

# Our Short History In Patient Safety

Gail Armstrong

Patrick Kneeland

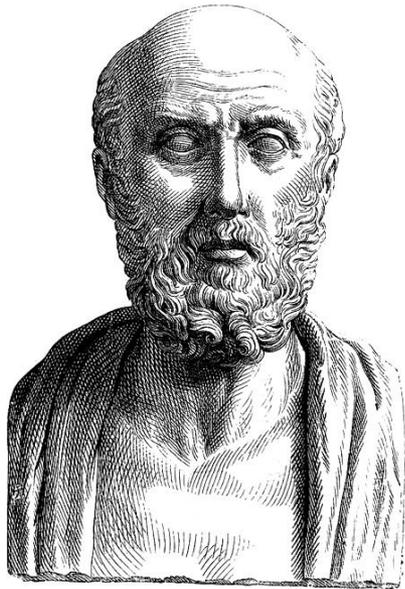
Dan Hyman

# Most common motivation for all healthcare professionals





# Safety and healthcare...



# Historical Perspective

- In 1925, 4 main types of adverse events identified for hospitalized patients:
  - Burns due to hot water
  - Delirious patients jumping from hospital windows
  - Accidents connected with hospital elevators
  - Mistakes in the use of drugs

Aikens C. Study in the Ethics for Nurses. Philadelphia: Saunders; 1925

# The Human Factor: The Critical Importance of Effective Teamwork & Communication in Providing Safe Care

Leonard, Graham & Bonacum (2004)

*A large and ever present cultural barrier is the deeply embedded belief that quality of care and error free clinical performance are the result of being well trained and trying hard. In this paradigm, inevitable mistakes are viewed as episodes of personal failure, with the predictable result that these events are minimized and not openly discussed (pg. i86).*

Josie King video

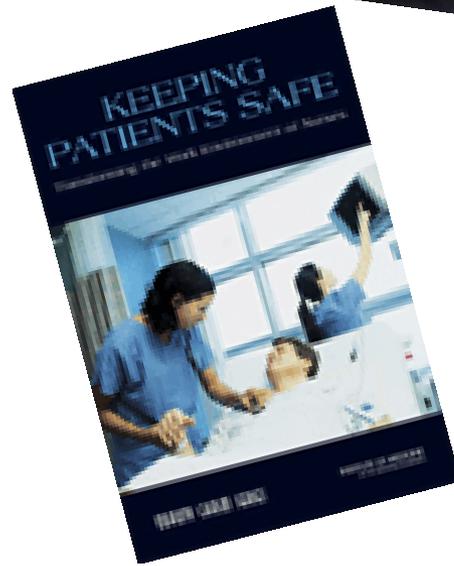
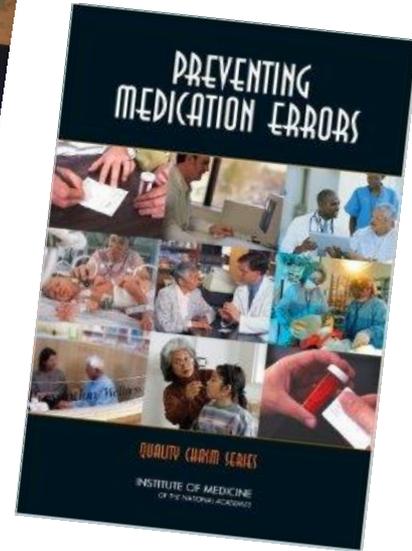
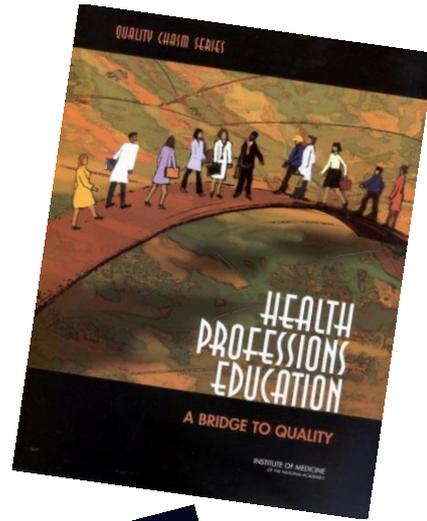
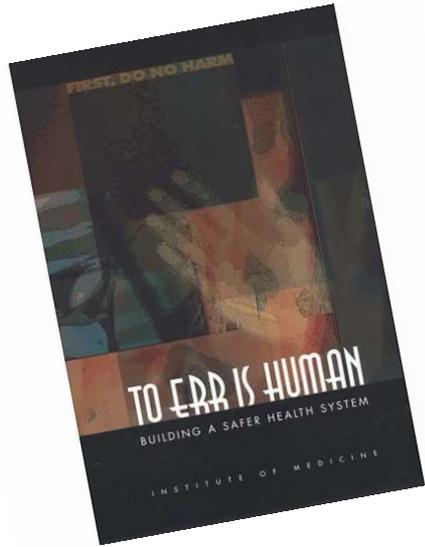
<https://www.youtube.com/watch?v=JeVcXhvPvbU>

