

Implementation of a Syringe Tube Feeding Holder in the NICU to Improve Enteral Feeding Safety and Efficacy

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Background

Clinical nurses in the neonatal intensive care unit (NICU) identified a patient safety issue involving administration of gravity enteral feedings via syringe to sick and premature hospitalized infants.¹ Historic practice in the Salinas Valley Health Medical Center NICU was to use a flexible tubing management arm that is part of optional equipment provided with the GE Giraffe™ OnmiBeds™ (the infant intensive care beds used in our NICU) to hold oral syringes during administration of gravity bolus feedings. This Giraffe tube management arm inserts securely into built-in “D”-shaped peg pockets on the beds. Use of the arm is integral to efficient nursing care and management of multiple patients in the NICU. The alternative is manually holding the syringe for the 10-30 min gravity infusion time. Manually holding the syringe presents its own concerns including risks of spilling the feeding fluid or oral medications, interruption of the feeding to care for another patient, or delay of care to other patients due to the inability to leave the patient being fed.^{2,4,5} There is a safety risk when using the Giraffe tube management arm for NICU patients who have reached the recovering stage of their illness or the feeding and growing stage of prematurity and are stable enough to move to a standard infant bassinette. These cribs do not have a pocket to secure the tube holder safely and nurses have resorted to various workarounds to facilitate its continued use.¹ Medical devices used outside of their intended function present a greater risk of safety events.¹ None of the current available methods to secure the Giraffe tube management arm in the crib assures that it remains upright, the feeding will not spill, or the device will not fall on the baby causing a potential injury.¹ The purpose of this initiative was to find and obtain feeding tube holders that are safe to use with our unit’s standard infant bassinettes.

Methods

Unit Practice Council (UPC) Referrals: In 2020, one of our NICU nurses submitted a request to the NICU UPC to evaluate and potentially purchase a syringe feeding tube holder in accordance with our organization’s professional governance process. The project lead (JA) submitted another referral to the Perinatal UPC (which the NICU UPC had then merged with) in September 2023.

Product Search: The 2020 UPC referral prompted a product search, instituted by the referring NICU nurse to determine market availability of gravity syringe feeding tube holders. The current project lead repeated the product search in 2023 to substantiate that the earlier results remained current. Search terms included “feeding tube holder,” “syringe feeding tube holder,” and “gravity feeding holder.” Both a general internet search and a focused search within medical supply companies were completed. The majority of products found did not meet the needs of our NICU. The products held only infusion bags or feeding syringes too large for neonatal feeding volumes, did not have a safe method to secure the holder, or were not acceptable for hospital use. The FreeArm® with Peg tube feeding holder was the only clinically appropriate product available that met the needs of our NICU patient population receiving gravity enteral feedings via syringe.

