

Use of an Electronic Hand Hygiene Compliance System to Improve Hand Hygiene, Reduce MRSA, and Improve Financial Performance



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Background

- Over the years, Riverside Medical Center (RMC) has struggled to achieve improvement in hand hygiene compliance (HHC). Initially, RMC used direct observers, often employing nursing students in that role. Lack of proper training, inter-rater reliability, and small sample size led to inaccurate data. Also, the amount of time and labor required for this approach went beyond the hospital's capability to provide these resources.
- Starting in 2008, RMC used the product consumption method to derive their HHC. This method required housekeeping staff to collect empty product containers to measure usage, and IP staff used single fixed benchmarks (that is how much product should be used per hand hygiene event) for all units to calculate the unit compliance. However, results from this method were not credible to the unit managers, and constant arguments erupted over how the empty containers were collected and counted. Combined with frequent turnover in housekeeping staff, this process did not lead to improvement. Their overall hospital compliance rate hovered around 32% for 3-4 years.
- In 2013 the IP staff and the Quality Department looked into electronic hand hygiene compliance system vendors to enhance their hand hygiene monitoring program. The following criteria were used during selection process: The selected system must be 1) Cost-effective 2) Evidence based and supported with peer reviewed research 3) Capable of generating compliance reports for different time periods based on the WHO 5 Moments for Hand Hygiene 4) Group, not individually based, to support a positive safety culture and promote psychological safety for staff. That is, HHC is reported at the Group or Unit level and does not single out individuals which can lead to staff having negative feelings.
- In September of 2013, RMC selected the DebMed GMS (Group Monitoring System) as the electronic hand hygiene compliance system. Installation was completed in October of 2013, followed by baseline establishment which was completed Dec 15, 2013.

Method

Various interventions to improvement were applied in stages. Results were analyzed, and subsequent interventions were planned and executed.

Initial Interventions: Starting on Dec 15 2013, RMC initiated the following measures to improve hand hygiene compliance:

- Staff level training on the WHO 5 Moments. This included a computer based training module provided for all RN's and ancillary staff members, augmented by in-person training and reminder posters.
- Weekly and monthly HHC reports were emailed out to all unit level managers.
- Each unit met weekly at staff meetings to discuss HHC results and formulate action plans.

After rapid improvement during the first four months, December 2013 to April 2014, HH compliance began to decline from May to September 2014. It was found that weekly discussions on hand hygiene had not become habit for many of the units.

Leadership Engagement: In September 2014, the IP sent out an email to Nurse Managers, with support from the Chief Nursing Officer, stating that the compliance data from the system was the sole metric that the administration will use to evaluate hand hygiene behavior. In addition, from the recommendation of the IP, the administration decided to include hand hygiene performance as part of the Strategic Leadership Goals for 2015, which meant that it will be included in evaluations for all management, from unit level leaders to C-Suite officers. HHC could now affect salary, bonuses and the potential for promotion.

Hand Hygiene Champion Program at the Unit Level: This was established beginning in December 2014 and included the following practices:

- Appointment of unit level "Hand Hygiene Champions" – front line staff not managers.
- Daily email of "rolling 7-day" HHC reports were sent to every Hand Hygiene Champion.
- Daily data-sharing and reminders about HHC goals on the part of the Hand Hygiene Champions with all staff limited to one minute.

Increasing Accessibility: In April of 2015 RMC relocated dispensers to provide better accessibility to product that was closer to the point of care and easier for staff to access. RMC also installed Point-of-Care sanitizer dispensers, with the electronic HHC system embedded, to allow greater access closer to patient beds as well as electronic monitoring of behavior.

Objectives

The Quality and IP departments at RMC wanted to assess the impact of having real time HHC data based on the WHO 5 Moments as provided by an electronic hand hygiene compliance system. The aims were to assess:

- Change in HHC
- Change in MRSA HAIs
- Change in quality related Accountable Care Act Pay for Performance penalties

