Institute for Healthcare Improvement

Understanding and Measuring Harm

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What promises are you prepared to make to patients and their families?

Can We Promise…?

- A place with no needless…
  - Deaths
  - Pain
  - Delays
  - Helplessness
  - Waste

IHI Definition of Harm

Unintended physical injury resulting from or contributed to by medical care that requires additional monitoring, treatment or hospitalization, or that results in death.

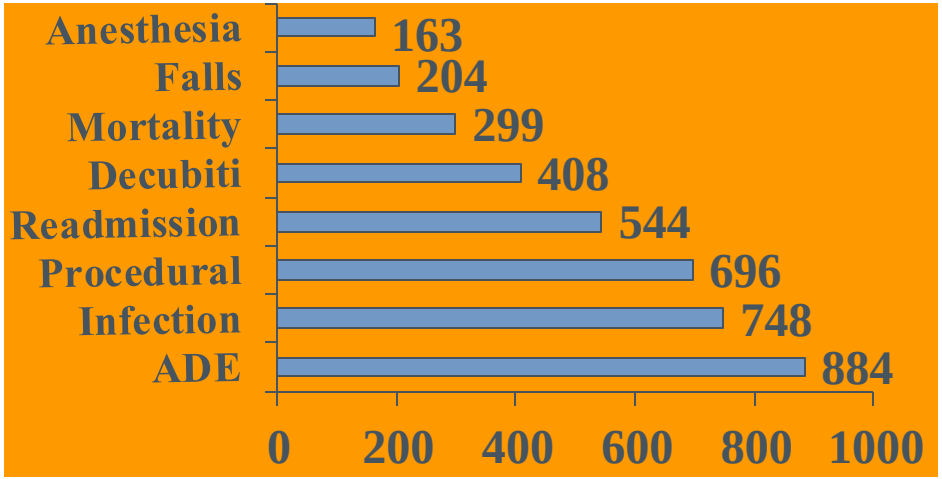
Adverse events are best defined from the viewpoint of the patient

Would I be happy if the event happened to me?

An adverse event is harm to the patient from the viewpoint of the patient

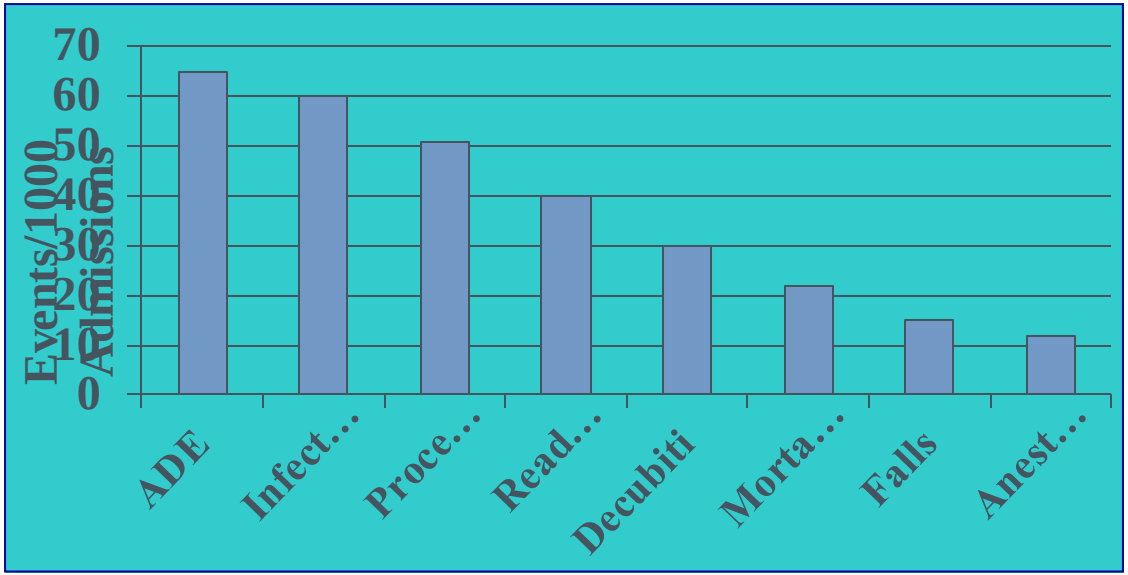
Sources of harm - how many times do we need to re-learn this?

