



# Clinical Safety & Effectiveness Cohort #16

Increasing Utilization of the  
Chlorhexidine Gluconate (CHG)  
Preoperative Antiseptic Bath at  
University Hospital in Total Hip  
Arthroplasty Patients



CENTER FOR PATIENT SAFETY & HEALTH POLICY

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Educating for Quality Improvement & Patient Safety

# The Team

## A UTHSCSA-sponsored multidisciplinary Quality Improvement Project by the Departments of Orthopaedics and Infectious Disease

- Jessica Coleman, MSN, RN, CIC, Team Leader, CSE Participant
- Dr. Antonio J. Webb, PGY-1 Department of Orthopaedic Surgery, CS&E Participant
- Jacquelyn Sarracino, Research Asso., Ortho Dept., CS&E Participant
- Eva Balboa, RN, PCC 10<sup>th</sup> floor Surgical Unit, Nursing Representative
- Hope Nora, PhD, Facilitator

### **Sponsor Department:**

- John Toohey, M.D. – Orthopaedic Surgery Residency Program Director
- Robert Quinn, MD, Orthopaedic Surgery Chairman
- UHS Department of Infection Control
- University Hospital Surgical Floor Unit

# Project Milestones

- Team Created December 2014
- AIM statement created January 30, 2015
- Weekly Team Meetings January-May 2015
- Background Data, Brainstorm Sessions February-May 2015
- Workflow and Fishbone Analyses February 2015
- Interventions Implemented February-May 2015
- Data Analysis May 06, 2015
- CS&E Presentation June 5, 2015

# Background



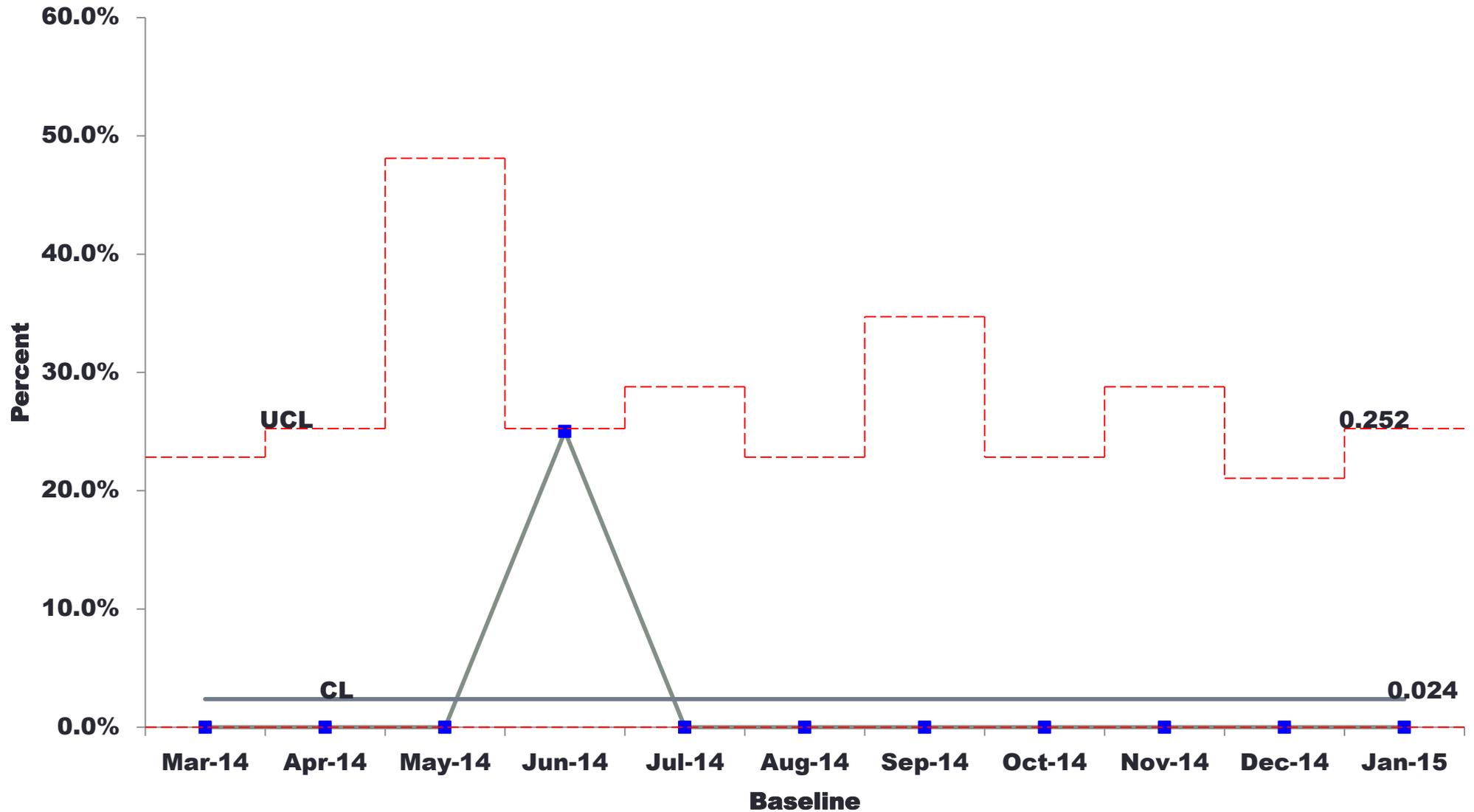
- Surgical Site Infections are responsible for significant morbidity, mortality and excess use of health care resources (\$1.6 billion/year).
- Preadmission antiseptic shower is an effective strategy for reducing the risk of SSIs
- CHG application decreases skin surface levels of bacteria
- CHG bactericidal activity is rapid against vegetative gram-positive and gram-negative bacteria
- Studies showed that CHG showers/baths pre-op protocol lowers incidence in periprosthetic hip arthroplasty infections

