MRSA in the NICU: Stopping the Spread

Tina Lepage, RN (Clinical Resource Nurse), Cynthia Joly, MScN (Advanced Practice Nurse)

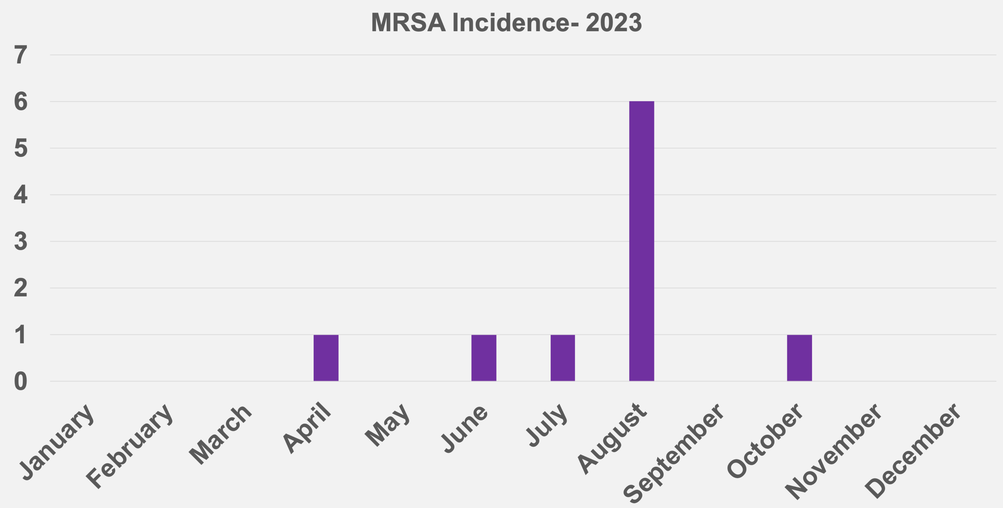
Background

The Children's Hospital of Eastern Ontario (CHEO) is a 20 bed Level 3B Neonatal Intensive Care Unit (NICU). All babies admitted to the NICU are tested for Methicillin Resistant Staphylococcus Aureus (MRSA). In the summer of 2023, an outbreak of MRSA was identified in the NICU.

