Systems Approach to Change Management for Improving Patient Safety

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School of Medicine, State University at Buffalo.

Thursday, June 3 2010

Workshop: Change Management
Change Management: in our complex dynamic Healthcare System

Objective is to share answers to the following questions

- How can we use the ‘Central Attractors’ or Central Lessons to improve patient safety, for example in ambulatory settings
- How can we take advantage of IT and enrich its ‘meaningful use’
Change Management: in our complex dynamic Healthcare System

Objective is to share answers to the following questions

What can we learn from Successful Adaptive System’s Example: ‘VALUE’ Seeking Flight of the Geese.

Join Us on this Exciting Journey!

This flight of geese with sound track can be seen at: www.patientsafety.buffalo.edu
Exciting Journey
From Complexity to Simplicity
From Chaos to ORDER
through adoption of Simple Rules and Central Attractors
Simple Systems

Deterministic:
High Degree of Certainty

Stochastic:
High Degree of Uncertainty

Complex Systems

Strong Central Attractors:
e.g. high level of consensus

Non-existent Central Attractors:
e.g. lack of consensus

Central Attractors:
High Degree of Certainty

Adapted from Stacey

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Let us Take Inspirational lessons of Teamwork from geese
When geese migrate long distances so as to survive and thrive they fly in a “V” formation. Why?
Flying without a common vision, mutual trust, mutual respect, collaboration, cooperation

i.e. WITHOUT ‘CENTRAL ATTRACTERS’
the prospects of success are significantly diminished

Survival is Threatened
With the ‘CENTRAL ATTRACTERS’
The whole flock increases the flight efficiency by 70%!

This is the core lesson

Compared to individual goose flying on its own

This is an ADAPTIVE SYSTEM with high chance of thriving

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Second Lesson:
Have a
Shared vision
of your system
And don’t be an individualist
Send supporting and encouraging quacks to the leaders and others
Third Lesson:
Respect the simple Rules of the system to make the journey Ethical, efficient, effective, timely and pleasant
Fourth Lesson:
When the leader gets tired
Let him/her go the end of the ‘V’ for relief and
Let one of the others take the lead.
Fifth Lesson:
There must be mutual Respect and Trust
Sharing of the hardest problems and tasks with pooled talents, abilities and resources
Sixth Lesson:
When one of the members of the team gets unwell, or is injured or gets tired and has to leave the formation others give support for recovery
Seventh Lesson:
Stay by one another
no matter what
especially when
the going is rough
Eighth Lesson: Cherish and Enjoy the fruits Of TEAMWORK and thrive
Shed the Ego

Learn from every where
and from all directions
This preceding flight of geese with sound track can be seen at:
www.patientsafety.buffalo.edu
Overview of the presentation

- Background and Context
- Current state that Calls for Change
- ‘Transcendental’ Bottom-up Approach
- IT Enabled to Enrich Mean. Use of HIT
- Experience so far
- Conclusions
Background and Context
Safety is a fundamental system property.

Without safety there can be no quality of care (IOM)

“The goal in the United States is to deliver safe, high-quality health care..”

AHRQ  www.HHS.gov
Patient Safety

Is

“freedom from accidental injury due to medical care or medical error” (US IOM)

UN: WHO is working towards declaring it a Basic HUMAN RIGHT

There is already “London Declaration” by WHO
This constitutes nearly 50% of the surgical “Never Events”

Wrong body part: 30%
Wrong procedure: 16%
Wrong patient: 4%

CMS press release 2006 (Minnesota Study)
More than 3 Jumbo jets of the Health Care Industry drop out of the sky every day!
(Analogy after Leape: the Safety Guru of USA)

And then there are other adverse Events!!

Up to 200,000 avoidable Deaths per year in outpatient Settings.
Srasfield in JAMA 2000.

Geriatrics carry the maximum share of this burden

In 2001 there were 4.3 million ambulatory visits for treating Adverse Drug Events
Zhan et al 2005

More than 1.5 million Preventable ADEs per year!
IOM 2006
And then there are other adverse Events!!

1.5 Million/year Incidents of Harm™

US Healthcare

The US National Burden of Systemic Errors in the Health Care
15 – 54% of primary care medical errors can be related to the testing process

20% of testing process errors may result in harm to patients

Elder, Hickner, Eder
Split of $2.6 trillion US National Budget of a fragmented and decentralized HC System

Cost of Hospitalization 31%

30-40% includes costs of other settings and harm to patients!

