Sudden Unexpected Postnatal Collapse: One Newborn Death is One Too Many Part 2: Collaborative Quality Initiatives

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Introduction

A In Part one of our paper, we presented definitions, estimates of the incidence and quality initiatives to improve the recognition of the infant at risk for Sudden Unexpected Postnatal Collapse (SUPC) and potential strategies to prevent SUPC events(1-10). In part two we present quality improvement initiatives to help to document the incidence of SUPC in the United States, using a retrospective analysis of events felt to be consistent with SUPC in collaborating institutions with a de-identified REDCap database storage system.

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Next, we have designed an initiative based on the hypothesis that a percentage of SUPC events may be preventable by the implementation of a safety monitoring bundle for all newborn infants (2). The efficacy and generalizability of each approach need to be determined through further implementation and evaluation. Some portion of SUPC events may be effectively prevented by frequent assessment post-delivery of the mother/infant dyad, and educating staff and parents to ensure that the infant is "pink and positioned" (11) during "distraction-free" breastfeeding and skin-to-skin contact, as recommended by the AAP (12). We present and discuss these initiatives in detail in Part 2 of our paper.

Aims:

Short-term Aims:

1. To organize a multi-center collaborative quality improvement project (QIP) with a number of Level II and III hospitals, to implement a SUPC-Prevention Safety Monitoring Bundle (SPSMB)
2. To determine if the implementation of this safety initiative (SPSMB) is effective as a preventative strategy against SUPC.
3. To determine the effects of SPSMB on the interaction of the mother/infant dyad, in particular, making sure there is no negative impact on breastfeeding initiation or maintenance
4. To utilize a standardized assessment tool for infant positioning during breastfeeding, post-implementation of the SPSMB
5. To determine the response of post-partum mothers to the SPSMB, particularly the impact on their breastfeeding experience, using a standardized Likert-type questionnaire
6. To determine staff response to the practice changes associated with the implementation of the SPSMB
7. To enable collaborating hospitals to share de-identified data for quality improvement and a better understanding of SUPC risk factors.

Long-term Aims:

1. To collect data prospectively to track future cases of SUPC and to identify additional potential risk factors.
2. To develop a risk-assessment tool that can be incorporated into the electronic medical record (EMR), to alert caregivers if an infant is at higher risk for SUPC events or falls.

Methods:

1. Development of a secure electronic database (REDCap)
2. Collection of retrospective data related to SUPC events, within the past five years, at all collaborating sites. The data will be de-identified so that everyone (except the statistician) remains blind and the hospitals and patients cannot be identified.
3. Implementation of the SUPC-prevention Safe Monitoring Bundle (SPSMB) across all collaborating sites. The SPSMB includes the following:

    - Completion of an online SUPC-prevention Educational Module by Obstetric clinicians including physicians, nurse midwives, staff nurses, and patient care technicians (PCTs). This module is intended to teach staff about SUPC so that they can then teach parents about SUPC-prevention, but provide the counseling in a manner that does not frighten parents and discourage breastfeeding or skin-to-skin contact sessions. The module provides an overview of SUPC and includes three videos. The first video demonstrates a simulated SUPC event and its devastating consequences for families and staff. The second and third videos demonstrate a nurse, then physician, teaching a mother about SUPC-prevention, using a positive approach and never using the words SUPC or suffocation in the beginning. The teaching is provided in a positive manner, focusing on what to do rather than what not to do. The teaching is provided using the words "Pink and Positioned." This has been found to be a superior health communication method (11) and may avoid creating unnecessary parental anxiety. Importantly, "distraction-free" breastfeeding and skin-to-skin contact (SSC) are emphasized. (11)
    - Practice changes include:(1) teaching parents about "Pink and Positioned" in the immediate post-partum period and documenting this teaching in the EMR, (2) observing the first breastfeeding session and reinforcing the teaching, (3) frequent post-natal assessment of the newborn, using a standardized checklist, (every 15 minutes for the first 2 hours post-birth) followed by immedi-

ate documentation of 'Pink and Positioned' status into the EMR. (4) having mothers sign a standardized form, acknowledging receipt and understanding of "Pink and Positioned" information, the importance of ensuring safe positioning of their infant during SSC and breastfeeding (BF) sessions, pledging to not text or use social media during SSC/BF, and to call for help in case of extreme fatigue. (5) placement of signs in each post-partum room, reminding parents to ensure their infant is "Pink and Positioned" during "distraction-free" breastfeeding and skin-to-skin contact, with photos demonstrating proper positioning.

- Continued Assessment: After the first 2 hours post-partum, we will utilize a standardized assessment tool for infant positioning, during every breastfeeding session, until hospital discharge.

4. We will collect data prospectively to track any future cases of SUPC, near misses and falls, and to identify additional potential risk factors.

Outcome Measures:

Short-Term Outcomes:

1. Maternal interaction with their infants will be assessed, beginning 2 hours post-delivery. We will utilize a standardized assessment tool to determine whether mothers are retaining the "Pink and Positioned" teaching, by demonstrating proper (safe) positioning of their infant during breastfeeding sessions, until hospital discharge. We will also consider audits to confirm proper SSC, by staff during checks within the first 24-hour post-delivery.

2. Pre- and post-education survey to document maternal SSC safety knowledge.

3. SPSMB impact on breastfeeding during hospitalization, as measured by a standardized questionnaire (using a 5-point Likert scale) to determine maternal response to breastfeeding assessments. We will also track the number of breastfeeding sessions, for each infant, during the hospital stay.

4. Pre- and post-education survey to determine the impact of SUPC training (online module) on staff knowledge

Long-Term Outcomes:

1. SUPC events post- SPSMB implementation with specific details about etiology, management, outcomes, and 'near miss' event rates. We may also consider including a review of neonatal falls and resuscitation of the term and near term infants.

2. Staff knowledge and staff satisfaction with the SUPC prevention Safe Monitoring Bundle in the form of audits and a survey.

Anticipated Outcomes:

We will use a standardized assessment tool to determine whether infants are positioned safely, as a result of the education provided to mothers. This will demonstrate the effectiveness of the "Pink and Positioned" teaching. We anticipate better breastfeeding outcomes as a result of SPSMB implementation. Mothers may actually breastfeed more often since they will be actively encouraged to breastfeed, so that the nurse can assess positioning. We anticipate that mothers will respond favorably to the SPSMB, may feel more confident holding their infant, and will appreciate the frequent assessments and positive reinforcement, during SSC and breastfeeding sessions. We anticipate that staff will respond favorably to the SPSMB education and practice changes. Their response to survey questions will further establish the feasibility of easily implementing a safety bundle, such as ours, for SUPC prevention. Importantly, we anticipate that not only SUPC but also infant falls may be prevented, using our approach.

Given the low incidence of SUPC, falls and near misses, it is not possible to compare pre- and post- SPSMB implementation data. Nonetheless, we will track SUPC cases, neonatal falls, and near misses at collaborating sites and we anticipate that, as a result of SPSMB implementation, these events will be prevented. We plan to recruit additional sites where a baseline pre-intervention rate can be determined and compared to the intervention phase. Our project will yield important evidence that will advance the understanding of SUPC, guide clinical practice and improve health outcomes for infants nationwide.

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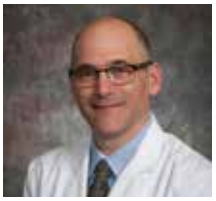

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