detail of definitions and adding more videos for additional symptoms.

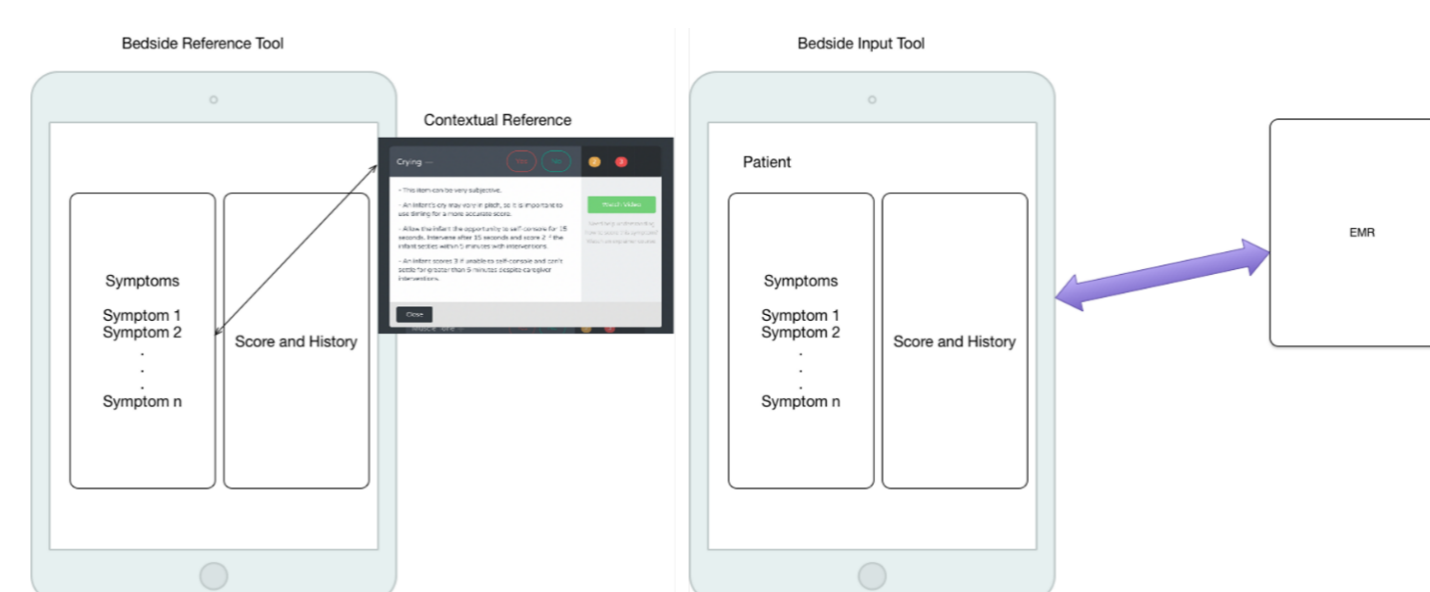


Figure 1. Example screen of primer and reference assessment tool

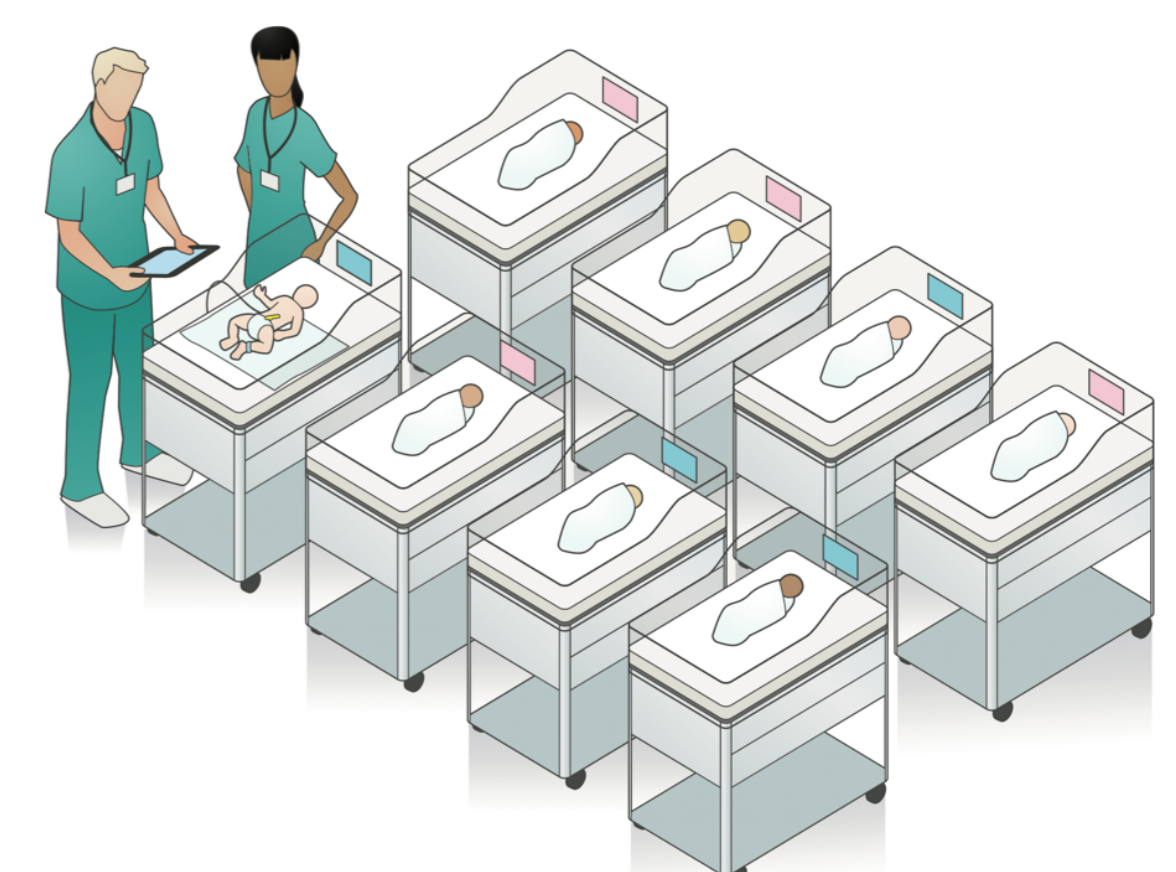


Figure 2. Goal and symptom entry at bedside

Conclusions

- The assessment tool appears to be acceptable and usable by