

## **Revisiting Process Improvement for Total Joint Arthroplasty Surgical Site Infections**

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**Presented at the Conference of Association for Professionals in Infection Control and Epidemiology, Ft. Lauderdale, FL, June 8-10, 2013**



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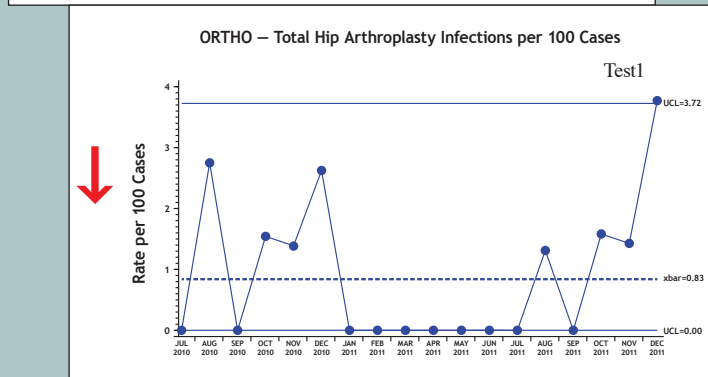
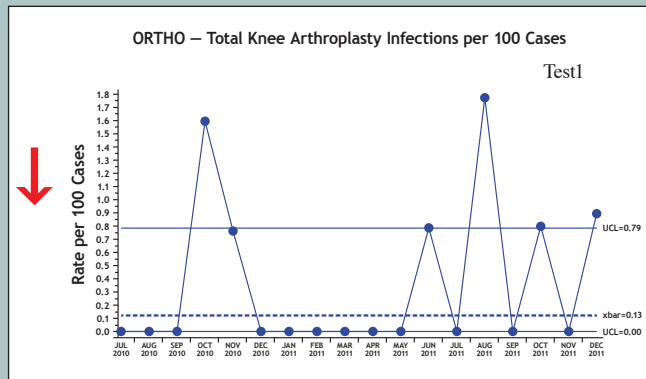
## Background

Riverside Methodist Hospital, located in Columbus, Ohio, is the oldest and largest hospital of OhioHealth, a family of not-for-profit, faith-based hospitals and healthcare organizations in Central Ohio. The Joint Commission has certified Riverside Methodist in joint replacement in the areas of hip, knee and total shoulder.



## Issue

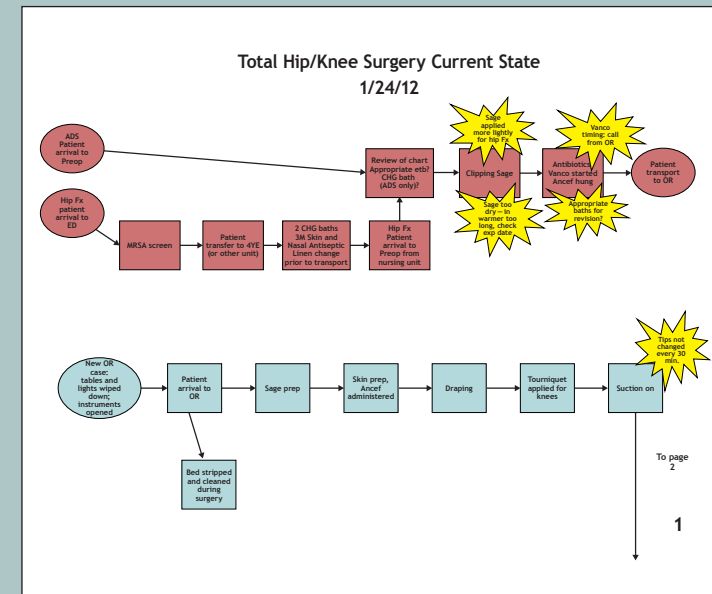
A Lean Process Improvement Kaizen Event in 2009 for Total Hip Arthroplasty (THA) addressed an increase in total hip surgical site infections. Processes were standardized to best practice, resulting in a sustained reduction in infections. In early 2010, the processes developed for THA were adopted for Total Knee Arthroplasty (TKA). By the end of 2011, the process was no longer in control, as evidenced by an increase in both THA and TKA infections



## Project

**Project Description:** Concurrent efforts were launched to address the issue and restore the low infection rates that resulted from the 2009 process improvement:

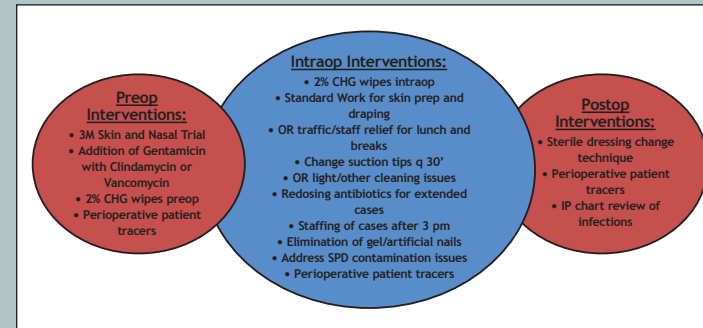
**Total Hip/Knee Review Team:** Frontline staff and department leaders from Perioperative services, Orthopedic nursing units, Quality and Infection Prevention identified process gaps from Standard Work Instructions by mapping current state and defining future state for total joint patients.



