

PRELIMINARY FINDINGS

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The PICS Project

PROJECT TEAM

- Dr Helen Winrow
- Dr Michelle Wise (Supervisor)
- Dr Frances Riley
- Francesca Casciola- phase 4 medical student, University of Auckland

WHY THIS PROJECT?

- Lack of recent departmental data – 2015
- Opportunity to assess current rate of SSI
- Audit current departmental standards

- Review recent literature and evidence for possible interventions to reduce SSI

- Create a bundle of interventions to reduce SSI

HQSC Recommendation

Bundle of practice interventions
consisting of

Antibiotic prophylaxis

Skin prep

Clipping of hair, rather than shaving

www.hqsc.govt.nz/infection-prevention-and-control



HEALTH QUALITY & SAFETY
COMMISSION NEW ZEALAND
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Te Kaporeihana Āwhina Hunga Whara

SSII Surgical Site Infection
Improvement Programme

PREVENTION OF INFECTION AFTER CAESAREAN SECTION (PICS)

- PICS is a quality improvement project
- Primary outcome: Reduction in the rate of post-caesarean section surgical site infection.
- Secondary outcomes: Readmission to hospital, length of hospital stay, return to theatre and the need for additional wound care.

AUDIT STANDARDS

- 100% of patients should receive antibiotics prior to skin incision
- 95% of patients should receive vaginal prep
- 100% of patients should receive pre-op skin prep

INTERVENTION BUNDLE

1) Vaginal prep prior to all caesarean sections

2) Complete coverage of incisional area with antiseptic solution- 2mins contact time

3) Pre-operative antibiotics- weight based regime, repeat if EBL>1500ml/>3hrs

4) Surgeon glove change prior to closing rectus sheath

5) Maintenance of normothermia intra-operatively and post-operatively (>36°)

STUDY PARTICIPANTS

- All patients undergoing Caesarean delivery at National Women's Hospital
- Two cohorts of patients- 13 weeks
- BASELINE – May 2021-July 2021- **659 patients**
- INTERVENTION – September 2021-November 2021 – **645 patients**

BASELINE AUDIT Perioperative Checklist

	Nursing staff to complete		Researcher to complete	Score
	YES	NO		
Vaginal prep performed? (2)	YES	NO		/2
Pre-operative skin prep? (1)	YES	NO		/1
Skin prep type (circle)	Chlorhex	Iodine		
IV antibiotics pre-incision? (1)	YES	NO		/1
ABX dosed/repeated as protocol? (1)				/1
Normothermia maintained pre and post-op?(1) (36.0-37.5)				/1

Max /6

PICS PROJECT BUNDLE Perioperative Checklist

	Nursing staff to complete			Researcher to complete	Score
	YES	NO			
Vaginal prep performed? (2)	YES	NO			/2
Pre-operative skin prep? (1)	YES	NO			/1
Skin prep type (circle)	Chlorhex	Iodine			NO score
Drying time allowed (1) (circle)	< 2mins	≥2mins			/1
Towel used (circle)	YES all over	YES not over incision site	NO		NO score
IV antibiotics pre-incision?(1)	YES	NO			/1
ABX dosed/repeated as protocol? (1)					/1
Gloves changed prior to sheath closure? (circle)	YES	NO			/1
Normothermia maintained pre and post-op? (1) (36.0-37.5)					/1

Max /8

RESULTS: DEMOGRAPHICS

		Pre-intervention (n=659)	%	Post-intervention (n=645)	%	p value
Age		Range 17-48; Mean 34		Range 18-47, Mean 33		0.14
	<20	7	1.1	3	0.5	
	20-34	431	65.4	443	68.7	
	≥35	221	33.5	199	30.8	
Ethnicity						0.97
	NZ European	225	34.1	201	31.2	
	Māori	21	3.2	33	5.1	
	Pasifika	53	8.0	51	7.9	
	Asian	233	35.4	235	36.4	
	Other European	87	13.2	80	12.4	
	Other	40	6.1	45	7.0	
Booking BMI		Range 16-62		Range 15-54		0.68
(kg/m²)	<18	3	0.5	6	0.9	
	18-24	305	46.3	291	45.1	
	25-29	199	30.2	181	28.1	
	30-34 (class 1)	78	11.8	86	13.3	
	35-39 (class 2)	36	5.5	41	6.4	
	40+ (class 3)	37	5.6	40	6.2	
	NO DATA	1	0.2	0	0	