(Edmiston et al, 2014; Tsai & Caterson, 2014; Kapadia, 2012, IHI, 2015)

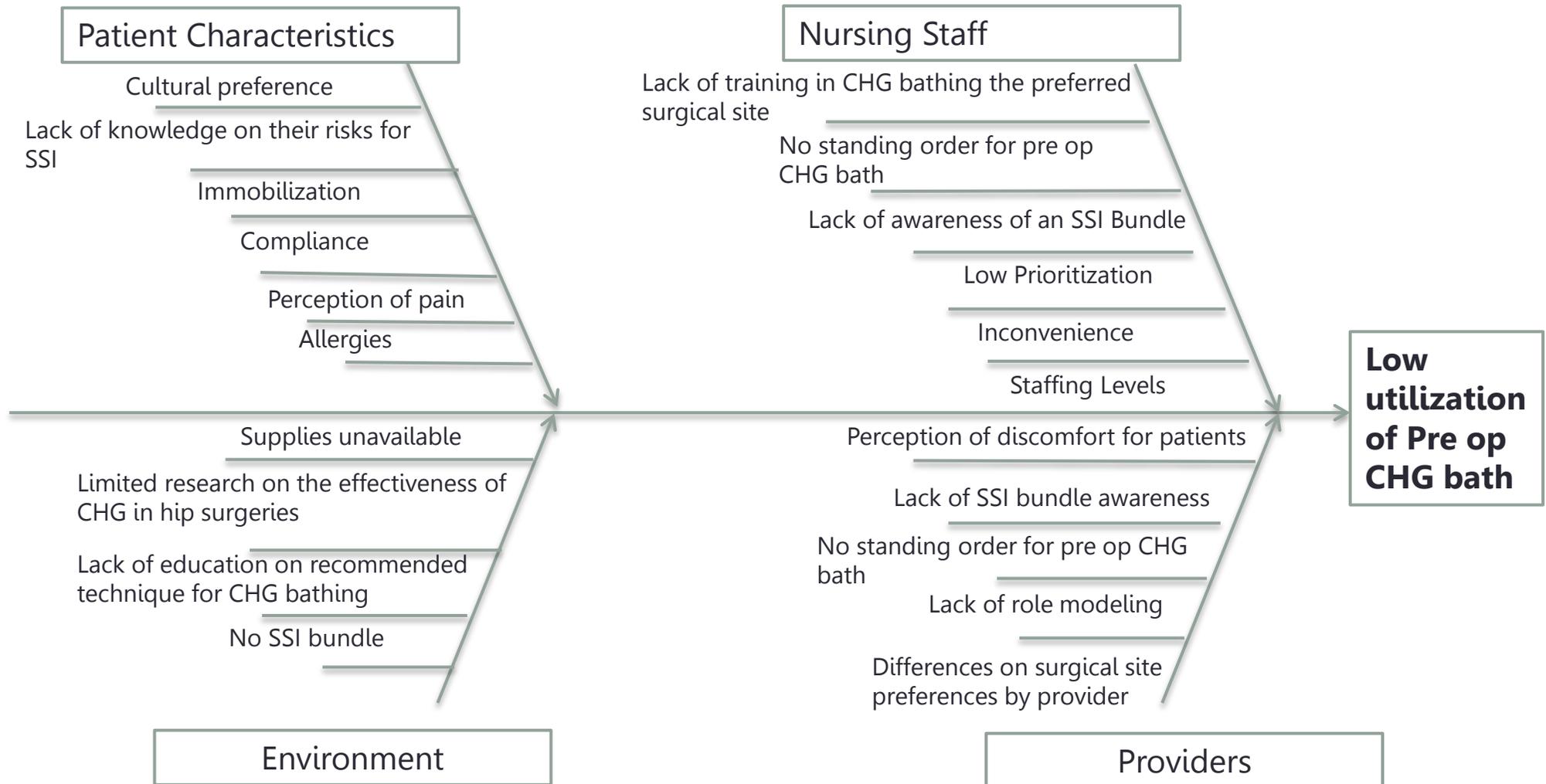
# Why Implement this protocol?

