Improving Usability and Patient Safety: Lessons from Anesthesiology

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Who am I?

Clinical Anesthesiologist

Informatics Post Doctoral Fellow

Masters Degree in Geography

Former software developer

Not your typical EMR user...
Why am I here?

What can Anesthesiology tell us about usability?

A century of usability experience

What about Patient Safety?

20 fold decrease in mortality
Innovation didn’t happen all at once....

Error Analysis and Safety 1950s-1970s

Engineering Safety

Uniform connector sizes for breathing circuits

“Touch identification” of oxygen flow control

Pin and Diameter indexing

“Unacceptable Risk”

Perceived mortality 1-2 per 10,000

Disproportionate malpractice

ANSI z79 Committee

“The Deep Sleep”

1911 1935 1960 1985 2011
Error Analysis and Safety - 1980’s

- Practice standards for spinal anesthesia changed
- First peer reviewed closed claim study published
- Anesthesia Closed Claims Study
- Anesthesia Patient Safety Foundation
  “No patient shall be harmed by anesthesia”
- International Symposium on the Prevention of Anesthesia Mortality and Morbidity
- ASA Committee on Safety and Risk Management
- ANSI z79 Committee
- “The Deep Sleep”

1911 – 2011
Anesthesia Today

• Mortality 10-20 times lower than 1980s

• Liability payout proportional to workforce

• *Miller’s Anesthesia* (2009) includes chapters on:
  – Informatics, Human Factors, Patient Safety, and Quality Improvement

“A Culture of Patient Safety”

Data collected and analyzed for multiple adverse outcomes

Small changes that make sense, make a difference
Parallels to EMR Adoption?

Electronic Medical Records

January 04, 2011

The Institute of Medicine’s Committee to review concerns conducted a yearlong study of...

by MARGALIT GUR-ARIE

1911  1935  1960  1985  2011

‘My Dog Has Better Medical Records Than My Daughter’

FILED UNDER:  Medicine/Science, Personal Health

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?
Where are we now...

**Anesthesia**

“no patient shall be harmed by Anesthesia”
- Anesthesia Patient Safety Foundation

Standardized process to evaluate mishaps
- Anesthesia Closed Claims Database

**Health Information Technology**

“no patient shall be harmed by an EMR?”
- EMR Patient Safety Foundation (???)

Standardized process to evaluate mishaps?
- EMR Adverse Outcomes Database (???)
Are more usable systems safer?

Fixing the obvious

Make it easy to do it right, hard to do it wrong

- Anesthesia - Pin Index Safety System
- EMR – Dose-Range Checking

Less obvious, but important

- Some problems require data to understand
- Closed Claims Project beneficial in < 3 years
- Independent review is critical for sensitive issues
...The Future

A more usable EMR

- Support needs of clinicians
- Improve work flow and efficiency
- Reduce cognitive effort

Facilitate continuous quality improvement

Patient Safety

Make it easy to do it right, hard to do it wrong
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