

AHRQ Subcommittee of the National Advisory Council
National Action Alliance to Advance Patient Safety

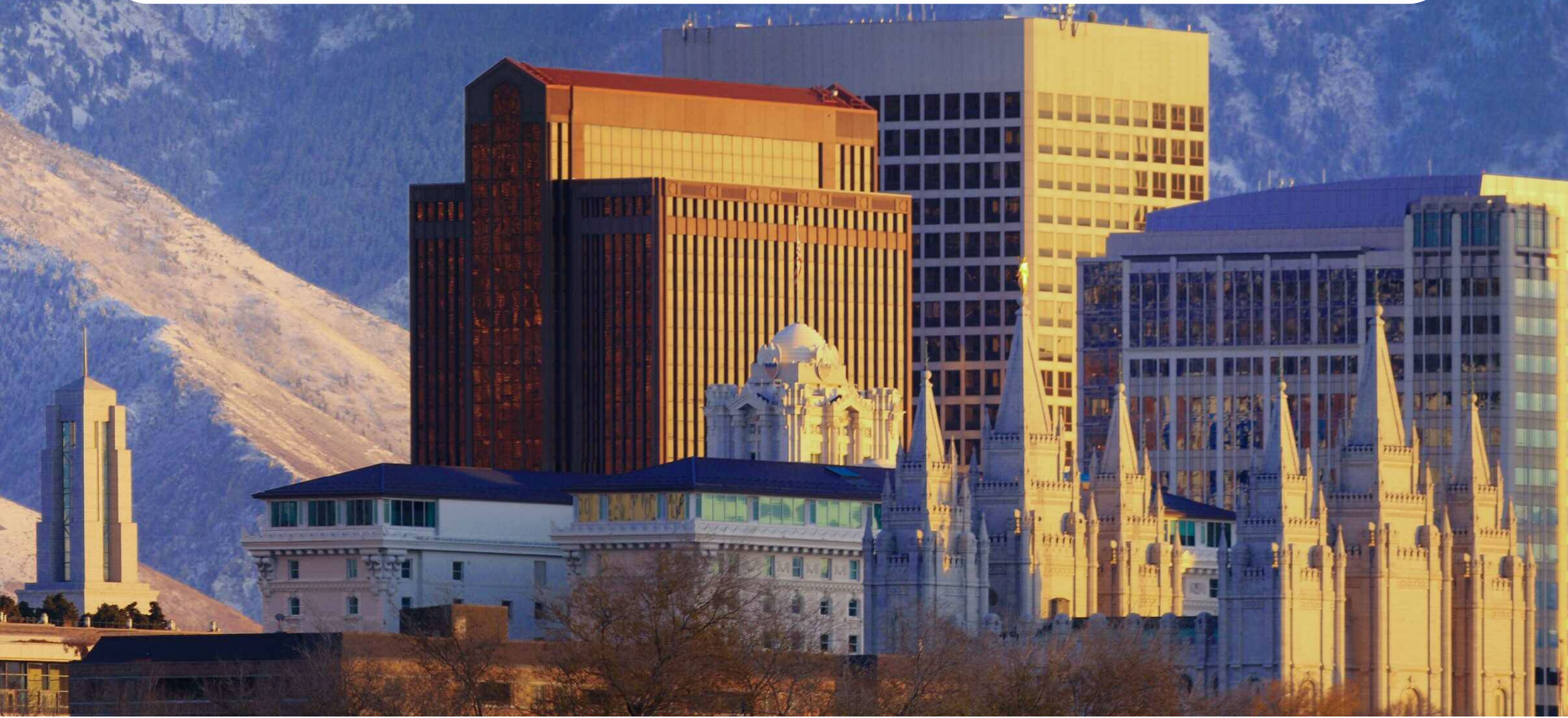
– via Zoom –

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Why Patient Safety Is Still a National Concern

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Disclosures

*I receive a monthly retainer as a part-time (3 days / month) senior advisor for **Health Catalyst**, and own (a small amount of) **Health Catalyst** stock.*

*I serve on the board of directors of **SaVia**, a start-up, privately-held software company that supports clinical workflow design.*

*I also serve on an advisory board for **Amplifire**, a privately-held company that provides computer-based health care education products.*

Neither I nor any family members have any other relevant financial relationships to be directly or indirectly discussed, referred to or illustrated within the presentation, with or without recognition.

Outline – 2 ideas

1. ***Better methods for injury event detection***
2. ***Industry-level ‘standard’ approaches for injury event prevention***

November 30, 1999:

The Institute of Medicine (now the National Academy of Medicine)

Committee on Quality of Health Care in America

announces its first report:

To Err is Human: Building a Safer Health System

Care-associated injuries in hospitals

account for

***44,000 - 98,000 preventable deaths per year
in the United States***

***More people die from hospital-based preventable medical injuries
than from breast cancer or AIDS or motor vehicle accidents***

A series of studies finding that

***2 to 4% of hospitalized patients
suffer care-associated injuries***

*Injuries drive direct health care costs totaling
\$9 to 15 billion per year*

Thomas et al. 1999

Johnson et al. 1992

3 methods for finding injuries

1. **Voluntary reporting** (“*Sentinel Events*”, “*Serious Safety Events*”)

2. **Retrospective chart review**

➤ *Unstructured review* (HMPS, Utah-Colorado)