# *IOM – To Err Is Human - 1999*

The number of people  
who die each year  
from medical errors...



... is equivalent to 3  
jumbo jet crashes every  
2 days.



“Building safety into processes of care is a more effective way to reduce errors than blaming individuals.”

(IOM, 1999, p.4)



## ANALYSIS

# Medical error—the third leading cause of death in the US

Medical error is not included on death certificates or in rankings of cause of death. **Martin Makary** and **Michael Daniel** assess its contribution to mortality and call for better reporting

Martin A Makary *professor*, Michael Daniel *research fellow*

Department of Surgery, Johns Hopkins University School of Medicine, Baltimore, MD 21287, USA

The annual list of the most common causes of death in the United States, compiled by the Centers for Disease Control and Prevention (CDC), informs public awareness and national research priorities each year. The list is created using death certificates filled out by physicians, funeral directors, medical examiners, and coroners. However, a major limitation of the death certificate is that it relies on assigning an International Classification of Disease (ICD) code to the cause of death.<sup>1</sup> As a result, causes of death not associated with an ICD code, such as human and system factors, are not captured. The science of safety has matured to describe how communication breakdowns, diagnostic errors, poor judgment, and inadequate skill can directly result in patient harm and death. We analyzed the scientific literature on medical error to identify its contribution to US deaths in relation to causes listed by the CDC.<sup>2</sup>

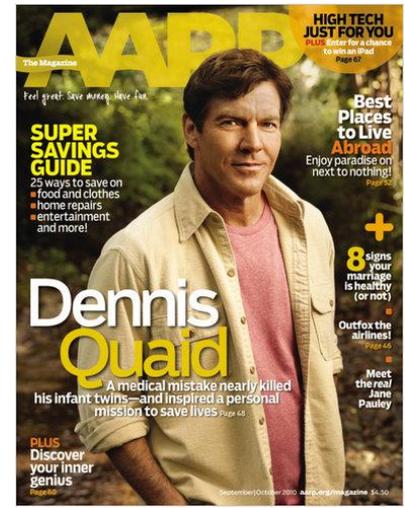
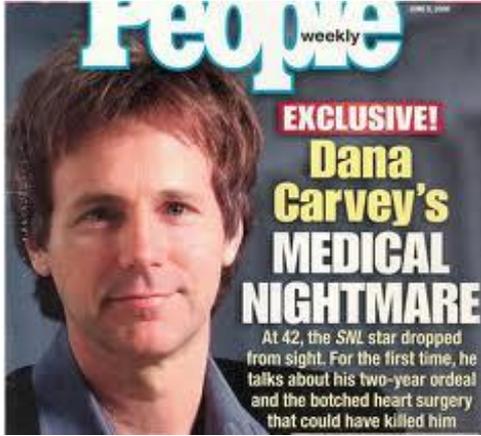
### Death from medical care itself

Medical error has been defined as an unintended act (either of omission or commission) or one that does not achieve its intended outcome,<sup>3</sup> the failure of a planned action to be completed as intended (an error of execution), the use of a wrong plan to achieve an aim (an error of planning),<sup>4</sup> or a deviation from the process of care that may or may not cause harm to the patient.<sup>5</sup> Patient harm from medical error can occur at the individual or system level. The taxonomy of errors is expanding to better categorize preventable factors and events.<sup>6</sup> We focus on preventable lethal events to highlight the scale of potential

