Learning Objectives

- Learn about the quality efforts by urologists from a various clinical environs towards minimizing complications in this scenario.
- Examine antibiotic choices to prevent infection after biopsy.
- Understand the various protocols of prostate needle biopsy in place in a multitude of clinical environments.
Introduction

- Virginia Urology (VU) – Unique Environ
  - Richmond VA
  - Integrated Since 1995
  - 30 Uro MD’s
  - 2000 – 2500 Biopsies/year -- ASC
  - One Pathologist : Dharam Ramnani MD
  - EMR Since 2004

- EMR + 1 Pathologist + Many Biopsies
Virginia Urology Setup

YEAR | POPN
-----|------
1980 | 761,000
1990 | 865,000
2000 | 1,097,000
2010 | 1,300,000
Quality Improvement- QI

- Monthly Meeting of Quality Improvement Committee
- MD run since 2007
- Clinical Goals
- We’ve been looking at improving infection rates for more than 6 years
- VU Quality Assurance project - SUNA
TRUS BX Protocol

Decision for Biopsy

Scheduler / EMR Checklist
Anesthesia ABX Allergy ASA Enema Consult

BX → F/U Phone 24 hr

Review Path, OV, Events

Sepsis Events – QI Review
ASC Biopsies

- Local (75%)
  - 10cc 1% lidocaine
- IV Sedation (20%)
  - 2 mg Morphine
  - 2mg Versed
- General LMA (5%)

- 12-Core Biopsies transition 2004 -2006
VUSC Quality Assurance Project

- 2007 – Ongoing
- Internal Eval of TRUS Bx Infection Rates
- Lit Review: 1-5% Bx with Serious Infections
- VU Goal < 1%

DATA Collection:
- Infections
- Quinalone Resistance
- Prophylaxis Used by MD’s

- VU In House Path Lab – most C&S
<table>
<thead>
<tr>
<th>Year</th>
<th># Possible Infections</th>
<th># Documented Infections</th>
<th># Septic Cases</th>
<th>Total # Biopsies</th>
<th>Infection Rate (%)</th>
<th>VU Urine - E. coli Cipro %Sens</th>
</tr>
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<tbody>
<tr>
<td>2007</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>2514</td>
<td>0.16</td>
<td>73</td>
</tr>
<tr>
<td>2008</td>
<td>17</td>
<td>7</td>
<td>2</td>
<td>2291</td>
<td>0.31</td>
<td>69</td>
</tr>
<tr>
<td>2009</td>
<td>11</td>
<td>7</td>
<td>1</td>
<td>2339</td>
<td>0.30</td>
<td>70</td>
</tr>
<tr>
<td>2010</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>2205</td>
<td>0.18</td>
<td>66, Cefdinir + Cipro</td>
</tr>
<tr>
<td>2011</td>
<td>11</td>
<td>11</td>
<td>4</td>
<td>2597</td>
<td>0.42</td>
<td>NA</td>
</tr>
<tr>
<td>2012</td>
<td>12</td>
<td>9</td>
<td>4</td>
<td>2143</td>
<td>0.42</td>
<td>64</td>
</tr>
<tr>
<td>2013</td>
<td>11</td>
<td>5</td>
<td>2</td>
<td>1950</td>
<td>0.26</td>
<td>58</td>
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</table>

16,039
Ecoli Quinalone Resistance (EQR)

- 1991: 4%
- 2006: 27%
- 2008: 31%
- 2010: 34%
- 2012: 36%
- 2013: 42%

Levaquin & Cipro resistance =
ID collaboration, review Antibiotogram
## 2012 Antibiotogram