Serious Events in Average Hospital 350 beds with 13,600 admissions and 5,400 surgeries



Source: Advisory Board Company Analysis

Serious Events in Hospitals



Source: AHA Statistics

Designing for Safety

Every system is perfectly designed to achieve exactly the results it gets.

The level of safety, timeliness, responsiveness, and cost are all qualities of a system.

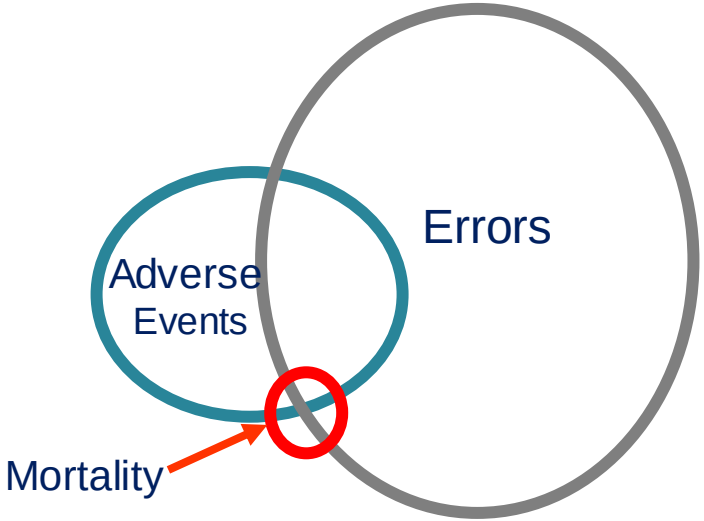
Where's Your Focus?

FOCUS	FOCUS
tasks	risks
checklist complete	continuous learning
today	over time
my work	my team
designs in human frailty	relies on human factors and system resilience

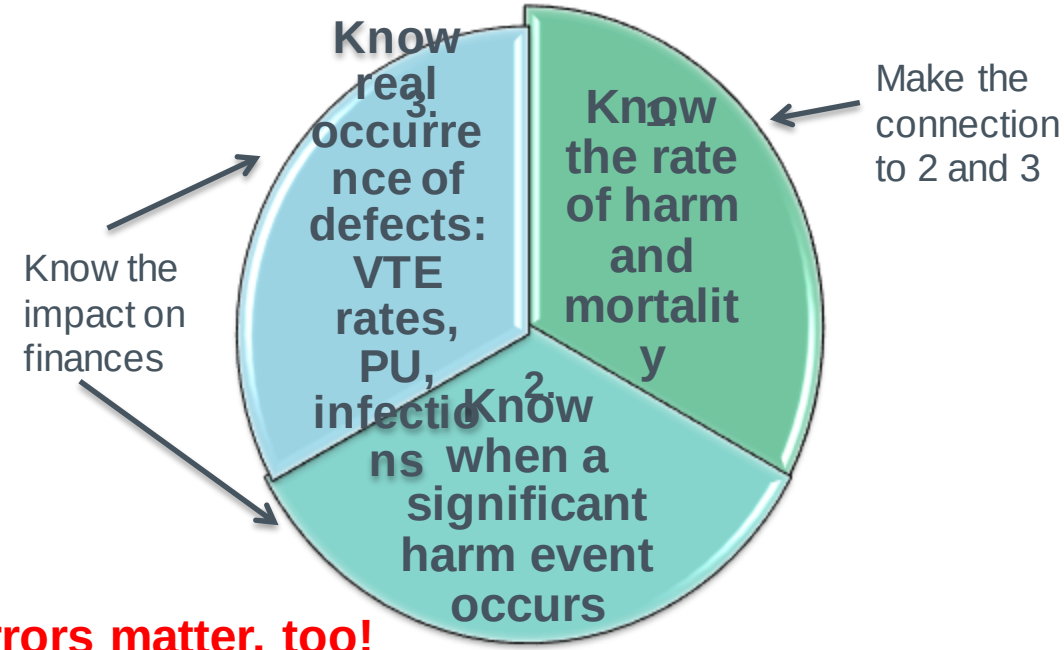
How can we learn about our system performance?