AUDIT STANDARDS

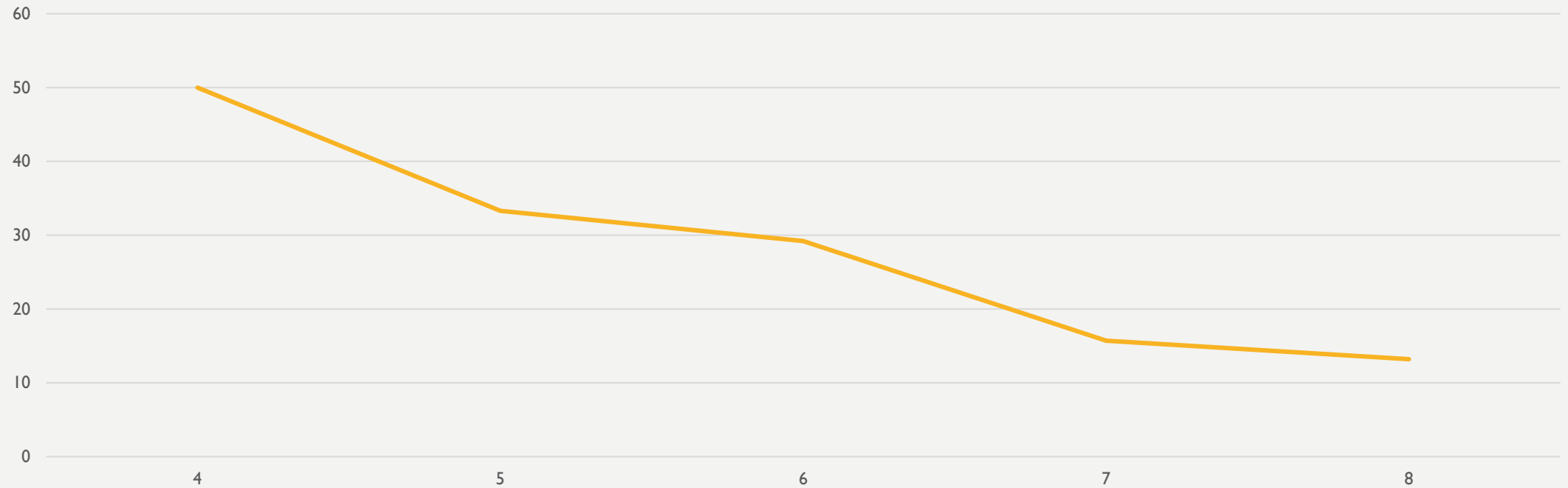
	Baseline (659)	%	Intervention (645)	%
Vaginal cleansing performed	597	90.6	611	94.7
Skin prep performed	659	100	644	99.8
Abx pre-incision	658	99.8	638	98.9
Abx dosing correct by booking weight	649	98.4	633	98.1
Abx dosing correct by EBL	637	96.6	620	96.1

AUDIT STANDARDS: POINTS TO DISCUSS

- Antibiotic dosing by weight
 - 40% of the patients >120kg in baseline group did not receive 3g cephazolin
 - 40% of these developed an SSI
 - 52% of those >120kg in intervention group did not receive 3g cephazolin
 - 41.6% developed SSI
- Antibiotic dosing by EBL
 - 78.6% of those with an EBL >1500ml in baseline group did not receive more antibiotics
 - 45.5% of those developed an SSI
 - 95.6% of those with an EBL >1500ml in intervention group did not receive repeat dosing
 - **27.3%** developed an SSI

