

Project Title

Implementation of Individual Blood Pressure Cuff to Reduce Methicillin-resistant Staphylococcus Aureus (MRSA) Acquisition

Project Lead and Members

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Organisation(s) Involved

Sengkang General Hospital

Healthcare Family Group(s) Involved in this Project

Nursing

Applicable Specialty or Discipline

Infection Disease, Infection Control

Aims

To reduce Methicillin-resistant Staphylococcus Aureus (MRSA) acquisition rate in Ward A and Ward B within 6 weeks

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Conclusion

See poster appended/ below

Additional Information

Singapore Healthcare Management (SHM) Conference 2021 Risk Management
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Project Category

Care & Process Redesign

Quality Improvement, Clinical Practice Improvement

Keywords

MRSA contamination of shared blood pressure cuffs, MRSA screening of blood pressure cuffs, use of disposable blood pressure cuffs for MRSA patients, reducing MRSA rates through disposable blood pressure cuffs

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Implementation of individual BP cuff to reduce MRSA acquisition

Singapore Healthcare Management 2021

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Background

Healthcare-onset infections caused by Methicillin-resistant Staphylococcus aureus (MRSA) has increased patient's morbidity, mortality, costs of increased duration of hospitalization and costs of using of Personal Protective Equipment (PPE) in the hospital.

All patients with unknown MRSA status who are admitted to Sengkang General Hospital (SKH) are routinely screened for MRSA. However, due to bed shortages, all patients are warded in the same cubicle regardless of MRSA status. Upon discharge, all patients are also screened for their MRSA status. From this routine screening, a rise of MRSA acquisition cases was observed in ward A and B.

There have been studies reporting MRSA has the ability to survive for months on dry surfaces. High touch surfaces in the hospital such as bed surfaces, door handles, blood pressure monitoring equipment, light switch and etc. are reported to be more frequently contaminated. Compliance to environmental and equipment hygiene plays an important role in the reduction of healthcare-onset infections.

Mission Statement

To reduce MRSA acquisition rate in Ward A and Ward B within 6 weeks

Root Cause Analysis

1. There were MRSA clusters in different wards in SKH in 2020. Infection Prevention and Control (IPC) Department performed MRSA sampling on the high touch environmental surfaces and shared items.

Our team found that shared blood pressure (BP) cuffs were contaminated with MRSA. BP cuff are commonly used and shared in the general wards. Table 1 shows positivity rate of screened BP cuffs:

Ward	No. of cuffs swabbed	Positive results	% of positivity
Ward A	4	2	50%
Ward B	3	1	33%
Ward C	3	1	33%
Ward D	5	2	40%

Table 1: BP Cuffs MRSA Positivity Rate

2. From the table above, we have targeted on the shared BP cuffs. Further investigations and analysis were conducted. As there has been a rise in MRSA acquisition in ward A and ward B, thus BP cuffs were screened for MRSA in ward A and B in Nov 2020 on 3 consecutive days.

Our findings and analysis:

- 7 out of 37 BP cuffs were MRSA positive (19%).
- One cuff was positive for 3 consecutive days despite cleaning after each usage which proved that the BP cuff was difficult to be cleaned properly.

3. Condition of shared BP cuffs after frequent cleaning were observed to be worn out (Figure 1). Due to the condition of BP cuffs and velcro material on the cuff, routine disinfection of BP cuff is difficult and may not be sufficient for thorough cleaning. BP cuffs contaminated by MRSA become infection sources and could act as a vectors for transmission of MRSA and multi-resistant organisms.



Figure 1: Worn out blood pressure cuffs

Interventions / Initiatives

Implementation Actions:

- Source for disposable blood pressure cuffs (Figure 2) for patients with MRSA and multi resistant organisms patients to be used during their hospitalization.
- Non-infectious patients to use individual reusable BP cuffs (Figure 3) during their hospitalization.
- Conducted staff briefing and training on use of disposable and reusable BP cuffs in Ward A and B

These actions were implemented in ward A and B on 23/11/2020.