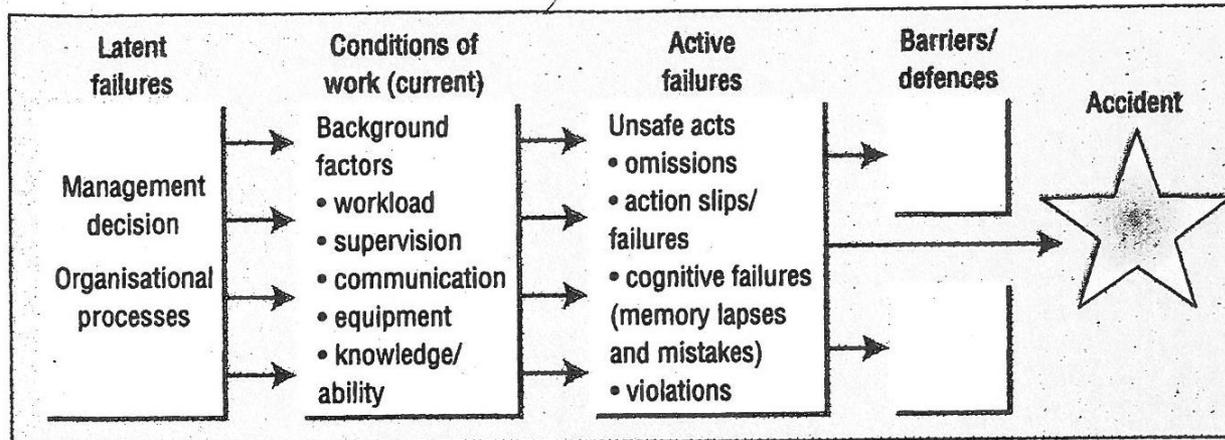
### How big is the problem?

The most commonly cited estimate of annual deaths from medical error in the US—a 1999 Institute of Medicine (IOM) report<sup>7</sup>—is limited and outdated. The report describes an incidence of 44 000–98 000 deaths annually.<sup>7</sup> This conclusion was not based on primary research conducted by the institute but on the 1984 Harvard Medical Practice Study and the 1992 Utah and Colorado Study.<sup>8,9</sup> But as early as 1993, Leape, a chief investigator in the 1984 Harvard study, published an article arguing that the study's estimate was too low, contending that 78% rather than 51% of the 180 000 iatrogenic deaths were preventable (some argue that all iatrogenic deaths are preventable).<sup>10</sup> This higher incidence (about 140 400 deaths due to error) has been supported by subsequent studies which suggest that the 1999 IOM report underestimates the magnitude of the problem. A 2004 report of inpatient deaths associated with the Agency for Healthcare Quality and Research Patient Safety Indicators in the Medicare population estimated that 575 000 deaths were caused by medical error between 2000 and 2002, which is about 195 000 deaths a year (table 1).<sup>11</sup> Similarly, the US Department of Health and Human Services Office of the Inspector General examining the health records of hospital inpatients in 2008, reported 180 000 deaths due to medical error a year among Medicare beneficiaries alone.<sup>12</sup> Using similar methods, Classen et al described a rate of 1.13%.<sup>13</sup> If this rate is applied to all registered US hospital admissions in 2013<sup>14</sup> it

# Error In Our Evolving World



# Charles' Vincent Model based on Reason's Swiss Cheese Model



Organisational accident model based on work by Reason<sup>12</sup>

# David Marx's Model of Error for Just Culture

Human Error	At-Risk Behavior	Reckless Behavior
Inadvertent action; slip, lapse, mistake	A choice; risk not recognized or believed justified	Conscious disregard of unreasonable risk
Manage through changes in: <ul style="list-style-type: none"> <li>Processes</li> <li>Procedures</li> <li>Training</li> <li>Design</li> </ul>	Manage through: <ul style="list-style-type: none"> <li>Removing incentives for at-risk behaviors</li> <li>Creating incentives for healthy behaviors</li> <li>Increasing situational awareness</li> </ul>	Manage through: <ul style="list-style-type: none"> <li>Remedial action</li> <li>Punitive action</li> </ul>
Console	Coach	Punish

# Increasing Transparency of Quality Data

**YOUR CARE FROM NURSES**

During this hospital stay, how often did nurses treat you with courtesy and respect?

