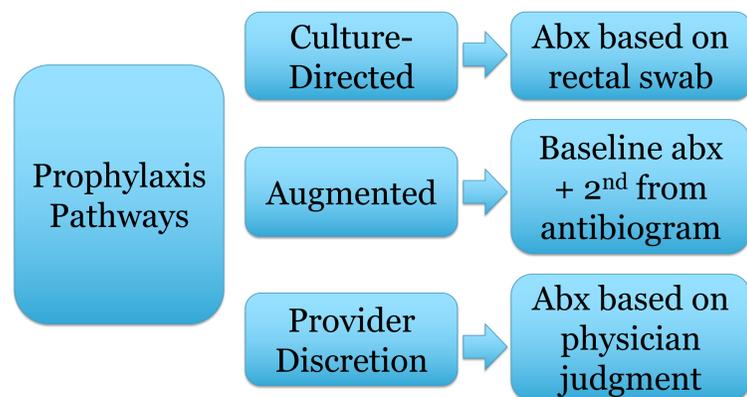


Problem Definition

- The Jefferson Department of Urology is a high-volume clinic that performs hundreds of prostate biopsies annually
- Although the overall risk of the procedure is low, the rate of infectious complications have increased
- The American Urologic Association (AUA) recommends antibiotic prophylaxis pathways to prevent infections
- We assessed differences in the risk of infectious complications based on the prophylaxis pathway, using data from the Pennsylvania Urologic Regional Collaborative (PURC)

Methods

- A total of 11,896 biopsies since 2015 were analyzed for:
 - PBx Prophylaxis Pathway**
 - Demographics and PBx Outcomes**
- Infectious outcomes included a fever, UTI or sepsis
- Univariate and multivariate analysis determined factors associated with infections



Aims For Improvement

- The aim of this study was to determine the antibiotic prophylaxis associated with the fewest infectious complications following prostate biopsy
- Determining the safest method allows the Jefferson Department of Urology to modify its biopsy protocol and improve the rate of post-biopsy complications

Measurement and Results

Table 1: Demographic and Patient Characteristics

Characteristic n(%)	Culture-Directed (N=3246)	Augmented (N=1443)	No Pathway (N=7207)
Age > 80 years	52 (2.9)	20 (3.3)	257 (6.8)
1 Previous Biopsy	140 (4.5)	220 (17.2)	786 (12.8)
More than 1 Previous Biopsy	105 (3.4)	110 (8.6)	335 (5.4)
Infectious Outcome	7 (0.2)	20 (1.4)	95 (1.3)

Table 2: Univariate Analysis for Predictors of Infectious Outcomes

Variables	OR [95% CI]	P-value
Age > 80 years	1.091 [0.470-2.536]	0.839
Number of Previous Biopsies		
1 Biopsy vs. No Previous Biopsy	1.456 [0.868-2.442]	0.155
>1 Previous Biopsy vs. No Previous Biopsy	2.184 [1.226-3.888]	0.008 ^a
Gland Volume (10g or cc)	1.054 [1.008-1.103]	0.022 ^a
Histology, Others vs. Adenocarcinoma	4.247 [0.831-21.696]	0.086 ^a
Biopsy Type		
TURP vs. TRUS	3.426 [1.860-6.313]	<0.001 ^a
MRI/Fusion vs. TRUS	1.684 [1.043-2.719]	0.033 ^a
Antibiotic Prophylaxis Pathway		
Culture-Directed vs. Provider Discretion	0.149 [0.069-0.321]	<0.001 ^a
Augmented vs. Provider Discretion	1.019 [0.635-1.634]	0.939
Comorbidities		
BMI	1.007 [0.969-1.048]	0.713
Peripheral Vascular Disease	1.090 [0.222-5.358]	0.916
Diabetes	1.312 [0.795-2.164]	0.288
Cerebral Vascular Disease	1.017 [0.360-2.874]	0.974
2 nd Solid Tumor	1.191 [0.438-3.245]	0.732
Chronic Kidney Disease (Cr>3)	1.084 [0.185-6.332]	0.929

^aSignificance level for univariate analyses was set at 0.10; variables meeting this significance were utilized for multivariate analysis

- More than 1 previous biopsy, type of biopsy and prophylaxis pathway were significantly associated with infectious outcome
- No comorbidities were associated with greater risk of infection

Table 3: Multivariate Analysis for Predictors of Infectious Outcomes

Variables	OR [95% CI]	P-value
Antibiotic Prophylaxis Pathway		
Culture-Directed vs. Provider Discretion	0.159 [0.074-0.344]	<0.001 ^a
Augmented vs. Provider Discretion	1.014 [0.630-1.633]	0.953
Biopsy Type		
TURP vs. TRUS	2.838 [1.536-5.242]	0.001 ^a
MRI/Fusion vs. TRUS	1.416 [0.874-2.294]	0.158

^aSignificance level for multivariate analyses was set at 0.05

- Culture-directed pathway was associated with a 84% reduction in infectious outcomes compared to provider discretion or the augmented pathways
- Biopsy during TURP was significantly associated with infections compared to TRUS

Next Steps and Lessons Learned

- A targeted antibiotic prophylaxis pathway significantly reduced the risk of infectious complications compared to the augmented or provider discretion pathways
- This study achieved the aim to determine the safest prophylaxis method
- Next steps should include standardization and modification of the Jefferson Urology prostate biopsy protocol to include culture- based prophylaxis

Author Affiliations

- Sidney Kimmel Medical College at Thomas Jefferson University, Philadelphia, Pennsylvania
- Health Care Improvement Foundation, Philadelphia, Pennsylvania
- Geisinger Medical Center, Danville, Pennsylvania
- Einstein Healthcare Network, Philadelphia, Pennsylvania
- University of Pennsylvania, Philadelphia, Pennsylvania
- Midlantic Urology, Philadelphia, Pennsylvania
- Penn State Milton S. Hershey Medical Center, Hershey, Pennsylvania
- Fox Chase Cancer Center, Philadelphia, Pennsylvania
- Cooper University, Camden, New Jersey
- Temple University, Philadelphia, Pennsylvania