- UHS Surgical floors and trauma units have not used CHG products according to the Revenue and Usage data of 2014
- Chart Review of total hip surgery patients did not indicate the use of CHG pre op or 24 hours before surgery
- University Hospital had 3 THA SSI in 2014 & 1 in first quarter of 2015
- Goal is ZERO healthcare acquired infections (HAIs).

# University Hospital Total Hip Anthroplasty Patients Who Received CHG Bath



# Process Analysis Tools



# PLAN: Intervention

- All orthopaedic consultants, residents, nursing directors and PCCs in the surgical floors will be made aware and will be asked to participate.
- All orthopaedic consultants and residents will order pre op CHG bath to all inpatients who will undergo total hip arthroplasty surgery.
- A nurse (PCC) in the surgical floor will be recruited to be a part of the team.
- The nursing staff will bathe the patient preoperatively at least 24 hours before surgery.
- An infection control practitioner will review the patient's charts to ensure that pre op CHG baths were ordered by providers and performed by the nursing staff.

# DO: Implementing the Change

- Signs on the wall in the physician's rooms/ call rooms.
- Emails and verbal reminders sent out to all orthopaedic consultants and residents.
- Project discussion during lectures with orthopaedic residents and with the Chief of Orthopaedics.
- Emails and verbal discussion with the nursing directors, patient care coordinator in the surgical floor.
- Standing Order set was implemented on May 1, 2015.

# DO: Implementing the Change

IRF6\_0672\_01 Neeley, Jesse W ADM: Jul-2  
Allergies: No Known Allergies  
Orthopaedic Trauma - Adult Admit/Post Op [20 orders of 49 are selected]

Non-Invasive Cardiology

Nursing

- Record Height and Weight** [Frequency] - true - true - false - false [Spec In
- Vital signs** [Stop Date]  
Special Instructions: Vital signs per post op routine, then every shift or as ordered at
- Notify MD** Neurovascular Changes and Mental Status Changes Notify HO on a
- Start PIV - Routine - Saline Lock [Frequency] [Special Instructions]
- Start PIV - Routine [Nursing Care] [Frequency] - KVO
- Activity** [\* Activity Type] [Frequency] [Weight Bearing Status] [Additional Activity]  
- RLE, LLE, RUE, LUE or No Restrictions
- Position changes** [Frequency] [Position] Keep operative site elevated above heart  
[Special Instructions]
- Bath** Chlorohexadine Shower As needed [Special Instructions]
- Neuro check** Neurovascular checks BLE - Every 4 Hours [Special Instructions]
- Urinary Catheter Insertion [\* Justification for Initial Placement]  
Please note that the Use Urinary Catheter Removal Protocol is marked YES. If you c  
catheter per protocol, change it to NO.  
[Urinary Cath Removal - Click box once-->] ; - Assess if Criteria for Removal are Me  
[Special Instructions] Yes
- Isolation Precautions Order** Standard - Yes [Contact] [Droplet] [Airborne] [Con
- Dressing Change/Wound Care** [\* Wound Care Provider] Wet to Dry dressing w  
[Duration of Dressing Use] Every 8 Hours [Special Instructions]
- Site Care** Pin Site Care [Frequency] [Special Instructions]
- Nursing Care** Dressing supplies needed at bedside include: [Frequency]  
- Kerlix rolls x ( ), Saline, Hypafix, Fullfs x ( ), ABDs x ( ), Cotton tip swabs, NuGaus



