Social Networking For Practicing Clinicians: Speeding the Translation of Evidence Into Practice

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Overview

• Major trends in basic, clinical and translational biomedical research
• Role of Agency for Healthcare Policy and Research (AHRQ)
• Low quality pharmaceutical care
• UIC TOP-MED CERT
• Possible applications of social networking
NIH Roadmap

• **New Pathways to Discovery**
• **Research Teams of the Future**
  – Interdisciplinary research
• **Reengineering the Clinical Research Enterprise**
  – Translational research
Focus of AHRQ

• Assess the *effectiveness*, *comparative effectiveness*, and *cost-effectiveness* of health care services.
• Identify ways to improve *patient safety* and *quality* of health care systems.
• Advance the appropriate use of *health information technology*.
• Understand *system issues*: role of organizational design, management, workflow, management, and incentives on efficiency and effectiveness.
• Develop *data* on the health care system for monitoring and decision-making.
Effective Health Care Program

Scientific Resource Center

Public Input

Stakeholders

Evidence Generation

DEcIDE NETWORK
Developing Evidence to Inform Decisions about Effectiveness

Evidence Synthesis

EPCs
Evidence-based Practice Centers

Evidence Translation

Eisenberg Center
Clinical Decisions & Communications Science

CERTs
Centers for Education & Research on Therapeutics

FDA Modernization Act

Medicare Modernization Act
AHRQ Pharmaceutical Outcomes Programs

DEcIDE
- Acumen, LLC
- Colorado
- Hopkins

Dual Programs
- Duke
- BWH
- UIC
- Vanderbilt
- HMORN
- Penn
- U Chicago

CERTs
- Alabama
- Arizona
- Cornell
- Iowa
- Cincinnati
- Houston
- Rutgers

13 DEcIDE Contracts
14 CERTs Cooperative Agreements
CERT
Center for Education and Research in Therapeutics

• Purpose: To conduct research and provide education that will advance the optimal use of drugs, medical devices, and biological products.

• Comprised of 14 academic centers, each with a different “theme.”

• Grant, renewed annually (2007-2011).

• Jointly administered by AHRQ and FDA.
UIC TOP-MED CERT

• Tools for Optimizing Prescribing, Monitoring and Education (TOP-MED)
• Purpose: improve prescribing, monitoring and education
• Multiple Institutions: UIC, Stroger (Cook County) Hospital, Northwestern University (and hospital), VA PBM (Hines, IL), Advocate Health Care, U. of Washington, Cerner, Broadlane Inc.
Prescribing Quality

• We use a lot of drugs (~5 billion Rx/year)
• Drugs help a lot of people
• Drugs harm a lot of people
• Our goal: more help, less harm
• Our plan: improve prescribing, monitoring and education
Drugs Cause Substantial Harm

National Surveillance of Emergency Department Visits for Outpatient Adverse Drug Events

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Outpatient use of drug therapies in the United States is common and may confer serious risks along with substantial therapeutic benefits.1,2 Historically, the public health burden of adverse events from therapeutic drug use among community-dwelling, nonhospitalized patients has been difficult to estimate, but the problem is large and can be expected to increase.3,4 In 2004, 82% of the US population reported using at least 1 prescription medication, over-the-counter medication, or dietary supplement in the previous week and 30% reported using 5 or more of these drugs.1

Outpatient drug use will likely increase due to an aging population, the trend toward outpatient service delivery, the development of new prescription medications, the transition of prescription medications to over-the-counter use, and the increasing use of over-the-counter medications for chronic conditions and wellness.1,2

Context Adverse drug events are common and often preventable causes of medical injuries. However, timely, nationally representative information on outpatient adverse drug events is limited.

Objective To describe the frequency and characteristics of adverse drug events that lead to emergency department visits in the United States.

Design, Setting, and Participants Active surveillance from January 1, 2004, through December 31, 2005, through the National Electronic Injury Surveillance System–Cooperative Adverse Drug Event Surveillance project.

Main Outcome Measures National estimates of the numbers, population rates, and severity (measured by hospitalization) of individuals with adverse drug events treated in emergency departments.

Results Over the 2-year study period, 21,298 adverse drug event cases were reported, producing weighted annual estimates of 701,547 individuals (95% confidence interval [CI], 509,642–893,452) or 2.4 individuals per 1000 population (95% CI, 1.7–3.0) treated in emergency departments. Of these cases, 3487 individuals required hospitalization (annual estimate, 117,318 [16.7%]; 95% CI, 13.1%–20.3%). Adverse drug event cases accounted for 2.5% (95% CI, 2.0%–3.1%) of estimated emergency department visits for all unintentional injuries and 6.7% (95% CI, 4.7%–8.7%) of those leading to hospitalization and accounting for 0.6% of estimated emergency department visits for all causes. Individuals aged 65 years or older were more likely than younger individuals to sustain adverse drug events (annual estimate, 4.9 vs 2.0 per 1000; rate ratio [RR], 2.4; 95% CI, 1.8–3.0) and more likely to require hospitalization (annual estimate, 1.6 vs 0.23 per 1000; RR, 6.8; 95% CI, 4.3–9.2). Drugs for which regular outpatient monitoring is used to prevent acute toxicity accounted for 41.5% of estimated hospitalizations overall (1381 cases; 95% CI, 30.9%–52.1%) and 54.4% of estimated hospitalizations among individuals aged 65 years or older (829 cases; 95% CI, 45.0%–63.7%).