potential device users. The strong ratings across the users provide sufficient evidence to further test whether its acceptability and usability remains high in a hospital setting while assessing the impact on clinical outcomes such as newborn hospital length of stay.

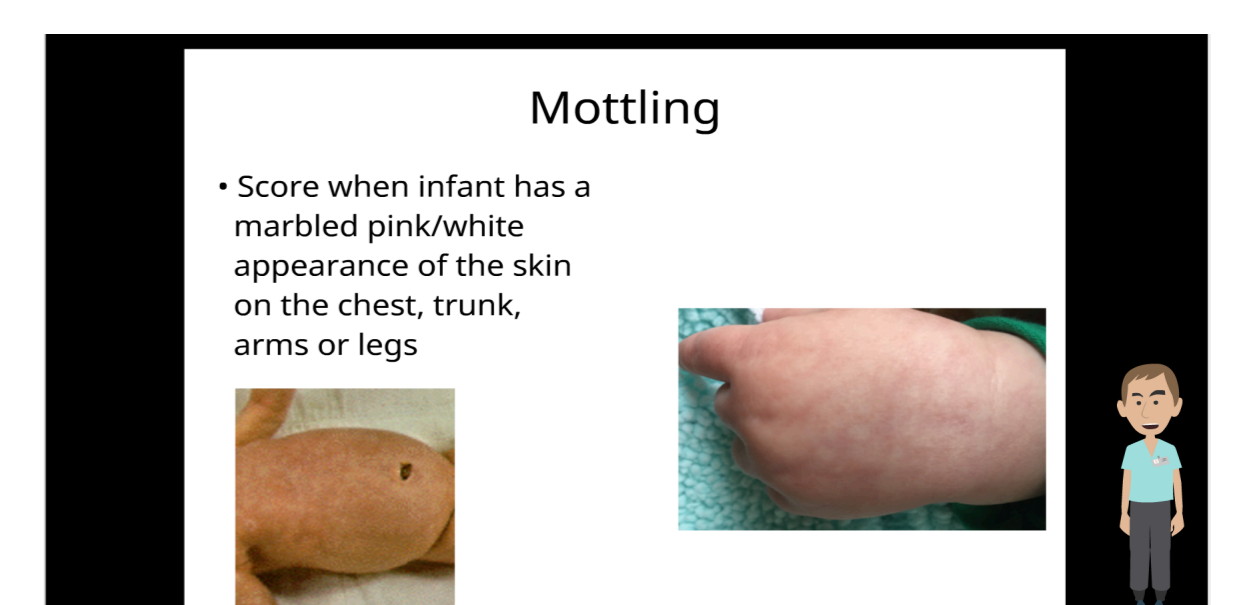


Figure 3. Reference overview and example