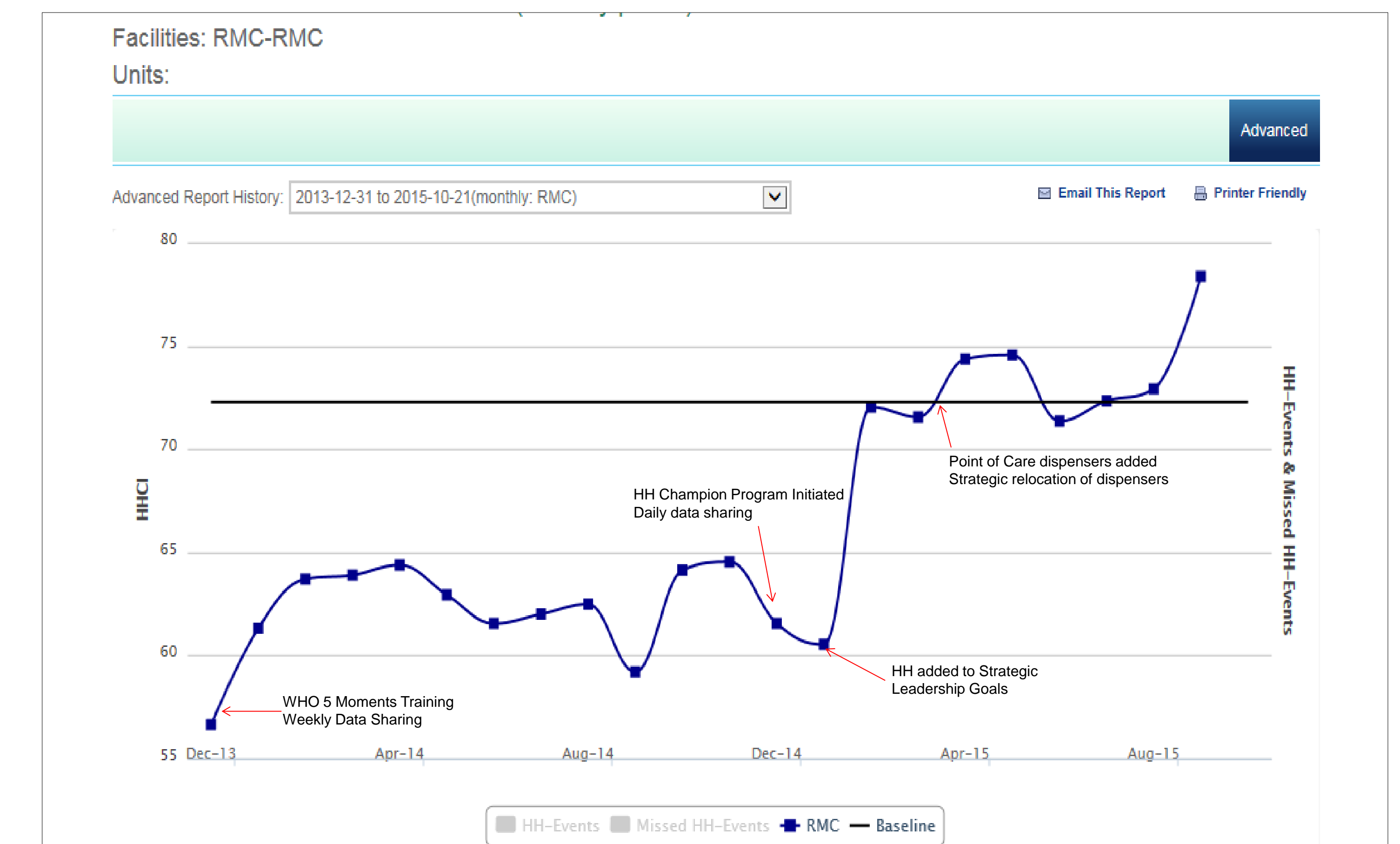


Figure 1. Timeline of Hand Hygiene Compliance

Results

- Overall hospital HHC increased from 57% in Dec 2013 to 79% in Sept 2015 – a 39% increase.
- Overall hospital onset MRSA rate dropped from 3.94 to 1.98 per 10000 patient days – a 50% reduction from 2013 (pre) to 2015 (post implementation)*
- RMC paid no Readmissions (0.24% in 2013 vs 0.00% in 2015, a change of -0.24) penalties in 2015.
- RMC was one of only 7 hospitals in Illinois that paid no ACA related penalties in 2015.

Discussion

In addition to having accurate, reliable and real time data that was used as the basis for staff feedback, RMC introduced a number of practices to help ensure achieving the improvement aims. They were:

- Transition from measuring HHC based on just "In/Out" to the WHO 5 Moments, utilizing training and reminder tools.
- Combatting data denial through communication and proper presentation of the evidence supporting the electronic system's research based algorithm that was the basis for HHC calculations.
- Frequent communication from hospital leadership to the units reinforcing the importance of HHC and the continuous improvement efforts.
- Integrating HHC performance as part of the criteria for managers' evaluations.
- Utilization of unit based Hand Hygiene Champions for peer to peer feedback on HHC performance.
- Daily HHC discussion at shift change meetings.
- Increasing access to hand hygiene products by strategic relocation of dispensers and adding Point-of-Care dispensers within the patient zone

Conclusion

- Feedback on HHC performance based on unbiased measurement as provided by an electronic hand hygiene compliance system led to sustained improvement in HHC and a concurrent reduction in MRSA HAIs. Concurrent with the implementation of the electronic hand hygiene compliance system, the Readmissions penalty was eliminated and the improvement in HHC may have had a positive impact. The feedback was combined with other practices to help ensure achievement of the aims. Electronic hand hygiene compliance systems may be an essential part of a system-wide approach to driving improvement in HHC, and results, such as those achieved at RMC, make this emerging category of technology look promising.