**Total Joint Quality Improvement Meetings:** A team led by the hospital Vice President of Medical Affairs promoted physician engagement and included orthopedic surgeons, anesthesiologists, infectious disease physician, surgery administration, nursing leadership, quality, and infection prevention.

**Apparent Cause Analyses:** A multi-disciplinary team of frontline and leadership personnel performed an apparent cause analysis of every primary deep knee infection.

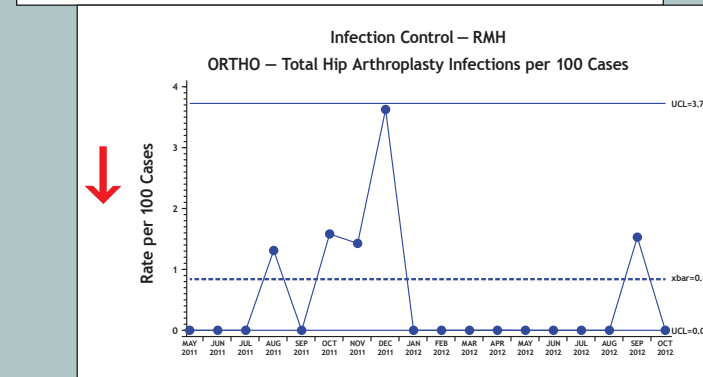
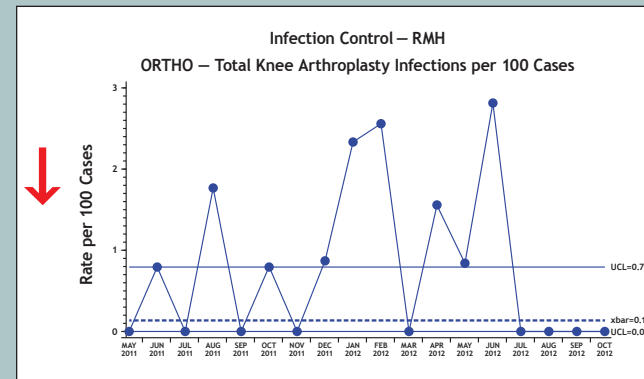
**Interventions:** Realignment with existing Standard Work and additional new measures were implemented based on specific infection data.



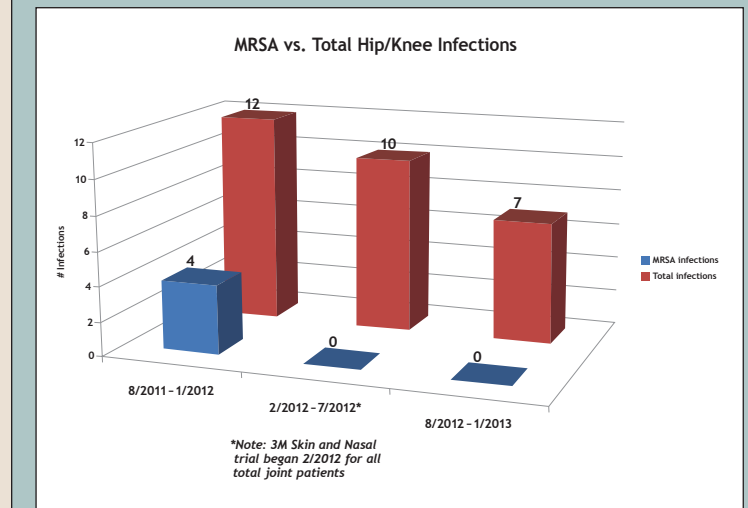
**New Product Trial:** Based on the infection data, a MRSA intervention was indicated, but traditional decolonization regimens were undesirable due to difficulty of compliance within the current preadmission process. A product trial with 3M™ Skin and Nasal Antiseptic was conducted as an alternative to decolonization with mupirocin.

## Results

As of October, 2012, one total hip infection has occurred in 10 months, while there have been no total knee infections in four months.



No MRSA infections have been identified since the beginning of the nasal antiseptic trial. The readmission cost avoidance was \$62,302, based on the actual cost of MRSA SSI readmissions in the 6 months prior to the product trial.



## Lessons Learned

Several things were identified as keys to success in reducing total joint arthroplasty surgical site infections:

- Involvement of frontline staff in identifying opportunities and solutions
- Administrative support for initiatives and physician interaction
- Multi-disciplinary engagement and support of a new intervention
- Apparent cause analyses are currently expanding from primary deep knee infections to include primary deep hip and shoulder infections.
- Engagement by infection prevention with perioperative and nursing services has been invaluable to developing those interpersonal relationships that help build trust and drive change.