Amoxicillin for Acute Rhinosinusitis

- 166 patients with acute rhinosinusitis
  - History of maxillary pain or tenderness face/teeth
  - Purulent nasal secretions
  - Symptoms ≥ 7 days or ≤ 28 days worsening or not improving or < 7 days and worsening after initial improvement
- Received 10 days of amoxicillin 500 mg tid vs. placebo
  - All patients received symptomatic therapy

JAMA 2012; 307:685-92

Amoxicillin for Acute Rhinosinusitis

- Primary outcome was improved symptoms at day 3
  - Phone interview day 3, 7, 10, and 28
- No difference day 3 or 10
  - No difference in days missed from work, inability to perform usual activities, relapse rates, side effects
Needless complications

Estimated $5 billion spent on unnecessary antibiotics annually
Monitoring Performance for BP Management in DM

- Retrospective cohort study of 713,790 patients with DM
  - Action measure met if
    - SBP < 140 and DBP < 90
    - SBP < 150 and DBP < 65 or action within 90 days
    - SBP < 150 and ≥ 3 moderate dose BP meds
  - 82% with BP Control (SBP <140, DBP < 90)
  - 12% with appropriate action
  - 94% "met" action measure

Arch of Int Med 2012;172: 938-45

Monitoring Performance for BP Management in DM

- Potential overtreatment
  - SBP < 130 and DBP < 65
  - ≥ 3 BP medication classes
  - New BP med started within 90 days
  - BP med increased with 90 days
  - 20% with BP <130/65

- 8% potential overtreatment
  - 47% received ≥ 3 drugs
  - 42% dose intensification
  - 11% both

- Clinics with highest rate of “performance” had higher rates of potential overtreatment
- 27% of patients with potential overtreatment had CAD
  - Greater risk of overtreatment
  - Over 40% received dose intensification/≥ 3 meds

Performance measures can be more nuanced
Overuse measures require development
Performance Measurement

- Claims data administratively simple, but limited
- Can be supplemented by clinical data, but requires physician engagement
- Meant to assess performance across a population, not judge care on individual patients.
- Professionalism requires physicians to maintain patient centered focus
- Measurement should be balanced to guard against overtreatment
- Feedback perhaps more important than payment to change behavior
- If used for payment, targets must be set at levels that account for patient variability

Impact of Frailty on the Association of Hypertension and Mortality

- 2340 patients ≥ 65 in the NHANES survey
- Walking speed measured over 20 feet (6m)
- Patients classified as fast (≥ 0.8m/s) or slow (< 0.8m/sec)

<table>
<thead>
<tr>
<th></th>
<th>Faster ≥ 0.8m/s</th>
<th>Slower &lt; 0.8m/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality SBP ≥ 140</td>
<td>28.1/1000 pt-yr</td>
<td>72.1/1000 pt-yr</td>
</tr>
<tr>
<td>Mortality SBP &lt; 140</td>
<td>20.4/1000 pt-yr</td>
<td>67.6/1000 pt-yr</td>
</tr>
<tr>
<td>Adjusted HR</td>
<td>1.35</td>
<td>1.12 (NS)</td>
</tr>
</tbody>
</table>

Gait Speed and Survival in Older Adults

- Pooled analysis of individual data from 9 cohort studies of 34,485 community dwelling older adults
- Heterogeneous populations
- Mean follow up 12.2 years (range 6-21)
- Gait speed assessed at usual pace
- Risk of death estimated per 0.1m/s gait speed
Gait Speed in the elderly

- Should be a “vital sign”
- 0.6m/s a reasonable cutoff- no absolutes
- Useful in considering targets for testing/treatment decisions

Radical Prostatectomy vs. Observation for Localized Prostate Cancer (PIVOT)

- 731 men with stage T1-T2,Nx,M0 prostate cancer, age < 75, PSA <50, life expectancy > 10 years randomized to RP vs. observation
  - 50% patients stage T1c (PSA screening)
  - 70% Gleason score ≤ 6
  - 40% low risk- PSA ≤ 10, Gleason ≤ 6, Stage ≤ 2A
  - Observation patients offered palliative care or chemotherapy for symptomatic or metastatic progression
  - 20.4% observation patients subsequently received definitive therapy (median 652 days)
  - Median follow-up 10 years

Should early treatment of low risk prostate cancer be an overuse measure in patients in Medicare patients?
### Radical Prostatectomy vs. Observation for Localized Prostate Cancer (PIVOT)

#### Total Mortality

<table>
<thead>
<tr>
<th></th>
<th>Observation</th>
<th>RP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Mortality</td>
<td>49.9%</td>
<td>47.0%</td>
</tr>
<tr>
<td>PSA ≤ 10</td>
<td>45.6%</td>
<td>46.2%</td>
</tr>
<tr>
<td>PSA &gt; 10</td>
<td>61.6%</td>
<td>48.4%</td>
</tr>
<tr>
<td>Low Risk</td>
<td>36.5%</td>
<td>41.9%</td>
</tr>
<tr>
<td>Int Risk</td>
<td>58.3%</td>
<td>45.7%</td>
</tr>
</tbody>
</table>

Only 15% attributed to prostate cancer or treatment.