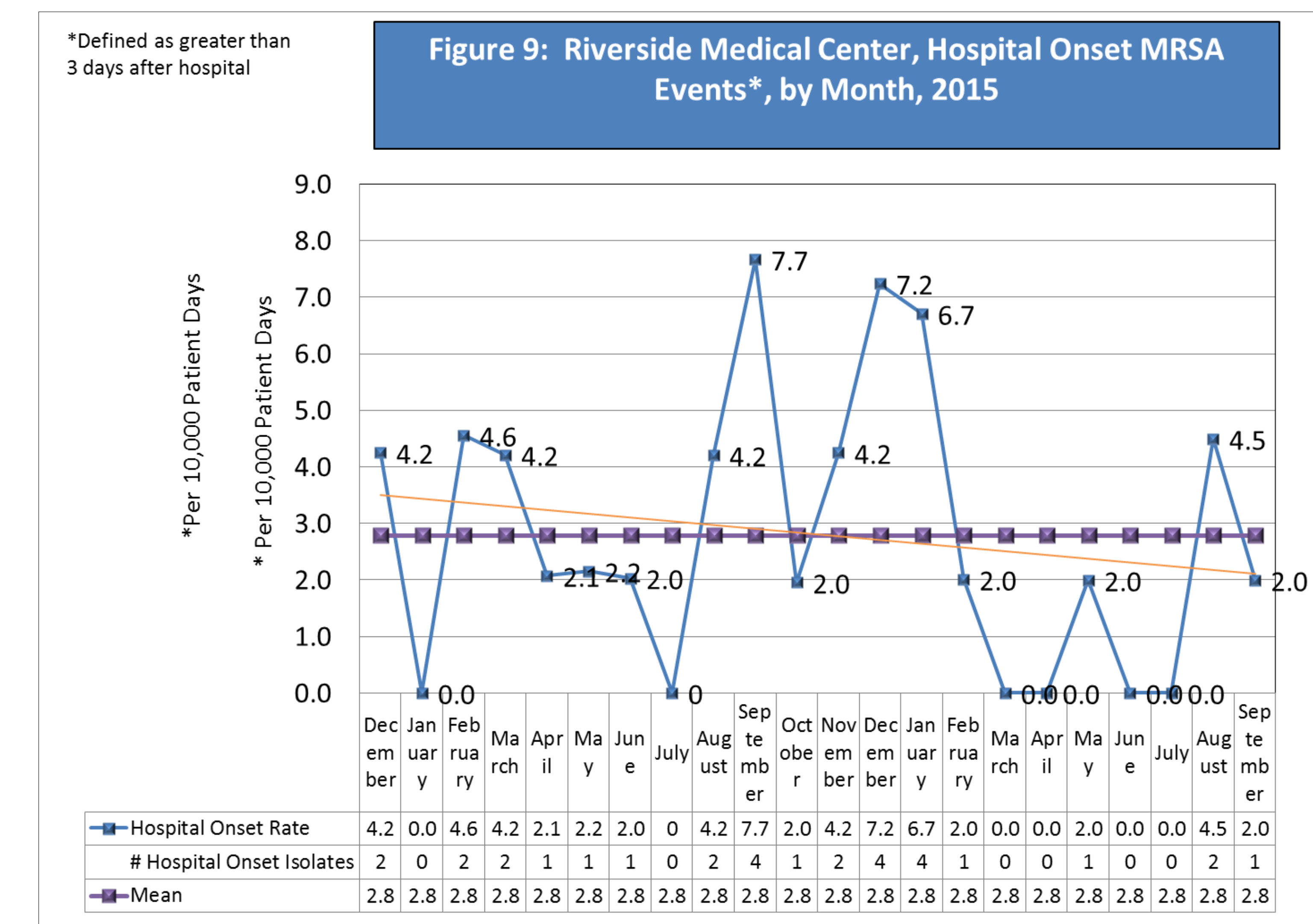


Figure 2. Onset of MRSA Events, by month, 2015

*Cause and effect of MRSA rate decrease not confirmed during observed time period