Initial Steps

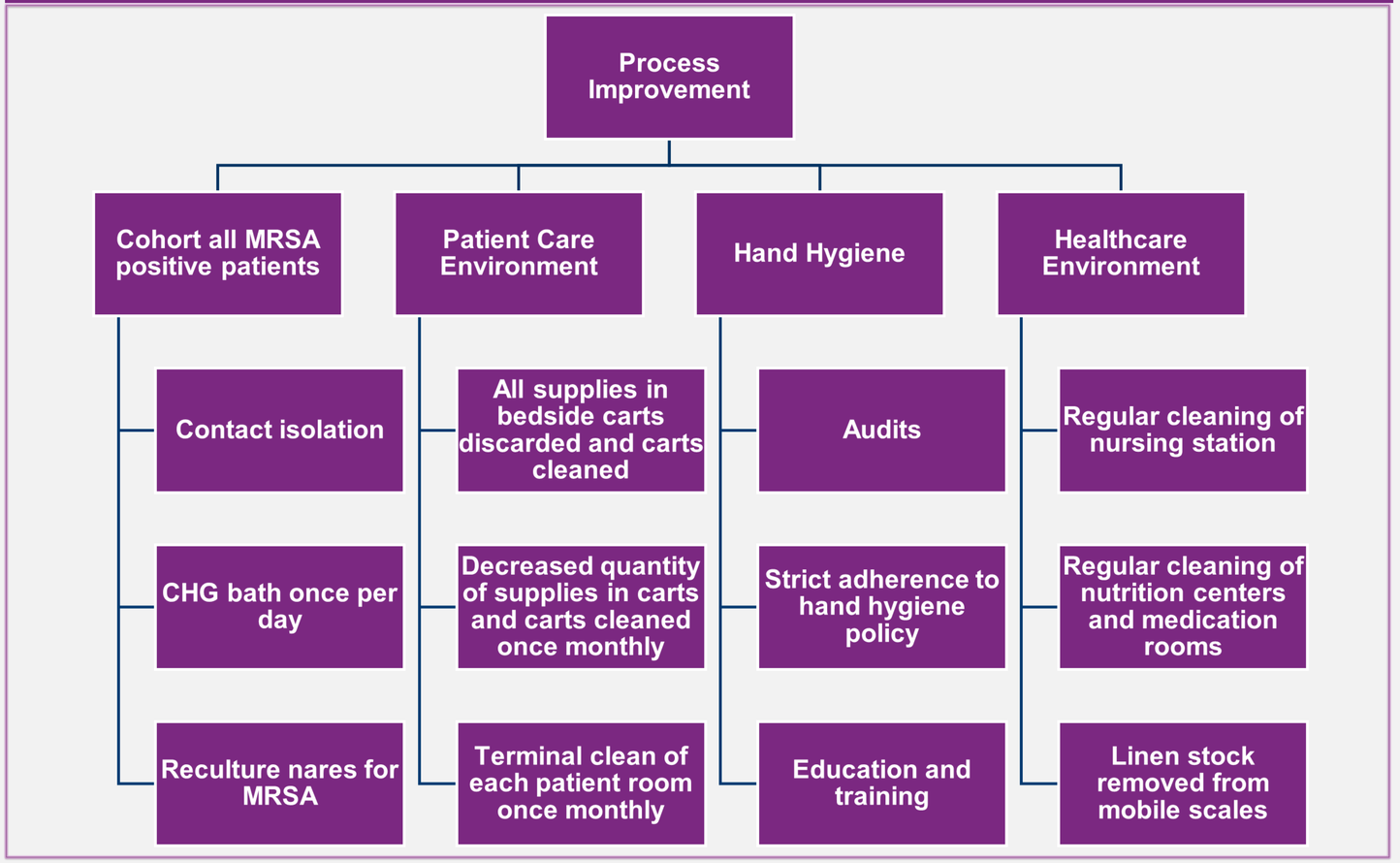
A root cause analysis was performed and although a single primary source that contributed to the outbreak was not identified, cross contamination was the most likely cause of the MRSA outbreak. The only common denominators identified between all of the patients who were MRSA positive was that they had had a previous surgery and a targeted neonatal echocardiography. An extensive infection control plan was developed with the goal of decreasing the incidence of MRSA in the NICU. The infection control plan included cohorting MRSA positive patients in a separate pod. Patients who tested negative for MRSA but who were in the NICU at the time the MRSA outbreak was declared were cohorted in a different pod. A terminal clean was performed in an empty pod in preparation for new admissions. All patients in the NICU during the outbreak were placed in contact isolation except the new admissions. Supplies in each bedside cart were discarded, the carts were cleaned and restocked with new supplies. The nutrition carts, medication rooms and emergency crash carts were also thoroughly cleaned. Any porous material such as cork boards, paper and Velcro in the rooms was discarded. Hand hygiene education was provided to family and staff. Access to the human milk refrigerator was limited to staff only.

NICU MRSA History



For further information please contact: tlepage@cheo.on.ca or cjoly@cheo.on.ca

Process Improvement



Outcomes and Key Learnings

The outbreak was declared over within 13 days. Since then, one patient has tested positive for MRSA. Two patients treated with CHG baths were eventually decolonized. A multidisciplinary working group has since been created for ongoing needs assessment and improvements of infection control standards and practices. Frequency of cleaning of high-touch surfaces and bedside carts has increased. Patient rooms are now terminally cleaned every 30 days. Sustainability of hand hygiene audits, strict adherence to hand hygiene policy and ongoing education has been identified as a local level action plan.

Next Steps

The multidisciplinary working group will be implementing new cleaning checklists for nursing and environmental services. The introduction of new supplies such as sterile ultrasound gel and cleaning wipes for mobile devices is also being considered to decrease the probability of MRSA contamination. Education sessions and hand hygiene training will be offered to other health care workers accessing the NICU. A human milk preparation room is currently being considered by CHEO to improve infection and contamination prevention of human milk. Individual refrigerators for human milk and formula have also been requested at each bedside in the NICU.