The search for and understanding of errors has not made patient care much safer.

Adverse Events and Error



What Organizations Need from a Portfolio of Measures



And errors matter, too!

How Safe is Our System Report

Indicator		FY Goal	Best In Class	Q.1	Q.2	Q.3	Q.4	FY 12 Actual
Sensitive to Financial Risk								
Non-reimbursable serious hospital-acquired conditions" (HACs) (CMS)* Number: rate/100 patient days:	↓							
Serious Reportable Events (NQF) Number: rate/100 patient days:	↓							
Funds spent or withheld due to harm/error	↓							
Core Measures Reliability (CMS, insurers) Composite	↑							
30 day readmission rate	↓							
Global Trigger Tool Rate 1) percent of admissions that had an AE 2) events per 100 admissions	↓							
Sensitive to Mortality Risk								
A standardized measure of hospital mortality	↓							
Sensitive to Patient and Family Perceptions of Safety Risk	↑							
(looking for a good measure here- HCAPS does not have one)								
Sensitive to Staff Safety Risk								
-Staff Work-Related injuries or Illnesses -Lost Time Case Rate	↓							
Sensitive to Safety Culture Risk								
Patient complaints number this quarter	↓							
Self-reported error/harm rate	↓							
Safety Culture Survey Outcome Scores: #1 Overall perceptions of safety #2 Frequency of events reported #3 Number of events reported #4 Overall patient safety grade	↑							

Measuring the Harm

1. Occurrence rates - preferably real time
2. Measure of all-cause harm over time: Trigger tool or other like instrument
3. Self reporting systems

YOU NEED ALL!

WHY?

Error Reporting Alone

- Relies on self-report
- Is notoriously unreliable
- Cannot accurately measure or use to see improvement over time
- What would a ‘good’ level look like?
- Works only in a just culture
- **Critical for improving the culture**

Preventability and Harm

- Every system is designed to produce the outcomes it gets.
- We have systems of care designed to produce certain levels of harm.
- These levels of harm have become acceptable as a property of the system.
- All harm is theoretically preventable.

IHI Trigger Tool

What is the IHI Global Trigger Tool?

- “Triggers” indicate which medical records are likely to include documentation of an adverse event (harm).
- 20 minute chart review finds most adverse events.
- The GTT is far more sensitive than voluntary reporting.
- Harms present on admission and related to medical care are counted, as are all events whether or not considered preventable.
- The GTT is not designed to detect diagnostic errors or errors of omission, so rates of harm found with the GTT underestimate the total harm burden.

North Carolina Safety Study

- Stratified random sample of 10 North Carolina Hospitals
- North Carolina chosen because strong commitment to safety
- Conducted by independent health services researchers (Landrigan and Sharek) and a Clinical Research Organization (Battelle, Inc.)
- Random charts from 2002-07 reviewed with GTT (external and internal reviewers)

North Carolina Safety Study

- 25.1 harms/100 admissions
- Procedures, medications, healthcare associated infections most common
- Most harms minor and transient, but some serious
  - 41.7% temporary with intervention required
  - 44.7% temporary with prolonged hospitalization
  - 2.9% permanent
  - 8.5% life threatening
  - 2.4% caused or contributed to death
- 63.1% “preventable”
- No detectable improvement over the 6 year study period (adjusted for case mix)

