

AIMING FOR ZERO: SUCCESS OF THE HYSTERECTOMY SURGICAL SITE INFECTION PREVENTION BUNDLE

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BACKGROUND

- UnityPoint Health Meriter Hospital experienced an increase in all benign hysterectomy surgical site infections for complex (i.e., deep and organ space) surgical site infections (SSI).
- Hysterectomy is one of the most performed surgical procedures in the United States, and the risk of surgical site infection remains the most common complication of gynecologic surgery.¹
- Safety bundles have been validated for decreasing SSI, and a strong inverse association has been demonstrated between SSI and the number of measures of a bundle followed.^{1,2}

OBJECTIVES

To promote a surgical site infection prevention bundle that was implemented at a large community hospital to reduce hysterectomy associated SSI.

METHODS

- A multidisciplinary Hysterectomy SSI Prevention Workgroup was formed in 2019 in response to increasing SSI as determined by the National Healthcare Safety Network's Standardized Infection Ratio (SIR).
- The SIR is calculated as the number of observed infections over the number of predicted infections.
- The Workgroup implemented an evidence-based Hysterectomy SSI Bundle which enforced standardized techniques.
- This study included all benign hysterectomies from 10/1/2018 to 9/30/2020 [pre- implementation (n=811)] and 1/1/2021 to 6/30/2022 [post-implementation (n=666)].
- Inpatient case was defined as date of discharge different from date of surgery; outpatient case was defined as same day discharge.
- SSIs were defined as superficial and deep/organ space (complex). Patient demographics were categorized and evaluated for statistical significance.