➤ **Structured review** (“triggers”; IHI GTT, Bates’ SafeCare)

➤ *Automated reuse of financial billing codes* (PSI, Utah-Missouri)

3. **Prospective expert review**

➤ *Supports prospective intervention* (Evans, Bates)

➤ *Complements retrospective chart review*

(both find events that the other method misses)

IHI Global Trigger Tool

- LDS Hospital; random sample containing 325 patients, hospitalized during October 2004
- Record review performed March 21-22, 2005, by a team of 7 trained abstractors
- All charts, at all levels, reviewed twice

35.1% of all admissions had at least 1 care-associated event

26.0% had at least 1 event within index admission

(9.1% of all hospital admissions resulted from outpatient care-associated adverse events)

Rate	Severity Level	Rate	Source
53%	E - temporary harm, required intervention	52%	medications
33%	F - temporary harm, initial or prolonged hospitalization	20%	procedure complications
3%	G - permanent harm	13%	infections
7%	H - intervention required to sustain life	8%	care issues
1%	I - patient death	3%	device failures

Unusual findings: minimal issues relating to anticoagulants, insulin, and PCA pumps, which are much bigger at other institutions (LDSH has protocols in place for these). That yields an injury rate of 82 / 1000 patient days, while most other hospitals are just above 100 injuries per thousand patient days.

Extrapolating to a full year, about **132 'sentinel event' deaths** occurred.

Validated across multiple studies

<i>IHI GTT</i> (2004 data)	795	26.0%
DHHS OIGx2 (2010,18 data)	@800	25.0%
SafeCare* (2018 data)	2,750	23.6%

Voluntary reporting

By far the most common form of detection used across all care settings.

Also sometimes called:

- *nurse incidence reporting*
- *serious safety events (SSEs)*
- *Includes Sentinel events, JCAHO “never events”*

Compared to other methods, finds about

1 in 100 actual care-associated injury events

Done competently, with heavy emphasis:

1 in 10 actual care-associated injury events

Voluntary reporting

*Does not generate a
representative sample*

*Better detection methods
lead to very different
priorities / patterns / methods
for effective prevention*

***You can't fix
what you can't find***

Avoidable mortality – a more accurate estimate

Conservatively (lower bound),

about **210,000 preventable deaths each year**

(upper bound $\approx$ 400,000 deaths/year)

just U.S. in hospitals

*(doesn't include deaths arising from care in outpatient settings,
which are probably more frequent than deaths in inpatient settings)*

(U.S. COVID mortality over 3 years: $\sim$ 370,000/year (1.1 million total deaths))

- **Hospitals fall somewhere between the 2nd and 4th most common cause of preventable death in the United States;** leading to
- *the idea of hospitals as a major public health problem*

A complementary approach

1. ***Voluntary reporting*** (“Sentinel Events”, “Serious Safety Events”)
2. ***Retrospective chart review***
 - *Unstructured review (HMPS, Utah-Colorado)*
 - *Structured review (“triggers”; IHI GTT, Bates study)*
 - *Automated: reuse financial code extraction (PSI, Utah-Missouri)*
3. ***Prospective expert review***
 - *Supports prospective intervention (Evans, Bates)*
 - *Complements retrospective chart review*
(both find events that the other method misses)

High frequency injury sources

1. **Adverse drug events** (ADEs, ADRs)
2. **Procedure complications**
3. **Iatrogenic infections**
 - *post-operative deep wound infections*
 - *urinary tract infections (UTI)*
 - *lower respiratory infections (pneumonia or bronchitis)*
 - *bacteremias and septicemias*
4. **Pressure injuries**
5. **Mechanical device failures**
6. **Complications of central and peripheral venous lines**
7. **Deep venous thrombosis / pulmonary embolism** (DVT/PE)
8. **Strength, agility, and cognition** (fall injuries, use of restraints)
9. **Blood products**
10. **Patient transitions** (handoff failures; mostly ADEs)

When the COVID-19 pandemic hit

*20 years of
progress in patient safety
disappeared*

Our assessment of causes:

- *Reductions in staff, to optimize budgets (financial returns)*
- **Non-standard care** – *every care group had its own, complex approach to patient safety around specific, high priority sources of injury*
- *Primary reliance on clinicians' professional commitment*

Our prescription:

➤ ***Deploy ‘state of the art’ detection***

- 1) prospective expert review (automated clinical flow monitoring systems)*
- 2) automated clinical chart review methods*
- 3) traditional voluntary reporting*

➤ ***Deploy standard approach for each major injury source across all care delivery locations***

***allows aligned, standard training
for all health professionals,
including real-time review and reinforcement***

CommonSpirit *(selected ~40 of 150+ U.S. based, Catholic hospitals)*

- **Detected injury rates: ~20% of inpatient admissions**
 - 4 recent, major studies -- ~25% injury rate, 'state of the art' detection
 - At least 10x higher rate than that found using voluntary reporting
 - Serious/sentinel events are detected at similarly higher rates
- **On average, an event roughly doubles hospital stay, plus increases other resource consumption**
 - at CommonSpirit, **~\$4,600 in additional baseline cost per case**
 - <2% of such events result in rapid death, which avoids direct costs
- **Injury event rates fell by 20% to 60%**
 - **far better quality of care, that drove significant cost savings**
 - varied by hospital and by injury event type

Better has no limit ...

an old Yiddish proverb