



# Nasal Decolonization with Universal Povidone-Iodine Versus PCR Testing and Mupirocin in Joint Reconstruction

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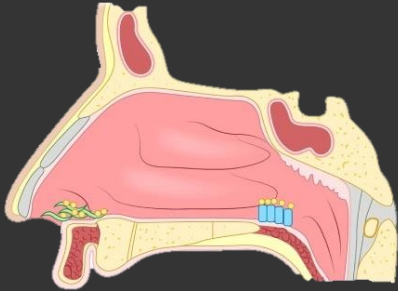
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# Disclosures



➤ None

# Background



- Nasal colonization with *Staphylococcus aureus* is a risk factor for surgical site infection (SSI)
- Surgical site infections = \$\$\$
- Pre-operative decolonization → ↓SSI



# Background



- “Screen & Treat”
  - *PCR test*
  - *Mupirocin treatment if +*
- Povidone-iodine swabs
  - *Universal, single episode*
  - *Possibly more efficacious*



# Purpose



- Compare “screen & treat” vs povidone-iodine
  - *Cost-effectiveness*
  - *Compliance*
  - *Infection rates*



# Methods



- Retrospective review January 2015 – June 2018
  - *Inclusion criteria*
    - Elective primary total hip arthroplasty (THA) or primary total knee arthroplasty (TKA)
  - *Exclusion criteria*
    - >89yo
    - Iodine allergy
    - Oncology patients
    - Trauma patients
    - History of septic arthritis
    - Lack of compliance data
    - <90 days of follow-up



# Methods



## Cohorts

- *PCR-mupirocin*
  - PCR test
    - Negative = done
    - Positive = mupirocin rx
      - BID x5 days
- *Povidone-iodine (Change 1/1/2017)*
  - 2 swabs to each nostril (4 total) by nursing in preop

## Outcomes

- *Cost analysis*
  - Total cost difference
- *Compliance*
  - Survey
- *Infection rates*



# Results



Demographic	Total n=742	PCR- Mupirocin n=324 (44%)	Povidone- Iodine n=418 (56%)	p-value
Age (years)	62.6±12.0	61.7±13.0	63.4±11.2	0.06
Male	323 (44%)	133 (41%)	190 (45%)	0.23
Comorbidities (n)	2.0±0.1	1.9±0.1	2.0±0.7	0.31
BMI (kg/m <sup>2</sup> )	31.9±5.9	31.2±5.9	32.5±5.8	<b>&lt;0.01</b>
TKA	502 (68%)	294 (70%)	208 (64%)	0.07
THA	240 (32%)	124 (30%)	116 (36%)	

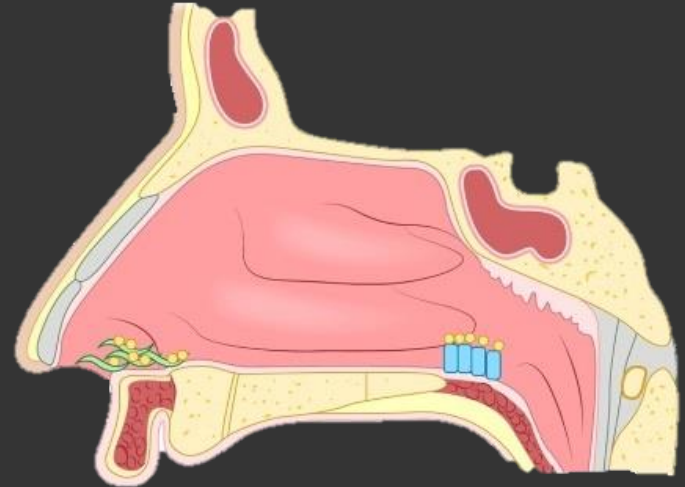




# Results



- PCR-mupirocin cohort (n=324)
  - 83 (25%) carriers
    - 15 (18%) MRSA
    - 67 (81%) MSSA
    - 1 (1%) co-colonized MRSA/MSSA



# Results



- Compliance with Mupirocin
  - 63 (76%) *complete compliance*
  - 17 (20%) *partial compliance*
  - 3 (4%) *never used*
- Compliance with povidone-iodine
  - 418 (100%) *complete compliance*



# Results



➤ Average cost at our institution

➤ PCR \$261.00

➤ Mupirocin \$176.79

➤ Povidone-iodine swabs \$28.18

➤ Average cost per patient

➤ PCR + Mupirocin \$308.47±82.09

➤ Range \$261.00-\$614.58

➤ Povidone-iodine \$28.18±0.00

**Average cost savings per patient = \$280.29**



# Results



- Total cost to system
  - *PCR + Mupirocin* \$99,944.73 (n=324 in 24 months)
  - *Povidone-iodine* \$11,779.24 (n=418 in 18 months)
    - \$88,165.49 in cost savings
- Control for number of patients
  - *PCR + Mupirocin* \$99,944.73 (n=324)
  - *Povidone-iodine* \$9,130.32 (n=324)
    - \$90,814.41 in cost savings



# Results



- Infection
  - PCR + Mupirocin 3.11%
  - Povidone-iodine 3.40%
    - p=0.83
- Polymicrobial infection
  - n=3, all in povidone-iodine group
    - p=0.049

Bacteria	N=24 (3.2%)
<i>Staphylococcus</i> spp.	12 (50.0%)
<i>S. aureus</i>	9 (37.5%)
MSSA	5 (55.6%)
MRSA	4 (44.4%)
<i>Streptococcus</i> spp.	6 (25%)
<i>Enterobacter</i> spp.	2 (8.3%)
<i>C. acnes</i>	2 (8.3%)
<b>Polymicrobial</b>	<b>3 (12.5%)</b>



# Conclusions



- Universal preoperative povidone-iodine swab decolonization had significantly higher compliance rate



- Cost-effective

- *Average cost savings per patient = \$280.29*
- *\$90,814.41 in cost savings to system*



- No difference in overall infection rate

- *Difference in polymicrobial infections may need to be explored*



# Questions

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