#### PSA Screening

<table>
<thead>
<tr>
<th></th>
<th>Observation</th>
<th>RP</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSA ≤ 10</td>
<td>6.2%</td>
<td>5.9%</td>
</tr>
<tr>
<td>PSA &gt; 10</td>
<td>12.8%</td>
<td>5.6%</td>
</tr>
<tr>
<td>Low Risk</td>
<td>2.7%</td>
<td>4.1%</td>
</tr>
<tr>
<td>Int Risk</td>
<td>10.8%</td>
<td>6.2%</td>
</tr>
</tbody>
</table>

Bone mets

<table>
<thead>
<tr>
<th></th>
<th>Observation</th>
<th>RP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Risk</td>
<td>6.1%</td>
<td>4.1%</td>
</tr>
<tr>
<td>Int Risk</td>
<td>15.8%</td>
<td>4.7%</td>
</tr>
</tbody>
</table>

### Patient self reported side effects at 2 years

<table>
<thead>
<tr>
<th></th>
<th>Obs</th>
<th>RP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urinary Incontinence</td>
<td>6.3%</td>
<td>17.1%</td>
</tr>
<tr>
<td>Erectile dysfunction</td>
<td>44.1%</td>
<td>81.1%</td>
</tr>
</tbody>
</table>

### PSA Screening controversial- USPTF Grade D rec., ACS recommends shared decision making
- Risks of early treatment must be explained to patients if they opt for screening
- Harms of screening can be reduced by avoiding treatment in low risk patients; especially Medicare age
- If PSA ≤ 10 early treatment does not reduce mortality or morbidity at 12 years
- Low risk patients have NS increased mortality with early treatment
- Active surveillance rather than expectant management may be considered in intermediate risk patients
How much does colonoscopy reduce the risk of death from colorectal cancer?

Is there a role for fecal immunochemical testing rather than colonoscopy in some patients?

Colonoscopic Polypectomy and Long Term Prevention of CRC Death
National Polyp Study

- Cohort derived from NPS
- Patients referred for initial colonoscopy 1980-1990, various indications - not screening
- Patients randomized to 1-3 vs. 3 year surveillance
- Both groups included in the adenoma cohort
- 81% underwent at least one surveillance exam
- CRC expected mortality compared to expected rates from SEER

NEJM 2012;366:687-96

Colonoscopy vs. Fecal Immunochemical Testing in Colorectal Cancer Screening

- 57,404 patients between age 50-69 invited to participate and randomized to one time colonoscopy vs. FIT testing every 2 years
- FIT requires 1 sample, no special diet
- Interim analysis of one time screening at 10 years
- Participation low
  - 34.2% FIT, 24.6% colonoscopy
  - 30% patients randomized to colonoscopy chose FIT
  - 5069 patients underwent colonoscopy, 10,611 FIT
  - 7.2% FIT patients tested positive, 86.2% subsequent colonoscopy

NEJM 2012; 366:397-706
### Colonoscopy vs. Fecal Immunochemical Testing in Colorectal Cancer Screening

<table>
<thead>
<tr>
<th>Colonoscopy</th>
<th>FIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer</td>
<td>0.5%</td>
</tr>
<tr>
<td>Advanced adenoma</td>
<td>9.7%</td>
</tr>
<tr>
<td>Non-advanced adenoma</td>
<td>22.1%</td>
</tr>
</tbody>
</table>

Rate of high grade dysplasia or cancer with surveillance

<table>
<thead>
<tr>
<th>Baseline colonoscopy findings</th>
<th>Rate per 1000 patient years</th>
</tr>
</thead>
<tbody>
<tr>
<td>No neoplasia</td>
<td>0.7</td>
</tr>
<tr>
<td>Adenoma &lt; 10 mm</td>
<td>1.5</td>
</tr>
<tr>
<td>Large tubular or any villous adenoma</td>
<td>6.4</td>
</tr>
<tr>
<td>High grade dysplasia</td>
<td>26.0</td>
</tr>
<tr>
<td>Cancer</td>
<td>74.8</td>
</tr>
</tbody>
</table>

Adverse events after colonoscopy in older patients

- Systematic review of 20 studies
- Indications ≥ age 65
  - Diagnostic 58.1%
  - Screening 28.2%
  - Polyp surveillance 13.7%
- Indications ≥ age 80
  - Diagnostic 80%
  - Screening 1.2%
  - Polyp surveillance 18.8%

Complication rate requiring surgery approximately 1 per thousand procedures

Gastroenterology 2007; 113: 1077-85

Gastrointestinal Endoscopy 2011; 74:885-96
Adverse events after colonoscopy in older patients

- Adverse events/1000 colonoscopies
  - Perforation 1-1.5/1000
  - CV events 19.1-28.9/1000
  - 12.1/1000 severe (MI, CVA, CHF, C/R arrest up to 30d)
  - Polypectomy bleeding 3.6-2.4/1000

