# Cost effectiveness of rectal screening for ESBL producing organisms in preventing urosepsis following transrectal prostate biopsy

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#### Background

•	Urosepsis following transrectal
	ultrasound guided prostate
	biopsy (TRUS PB) occurs in
	0.3-3.1% of patients. <sup>1</sup>
•	Standard prevention includes
	ciprofloxacin and ceftriaxone. <sup>2</sup>
•	Rise in urinary pathogens
	resistant to fluoroquinolones or
	producing extended spectrum
	beta lactam (ESBL+). <sup>3</sup>
•	Other institutions have shown
	cost effectiveness of rectal
	screening for ESBL+ organism
	prior to TRUS PB. <sup>4</sup>
•	We compare our center's
	incidence of urosepsis

admissions following TRUS PB to the expected rate and calculate cost-effectiveness of pre-procedure screening to prevent urosepsis admissions.

### Methodology

•	All patients identified by prostate	•
	biopsy CPT billing code from	
	January 2020 through January 2021	•
	were identified retrospectively.	
•	Charts were queried for emergency	
	department or urgent care visits and	•
	hospital admissions within two weeks	
	of TRUS PB	
•	Admissions reviewed for evidence of	•
	urosepsis and ESBL+ cultures.	•
•	Hospitalization cost was compared to	
	the extrapolated cost of doing pre-	•
	procedural rectal swabs.	
	procedural rectal swabs.	
		•
		•
	Cost of swab and culture	
	per patient: \$39.02	•
	Cost of ID and sensitivity	•
	per isolate: \$67.00	

Table 1: Cost of urosepsis admission compared to pre-procedure rectal swabs

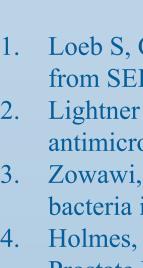
	Cost per unit	Units	Total cost
Urosepsis admission	\$12,636.98	3	\$37,910.92
ESBL Urosepsis admission	\$13,531.88	2	\$27,063.76
Rectal swab and culture on selective media	\$39.02	1593	\$62,158.86
Organism ID and sensitivity	\$67.00	796	\$ 53,332.00
Rectal swab screening overall			\$115,490.86

### Results

- 33 of 1593 patients presented to our institution within 2 weeks of TRUS PB 3 were admitted for urosepsis post TRUS PB (2 with ESBL+ infection, 1 with no growth on culture)
- 12 had ED visits relating to their TRUS PB without urosepsis, (2 due to non ESBL+UTI)
- 18 visits were unrelated to TRUS PB. Our urosepsis admission rate was 0.19% (for ESBL+0.13%).
- Cost of the 3 hospitalizations was \$37,910.92 (\$27,063.76 for 2 ESBL+ infections).
- Rectal swabs would in theory have prevented 2 admissions.
- Cost of swab and culture would be \$62,158.86.
- 50% of the swabs would need further testing to identify ESBL+ organism, for an additional cost of \$53,365.50.







#### Conclusions

Our institution had lower than expected urosepsis admission rates Pre-procedure rectal swabs would not be cost effective, especially since some admissions may be unavoidable. The cost analysis is an underestimate as a visit some days prior to procedure would be scheduled and the staff resource utilization to collect the swab is not accounted for. The total cost of screening with rectal swabs would be \$115,000 for this population, which is contrasted to possible \$27,000 cost of preventing ESBL+ urosepsis admissions

#### References

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