Allergies: No Known Allergies

Order: Bath Order ID: 001QHGPQK

Requested By: Webb, Antonio J Template Name:

Messages:

Start Date: May-06-2015 Start Time: Routine

Bath Type: Chlorohexadine Shower Frequency: As needed

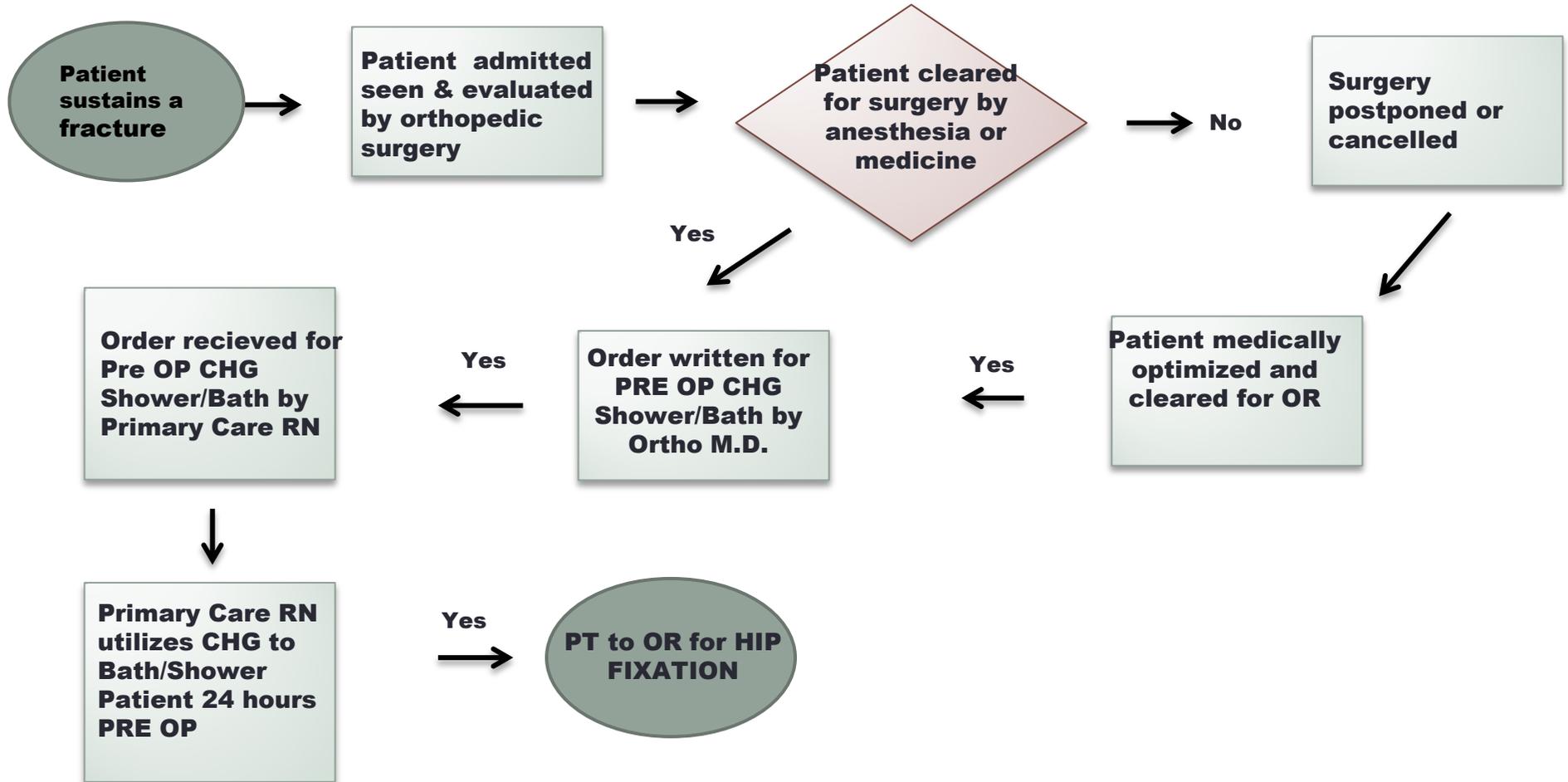
Conditional Order  
 Max # of activations: [ ] Clear

