“Road Testing” Electronic Medical Record Systems

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Homework Assignment

For four recently-published RCT studies:

1. Are the main outcome measures routinely collected in the EHR system?
2. Are the main independent and control variable routinely collected?
3. Estimate the relative size of the patient population.
## Overview of Studies

<table>
<thead>
<tr>
<th>Type of Trial</th>
<th>Topic</th>
<th>Publication</th>
<th>Key Challenges, Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double-blinded RCT</td>
<td>Antipsychotic Drugs for Schizophrenia</td>
<td>Lieberman et al, <em>NEJM</em> 2005 (CATIE)</td>
<td>Links to pharmacy, Documenting discontinuation</td>
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<tr>
<td>Unblinded RCT</td>
<td>Gastric Binding for Control of Type 2 Diabetes</td>
<td>Dixon et al, <em>JAMA</em> 2008</td>
<td>Diagnostics: Blood pressure Lab values: HbA1c</td>
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<tr>
<td>Registry</td>
<td>Bare Metal vs. Drug-Eluting Stents</td>
<td>Valgimigli et al., <em>Circulation</em> 2005</td>
<td>Specific technology used, Details of surgery</td>
</tr>
<tr>
<td>Observational Cohort Study</td>
<td>Tx vs. Obs of Low-Risk Prostate Cancer</td>
<td>Wong et al, <em>JAMA</em> 2006</td>
<td>Tumor size and staging, Time horizon (3-10 years)</td>
</tr>
</tbody>
</table>
## Grading the EHR Systems

### Where They Scored Well
- Sample sizes (1x-50x)
  - e.g., Schizophrenia: RCT enrolled 1500 patients, VA follows ~100,000 patients
- Medical treatments
  - Procedures
  - Medications
  - Medical Complications
- Lab, Diagnostic measures
  - HbA1c, Blood pressure
  - Tumor size and staging
  - BMI, Weight loss
- Treatment details (searchable)
  - Technology, Equipment used

### Where They Scored Less Well
- Documenting death
  - Match against National Death Index or Social Security Index
- Social/Economic variables
  - Marital Status
- Patient-reported measures (possibly searchable in notes)
  - Reason for discontinuing medication
  - Report of physical activity
  - Symptom Scales
  - Some social/medical conditions are not routinely transcribed into ICD-9 diagnoses (alcoholism, depression).
Practical Challenges

- Receiving care from multiple health care providers
- Patient mobility
- Consistency of patient follow-up
- Time frames