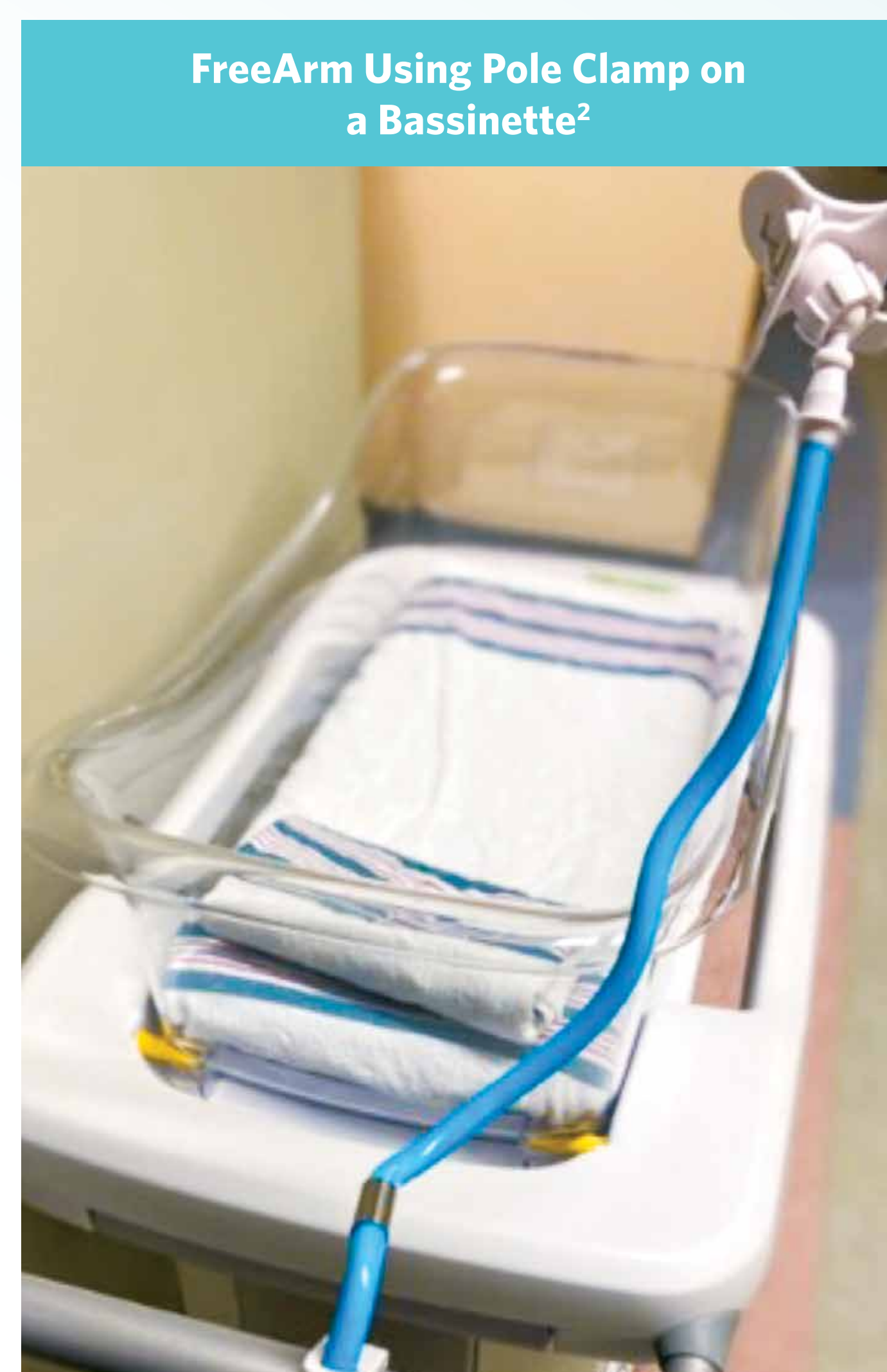
Literature Search: In addition to the product search, we conducted a literature search to evaluate evidence pertaining to safe enteral feeding practices. Search terms included “patient safety,” “equipment safety,” “enteral nutrition,” and “gravity enteral feeding administration.” The literature search confirmed the NICU nurses’ concerns regarding using medical devices outside of intended parameters¹ and validated the necessity of using a syringe holder product with gravity enteral feedings for safer feeding. Potential safety and care benefits of a clinically appropriate feeding holder include: reduced chance of feeding and oral medication spillage, reduced emesis during feeding, lower risk of feeding contamination, maintenance of a more consistent flow rate, less interruption in feedings to attend to other patients, increased ability of nurses to manage multiple patients as needed, and the ability of parents to hold their babies without having to also manage a syringe gravity flow feeding.^{2,5}

Product Trial and Evaluation: Once the project was approved, the manufacturer of the product was contacted. The company recommended the FreeArm with Peg model and sent a sample product for the nurses to trial. NICU clinical nurses used the sample holder in multiple scenarios: in the Giraffe intensive care bed, on a standard bassinette crib, and with parents holding their infant. An unexpected feature realized during the trial period was that the FreeArm with Peg has an interchangeable peg and pole clamp allowing use in the existing peg pocket of the Giraffe bed (see Figure 1) as well as clamped to a bassinette (see Figure 2) or IV pole.² Following the product trial, NICU clinical nurses completed an evaluation questionnaire addressing ease of use, versatility of use, and patient safety.

Figure 1



Figure 2



Multi-disciplinary Collaboration and Coordination: NICU bedside nurses, Perinatal UPC members, Perinatal Unit management, our organization’s Materials Management Department, and the product’s manufacturer collaborated to trial, purchase, and implement use of the FreeArm with Peg feeding tube holders.

Results

Only one clinically appropriate syringe feeding tube holder was identified: the FreeArm with Peg. The hospital purchased the FreeArm with Peg devices, and the NICU has since implemented using them in the provision of gravity enteral feedings.

Conclusions

Use of the FreeArm with Peg feeding tube holder with interchangeable peg and pole clamp for gravity enteral feeds in multiple settings (e.g., intensive care bed, crib, and chairside) is clinically appropriate, and provides safer and more manageable NICU care.^{1,5}



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