Special Instructions

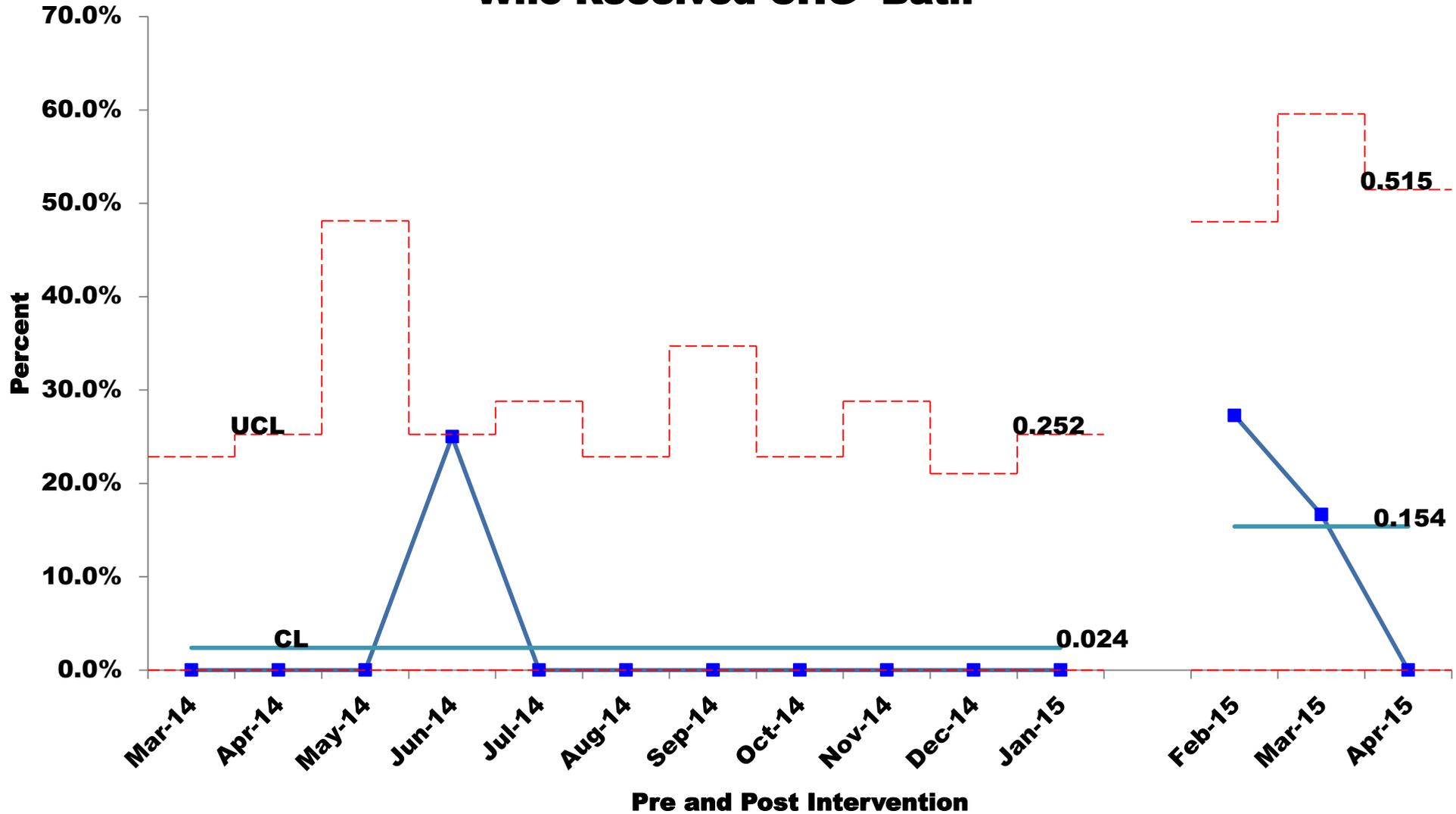
Ordering Provider Information  
Provider Name = Webb, Antonio J / UHS Number = 32791 / Pager Number = 203-4112.