1  Never  
2  Sometimes  
3  Usually  
4  Always



2. During this hospital stay, how often did nurses listen carefully to you?

1  Never  
2  Sometimes  
3  Usually  
4  Always

**HCAHPS**  
Hospital Consumer Assessment of  
Healthcare Providers and Systems

**HCAHPS Survey**

**SURVEY INSTRUCTIONS**

- You should only fill out this survey if you were the patient during the hospital stay named in the cover letter. Do not fill out this survey if you were not the patient.
- Answer all the questions by checking the box to the left of your answer.
- You are sometimes told to skip over some questions in this survey. When this happens you will see an arrow with a note that tells you what question to answer next, like this:  
 Yes  
 No → If No, Go to Question 1

You may notice a number on the survey. This number is used to let us know if you returned your survey so we don't have to send you reminders.  
Please note: Questions 1-22 in this survey are part of a national initiative to measure the quality of care in hospitals. OMB 8332-0251

Please answer the questions in this survey about your stay at the hospital named on the cover letter. Do not include any other hospital stays in your answers.

**YOUR CARE FROM NURSES**

1. During this hospital stay, how often did nurses treat you with courtesy and respect?

Never  
 Sometimes  
 Usually  
 Always

2. During this hospital stay, how often did nurses listen carefully to you?

Never  
 Sometimes  
 Usually  
 Always

3. During this hospital stay, how often did nurses explain things in a way you could understand?

Never  
 Sometimes  
 Usually  
 Always

4. During this hospital stay, after you pressed the call button, how often did you get help as soon as you wanted it?

Never  
 Sometimes  
 Usually  
 Always  
 I never pressed the call button

March 2012

# High Reliability Organizations

- High Reliability Organizations

Simplify, Standardize processes, use checklists where appropriate

Improve Information Access with goal of transparency of data

Clinical Decision Support Systems (reminders, constraints)

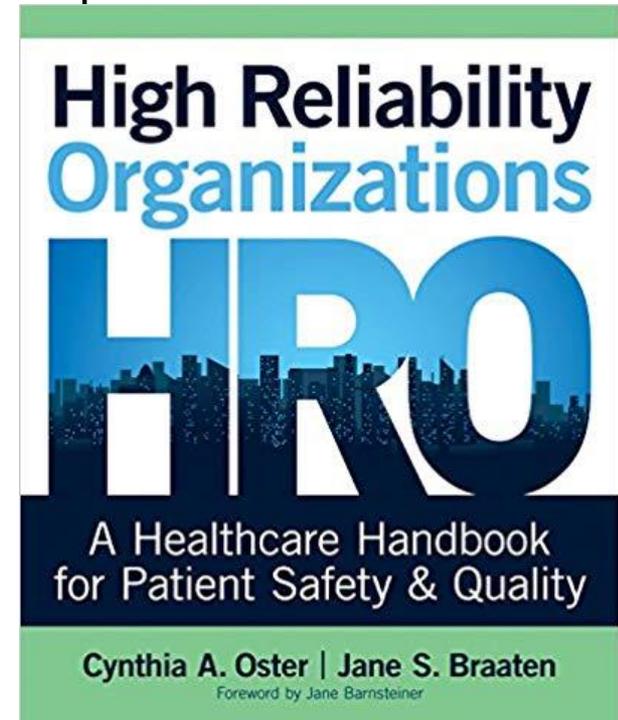
Helpful redundancy

Real-time identification of failures

Processes to support safety habits and patterns in practice

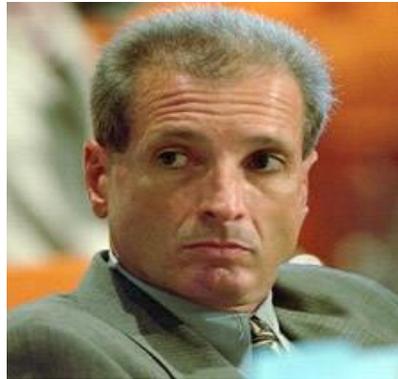
Make the system visible

SYSTEMS



# Human Cost of Error

- Highly publicized narratives:
  - Betsy Lehman - 1994
  - Willie King – 1995
  - Josie King - 2001
  - Lewis Blackman – 2002



PATIENTS



JOSIE KING FOUNDATION™  
creating a culture of patient safety, together



98,000 PEOPLE DIE EVERY YEAR FROM MEDICAL ERRORS.  
TODAY I WILL CHANGE THAT.