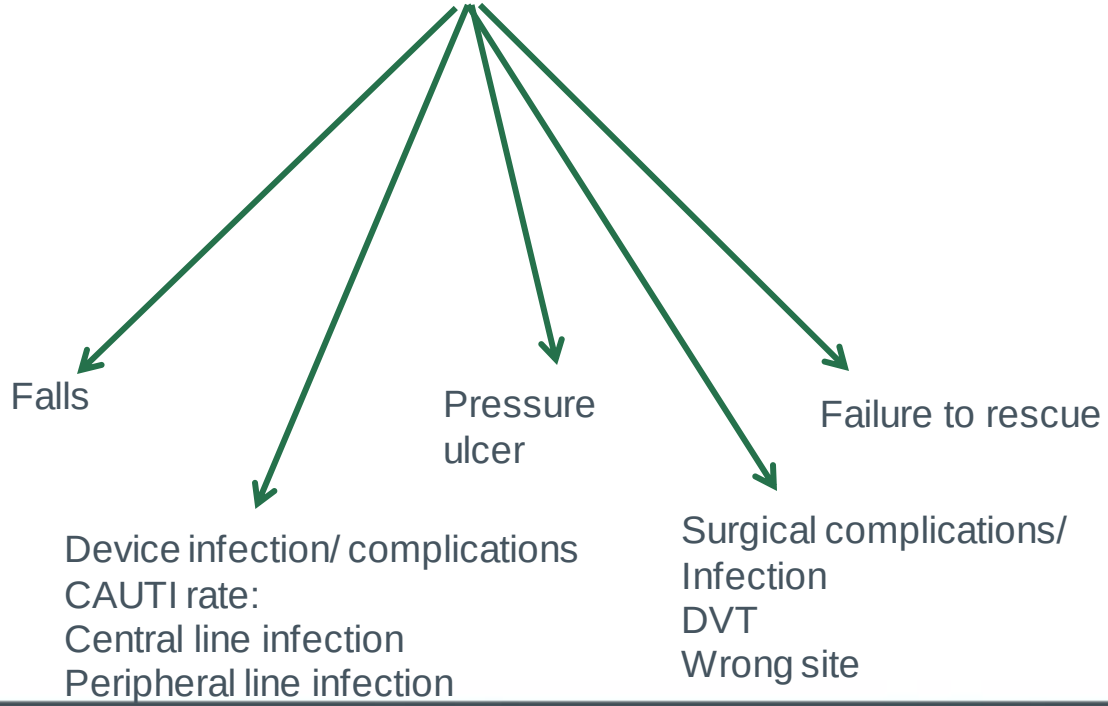
Office of the Inspector General (OIG) Medicare Study

- IHI GTT, but harms *present on admission excluded*
- **13.5 harms/100 admissions** (excluding temporary harms that did not require prolonged hospitalization)
  - Estimated 134,000 Medicare patients had at least one adverse event in the one month study period (contributing to 15,000 deaths)
- **Another 13.5/100** admissions had temporary harms
- 44% clearly or likely preventable
- Medication, patient care, infection most common causes
- Total cost $324 million in the study month (3.5% Medicare hospital expenditures)

What does this mean to you?

- Validation that the GTT is a reliable method to detect harm
- Other methods may not be identifying all harm events – “Are you identifying the same harm?”
- International application
- Position as a critical component of measurement strategy

Over all rate of harm over time: GTT



ICU Days and Adverse Events

- Study of a “trigger tool” for adverse events in ICU (IHI/VHA)
- Approximately 2 adverse events/ICU day
- Seventeen intensive care units around the nation

Consecutive Adverse Events

1-Iatrogenic pneumothorax
2-Sternal wound infection
3-Thrombophlebitis
4-Post Surgical bleed
5-ICU delirium
6-Nosocomial pneumonia
7-Theophyline toxicity/arrhythmia
8-GI bleed
9-Iatrogenic pneumothorax
10-ICU delirium
11-Fluid overload
12-Oversedation
13-Urinary obstruction
14-ICU delirium
15-Rash
16-Aspiration pneumonia
17-Nausea
18-Pulmonary embolus
19-Nosocomial pneumonia
20-Sternal wound dehiscence
21-Dialysis induced hypotension
22-Severe hypotension with NTG
23-Renal failure post surgery
24-ICU delirium
25-Sternal wound infection