Conclusions Adverse drug events among outpatients that lead to emergency department visits are an important cause of morbidity in the United States, particularly among individuals aged 65 years or older. Ongoing, population-based surveillance can help monitor these events and target prevention strategies.

JAMA. 2006;296:1858-1866

www.jama.com
Quality of Pharmacologic Care for Adults in the United States

- 30 chronic and acute conditions
- 133 quality indicators
- Random sample of US adults, chart review
- Examined overuse, underuse, monitoring and education/documentation
- N=3457 people, N=10739 eligible events
## Results

**TABLE 3. Adherence to Pharmacologic Quality of Care Indicators**

<table>
<thead>
<tr>
<th>Pharmacologic Quality Domain</th>
<th>No. Eligible Patients</th>
<th>Frequency of Eligible Indicators*</th>
<th>Percentage of Recommended Care Received†</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total (aggregate)</td>
<td>3457</td>
<td>10,739</td>
<td>61.9</td>
<td>60.3–63.5</td>
</tr>
<tr>
<td>Underuse of appropriate medications</td>
<td>2477</td>
<td>5242</td>
<td>62.6</td>
<td>60.7–64.6</td>
</tr>
<tr>
<td>Overuse of inappropriate medication</td>
<td>1292</td>
<td>2004</td>
<td>83.5</td>
<td>81.1–85.9</td>
</tr>
<tr>
<td>Medication monitoring</td>
<td>642</td>
<td>983</td>
<td>54.7</td>
<td>49.7–59.7</td>
</tr>
<tr>
<td>Education and documentation</td>
<td>1453</td>
<td>2510</td>
<td>46.2</td>
<td>42.9–49.5</td>
</tr>
</tbody>
</table>

*Indicator-patient pairs.

†Scores represent percentage of appropriate care received for each category (eg, higher scores always suggest higher quality care in each of the categories presented).
Factors Influencing Quality

• Gender, age, income, education, health status and insurance had no effect.
• Black patients slightly more likely to get appropriate care than non-hispanic whites (70.9% TO 62.9%).
• The more chronic conditions a patient had, the worse their pharmacologic care.
• Patients with more frequent outpatient visits got better care.
Implications

- Quality deficiencies apparent in every area of med management
- It’s about the practitioners not the patients
- Need to focus on quality of drug therapy not just errors
- Need to provide quality of care not just access to care
- Must continue to monitor this type of quality in order to bring about change
Projects

- Reinvigorate formulary committees
- Enhance drug utilization review (and connect to formulary)
- Linking lab and pharmacy
- Create N-of-1 clinical trial service to customize care scientifically
- Empower formulary committee with better pharmaco-economic support
Physicians Still Physically and Socially Isolated from One Another

<table>
<thead>
<tr>
<th>TABLE 1: Physicians by Practice Setting, 1996-97 to 2004-05</th>
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</thead>
<tbody>
<tr>
<td>Solo/2-Physician Practices</td>
</tr>
<tr>
<td>3-5 Physician Practices</td>
</tr>
<tr>
<td>6-50 Physician Practices</td>
</tr>
<tr>
<td>&gt;50 Physician Practices</td>
</tr>
<tr>
<td>Medical School</td>
</tr>
<tr>
<td>HMO</td>
</tr>
<tr>
<td>Hospital¹</td>
</tr>
<tr>
<td>Other²</td>
</tr>
</tbody>
</table>

* Change from 1996-97 is statistically significant at p<.05.
1 Includes physicians employed in hospitals and office-based practices owned by hospitals. Forty percent of physicians in this category were in office-based practices in 2004-05.
2 Includes physicians practicing in community health centers, freestanding clinics and other settings, as well as independent contractors.

Source: HSC Community Tracking Study Physician Survey

Health IT Has Not Delivered

Computer Technology and Clinical Work Still Waiting for Godot

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PROCESS-SUPPORTING INFORMATION TECHNOLOGY (IT) has been heralded as an important building block in attempts to improve the quality and safety of health care. Two areas in particular have drawn both attention and conflict or lack of time or support among colleagues. So, it is not clear exactly what is being measured.

In a different design, the study by Koppel et al of users of a single CPOE system in a large academic medical center identified 24 different types of failures of which users were aware; roughly half the participants said these faults occurred from several times per week to daily. While this study
Health IT Has Not Delivered

For Discussion

Failure to Provide Clinicians Useful IT Systems: Opportunities to Leapfrog Current Technologies

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Opportunities for Social Networking

• “Medicine 2.0”
• Linking up solo and small group office-based practitioners
  – To improve quality of care
  – To mobilize and organize for change
• Linking multidisciplinary research teams
• Creating user communities around health IT to facilitate faster adoption and better design
• Linking formulary committees
• Linking chronically ill patients