Helen Haskell – President, Mothers Against Medical Error and Consumers Advancing Patient Safety; Steering Group, World Health Organization Global Patient Safety Challenge on Medication Safety

*Every patient safe. Le sécurité pour tous les patients.* [www.patientsforpatientsafety.ca](http://www.patientsforpatientsafety.ca) | [www.securitepatients.ca](http://www.securitepatients.ca) cpsi • icsp Canadian Patient Safety Institute / Institut canadien pour la sécurité des patients



**BETSY  
LEHMAN  
CENTER**

for Patient Safety and Medical Error Reduction





## **SAFETY IS PERSONAL**

**Partnering with Patients and Families  
for the Safest Care**



**The National Patient Safety Foundation's  
Lucian Leape Institute**  
Report of the Roundtable on Consumer Engagement  
in Patient Safety



**Speak UP™**

**What you need to know about your serious illness and palliative care** was developed in collaboration with:

- American Academy of Hospice and Palliative Medicine [www.aahpm.org](http://www.aahpm.org)
- Association of Professional Chaplains [www.professionalchaplains.org](http://www.professionalchaplains.org)
- Center for Advanced Palliative Care [www.ccap.org](http://www.ccap.org)
- Hospice and Palliative Nurses Association [www.hpnai.org](http://www.hpnai.org)
- Lance Armstrong Foundation [www.lafoundation.org](http://www.lafoundation.org)
- National Association of Social Workers [www.nasw.org](http://www.nasw.org)
- National Hospice and Palliative Care Organization [www.nhpc.org](http://www.nhpc.org)

**What you need to know about your serious illness and palliative care**

The Joint Commission is the largest health care accrediting body in the United States that promotes quality and safety.

Helping health care organizations help patients



## Speak Up: X-rays, MRIs and other medical imaging tests

**Medical imaging tests help diagnose health problems. Some tests use radiation. Radiation is useful, even life-saving, but too much can be harmful.**

**Ask your health care provider:**

- Why do you need this test?
- Does this test use radiation?
- Is there another test that does not use radiation?
- What can you expect during the test?
- What should you do to prepare for the test?
- Does the health care provider's office keep track of your medical imaging tests? You should also keep copies for your files.
- Does the hospital or imaging center use the lowest amount of radiation needed to get information – especially for children?
- Is the hospital or imaging center accredited?

**For more information**

- Image Gently (for children): [www.imagegently.org](http://www.imagegently.org)
- Image Wisely (for adults): [www.imagewisely.org](http://www.imagewisely.org)
- RadiologyInfo: [www.radiologyinfo.org](http://www.radiologyinfo.org)
- Society for Pediatric Radiology: [www.pedrad.org](http://www.pedrad.org)

The goal of Speak Up™ is to help patients become active in their care.

**X-ray**

**What is it?** Uses a small amount of radiation to take pictures inside your body.

**Used for?** Diagnosing broken bones, pneumonia, dental problems.

Mammograms are a common type of X-ray used to help diagnose breast cancer.

**What happens?** You may be asked to lie still on an X-ray table or sit or stand by the table. You may wear a lead apron to protect certain parts of your body.

**Fact:** The amount of radiation you get from an X-ray is small. For example, a chest X-ray gives out a radiation dose similar to the amount of radiation you're naturally exposed to from the environment over 10 days.

**Tip:** Ask a friend or relative to be your support person and advocate. They can help you ask questions, write down answers and reassure you.

**Ultrasound**

**What is it?** Uses sound waves to create an image. Does not expose you to radiation.

**Used for?** Diagnosing conditions of the heart, blood vessels, kidneys, liver, and other organs. During pregnancy, a health care provider uses an ultrasound to look at the baby.