Cost Analysis

Pt. #	Impact	Charge Impact	Net Revenue Impact	Variable Direct Cost Impact	Favorable/(Unfav) NOI Impact
1611504	entire stay	$57,484	$15,525	$16,700	($1,175)
1614049	2 extra hospital days	$3,428	$0	$1,170	($1,170)
1610409	2 extra ICU days	$10,422	$0	$2,650	($2,650)
1612904	2 extra ICU days	$7,930	$0	$2,500	($2,500)
1615479	Total ICU costs	$1,502	$0	$865	($865)
1612683	Total Hospital Costs	$21,500	$3,958	$6,430	($2,472)
1616084	3 extra ICU days	$6,592	$0	$2,695	($2,695)
7025810	Indwelling Cath, 8 vent hours, 1 critical care day	$8,768	$0	$3,245	($3,245)
1610401	2 extra ICU days	$9,180	$0	$2,345	($2,345)
1615100	4 days ICU care	$13,756	$0	$4,485	($4,485)
1574521	No additional cost	n/a	n/a	n/a	n/a
1559036	5 extra ICU days	$19,341	$0	$7,150	($7,150)
1560556	3 extra ICU days	$19,032	$0	$3,730	($3,730)
1561070	2 extra ICU days and return to OR	$16,436	$0	$5,125	($5,125)
1560964	3 extra ICU days	$15,090	$0	$4,408	($4,408)
1566180	no additional cost	n/a	n/a	n/a	n/a
1565261	2 extra ICU days	$4,086	$0	$1,619	($1,619)

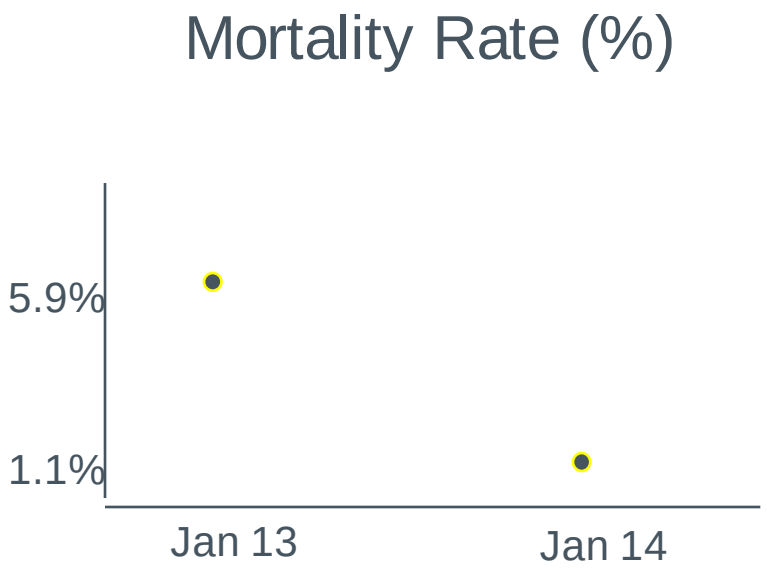
ICU Days and Adverse Events

- In dept evaluation of 25 consecutive events showed 54 extra ICU days

What You Measure Matters

….and how you measure and display it matters, too.

Coronary Artery Bypass Graft



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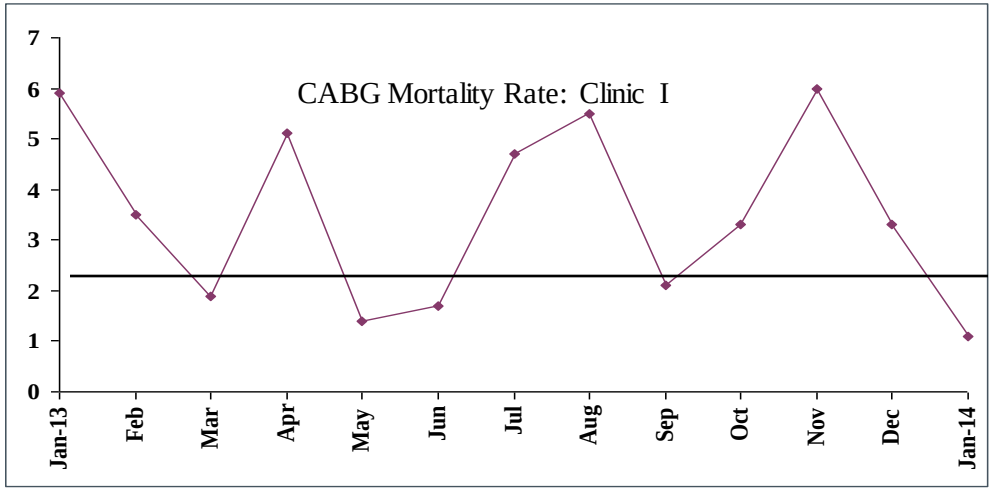