30-40% is the cost of administrative wastage

Please see this in the context of the fact that every 30 seconds an American is driven to bankruptcy due to healthcare costs (Obama)
In >0.5 in 2007 were and in 2010 6 million/year are outsourced. These numbers are on a ‘steep climb’

AARP Sep.2007/The Economist April 2010
Healthcare Safety Comparison with Civil Aviation

Adverse Events Per Million Opportunities

1,000,000
100,000
10,000
1000
100
10
1

σ S I G M A σ

This comparison is somewhat unfair because

need to shift

MEDICATION

Adapted from Robert Galvin (courtesy)
Money vs. Health. No relationship

Our Goal

Congressional Budget Office Head, Peter Orszag: Times Nov 08
Safe  
timely  
effective  
efficient  
equitable  
patient centd.
How do we currently strive for safety?

that calls for Change
Currently we live in a cycle of Fear

Micromanage (Barking up the wrong tree)

Kill the messenger (denial; shift the blame)

Filter the data (game the system)

Scherkenbach’s Cycle of Fear, 1991
Pathological: Why Bother about Patient Safety?

Reactive: Do something when we have an incident

Bureaucratic: ‘We have system in place’

Proactive: We are always on the alert/thinking about what might emerge

Safety-Cultured: We manage Safety as an integral part of everything we do
Current Strategies of Safety Improvement
Based on Assessment of the current status
Retrospective

Singh 2002
Error reports

• *Errors reports are a valuable source of info but do not yet provide the whole picture*

*UNDER and biased REPORTING are serious limitations!!*
Practice Profiles

- Many providers ignore them
- Disregard uniqueness of individual practices
- A cause of division between ‘winners’ and ‘losers’
- A cause of poor morale

Audits

- Useful, objective way of measuring performance
- Most are based on documentation – a limited view
- Tend to focus on a specific area
They Are Just the Tip of the Iceberg
Data Data ... every where
little knowledge to quench my thirst for wisdom
Where is the *wisdom* we have lost in knowledge?
“Where is the *wisdom* we have lost in knowledge?

Where is the *knowledge* we have lost in information?”

T.S. Eliot 1946
IG’s report to Congress on methods for identifying adverse events in hospitals shows concern that incident reporting systems (five different screening methods) are missing the majority of events and are unreliable. The report suggests that current hospital reporting may be unreliable as a source of information for the Patient Safety Organizations (PSO).
Where is the *wisdom* we have lost in knowledge?

Where is the *knowledge* we have lost in information?

T.S. Eliot 1946

Where is the *information* that we lose too often under the deluge of *Data*? gurdev 2000
Culture of TEAM -work and -spirit Bottom Up can harness this data info. to Create Value = ’Beauty’
Where is the \textit{wisdom} we have lost in knowledge?

Where is the \textit{knowledge} we have lost in information?

T.S. Eliot 1946

Where is the \textit{information} that we lose too often under the deluge of \textit{Data} gs 2000
Current strategies are based just on the tip of the Iceberg as Value for $$$$$$$
2.6 Trillion/y is sought!
The four laws of economic incentives

1. Salary ➪ Do as little as possible for as few people as possible

2. Capitation ➪ Do as little as possible for as many people as possible

3. FFS ➪ Do as much as possible, whether or not it helps the patient (even harm)

4. Quality p4p ➪ Carry out a limited range of highly commendable tasks, but nothing else
Resistant Providers
Not enthusiastic
• Unintended consequences
• Resistance to external data
• Resistance to change
• Culture of blame
• Avoidance of high-risk patients
• Concern with ‘indicators’
• May undermine wholesome approach
• Compromises Clinician-Patient Relation
• May not address co-morbidities
• …..

(Outside H.C. from which this idea has been imported e.g. HP)

Empowered Providers
Form Self-empowered and Motivated Team
• Receptive to external data
• Provides preparedness for P4P
• It is prospective
• Internal measurements – privacy
• Makes info. useful at the point of care
• Patient centered
• Forms culture of Safety/Quality
• Cost effective quality improvement
• Can improve patient satisfaction
• Increase clinician satisfaction
• Provides change management tools
• May reduce malpractice
• ….

Complementary
Resistant Providers

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- ....

Caution!!

Large proportion of all the organizations that originally adopted P4P have already dropped it!

(outside H.C. from which this idea has been imported e.g. HP)
There is a Pressing Need for Change in Strategy for achieving Value for $$$:

With understanding of interplay between safety based quality and costs &

Understanding of Cybernetics Between Culture formers
COST = \( C_p + C_s \)

\( C_p = \) Tangible and intangible costs of harm to patients and staff in the system

\( C_s = \) Costs of safety investments and maintenance of the system

OBJECTIVE

Achieved through prioritized cost-effective interventions in the system

Achieved through communication, patient education and stress management

LOW SAFETY

HIGH SAFETY

DECREASING RISK/HAZARD RATING

INTERPLAY BETWEEN SAFETY-BASED QUALITY AND COSTS IN THE WHOLE SYSTEM UNDER STUDY

©G and R Singh 2001
Adopt Systems (Holistic) Approach: Address fragmentation and decentralization to capture and understand complexity of the system, to create a shared Common vision.
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Make SAFETY Leadership’s Priority and every ones’ responsibility. Provide adequate and competent human resources and develop procedures for identifying and dealing with unsafe practices, and provide resources for analysis and system redesign.
Adopt Systems (Holistic) Approach: Address fragmentation and decentralization to capture and understand complexity of the system, to create a shared Common vision.

Make SAFETY Leadership’s Priority and every one’s responsibility. Provide adequate and competent human resources and develop procedures for identifying and dealing with unsafe practices.

Design the System for Recovery, making errors visible and detectable, making it hard to carry out irreversible actions but easy to reverse inadvertent actions, as well as building barriers and redundancies.
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Create Non-hierarchical Teams; built on mutual respect, trust, collaboration, cooperation and clear delegation of responsibility as well as incentive to use initiative for unforeseen situations with minimum stress.
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Create Learning Environment in which error reporting (preferably voluntary) is non-punitive, confidential and accessible to all staff and patients with no restrictions on format.

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Create Awareness of the Value of Quality that leads to patient and staff job satisfaction, that energizes and empowers the workers to improve Quality, leading ultimately to increased profitability (i.e. use Humanistic approach to safety management)

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Framework of Interactive Contributors to the Construct of Culture of Patient Safety

- **Adopt Systems (Holistic) Approach**: Address fragmentation and decentralization to capture and understand complexity of the system, to create a shared Common vision.

- **Create Awareness of the Value of Quality**: That leads to patient and staff job satisfaction, that energizes and empowers the workers to improve quality leading ultimately to increased profitability (i.e. use Humanistic approach to safety management).

- **Make SAFETY Leadership’s Priority**: And every one’s responsibility. Provide adequate and competent human resources and develop procedures for identifying and dealing with unsafe practices, and provide resources for analysis and system redesign.

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Manifestation of Safety Climate: Expressing itself (partly) in Measurable Attitudes and Perceptions

Create Learning Environment in which error reporting (preferably voluntary) is non-punitive, confidential and accessible to all staff and patients with no restrictions on format

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Interactive Contributors to the Construct of Culture of Patient Safety: in Cybernetic loops with the Culture Singh et al. 2008.
The four laws of economic incentives:

1. **Salary**
   Do as little as possible for as few people as possible

2. **Capitation**
   Do as little as possible for as many people as possible

3. **FFS**
   Do as much as possible, whether or not it helps the patient (even harm)

4. **Quality p4p**
   Carry out a limited range of highly commendable tasks, but nothing else

---

**The Transcendent Law of economic incentive:**

Create **Adaptive** Practices with Self-empowered and Self-motivated Teams Embedded in a Culture of Safety

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Affordable Excellence in Quality
Policy for Safety by Leadership

The Board/Leaders

The CEO
The CFO
The COO
The CNO

………………

Senior Managers

………………

Frontline Staff

………………

Provider/staff

Bottom-Up

McGregor 1960

Staff

Synthesis

Singh 2002

Fulfilment

Top-Down

McGregor 1960

Analysis
It is Interesting to note that only recently a June 2010 Report by AHRQ and HRET “Using Workforce Practices to Drive Quality Improvement: A Guide for Hospitals” recommends 4 high performance work practices (HPWPs) as follows:

1. Engagement,
2. Staff acquisition and development,
3. Frontline Empowerment,
4. Leadership Alignment and Development
Our Driving Principles for Change

Holism
Natures way of creating wholes that are more than the sum of the parts Aristotle through creative evolution Singh 2000
This is the inspiration behind Systems Approach and complexity science

Cybernetics
Science of observed systems + Science of observing systems

Supremacy of Relevance over Rigor
Reductionism gives rigorous answers, but to wrong questions Better an approximate answer to a right question Singh 1987

Aristotle 300 BC & GS Singh: April 2001
Driving Principles

Not succumbing to the prevailing “Hegemony” and “Greedy Reductionism”

So that we can broaden the view of EBM

Berwick
“The Greatest Enemy of Knowledge is Not Ignorance, It is the Illusion of Knowledge”

Stephen Hawking
Hon. Fellow of the Royal Society of Med (London)

A significant proportion of “randomized controlled studies” deliver nothing but the illusion of knowledge (particularly from those that market products and ideas)

gurdev Fellow of the Royal Society of Med (London)

His other concern is the current culture of wrapping the existing/old sound theories and their language in ‘new/different’ words to create an illusion of innovation – this obstructs real change for quality
Let us adopt an eclectic approach
Why not ask them what see?

ALL workers “Swimming in the Water” can each see various parts at various times
This is **Team Resource Management**

(=CRM)

This is Prospective

Supported by two AHRQ ‘R’ Grants

© Gurdev Singh 2001/7
‘Transcendental’
‘Bottom’-up Approach to Organizational Change

McGregor 1960

Synthesis and Analysis are Coupled

Singh 2003
Culture of Safety/Quality Will help break this Cycle with Self-empowered and Self-motivated teams

Kill the messenger (denial; shift the blame)
Filter the data (game the system)
Micromanage (bark at the wrong tree)

Scherkenback's Cycle of Fear, 1991

Currently we live in a cycle of Scherkenback’s Cycle of Fear, 1991, which involves:
- Kill the messenger (denial; shift the blame)
- Filter the data (game the system)
- Micromanage (bark at the wrong tree)

A Culture of Safety/Quality will help break this cycle with self-empowered and self-motivated teams.
Our Approach

• Treat and respect each ‘practice/setting’ as a unique micro-system to help it thrive; through trust, mutual respect and collaboration between all ‘agents’ ("strange attractors" that produce order in disorder/uncertainty).

• Establish culture of safety that encourages empowerment, ownership, and raises morale – shift from blame culture.
1. Assess Baseline Safety using SEMI-P and SAQ

2. Identify Most significant System Problems Based on Hazard Rates Using Delphi Technique

3. Establish team based feasible solutions to prioritized hazards

4. Implement team based solutions

Based on FMEA

Informed by important principles, strategies and desirable equipment features
1. Assess Baseline Safety using SEMI-P

This is Management for Creating Adaptive & Thriving System (Complex)

Based on FMEA

- prioritized hazards
- strategies and desirable equipment features

Informed by important principles, strategies and desirable equipment features
SEMI-P
Safety Enhancement and Monitoring Instrument – Patient Centered Systems Approach
Based on Understanding

**PATIENT**
Perception, Beliefs, Values, Preferences, Family, Friends, Community

**Assessment**
Based on History, exam, labs... Current problems, Potential problems

**Review & Learn**
Based on Feedback, History, Current and past experience

**Plan**
Based on Investigations, Drugs, Behavior Mod., Physical Ther., Surgical, Palliative

**Implementation**
Curative, Preventative

**Transitions**
Micro-systems

**Errors can occur at each point in this Macro system**

**Based on Feedback**
Patient, Family, Friends, Nurses, Physical therapist, Surgeon, Specialist, HMO

**Circle of Influence No. n: U.N. Health Authority**

© Gurdev Singh 2001/7
Errors can occur at each entity and in each interaction between them in this micro-system.
Micro-system of Testing Process
Safety Enhancement and Monitoring Instrument that is Patient centered:
SEMI-P

Singh 2002
We start with a Questionnaire (SEMI-P) that helps capture the setting’s safety status by eliciting perceptions of all the staff.

1. Assess Baseline Safety using SEMI-P
How to complete the Questionnaire (SEMI-P)

Please do not underestimate your understanding of your office. Fill in every page completely. ‘Not applicable’ or ‘do not know’ are not available options.
Singh 09

Relevant part of the process is highlighted

Hazard = Freq. x Conseq.
Please mark the Frequency and Consequence and Calculate the Hazard = F x C as shown below.

<table>
<thead>
<tr>
<th>Test Implementation</th>
<th>How often does this happen?</th>
<th>What is the usual consequence?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequent</td>
<td>Occasional</td>
</tr>
<tr>
<td>Stat or urgent test not processed or scheduled urgently</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Specimen not picked up</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Lab order misinterpreted</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Requested test not done (including specimen not drawn, image not booked)</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Specimen improperly collected or stored/old or inadequate specimen</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Lab cancelling tests without notifying the clinician</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Description</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>Lab cancelling tests without notifying the clinician</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specimen lost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specimen/patient sent to wrong facility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delay in obtaining specimen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wrong specimen obtained</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wrong test performed or scheduled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right test performed wrongly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test done, but results lost at testing facility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Failure to instruct patient how to prepare for investigation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Failure to alter medications for diagnostic procedure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Error in specimen labelling or documentation within our office</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OTHER</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Please continue on the back)

*as defined at the bottom of each page*
This is the last questions sheet!

Last Ten Important Questions!

Please exercise special attention
whilst answering each question below by marking on the bubbles:

<table>
<thead>
<tr>
<th>Questions</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither agree nor disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. As a result of this study I am more able to anticipate and prevent potential testing process errors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. As a result of this study I am less likely to be able to detect errors/problems when they occur.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. As a result of this study I am more likely to report errors or their potential causes when I notice them.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. As a result of this study I am less likely to report errors or their potential causes when</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Thank you for your cooperation!

Any Comments Will Be Most Welcome!

Please mark X on this bubble first > ○ < and write your comment below:
Prioritization is Based on HAZARD RATING
Hazard = Probability x Severity
\[ h = p \times s \]

The survey yields qualitative perceptions of probability and severity – these must first be converted to quantitative data:

- **PROBABILITY** \((p)\): its numerical value was derived from the descriptive perception by taking into account the number of patients seen in the corresponding descriptive period

- **SEVERITY** \((s)\): its numerical value was obtained by adopting a risk aversive attitude, shown in the diagram on the next slide

G and R Singh 2002
Safety Enhancement and Monitoring Instrument that is Patient Centered (SEMI-P)
for Systematic Appraisal of Risk and Its Management for Event/Error Reduction in test processes

Stage 1 - Anonymous Survey.
This uses a survey called SEMI-P ("Safety Enhancement and Monitoring Instrument that is Patient centered"). This survey is an opportunity to freely express your opinions about the testing process in your office. Since it is anonymous you should feel free to answer honestly. This survey asks you about each of the steps in the testing process. To help orient you to the overall testing process, the survey uses a diagram (shown below) that shows who and what is involved in the testing process and how they work (or are supposed to work) together.

Errors can occur at any point in the diagram. The survey looks at 8 main areas in the testing process. Each page of the survey is about a different area, and consists of a list of errors or causes of error that can occur in that area. The lists are based on review of the literature and consultation with practicing physicians and nursing leaders. The survey asks you to think about each of the errors in turn and, for each, to indicate your opinion about how often it occurs and, when it does happen, how severe the consequences usually are. At the bottom of each page, you will see an explanation of the various options.

Let us Assume we are using a paper version of SEMI-P

This is what you should see

Explain here are each of the 4 stages in more detail:
Stage (1) – Anonymous Survey. This uses a survey called SEMI-P (“Safety Enhancement and Monitoring Instrument that is Patient centered”). This survey is an opportunity to freely express your opinions about the testing process in your office. Since it is anonymous you should feel free to answer honestly. This survey asks you about each of the steps in the testing process. To help orient you to the overall testing process, the survey uses a diagram (shown below) that shows who and what is involved in the testing process and how they work (or are supposed to work) together.
### TEST ORDERING BY CLINICIAN

<table>
<thead>
<tr>
<th>Issue</th>
<th>How often does this happen?</th>
<th>What is the usual consequence?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needed test not ordered</td>
<td>4 (Frequent)</td>
<td>4 (Severe)</td>
</tr>
<tr>
<td>Wrong test ordered</td>
<td>3 (Occasional)</td>
<td>3 (Moderate)</td>
</tr>
<tr>
<td>Unnecessary test ordered</td>
<td>2 (Uncommon)</td>
<td>2 (Mild)</td>
</tr>
<tr>
<td>Ordered test at wrong time</td>
<td>1 (Remote)</td>
<td>1 (Minimal)</td>
</tr>
<tr>
<td>Contraindicated test ordered</td>
<td>4 (Frequent)</td>
<td>4 (Severe)</td>
</tr>
<tr>
<td>Wrong test/patient name recorded in log</td>
<td>3 (Occasional)</td>
<td>3 (Moderate)</td>
</tr>
<tr>
<td>Test not entered into log</td>
<td>2 (Uncommon)</td>
<td>2 (Mild)</td>
</tr>
<tr>
<td>Incomplete or illegible lab order slip</td>
<td>1 (Remote)</td>
<td>1 (Minimal)</td>
</tr>
<tr>
<td>Failure to instruct patient how to prepare for investigation</td>
<td>4 (Frequent)</td>
<td>4 (Severe)</td>
</tr>
<tr>
<td>Failure to alter medications for diagnostic procedure</td>
<td>3 (Occasional)</td>
<td>3 (Moderate)</td>
</tr>
</tbody>
</table>

**Hazard = Freq. x Conseq.**

**Minimum = 1 and Maximum = 16**
Conversion of descriptive/qualitative to quantitative values of severity ‘s’

- Risk Preferring
- Indifference to risk
- Risk Averse adopted
- Very high risk aversiveness
Calculation of Hazard: \( h = p \times s \)

<table>
<thead>
<tr>
<th>Hazard Matrix</th>
<th>Probability (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Remote</td>
</tr>
<tr>
<td>Severity (s)</td>
<td></td>
</tr>
<tr>
<td>Minimal</td>
<td>0.01</td>
</tr>
<tr>
<td>(=1%)</td>
<td></td>
</tr>
<tr>
<td>Mild</td>
<td>0.03</td>
</tr>
<tr>
<td>(=5%)</td>
<td></td>
</tr>
<tr>
<td>Moderate</td>
<td>0.10</td>
</tr>
<tr>
<td>(=20%)</td>
<td></td>
</tr>
<tr>
<td>Severe</td>
<td>0.50</td>
</tr>
<tr>
<td>(=100%)</td>
<td></td>
</tr>
</tbody>
</table>

G and R Singh 2002
Change Management for Safety Improvement
-Enabled by IT
for Enrichment of Meaningful Use of HIT
1. Assess/Measure Baseline Safety state
2. Identify Most significant System Problems: Based on Delphi assisted consensus
3. Establish team based feasible solutions to prioritized hazards
4. Implement team based solutions

The Method

Setting-Specific & FMEA-Based

Safety Enhancement Cycle

Micro-System

Macro-System
The Method

Setting-Specific & FMEA-Based

1. Assess/Measure Baseline Safety state
2. Identify Most significant System Problems: Based on Delphi assisted consensus
3. Establish team based feasible solutions to prioritized hazards
4. Implement team based solutions

This online survey has 12 pages, each addressing an important part of the medication management system, shown in the diagram at the top.

Medication Safety Survey (SEMI-P)

Every member of the practice can express anonymously their opinions as to the frequency and severity of various medication management issues.

Staff can view a brief online explanatory presentation before completing the survey.
Medication Safety Survey (SEMI-P)

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Staff can view a brief online explanatory presentation before completing the survey.
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Baseline Safety state

2. Identify
Most significant System Problems:
Based on Delphi assisted consensus

3. Establish team based feasible solutions to prioritized hazards

4. Implement team based solutions
Integrated to Health Organization

This online survey, like SEMI-P, covers an important part of the medication management system, shown at the top.

Every member of the practice can express anonymously their opinions as to the frequency and severity of various medication management issues.

Results of Safety Attitudes Questionnaire
A visual display to help identify strengths and areas for improvement

Quality of collaboration
The green stickmen are those who stated they had a high level of collaboration with the specified group.

Medication Safety Survey (SEMI-P)

The Method
Setting-Specific & FMEA-Based
Safety Enhancement Cycle
1. Assess/Measure Baseline Safety state

2. Identify Most significant System Problems: Based on Delphi assisted consensus

3. Establish team based feasible solutions to prioritized hazards

4. Implement team based solutions - Int. to H. Org.

Results of Safety Attitudes Questionnaire
A visual display to help identify strengths and areas for improvement

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The **green stickmen** are those who stated they had a high level of collaboration with the specified group.

Safety Attitudes
Respondents with an overall positive attitude for a given factor are shown by a **green stickman**
1. Assess/Measure Baseline Safety state

2. Identify Most significant System Problems: Based on Delphi assisted consensus

3. Establish team based feasible solutions to prioritized hazards

4. Implement team based solutions - Int. to H. Org.

---

**Medication Safety Survey (SEMI-P)**

This online survey, has 12 pages, each addressing an important part of the medication management system, shown in the diagram at the top.