<table>
<thead>
<tr>
<th></th>
<th># Isolates</th>
<th>Levaquin</th>
<th>Cipro</th>
<th>Bactrim</th>
<th>Gentamycin</th>
<th>Macrobid</th>
<th>Augmentin</th>
<th>Monurol</th>
<th>Keflex</th>
<th>Ceftin</th>
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<tbody>
<tr>
<td><strong>GRAM NEGATIVE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Escherichia coli</td>
<td>1698</td>
<td>1620</td>
<td>1620</td>
<td>64%</td>
<td>1619</td>
<td>91%</td>
<td>1620</td>
<td>73%</td>
<td>1619</td>
<td>75%</td>
</tr>
<tr>
<td>Klebsiella</td>
<td>18</td>
<td>16</td>
<td>16</td>
<td>50%</td>
<td>16</td>
<td>88%</td>
<td>16</td>
<td>44%</td>
<td>16</td>
<td>56%</td>
</tr>
<tr>
<td>Proteus</td>
<td>84</td>
<td>83</td>
<td>83</td>
<td>73%</td>
<td>83</td>
<td>80%</td>
<td>83</td>
<td>90%</td>
<td>83</td>
<td>0%</td>
</tr>
<tr>
<td>Pseudomonas</td>
<td>141</td>
<td>138</td>
<td>138</td>
<td>81%</td>
<td>138</td>
<td>1%</td>
<td>138</td>
<td>96%</td>
<td>138</td>
<td>0%</td>
</tr>
<tr>
<td>Gram negative rods</td>
<td>1042</td>
<td>836</td>
<td>836</td>
<td>68%</td>
<td>836</td>
<td>68%</td>
<td>836</td>
<td>62%</td>
<td>836</td>
<td>87%</td>
</tr>
<tr>
<td><strong>GRAM POSITIVE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staphylococcus</td>
<td>716</td>
<td>466</td>
<td>466</td>
<td>30%</td>
<td>466</td>
<td>59%</td>
<td>464</td>
<td>87%</td>
<td>466</td>
<td>90%</td>
</tr>
<tr>
<td>Streptococcus</td>
<td>542</td>
<td>463</td>
<td>463</td>
<td>54%</td>
<td>463</td>
<td>46%</td>
<td>463</td>
<td>15%</td>
<td>463</td>
<td>93%</td>
</tr>
<tr>
<td>Enterococcus</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>83%</td>
<td>24</td>
<td>83%</td>
<td>24</td>
<td>25%</td>
<td>24</td>
<td>88%</td>
</tr>
</tbody>
</table>
Choice - Antibiotic Prophylaxis

- **2004 Typical**
  - Cipro, Levaquin PO, enema
  - +/- Gentamycin IM
  - MD Choice
- **2008 Internal Review – VUSC Project**
  - Antibiogram
- **2010 Collaboration with ID**
  - Consensus – Cancer Committee
  - Cipro + Cefdinir PO, enema
  - EMR – Streamlined All MD’s same
Review Current Performance

- Implement changes – Cipro + Cefdinir PO 2010
- Re-Evaluate – increased ESBL Ecoli & MDRO
- Additional Corrections –
  - Document Q ABX + Enema; 97% compliance
- New Measures 2014
  - Rectal Swab Cx ?
  - Povidine rectal cleanse (MAAUA)
  - Q: Quinalone/ABX use 6 months preop
Example QI Project 2012-2013

- Cohort Study
- Periprostatic Gent + PO ABX vs PO ABX alone
- Chart Review
- Records up to 1 month post BX
  - Sx/HER notes
  - UA
  - UCX
  - Hospitalization low: 0.8 – 1.5%
  - Other Complications: AUR/Bleed
<table>
<thead>
<tr>
<th>Periprostatic Gentamycin</th>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td># Biopsies</td>
<td>497</td>
<td>273</td>
</tr>
<tr>
<td>Symptoms Reported</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any symptom</td>
<td>24</td>
<td>12</td>
</tr>
<tr>
<td>Fever, chills, UTI-like sx</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>No reported symptoms</td>
<td>473</td>
<td>261</td>
</tr>
<tr>
<td>UA done</td>
<td>24</td>
<td>13</td>
</tr>
<tr>
<td>UA positive (LE or WBC)</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>UC done (office)</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>UC positive</td>
<td>1 (mixed)</td>
<td>1 (Staph 2col)</td>
</tr>
<tr>
<td>Hospitalizations</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Infection</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>1 rectal bleed</td>
<td>3 retention</td>
</tr>
</tbody>
</table>
Summary

- **Review.** We’ve learned from QI review.
- **Adjust.** ABX changes made with MD collaborative input.
- **Question.** *How low can we go* w/complication rate?
- **P4P** is upon us. Costs of additional tests and maneuvers matter.
  - ✦ VQCP in Central VA ➔ CI : Quality Measure
Thanks AUA

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