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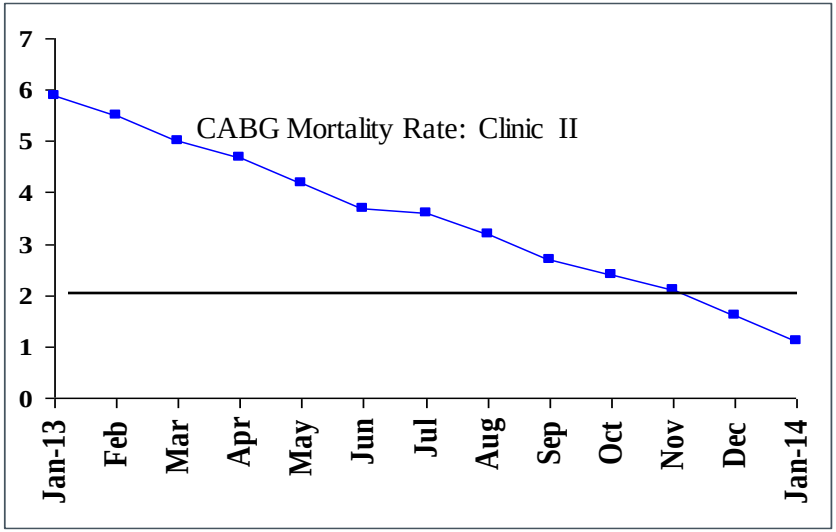

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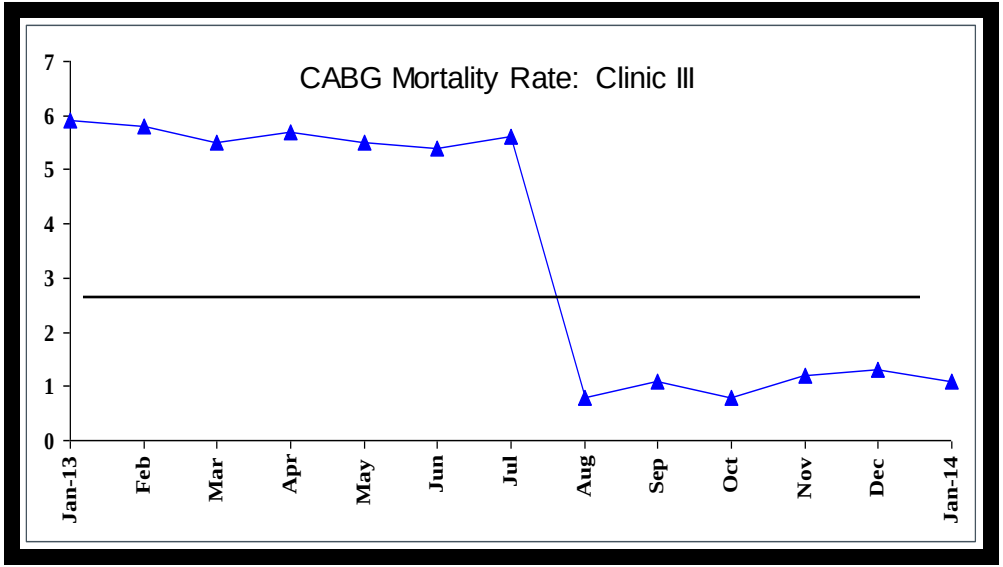


BREAKTHROUGH CHANGE

“There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success than to take the lead in a new order of thinking.”