Figure 2: Disposable BP cuffs



Figure 3: Reusable BP cuffs



Figure 4: BP cuffs kept on bed rail

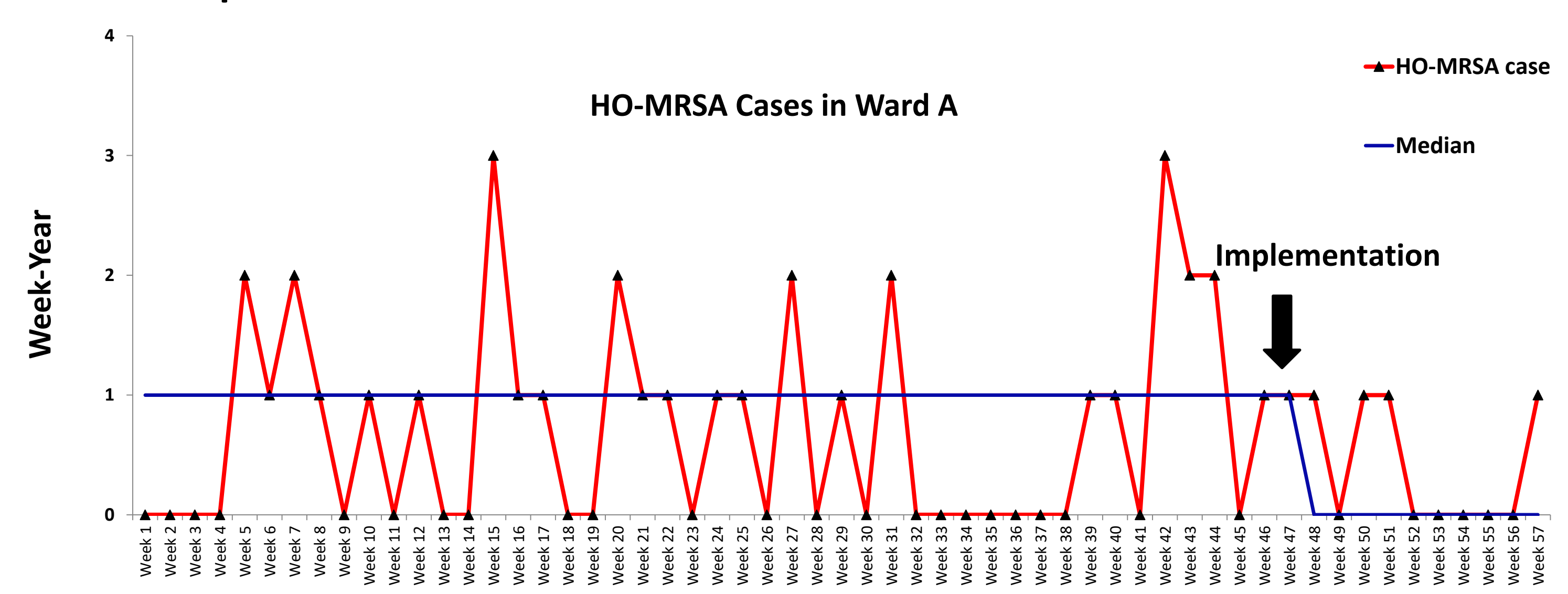
Results / Follow up

1. BP Cuffs Screening

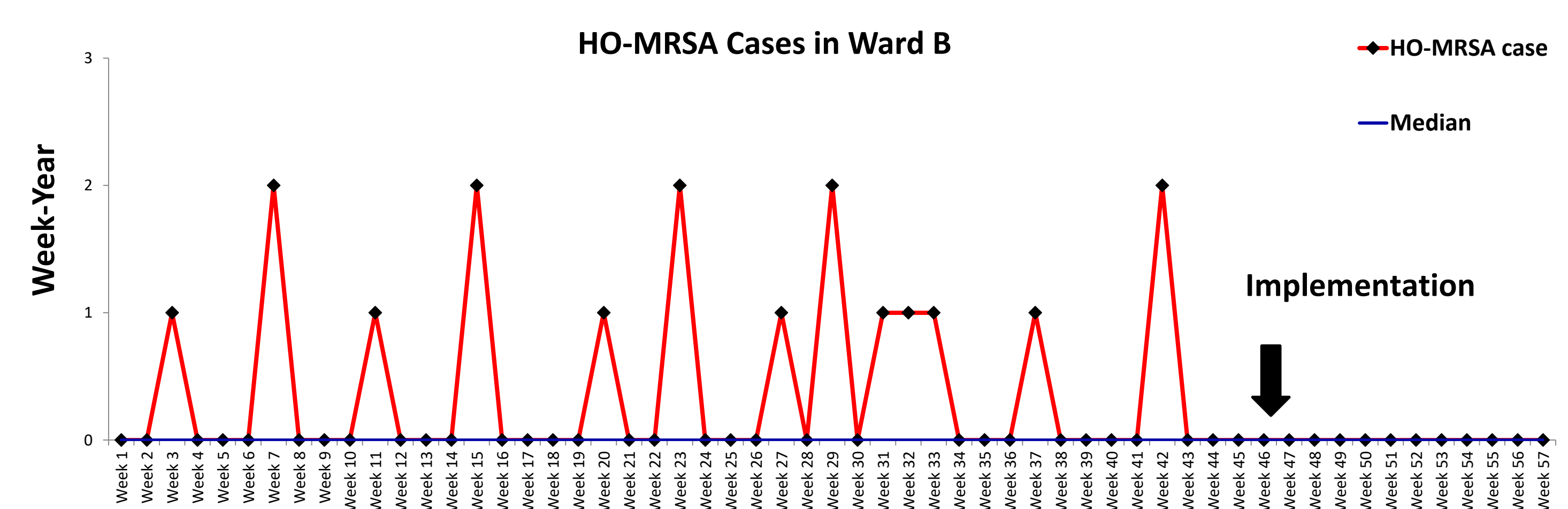
After implementation of individual BP cuff, there was a decrease of MRSA contamination on the BP cuff. The screening results showed:

- 25/11/20 - a total of ten BP cuffs were randomly screened for MRSA in Ward A – All results were negative.
- 4/12/20 - a total of ten BP cuffs were randomly screened for MRSA in Ward B – All results were negative.

2. MRSA acquisition rate in Ward A and B



Ward A MRSA medium was reduced from 1 to 0 for consecutive 12 weeks.



Ward B MRSA acquisition case was reduce to 0 case for the consecutive 12 weeks .

3. Feedback from Healthcare Workers (HCWs) and Patients

- HCWs feel it is "cleaner" for the patients.
- HCWs feel this will help to reduce healthcare-onset acquired infections from environment or other patients.
- Patients liked their own individual BP cuffs and do not like to share with other patients.
- Patients felt "safer" not sharing during the COVID-19 pandemic.

Spread

Started to roll out to all inpatient wards in April 2021.