CHECKLIST SCORING: INTERVENTION

SSI Rate by checklist score



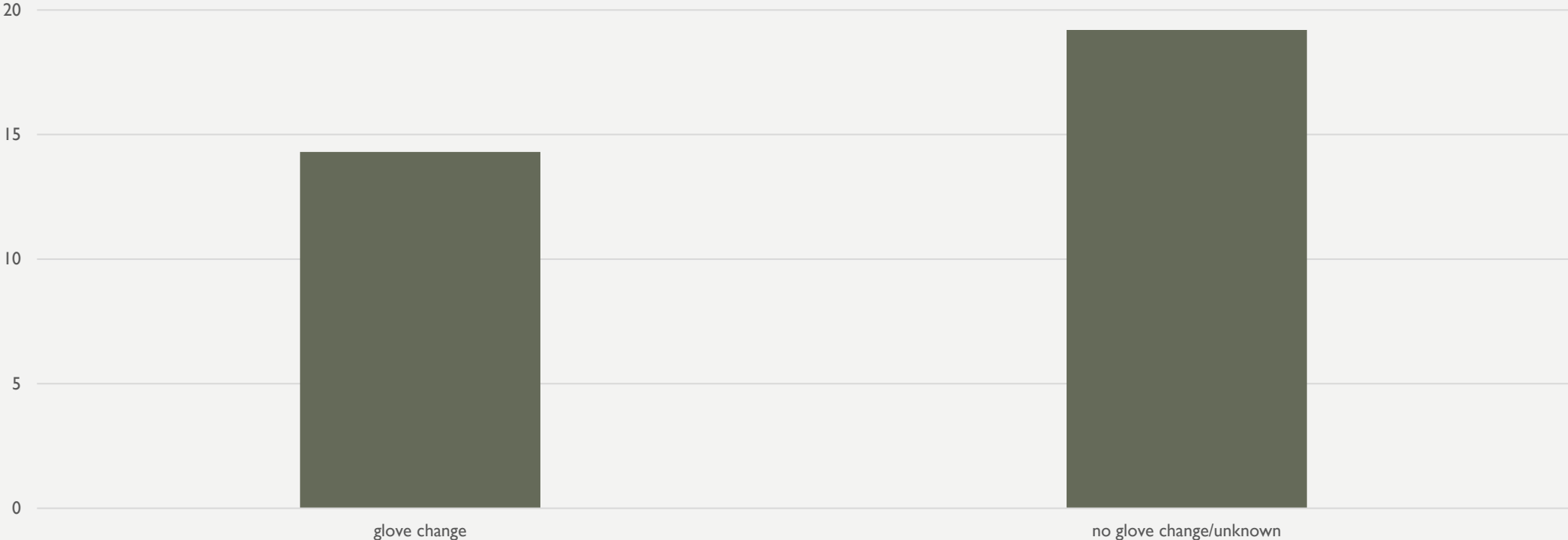
SECONDARY OUTCOMES

	Baseline (n=659)	Post-intervention (n=645)	p-value
Readmission	10 (1.5%)	10 (1.6%)	0.99
SSI type			
-Endometritis	5	1	
-Wound infection/collection	4	7	
-Intra-abdominal collection	0	1	
-Rectus sheath haematoma	0	1	
-Abdominal wall collection	1	0	
Length of stay (days)	0.3-21, mean 4.61	1-7, mean 3.85	0.35
Return to theatre	2	3	0.99
Additional wound care post-discharge	1	2	0.98

SHOULD WE CHANGE OUR GLOVES?

- Unique to intervention group
- Relied on checklist or op note to confirm
- 440 glove change
- 22 no glove change
- 183 unknown

SSI RATE BY GLOVE CHANGE



NEXT STEPS

- Still in process of finalizing SSI data for the primary outcome
- Data presented here is a “worst case scenario”
- Outcome from audit valuable- work to be done here