Evidence Available

# Inpatient Pre-op CHG Shower Implementation Flow Chart



# University Hospital Total Hip Arthroplasty Patients Who Received CHG Bath



# ACT: Sustaining the Results

- Continue with implementation of the project until data can be analyzed and observed if there is a decrease in THA SSI (6 months)
- Our team will continue to meet monthly and send updates to the stakeholders
- If a concomitant decrease in SSI is noted, will discuss adopting the protocol of CHG bathing from General Surgery Surgical Site Infection Task Force

# Return on Investment

- CHG soap 4 oz. = \$1.98/btl
- CHG soap 16 oz. = \$5.78/ btl
- CHG Sage 2% cloth = \$2.33/pack
- UH Average THA's per month = 3
  
- Hospital cost for readmitted pt. for SSI March, 2015 = \$19,000.00

$$\text{ROI} = \frac{19,000 \text{ (savings)}}{2.33 \text{ (CHG cloth)}}$$

ROI = 8,154.51 for one patient

Potential savings in one year if even one SSI prevented monthly = \$228,000

# Conclusion/What's Next

- Continue to monitor and track the utilization of CHG pre-op
- Continue to work with stakeholders to implement an SSI bundle for all surgeries at University Hospital
- Introduce the order set for CHG bath/shower to the medical team
- Continue promoting the pre op use of CHG to the Ortho team (new residents, medical students)

# References

- Edmiston Jr, C. E., Krepel, C. J., Edmiston, S. E., Spencer, M., Lee, C., Brown, K. R., ... Seabrook, G. (2014). Empowering the surgical patient: A randomized, prospective analysis of an innovative strategy for improving patient compliance with preadmission showering protocol. *Journal of the American College of Surgeons*, 219(2), 256-264.  
<http://dx.doi.org/10.1016/j.jamcollsurg.2014.01.061>
- Institute for Healthcare Improvement. (2015). Changes to Prevent Surgical Site Infection.  
<http://www.ihl.org/resources/Pages/Changes/ChangestoPreventSurgicalSiteInfection.aspx>
- Kapadia, B. H. (2012). Pre-admission cutaneous chlorhexedine preparation reduces surgical site infections in total hip arthroplasty. *The Journal Of Arthroplasty*, (28)3, 490-493.  
<http://dx.doi.org/10.1016/j.arth.2012.07.015>
- Tsai, D. M., & Caterson, E. J. (2014). Current preventive measures for health-care associated surgical site infections: a review. *Patient Safety in Surgery*, (8)42, 1-13.  
<http://dx.doi.org/10.1186/s13037-014-0042-5>

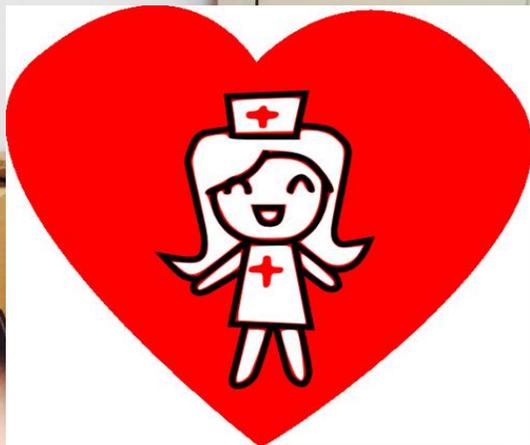
# The Team

**Jessica**

**Jacquelyn**

**Eva**

**Antonio**



**Thank you!**