RESULTS

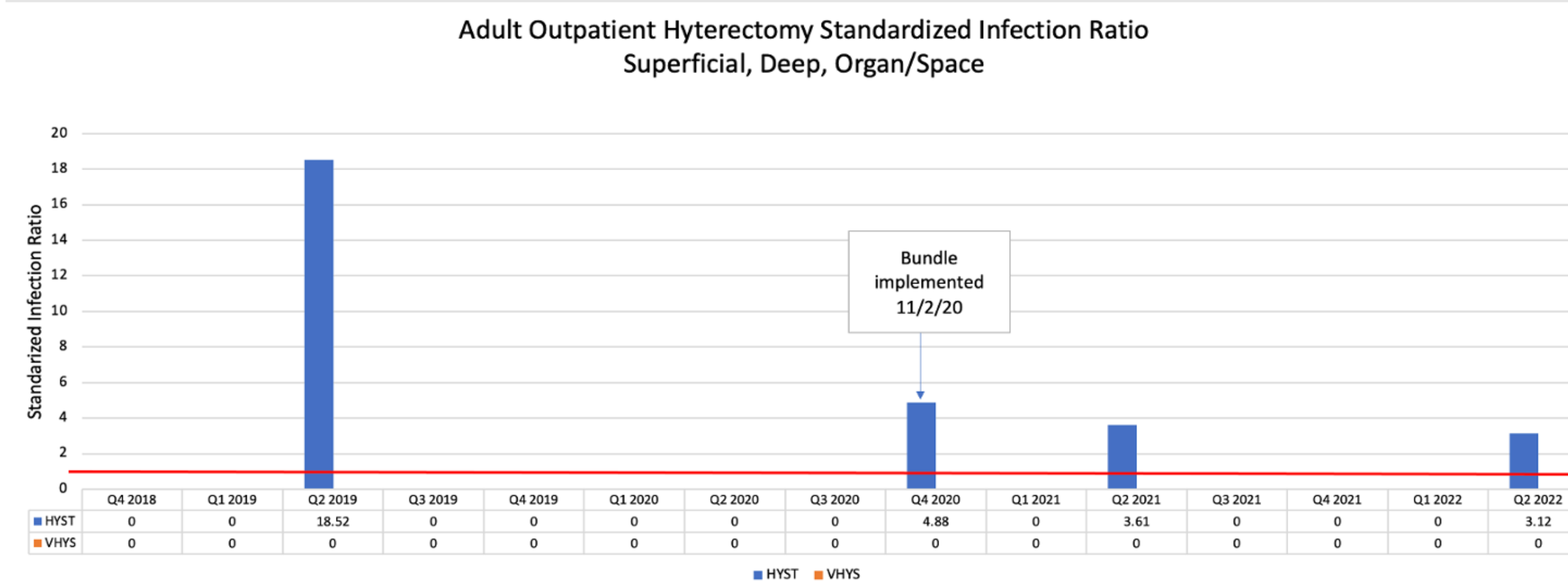
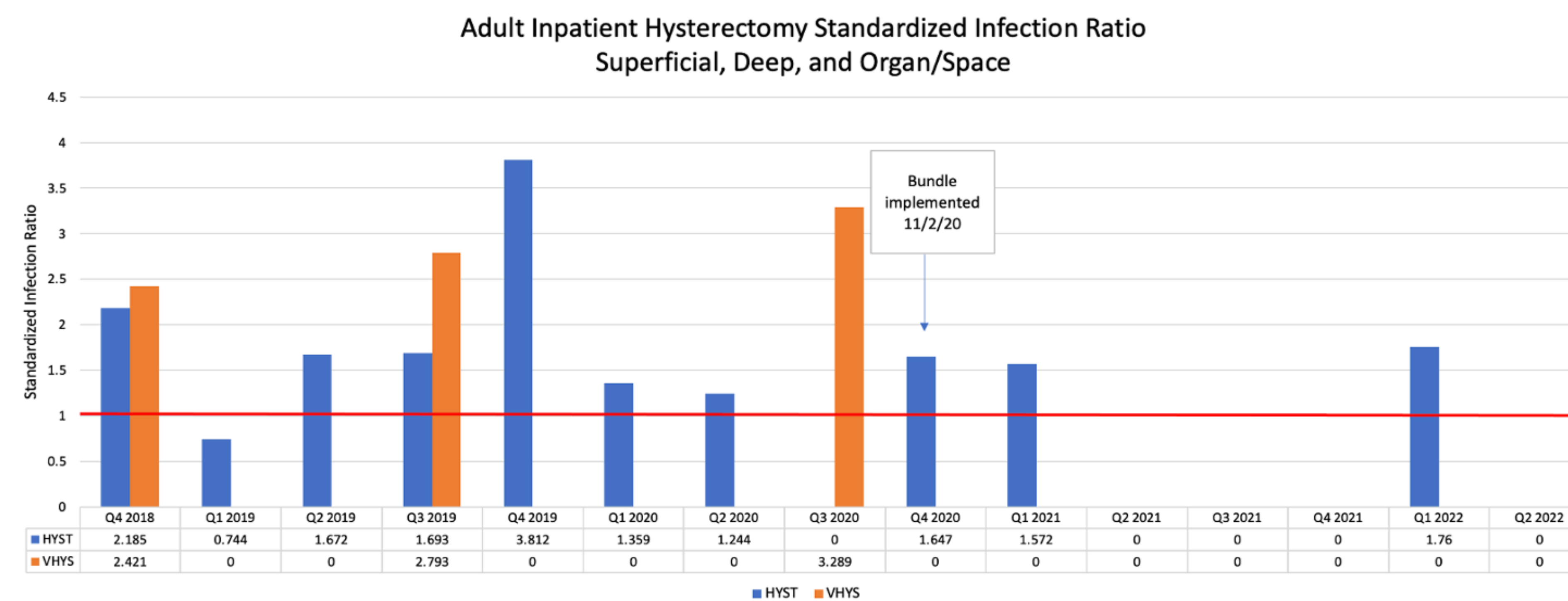
Patient Variables and SIR Pre- and Post-Implementation of Hysterectomy Surgical Site Infection Prevention Bundle

