

High Reliability

Bob Spillane MD
Interventional Radiology
Department of Radiology
Medical Director of Quality
Hartford Hospital

High Reliability Organizations (HROs)

Bob Spillane MD
Interventional Radiology
Department of Radiology
Medical Director of Quality
Hartford Hospital

High Reliability



USS *Ronald Reagan* in the Straits of Magellan in 2004.

High Reliability



USS *Ronald Reagan* in the Straits of Magellan in 2004.



The control room at an American nuclear power plant.



High Reliability

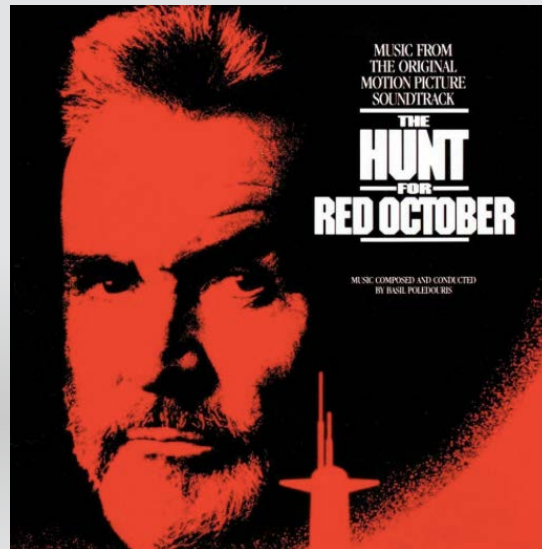


USS *Ronald Reagan* in the Straits of Magellan in 2004.



at an American
plant.

HROs



High Reliability

Bob Spillane MD
Interventional Radiology
Department of Radiology
Medical Director of Quality
Hartford Hospital

High Reliability
*We're all in this
together....*

Bob Spillane MD
Interventional Radiology
Department of Radiology
Medical Director of Quality
Hartford Hospital

High Reliability—We're all in this together

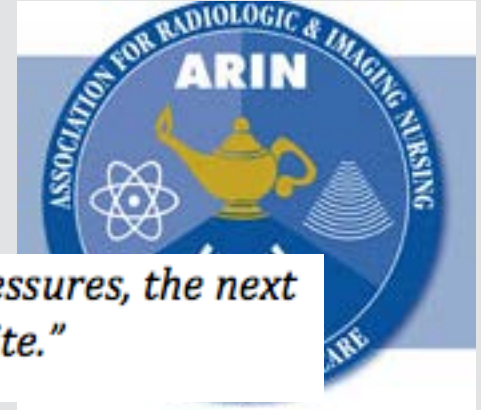


G. Laukhuf, ND RN, CRN, RN-BC, NE-BC ARIN Update: *Teamwork is Innovation*
IR Quarterly Winter 2015

High Reliability—We're all in this together



"With current health care and reimbursement pressures, the next innovation in IR is team performance in the IR suite."



"Team success occurs when the team achieves tasks and works more effectually than a group/of individuals working alone. The Team realizes a collective synergy from the members."

**G. Laukhuf, ND, RN, CRN, RN-BC, NE-BC ARIN Update: Teamwork is Innovation
IR Quarterly Winter 2015**

High Reliability– Financial Disclosures

1. I have no financial disclosures.

High Reliability—We're all in this together



High Reliability- Agenda

Introduction

Acknowledgements

Disclosures

Hartford Hospital and Why Me?

Medical Errors

- The Swiss Cheese Model

The Complex IR Environment

High **R**eliability **O**rganizations

- Characteristics of **HROs**

High Reliability in IR

- C**rew **R**esource **M**anagement (**CRM**)

Take Aways

- Hartford Hospital implementation

High Reliability—Hartford Hospital

Hartford, CT

-800 beds

Established 1854

Acute, tertiary care hospital

4500 transfers per year

Level 1 Trauma Center

LifeStar Helicopter program

Transplant

Celebrated #3000 in 2014

1600 doctors

7000 employees



High Reliability—We're all in this together



Robert M. Spillane, MD, RPVI

Address
18 Bainbridge Road
West Hartford, CT 06119
860.508.6434 cell
bspillane2@gmail.com

Current Position
Physician Chief Quality Officer
Jefferson Radiology
Hartford, Connecticut
2013 -present
Staff Radiologist, Interventional Radiology
January 2008-present

Previous Employment
La Jolla Radiology Medical Group
Staff Radiologist
1997- December 2007

Post-Graduate Training

Fellowship
Vascular & