Patient Safety and Technology

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Overview

• Backdrop
• Evidence about HIT and safety
• Current state of HIT adoption
• Clinical documentation
• Recommendations
Ways IT Can Improve Safety

• Prevent errors and adverse events
• Facilitating a more rapid response after an adverse event has occurred
• Tracking and providing feedback about adverse events

*Bates and Gawande, NEJM 2003*
Main Strategies for Preventing Errors and AEs Using IT

• Tools to improve communication
• Making knowledge more readily accessible
• Requiring key pieces of information
• Assisting with calculations
• Performing checks in real time
• Assisting with monitoring
• Providing decision support

Bates and Gawande, NEJM 2003
Examples of IT Applications With Safety Benefits

• Medications (CPOE, bar-coding, smart pumps)
• Coverage application
• Computerized notification about critical test results
• Tracking abnormal test results
• Patient monitoring
Impact of CPOE and Bar-Coding on Serious Med Errors

- **Order Entry & decision support** - 55% reduction
- **Pharmacy Barcoding** - 67% reduction
- **-eMAR/barcoding at bedside** - 51% reduction

**Medication Admin Record**
- **Transcription** Errors (11%)
- **eMAR** - 100% reduction

**Medication on Wards**
- **Dispensing** Errors (14%)

**Med Ordering**
- **Ordering Errors (49%)**

**RN**
- **Administration Errors (26%)**

**Patient**
- **Administration**
HIT Adoption

• Levels have increased dramatically as a result of the federal meaningful use program
  • Appear to be over 90% in both hospitals and outpatient setting
  • Some sectors still left out like long-term care, psychiatric facilities

• Not clear yet though to what extent adoption has improved safety or quality
  • To get value from HIT adoption refining the associated clinical decision support will be essential
Reduced Effectiveness of DDI Alerts After Conversion to Commercial EHR

• 3277 clinicians getting a DDI alert in outpatient setting
• Overall alert burden increased by a factor of 6
  • Acceptance for most severe fell from 100% to 8.4%
  • From 29.3% to 7.5% for medium (p<0.01)
• After disabling least severe alerts fell 50.5% but acceptance for most severe increased only from 9.1 to 12.7%

Wright A, J Gen Int Med 2018
Safety Results of CPOE Decision Support Among Hospitals

- 62 hospitals voluntarily participated
- Simulation detection only 53% of orders which would have been fatal
- Detected only 10-82% of orders which would have caused serious ADEs
- Almost no relationship with vendor

Metzger et al, Health Affairs 2010
Jane Metzger, Emily Welebob, David W. Bates, Stuart Lipsitz, and David C. Classen,
Mixed Results In The Safety Performance Of Computerized Physician Order Entry,
Health Affairs, Vol 29, Issue 4, 655-663
• 43% relative reduction for every 5% increase in Leapfrog score (p=0.01)

• 4 fewer preventable ADEs/100 admissions for every 5% increase in score
Number of Hospitals Taking Test

Number (N) of Hospitals

- 214 in 2010
- 288 in 2011
- 455 in 2012
- 931 in 2013
- 1238 in 2014
- 1580 in 2015
- 1689 in 2016
- 1691 in 2017
Why Is Documentation Important?

• Tool for communicating between providers
• Data enable care delivery
  • Making right diagnosis
• Used for assessing quality
• Close interaction with decision support
• Used for research
• Uses up a huge amount of resources
Provider Burnout is Serious Issue

• Shanafelt et al found in 2012 in a national sample that 46% of physicians reported at least one symptom of burnout
  • Burnout was more frequent in front-line providers
• While there are many contributors, one of the most important ones may be the use of the electronic health record (EHR), especially clinical documentation
Physician Burnout in the EHR Era

• Many hospitals abroad have adopted Epic
• Physicians far more likely to be satisfied with use, even cite it as improving efficiency
• Clinical notes in U.S. were 4 times as long as those in other countries!
• MDs in U.S. spend 44% of computer-facing time on documentation, 24% on communication with patients

Downing et al, Ann Intern Med 2018
Seema Verma tells docs CMS will reduce EHR documentation burdens

By Greg Slabodkin

Published
July 17 2018, 7:21am EDT

America’s physicians are spending too much time as data entry clerks focused on “burdensome and often mindless” administrative tasks that are distracting them from direct patient care, a serious problem in healthcare that the Centers for Medicare and Medicaid Services is taking steps to address.
RCT of Scribes

- Scribes improved all aspects of physician satisfaction
  - Overall satisfaction with clinic (OR = 10.75)
  - Having enough face time with patients (OR = 3.71)
  - Time spent charting (OR = 86.09)
  - Chart quality (OR = 7.25)
  - Chart accuracy (OR = 4.61)
- No effect on patient satisfaction

Gidwani, Ann Fam Med 2017
Recommendations

• CMS should consider changing documentation requirements as it has been
  • Not a good idea to collapse all 5 levels of visit into one
    • Revision better (3 levels) but not yet sufficient
  • What would make sense:
    • Make less sweeping changes to E and M codes
    • Adopt suggested changes of the RUC regarding RVUs
    • Further modernize payment to support virtual care

• Usability also has to represent key priority
  • Need to prevent blocking by vendors of assessment of safety issues
  • Dissemination of safety issues also should not be blocked
  • Support for research on safety and usability

• Open APIs another key building block
Conclusions

• Clinician well-being is a critical concern
• Conversion to electronic health records is likely one contributor (but not the whole cause)
• EHRs will eventually deliver great benefit—key is that they adopt to meet clinician needs
  • Post-implementation testing is important
• Approaches like scribes help in short run but represent a band-aid
• Need policies which support redesign of EHRs to meet clinician needs
• EHRs will deliver great value, need to get from where we are now to realizing it