Variable	Pre-Implementation n=811	Post-Implementation n=666	p-value
Age, Years (Mean, SD)	45.5 (11.0)	45.6 (11.6)	0.865
BMI, kg/m ² (Mean, SD)	30.7 (7.5)	30.9 (7.6)	0.612
Diabetes Mellitus (n, %)	59 (7.3)	42 (6.3)	0.465
Hysterectomy Type (n, %)			
- Vaginal	299 (34.9)	163 (24.5)	0.589
- Abdominal, Open	103 (12.7)	66 (9.9)	0.093
- Laparoscopic	455 (56.1)	437 (65.6)	0.037
Same Day Discharge (n, %)	92 (11.3)	419 (62.9)	<0.001
Wound Class (n)			0.665
- 1	0 (0)	0 (0)	
- 2	802 (98.9)	654 (98.2)	
- 3	7 (0.9)	8 (1.2)	
- 4	2 (0.2)	4 (0.6)	
ASA Score			0.058
- 1	52 (6.4)	31 (4.6)	
- 2	568 (70.0)	477 (71.6)	
- 3	186 (23.0)	145 (21.8)	
- 4	4 (0.5)	13 (2.0)	
- 5	1 (0.1)	0 (0)	
Emergent (n, %)	12 (1.5%)	12 (1.0%)	0.394
Duration, Min (Mean, SD)	154.5 (66.8)	166.1 (85.5)	0.004
Outpatient SIR*			
- AHYST	2.551	1.064	0.026
- VHYST	0.000	0.000	0.400
Inpatient SIR**			
- AHYST	1.554	0.519	0.127
- VHYST	1.064	0.000	<0.001
Inpatient Complex SIR			
- AHYST	1.757	0.000	0.059
- VHYST	1.001	0.000	<0.001

*The National Healthcare Safety Network does not separate data for superficial and complex (i.e., deep and organ/space) surgical site infections for outpatient surgeries.

**AHYST includes laparoscopic and abdominal hysterectomy.

Surgical Infection Ratios for Inpatient and Outpatient Hysterectomy Pre- and Post-Implementation of a Hysterectomy Surgical Site Infection Prevention Bundle



BUNDLE

PLACE PATIENT STICKER HERE

Hysterectomy SSI Bundle Checklist
(Version 11-18-2021)

Pre-Op Clinics

Y N N/A

SSI information provided (Pre-Op Appt)

□ □ □

AM Admit

Y N N/A

Did patient receive information to **not** shave/wax within 48 hours of surgery?

□ □ □

CHG wipes/Hibiclens x2

□ □ □

Temperature Check

□ □ □

Blood Glucose Check

□ □ □

Normothermia (Bair-hugger if not normothermic, < 36.5°C)

□ □ □

Intra-op prior to incision

Y N N/A

Prophylactic antibiotic(s) given

□ □ □

Normothermia (Bair-hugger if not normothermic)

□ □ □

Consider warm IV fluids if normothermia not maintained by other means

□ □ □

Sterile Towel placed under butt, **change gloves**

□ □ □

RN- Vaginal Prep (4% CHG)

□ □ □

Intra-op Incision to Closure

Y N N/A

Normothermia

□ □ □

Consider warm IV fluids if normothermia not maintained by other means

□ □ □

Change gloves/gown between dirty and clean

□ □ □

Re-dose Antibiotics based on half-life

□ □ □

Re-dose Antibiotics after EBL 1500mL

□ □ □

Clean cuff closure method** (needle thru lap ports not vagina)

□ □ □

Change gloves before abdominal incision(s) closure

□ □ □

Dedicated closure instruments

□ □ □

Apply island dressing and denote date/time on dressing

□ □ □

PACU

Y N N/A

Normothermia (Bair-hugger if not normothermic)

□ □ □

Optimize Glycemic control

□ □ □

CONCLUSIONS

- Implementation of an evidence-based SSI prevention bundle at a large community hospital has significantly reduced and sustained all inpatient vaginal hysterectomy SIR to zero.
- Outpatient abdominal hysterectomy SIR was significantly reduced.
- All inpatient abdominal hysterectomy SIR were also noted to decrease since implementation, though these findings were not statistically significant.

REFERENCES

- "Prevention of Infection after Gynecologic Procedures." *Obstetrics & Gynecology*, vol. 131, no. 6, 2018.
- Waits SA , et al. Developing an argument for bundled interventions to reduce surgical site infection in colorectal surgery. *Surgery* 2014.