Every member of the practice can express anonymously their opinions regarding the frequency and severity of medication management issues.

---

**Results of Medication Safety Survey (SEMI-P)**

A visual display to help identify strengths and areas for improvement.

Each of the 50 items in the SEMI-P survey is given a score (from 0 to 100) based on the survey responses. The Top 10 items are listed below...

---

**Setting-Specific & FMEA-Based**

Safety Enhancement Cycle

- 1. Assess/Measure Baseline Safety state
- 2. Identify Most significant System Problems: Based on Delphi assisted consensus
- 3. Establish team based feasible solutions to prioritized hazards
- 4. Implement team based solutions - Int. to H. Org.

---

**Results of Safety Attitudes Questionnaire**

A visual display to help identify strengths and areas for improvement.

Qualitative Severity of Consequence

Quantitative Severity of Consequence

Risk Preferring

Indifference to risk

Risk Averse adopted

Very high risk aversiveness

Conversion of descriptive/qualitative to quantitative values of severity 's'
Each of the 50 items in the SEMI-P survey is given a score (from 0 to 100) based on the survey responses. The Top 10 items are listed here.

contd....

Results of Medication Safety Survey (SEMI-P)
A visual display to help identify strengths and areas for improvement
The Method

1. Assess/Measure Baseline Safety state

2. Identify Most significant System Problems: Based on Delphi assisted consensus

3. Establish team based feasible solutions to prioritized hazards

4. Implement team based solutions

5. Results of Medication Safety Survey (SEMI-P)

A visual display to help identify strengths and areas for improvement

The Top 10 items are listed here.

Each of the 50 items in the SEMI-P survey is given a score (from 0 to 100) based on the survey responses. The Top 10 items are the total items...
Reaching consensus regarding priorities for improvement

Based on the SEMI-P results

Staff review the Top 10 highest scoring items from the SEMI-P and each person votes for the three items that they think should be addressed first, giving their reasons.

Comments are shared anonymously and staff have the opportunity to change their votes after seeing their colleagues’ input.

(Delphi technique)
1. Assess/Measure Baseline Safety state
2. Identify Most significant System Problems: Based on Delphi assisted consensus
3. Establish team based feasible solutions to prioritized hazards
4. Implement team based solutions - Int. to H. Org.

Initiatives to address the priorities identified in the surveys:
Tools to define objectives and work steps, and to co-ordinate the team’s efforts.

The team defines the problem that they want to address and outlines specific objectives.
Team members are assigned and meetings coordinated.

Results of Medication Safety Survey (SEMI-P)
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**Initiatives** to address the priorities identified in the surveys

**Tools to define objectives and work steps, and to co-ordinate the team’s efforts**

The team defines the problem that they want to address and outlines specific objectives.

Team members are assigned and meetings coordinated.

contd....
1. **Assess/Measure**

Baseline Safety state

2. **Identify**

Most significant System Problems:
Based on Delphi assisted consensus

3. **Establish team**

Based feasible solutions to prioritized hazards

4. **Implement**

Team based solutions

Int. to H. Org.

---

**Indicators** to measure progress toward objectives

- Tool to create, measure, and graph indicators
- Team members choose and track measurable outcomes
- ACLERIFHE tool allows tracking of process hazards as well as solutions
- Indicators can be defined for any amount of detail e.g. for hire

**Setting-Specific & FMEA-Based**

Safety Enhancement Cycle

1. Assess/Measure
- Baseline Safety state

2. Identify
- Most significant System Problems:
- Based on Delphi assisted consensus

3. Establish team
- Based feasible solutions to prioritized hazards

4. Implement
- Team based solutions
- Int. to H. Org.

**Tools** to define objectives and work steps, and to coordinate the team’s efforts

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   A visual display to help identify strengths and areas for improvement

   A tool to create, measure, and graph indicators

   Each of the 50 items in the SEMI-P survey is given a score (from 0 to 100)
   based on the survey responses. The Top 10 items are listed here.

**ACORN Office** tracks and graphs these so that progress toward objectives can be measured.

Indicators can be defined for any amount of detail e.g. for hire

**Medication Safety Survey (SEMI-P)**

This online survey has 12 pages, each addressing an important part of the medication management system, shown at the top.

