The Silent Cluster – Lean to the Rescue



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Acknowledgments

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ISSUE

n November 2015, 2 MRSA surgical site infections (SSIs) were identified on a 33-bed surgical unit. No single source was identified but, there was microbiological evidence that transmission may have occurred on the unit. A total of 16 cases were identified through retrospective surveillance and confirmed with microbiological and epidemiological evidence.

PROJECT

Enhanced MRSA surveillance was initiated. Additional control measures supported by site administration included deployment of a 5S Lean (Sort, Simplify, Sweep, Standardize, and Sustain) Project. This approach rapidly de-cluttered unit hallways, eliminated waste and activities that did not add value to the patient experience, kept the workplace safe and organized, and allowed individuals to work more efficiently.

RESULTS

Although the increased vigilance by unit staff and Infection Prevention and Control has not eliminated MRSA from the unit, the incidence has declined to a level that indicates much better control.

LESSONS LEARNED

Unit specific surveillance may afford timely cluster identification Enhanced environmental cleaning requires collaboration & support Positive deviance education facilitates staff engagement Effective control measures included avoiding over-capacity of patients, sustaining de-cluttered environments, and ensuring sufficient equipment supply

July - August 2016 4 MRSA cases identified during enhanced surveillance

August - September 2015 $\frac{2}{2}$ MRSA cases identified during retrospective surveillance

November 2015

Genetically identical MRSA SSIs were identified on the unit. Both cases had been in the same room for 5 days and had screened negative for MRSA prior to surgery.

Assessment

Infection Prevention and Control practice assessment gaps were identified and recommendations were made



tom shelf of medication fridge





terile supplies stored adjacent to

December 2015

Kelowna, BC

new MRSA cases were identified

Gaps Identified

Clutter in patient rooms and hallway

Limited space available in patient rooms for equipment

Hospital over capacity by 120-130% resulting in hallway patients

4 bed rooms challenge MRSA patient placement

Clean and dirty equipment not fully separated

No point of care access to personal protective equipment

Difficult to identify clean isolation gowns

Communication Issues

Several changes in leadership positions affected relationships amongst staff Providing staff and physicians with timely education was challenging

Retrospective surveillance including all MRSA results from community labs Daily staff debriefing and education

Site administration provided support for:

Placing MRSA patients in semi & private rooms

No over capacity—no hallway patients

Terminal clean of unit

5S Lean project

Discover Action Dialogue (DAD), a positive deviance approach was used for educating staff. DAD is an opportunity for staff, who are the experts, to look for both barriers and solutions rather than finding

Unless someone like you cares a whole awful lot, nothing is going to get better. It's not.

clean isolation

gown bin

MRSA case was identified – possible index case (patient had been on unit under investigation from July – December 2015)

January 2016

5S Lean Initiated

Staff team identified

Sort: Determined criteria for necessary/unnecessary items Simplify: Frequently used items were placed within reach; mobile

items were labelled; additional stock was removed **Sweep:** Determined the frequency and roles in sustaining 5S

Standardize: Completed team agreements; created a visual map

of work area; posted pictures of new state

and how to handle additional items

Sustain: Use of audit tools to sustain actions which required team members to maintain self-discipline









Other Initiatives

Equipment inventory developed Equipment cleaning plan established

Isolation carts borrowed for temporary use

Initiated enhanced surveillance of new community onset MRSA cases (private lab, emergency, and outpatient visit) with recent inpatient admission within the previous 3 months

Epidemiologist reviewed historical lab data between September 2014 - December 2015

5 new MRSA cases identified

Unit baseline point prevalence survey completed February II

Unit follow up point prevalence survey completed February 22 - identified one patient who had tested negative for MRSA during baseline point prevalence survey now tested positive for MRSA

February 2016

Actions

Control Measures Escalated

- Admission and discharge MRSA screening of all patients on unit
- Second terminal clean of entire unit
- Volunteer activities cancelled on unit
- Additional housekeeping staff for enhanced environmental cleaning
- Enhanced equipment cleaning done by nursing staff
- No over capacity of patients

Enhanced education for all patient care and support services staff was provided in person, by email, and with telephone sessions

- Education for reducing the risk of MRSA transmission included adherence to hand hygiene practices, additional precautions, personal protective equipment usage, and appropriate equipment cleaning
- Dedicated equipment provided for patients on additional precautions
- Physicians notified of increasing MRSA rates and adherence to hand hygiene practices
- Five isolation carts purchased for the unit
- A quick reference board was initiated for staff information which included frequently asked questions, MRSA case identification timeline, documentation of new ideas, issues, daily progress, and any changes or improvements



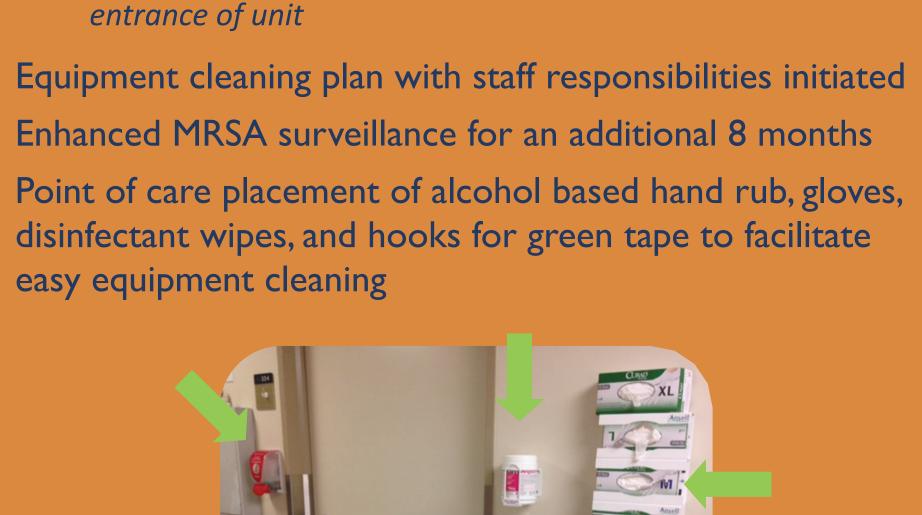


Table 2. Incident MRSA among patients who had a unit admission in past 12 months, before, during, and after MRSA cluster investigation Unit Incident MRSA Rate Cases of incident MRSA

Unit admission date range	following admission to unit	patient- days	(1/10,000 ptdays)
Sep 1, 2014 – Aug 31, 2015 (Before)	17	13,438	12.7
Sep 1, 2015 – Mar 8, 2016 (During)	19	6,951	27.3
Mar 9, 2016 – Nov 9, 2016 (After)	4	8,683	4.6
Note: Cases included any nations with their first nositive MDSA lab result from an Interior Health or			

private laboratory and this specimen was collected after at least 48 hours of admission to the unit within



Respiratory station placed at



March 2016