**What happens?** You lie on a table. The person giving the test places gel and a device called a transducer on your skin. The transducer sends out sound waves that bounce off tissues inside your body.

**MRI (magnetic resonance imaging)**

**What is it?** Uses a large magnet and radio waves to look inside your body. Does not expose you to radiation.

**Used for?** Diagnosing torn ligaments, tumors, brain or spinal cord conditions, examining organs.

**What happens?** You lie still on a table that slides inside a tunnel-shaped machine. You may have to hold your breath for parts of the exam. For some MRI scans you may receive a "contrast dye," which makes parts of your body show up better. The dye can be given through an intravenous (IV) tube or a syringe in your arm. Some dye is given in a drink.

**Tip: The MRI makes a lot of noise. You may be offered earplugs.**

**Tell your health care provider if you have small or enclosed spaces, or if you have:**

- Metal in your body, such as shrapnel, a bullet, artificial joints or stems
- Electronic devices in your body, such as a cardiac pacemaker or implanted pump
- Body piercings with metal that cannot be removed
- Ever been a welder

**CT or CAT scan (computed tomography)**

**What is it?** Uses special X-ray equipment to take pictures that show a "slice" of your body.

**Used for?** Diagnosing broken bones, cancer, blood clots, abdominal conditions, internal bleeding.

**What happens?** You lie still on a table and may have to hold your breath for a short time. The CT machine is aimed at the part of your body the health care provider needs to see. For some CT scans you may receive a "contrast dye," which makes parts of your body show up better. The dye may be given through an intravenous (IV) tube or a syringe in your arm. Some dye is given in a drink.

**Nuclear scans**

**What is it?** Uses radioactive substances and a special camera to see inside your body. These scans can show how organs, such as your heart and lungs, are working.

**Used for?** Diagnosing blood clots, cancer, heart disease, injuries, infections, thyroid problems.

**What happens?** Before the test, you receive a small amount of radioactive material, which makes parts of your body show up better. The material can be given through an intravenous (IV) tube or a syringe in your arm. Some is given in a drink and sometimes you inhale it. You wait as the material is absorbed by your body. This may take an hour or more. Then you lie still on a table while the camera takes images.

**The Joint Commission**

[www.jointcommission.org](http://www.jointcommission.org)

PATIENTS

# Disclosure - The Michigan Model

## Rick Boothman

- Core Elements:
  - Compensate patients quickly and fairly when inappropriate care causes injury
  - Support clinical staff when the care was reasonable
  - Reduce patient injuries (and claims) by learning from patients' experiences
- Results:
  - The rate of new claims at UMHS has decreased from approximately 7 per 100,000 patients to fewer than 5.
  - The rate of lawsuits has declined from 2.13 suits per 100,000 patients per month, to roughly 0.75.
  - The median time from claim to resolution has dropped from 1.36 to 0.95 years.

# Partnership Between Patients & Providers



*An initiative of the ABIM Foundation*

American Board of Internal Medicine

The mission of *Choosing Wisely* is to promote conversations between clinicians and patients by helping patients choose care that is:

- Supported by evidence
- Not duplicative of other tests or procedures already received
- Free from harm
- Truly necessary

## Burnout Among Health Care Professionals

### A Call to Explore and Address This Underrecognized Threat to Safe, High-Quality Care

**Lotte N. Dyrbye, MD, MHPE**, Mayo Clinic; **Tait D. Shanafelt, MD**, Mayo Clinic; **Christine A. Sinsky, MD**, American Medical Association; **Pamela F. Cipriano, PhD, RN, NEA-BC, FAAN**, American Nurses Association; **Jay Bhatt, DO, MPH, MPA**, American Hospital Association; **Alexander Ommaya, DSc**, Association of American Medical Colleges; **Colin P. West, MD, PhD**, Mayo Clinic; **David Meyers, MD**, Agency for Healthcare Research and Quality

July 5, 2017

The US health care system is rapidly changing in an effort to deliver better care, improve health, and lower costs while providing care for an aging population with high rates of chronic disease and co-morbidities. Among the changes affecting clinical practice are new payment and delivery approaches, electronic health records, patient portals, and publicly reported quality metrics—all of which change the landscape of how care is provided, documented, and reimbursed. Navigating these changes are health care professionals (HCPs), whose daily work is critical to the success of health care improvement. Unfortunately, as a result of these changes and resulting added pressures, many HCPs are burned out, a syndrome characterized by a high degree of emotional exhaustion and high depersonalization (i.e., cynicism), and a low sense of personal accomplishment from work [1,2].