- Every member of the practice can openly express anonymous feedback on the frequency and severity of every item.
- Weekly results of medication management issues

**Results of Safety Attitudes Questionnaire**

A visual display to help identify strengths and areas for improvement

- Quality of collaboration

Respondents with an overall positive attitude for a given factor are shown by a green stickman.

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G and R Singh

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Indicators to measure progress toward objectives

Tool to create, measure, and graph indicators

Team members choose and track measurable outcomes.

ACORN Office tracks and graphs these so that progress toward objectives can be measured.

Indicators can be defined for any quality measure, e.g. for P4P
Experience so far: both as a safety enhancement and as a monitoring instrument (SEMI-P)
Tracking change (before and after)

Measures of Effectiveness

- Changes in Safety Attitudes (ASAQ)
- Changes in Safety Perceptions (SEMI-P)

- Changes in rates and severity of ADE’s
  our ascertainment method -
  Chart review using Trigger Tool
Influence of Partial EMR Implementation on the Practice Vulnerabilities

From Singh et al. 2004
From our point of view:

Is SEMI-P a possible method that the Office of the Inspector General is asking CMS and AHRQ to look for??
Our experience with this approach:

- **Filling out the survey:**
  - Helps make everyone more aware / conscious of problems
  - Helps make people more safety conscious

- **Seeing the results:**
  - Helps people to see other peoples’ perspectives
  - Helps in identifying priorities for improvement
Advantages of this Humanistic Approach:

- Creates awareness among the staff of the value of quality
- Leads to improvement in patient and staff satisfaction
- Energizes the empowered workers to maintain and continually improve quality
- Has potential to reduce litigation
- Can lead ultimately to increased profitability.

Findings of Strategic Planning Institute

“Relative perceived service quality”
Conclusions
• This IT assisted TRM enhancement process enabled staff to identify and prioritize Medication safety problems.

• Staff were able to work together in teams to develop feasible solutions that were tailored to their own unique office.
• The TRM intervention (when enhanced by a PEA) appeared to have a significant effect on medication safety as estimated using a trigger tool.
Where is the *wisdom* we have lost in knowledge?

Where is the *knowledge* we have lost in information?

Where is the *information* that we lose too often under the deluge of *Data*?  
T.S.Eliot 1946
Understanding/Wisdom is Transferable lost in knowledge?

Where is the knowledge we have lost in information?

T.S. Eliot 1946

Examples
Patient Safety

In Post Operative Pain Control for Older Adults

This is a Patient-Centered Safety Enhancement & Monitoring Instrument (SEMI-P)*
It contains 25 pages of Error Surveys plus a one page Questionnaire, and a Comments sheet at the end
The Post-Operative TEAM

Results of Diagnostic Studies
LAB, X-Ray, MRI, CAT

Policies, Protocols, Guidelines
Knowledge and Info

Resident
Attending
Consult.

Pharmacy

Nurse’s Aid
Nurse

PT/OT

Chart

Admission

Singh 2004
Falls management

with
Self-Empowered
Adaptive Teams

Pursuing Excellence in Partnership with Kaleida Health

Gurdev Singh, Director,
UB Patient Safety Research Center
Primary Care Research Institute
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Buffalo, NY 14215, USA.
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www.patientsafety.buffalo.edu
Waiting Room

Radiology
Dialysis
Procedures
OR

Hall

Family

Bathroom

Patient Room

Hall

House Keeper

Bed, Alarm
Trapeze
Chair
Commode
...

BIOMED

Manager

Nurses' Station

Aid

Nurse

Pharmacist

Doctor

REHAB

Charts/EMR
Fall Risk
Assessment,
...

6th Floor Domain

H o s p i t a l   m a n a g e m e n t

Singh 2006
that makes the Change worthwhile and satisfying
It is Interesting to note that only recently a June 2010 Report by AHRQ and HRET “Using Workforce Practices to Drive Quality Improvement: A Guide for Hospitals” recommends 4 high performance work practices (HPWPs) as follows:

1. Engagement,
2. Staff acquisition and development,
3. Frontline Empowerment,
4. Leadership Alignment and Development
Parting Thoughts!

Pursuit of Excellence is a Never Ending Journey
Thank you and

Diana Anderson

Elizabeth McClain-Plunket
We Invite your Questions??
Comments & Advice

Gurdev & Ranjit Singh
gsingh4 or rs10@buffalo.edu

SAR-AIMER
Systematic Appraisal of Risk And Its Management for Error Reduction
www.patientsafety.buffalo.edu
References


www.Patientsafety.buffalo.edu