**Problem** (Problem and Change Needed): On September 26, 2005, a potentially fatal error happened in the Neonatal Intensive Care Level 2 Unit (NICU 2) at Texas Children's Hospital. A Registered Nurse that had returned to work after recently evacuating from Hurricane Rita cared for several sick infants in NICU 2. One infant was receiving expressed breast milk feeds through a Naso-Gastric (NG) tube attached to a feeding pump. The nurse inadvertently attached the feeding to the Intravenous (IV) line instead of the NG tube. Although this could have been potentially fatal, the infant involved in this situation had no adverse outcome related to the error. A review of products and process was needed in NICU 2 to avoid this error from being repeated.

**Evidence** (Appraise the supporting evidence): In conducting a literature review from 1972 - 2005, there have been fifty occurrences of misconnections reported in the literature. A frequent problem stated included the use of "common connectors" for various lines. There have also been multiple healthcare alerts warning healthcare providers and manufacturers of this misconnection potential. Some agencies that have provided warnings included: the Institute for Safe Medication Practices, the Food and Drug Administration, ECRI Institute, and the Joint Commission.

**Strategy** (Linking the change to the evidence): NICU 2 was charged with determining a solution that did not allow for the nurse to make a common connection error. NICU 2 worked collaboratively with the Healthcare Alliance Safety Partnership (HASP) to review the literature, benchmark with other hospitals, and find the best solution from manufacturers to prevent the ability for the nurse to make an error.

**Practice Change** (Specific change or practice evaluated): A dedicated pump for feedings was implemented immediately. We also started using orange “oral only” stickers to label syringes from the Milk Bank, feeding tubes, extension tubes, and syringes in the unit for visibility on all parts that related to a feeding tube. We worked with manufacturers and implemented a NG tube that only connected to oral syringes (not IV syringes). This change created a forced choice for the nurse to only connect NG syringes to the NG tube.

**Evaluation** (Design and Indicators / outcomes measured): Performance Improvement data was collected to determine if nurses were using dedicated pumps and labeling the NG lines appropriately. A successful implementation of the new NG tube and new oral syringes happened in both neonatal units within the hospital. There have been no further incidences of misconnections.

**Results** (Did it work): There have been no further incidences of misconnections. Staff nurses have continued to be compliant with the action plan implemented. Texas Children's Hospital is planning the implementation of a new syringe pump for medications and small-volume enteral feeds. The pump will include a feature to select enteral pump feedings to monitor the delivery of these feedings.

**Recommendations** (Further adoption suggestions): A comprehensive review of all tubes, syringes, and potential misconnections should occur at all healthcare facilities. Manufacturers should also work collaboratively with hospitals to ensure that products are made without the potential of a misconnection. A small-volume feeding pump should be developed for the neonatal population so that a medication pump is not utilized.
**Lessons Learned:** Tubing misconnections are a potentially fatal error that could occur in your institution. It is important to support the nurse involved in the incident throughout the entire change process. Hospitals must continue to look for improved solutions or systems that are fail-proof against human errors.

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