#### What Is the Extent of Burnout Among Health Care Professionals?

##### Physicians

More than half of US physicians are experiencing substantial symptoms of burnout. Physicians working in the specialties at the front lines of care (e.g., emergency medicine, family medicine, general internal medicine, neurology) are among the highest risk of burnout. Burnout is nearly twice as prevalent among physicians as US workers in other fields after controlling for work hours and other factors [1,2]. Between 2011 and 2014, the prevalence of burnout increased by 9 percent among physicians while remaining stable in other US workers. Several studies have also found

a high prevalence of burnout and depression among medical students and residents, with rates higher than those of age-similar individuals pursuing other careers [3-9].

##### Nurses and Other Health Care Professionals

Studies of nurses report a similarly high prevalence of burnout and depression. In a 1999 study of more than 10,000 registered inpatient nurses, 43 percent had high degree of emotional exhaustion [10]. A subsequent study of approximately 68,000 registered nurses in 2007 reported that 35 percent, 37 percent, and 22 percent of hospital nurses, nursing home nurses, and nurses working in other settings had high degree of emotional exhaustion [11]. The prevalence

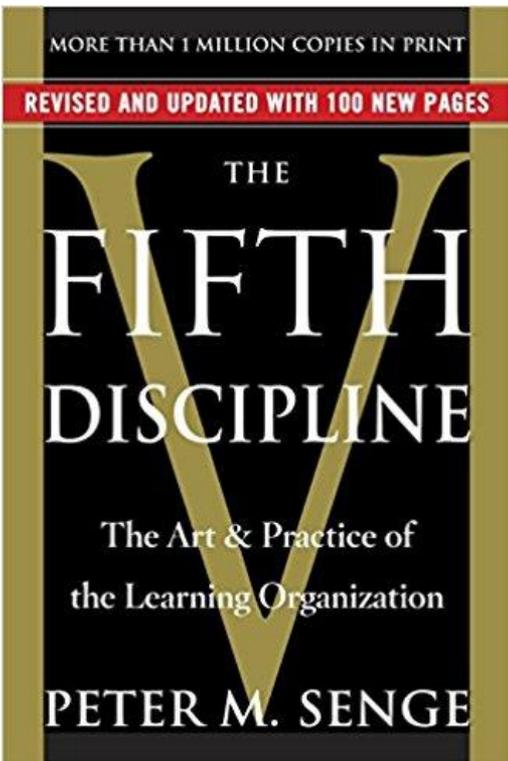


Summary

- Each TeamSTEPPS teamwork skill:
  - Facilitates teamwork
  - Is dependent upon or moderated by the other skills
  - Contributes to team performance, quality of care, and patient safety



Team Strategies & Tools to Enhance Performance & Patient Safety



## Team-training in healthcare: a narrative synthesis of the literature

Sallie J Weaver,<sup>1</sup> Sydney M Dy,<sup>2</sup> Michael A Rosen<sup>1</sup>

► Additional material is published online only. To view please visit the journal online (<http://dx.doi.org/10.1136/bmjqs-2013-001848>).

