Sparrow Swaddle, phototherapy infant support garment

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Device

Phototherapy is standard treatment for hyperbilirubinemia (neonatal jaundice) when serum bilirubin exceeds established threshholds.[1,2,3] It decreases bilirubin, by enhancing ease of excretion, through a series of photochemical reactions. The therapeutic effectiveness of phototherapy relies on light intensity and surface area of exposure.[1] To increase the exposed surface area, infants are placed under phototherapy unclothed (except for diaper). This inhibits swaddling which can help calm infants, promote sleep, and lower discomfort.[4,5,6,7] The Sparrow Swaddle is a garment "swaddle" that can be placed on an infant during phototherapy. According to the manufacturer the garment has mesh fabric which "allows 90% light transmittance", easy access for vital signs, intravenous sight visualization without unwrapping, leg room for flexion to promote appropriate hip development, and stretch fabric that "keeps baby cocooned…reducing unnecessary waking from startle reflex".[8]

Actions for Consideration

Partner: Identify pediatricians, nurses, and the appropriate clinical and non-clinical value analysis team members, and partner with them to understand product use and population specific need.

Connect: Collecting and reviewing physician data including phototherapy usage, cost of product, patient (caregiver) satisfaction, and comfort measure outcomes will help inform management of these products. Identify evidence related to specific product and comfort measures in infants. Identify current practice limitations and determine impact of change on workflow and patient comfort.

Communicate: Share product utilization with the team emphasizing safe use and appropriate caregiver education. Discuss pricing, satisfaction, and outcomes. Include dialogue regarding use of product among safe sleep practice recommendations (see below) with removal of product upon discontinuation of phototherapy. Robust data sharing will not only enhance discussions, but may lead to actionable conversations between peers.

HealthTrust Resources: Access the Clinical Knowledge Insights Library to find other relevant documents and toolkits with actionable information. Examples for this product include resources on value analysis, and clinical trials.[9] Network on HealthTrust Huddle, our member community that shares ideas and seeks guidance from colleagues.[10]

Professional Society Statements and Clinical Practice Guidelines

American Academy of Pediatrics *Sleep-Related Infant Deaths: Updated 2022 Recommendations for Reducing Infant Deaths in the Sleep Environment* found here which includes[11]:

- "Swaddling, or wrapping the infant in a light blanket, is often used as a strategy to calm the infant…"
- "If infants are swaddled, always place them on the back."
- "Swaddling should be snug around the chest but allow for ample room at the hips and knees to avoid exacerbation of hip dysplasia."
- "When an infant exhibits signs of attempting to roll (which usually occurs at age 3 to 4 months but may occur earlier), swaddling is no longer appropriate…"
- "There is no evidence with regard to risk of SIDS related to the arms being swaddled in or out."
- "Wearable blankets can also be used."

Clinical Evidence

There are no studies found directly utilizing Sparrow Swaddle. There are studies incorporating the use of swaddling for comfort in various settings and procedures; however, current studies were limited and many of those found were combined with other interventions. A sample is included below:

- A 2015 review by Riddell et. al. aimed to assess the efficacy of non-pharmacological interventions for pain (including swaddling). They included 63 studies (4905 participants) with most common procedure being needle sticks/heel sticks. They concluded that non-nutritive sucking, rocking/holding, and swaddling/facilitated tucking had the "most established evidence" for potential effectiveness. Limitations included small sample size in some studies, small number of studies with use of same interventions, and potential high risk of bias in some included studies.[12]
- A 2022 prospective randomized controlled trial by Huang et. al. evaluated the effects of swaddled versus traditional bathing on premature infants. Stress scores, physiological indicators, and crying times were evaluated in two groups of 30 infants (swaddled versus no swaddle). The results included the stress score of the swaddled group was lower (immediately and ten minutes after bathing), swaddled bathing had "less effect on respiratory rate, heart rate, and oxygen saturations", and crying time was lower in the swaddled group. Limitations included small sample size and lack of differentiation between early and late stage prematurity.[13]
- A 2022 clinical trial by Talebi et. al. evaluated the use of sucrose and swaddling for pain control during venous stick in neonates. They included 60 infants divided into four groups of 15 (swaddled alone, sucrose alone, swaddled with sucrose concurrent, and no intervention). Comparisons showed the pain intensity and oxygen saturation of neonates in all subgroups compared to the control (no intervention) group was "significantly" different during and after venipuncture with the combined sucrose swaddle group having the greatest efficacy. Limitations included sample size and potential for other factors (such as noise) to affect physiological parameters.[14]

Healthtrust Huddle Insight

Members within our HealthTrust Member Network offered the following insight (via survey within Healthtrust Huddle) with regard to Sparrow Swaddle[15]:

70% responded they would incorporate this product into care based on the following:

- Peanut shaped design
- Mimics the womb
- Zipper access
- Percentage of light transmittance

Summary

Sparrow Swaddle is a garment swaddle that allows light transmittance through the fabric enabling use during phototherapy. Decision making on introduction of product will be enhanced though engaging pediatricians and nursing in discussions as well as reviewing data including phototherapy usage, cost of product, patient (caregiver) satisfaction, and comfort measure outcomes. Where there is limited evidence with direct utilization of a product, a trial of the product(s) is a potential consideration.

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