Decision Analysis: Rescreening After Neg Colonoscopy

- Colonoscopy is superior to FIT testing in identifying adenomas
- FIT testing and colonoscopy are equivalent for cancer detection and mortality reduction at 10 years
- Risk of CRC death after a single colonoscopy is low
  - An unknown number of cancers can be avoided by repeat colonoscopy at 10 years
- Single colonoscopy, followed 10 years later by annual FIT until age 75 (? Patient centered age cutoff) a reasonable strategy
- Consider when to stop screening or surveillance based on age and health status. The goal of polyp detection vs. cancer detection is key to the decision.
- Overdiagnosis of polyps is a risk of colonoscopy in older patients and would be reduced by FIT testing in selected populations

PHP Diagnosis Associated with Colonoscopy: 2011-12

CRC Screening

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- FIT testing and colonoscopy are equivalent for cancer detection and mortality reduction at 10 years
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  - An unknown number of cancers can be avoided by repeat colonoscopy at 10 years
- Single colonoscopy, followed 10 years later by annual FIT until age 75 (? Patient centered age cutoff) a reasonable strategy
- Consider when to stop screening or surveillance based on age and health status. The goal of polyp detection vs. cancer detection is key to the decision.
- Overdiagnosis of polyps is a risk of colonoscopy in older patients and would be reduced by FIT testing in selected populations.
Effect of Three Decades of Screening Mammography on Breast Cancer Incidence

- Analysis of data from National Health Interview Survey on proportion of women ≥ 40 undergoing screening mammography
- Trend data on incidence and survival rates from SEER database
- Adjusted for the impact of HRT on incidence of breast cancer


**Table 1. Absolute Change in the Incidence of Stage-Specific Breast Cancer among Women 40 Years of Age or Older after the Introduction of Screening Mammography.**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Annual Breast Cancer Incidence</th>
<th>Women Affected over the Three Decades†</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before Mammography (1973-1982)</td>
<td>301,000†</td>
</tr>
<tr>
<td></td>
<td>Three Decades Later (1981-2000)</td>
<td>301,000†</td>
</tr>
<tr>
<td></td>
<td>Absolute Change</td>
<td>0‡</td>
</tr>
<tr>
<td>OBCS</td>
<td>7.5</td>
<td>58†</td>
</tr>
<tr>
<td>Stage I disease</td>
<td>106</td>
<td>79†</td>
</tr>
<tr>
<td>Total</td>
<td>112</td>
<td>138†</td>
</tr>
<tr>
<td>Increase in cases of late-stage breast cancer</td>
<td>85</td>
<td>78 - 5.2%</td>
</tr>
<tr>
<td>Regional disease</td>
<td>57</td>
<td>58†</td>
</tr>
<tr>
<td>Total</td>
<td>112</td>
<td>138†</td>
</tr>
</tbody>
</table>

‡ OBCS denotes ductal carcinoma in situ.
† These data include women with breast cancer associated with hormone replacement therapy.
‡ These data are adjusted for annual breast cancer incidence. See the Table 1† in the online Appendix for annual breast cancer incidence before screening. The absolute change in women affected over the three decades is derived by subtracting the estimated number of women affected with breast cancer before screening from the estimated number of women affected with breast cancer 30 years after the introduction of screening mammography.

Conclusions

- Analysis questions impact of mammographic screening on breast cancer mortality
  - RCT's reveal 15-30% mortality reductions
- Regardless of debate about benefit-overdiagnosis is an issue
- Overdiagnosis from cancer screening of particular concern in the elderly

Exercise Testing in Asymptomatic Patients Patients After Revascularization

- Observational retrospective cohort study of 2105 asymptomatic patients with RVS and exercise ECHO
  - 54% PCI
  - 46% MI
- Exercise ECHO performed mean 4.1 years after RVS
  - 2.4 years in PCI patients
- 13% ischemic findings
  - 34% underwent RVS

Arch Int Med 2012; 172:854-861
Figure Legend:
Figure 3. Adjusted survival based on multivariate Cox regression models at mean of covariates, according to the presence of ischemia and subsequent revascularization.

Surveillance Stress Testing in CAD
- Unwarranted in asymptomatic patients
- May lead to unnecessary testing/procedures
- Medical home care coordination requires collaboration
- Must develop skills to address variation with colleagues
Viscosupplementation for Osteoarthritis of the Knee

- Systematic review of 89 RCT’s comparing viscosupplementation vs. sham or non-intervention control
- Primary Outcome - pain intensity at 3 months
  - Secondary outcome - functional-physical function
  - Safety outcome - flare ups (hot, swollen knee) within 72 hours

Viscosupplementation

- Small, clinically insignificant benefit
- Increased adverse events
- PHP payments
  - $300K for Medicare patients/year
  - $725K for Commercial patients/year

Winner of this year’s Golden Fleece Award

“A billion here, a billion there—pretty soon we are talking about real money”

No silver bullets for cost control