<sup>1</sup>Department of Anesthesiology and Critical Care Medicine, Johns Hopkins University School of Medicine, Armstrong Institute for Patient Safety & Quality, Baltimore, Maryland, USA

<sup>2</sup>Department of Health Policy & Management, Oncology and Medicine, Johns Hopkins University, Baltimore, Maryland, USA

**Correspondence to** Sallie J Weaver, Department of Anesthesiology and Critical Care Medicine, Johns Hopkins University School of Medicine, Armstrong Institute for Patient Safety & Quality, 730 E. Pratt St., 15th Floor, #1544, Baltimore, MD 21202, USA; [sjweaver@jh.u.edu](mailto:sjweaver@jh.u.edu)

Received 22 January 2013  
Revised 6 December 2013  
Accepted 12 January 2014

**To cite:** Weaver SJ, Dy SM, Rosen MA. *BMJ Qual Saf* Published Online First: [please include Day Month Year] doi:10.1136/bmjqs-2013-001848

**ABSTRACT**

**Background** Patients are safer and receive higher quality care when providers work as a highly effective team. Investment in optimising healthcare teamwork has swelled in the last 10 years. Consequently, evidence regarding the effectiveness for these interventions has also grown rapidly. We provide an updated review concerning the current state of team-training science and practice in acute care settings.

**Methods** A PubMed search for review articles examining team-training interventions in acute care settings published between 2000 and 2012 was conducted. Following identification of relevant reviews with searches terminating in 2008 and 2010, PubMed and PSNet were searched for additional primary studies published in 2011 and 2012. Primary outcomes included patient outcomes and quality indices. Secondary outcomes included teamwork behaviours, knowledge and attitudes.

**Results** Both simulation and classroom-based team-training interventions can improve teamwork processes (eg, communication, coordination and cooperation), and implementation has been associated with improvements in patient safety outcomes. Thirteen studies published between 2011 and 2012 reported statistically significant changes in teamwork behaviours, processes or emergent states and 10 reported significant improvement in clinical care processes or patient outcomes, including mortality and morbidity. Effects were reported across a range of clinical contexts. Larger effect sizes were reported for bundled team-training interventions that included tools and organisational changes to support sustainment and transfer of teamwork competencies into daily practice.

**Conclusions** Overall, moderate-to-high-quality evidence suggests team-training can positively impact healthcare team processes and patient outcomes. Additionally, toolkits are available to support intervention development and implementation. Evidence suggests bundled team-training interventions and implementation strategies that embed effective teamwork as a

foundation for other improvement efforts may offer greatest impact on patient outcomes.

**INTRODUCTION**

...It has become necessary to develop medicine as a cooperative science; the clinician, the specialist, and the laboratory workers uniting for the good of the patient, each assisting in elucidation of the problem at hand, and each dependent upon the other for support. — William J. Mayo, Commencement speech at Rush Medical College, 1910

Deficiencies in communication and teamwork have long been cited as a frequent contributor to adverse events. Precise estimates of the extent of the problem are difficult to make, given definitional, reporting and measurement inconsistencies. However, a variety of studies support the notion that teamwork and communication are critical components of safe healthcare systems. Previous reviews report linkages between various aspects of teamwork (eg, situational monitoring, communication, leadership, trust, shared mental models) and clinical performance.<sup>1–3</sup> Meta-analytic results suggest the relationship between team processes and clinical performance indicators has generally been characterised by medium to large effect sizes.<sup>4,5</sup> For example, studies in surgery have shown increased odds of complications and death (OR 4.82; 95% CI 1.30 to 17.87) when surgical teams exhibit less frequent teamwork behaviours (eg, less information sharing during intraoperative and handoff phases, and less briefing).<sup>6</sup> Reviews of malpractice claims further underscore that communication problems are major contributing factors in 24% of cases.<sup>7</sup> Other studies found teamwork and communication issues cited as root causes in 52–70% of adverse events.<sup>8,9</sup> Additionally, teamwork and communication dimensions of safety

# Importance of Research in Developing Safe Systems

Patricia Ebright – University of Indiana

- Nurse strategies for dealing with, or adapting to, the system gaps:
  - Anticipating or forward thinking
  - Proactive monitoring of patient status to detect early warning signals
  - Strategic delegation and hand-off decisions to maintain flow of workload
  - Reduce reliance on memory - Individualized paper memory aids
  - “Cognitive stacking” – constant re-priorization of activities to be done.

# Personal Reflection in Dyads

- 1) Describe an adverse event that you have been involved in (in the last 6 months if possible).*
- 2) What were the circumstances?*
- 3) What was the reaction of your colleagues to the event? What was the reaction of your supervisor? What was the reaction of the patient/family?*
- 4) What steps were taken after the event to address it? How did these steps feel to you?*