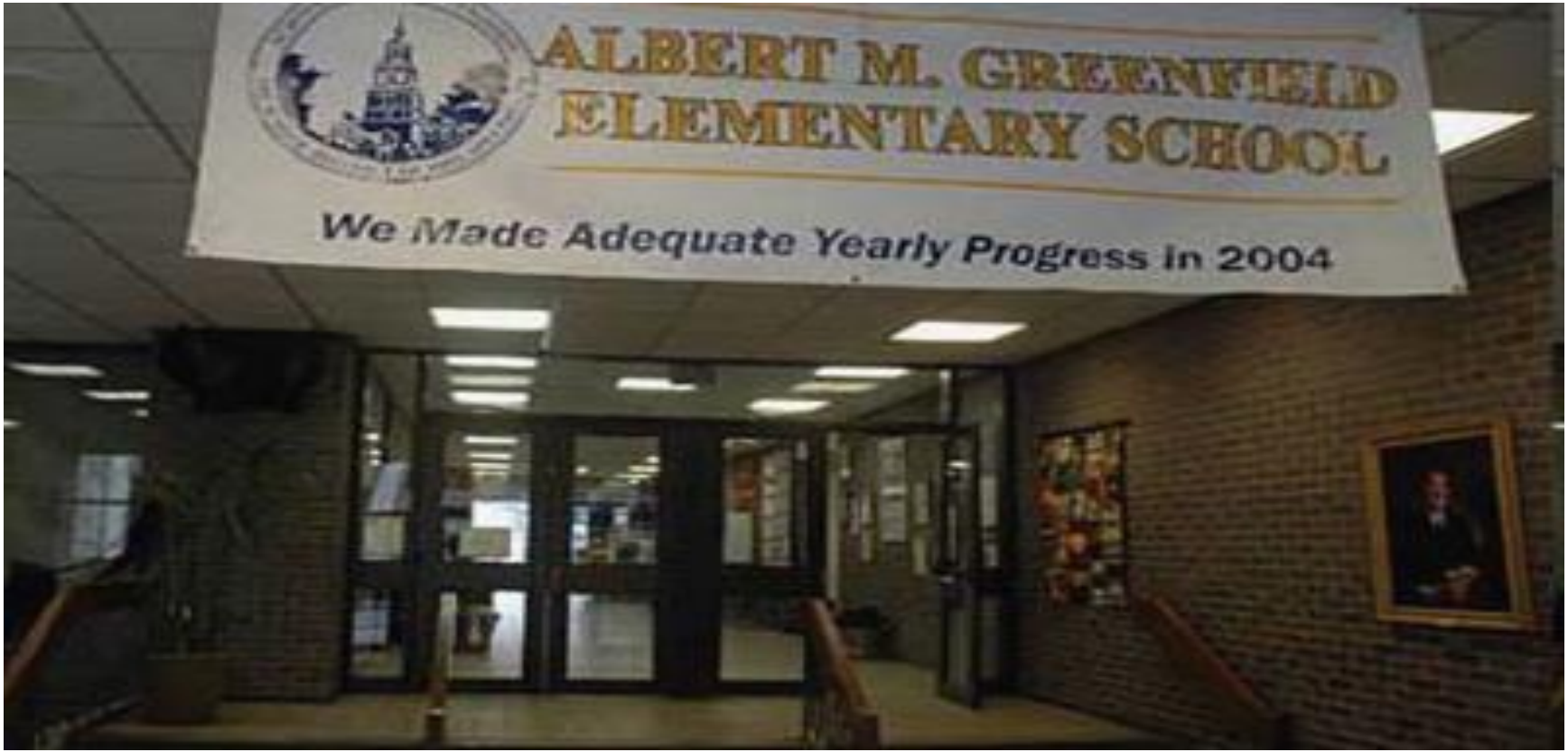
Machiavelli

Bob Wachter on Patient Safety 2013

"I've never been more worried about the safety movement than I am today. My fear is that we will look back on the years between 2000 and 2012 as the Golden Era of Patient Safety, which would be okay if we'd fixed all the problems. But we have not"

1. **Clinical Burnout- "***the blizzard of new initiatives – all well meaning but cumulatively overwhelming – thrust at busy clinicians has created overload"*
2. **Strategic repositioning of priorities**

The status quo is a tyrant...


ALBERT M. GREENFIELD
ELEMENTARY SCHOOL
We Made Adequate Yearly Progress in 2004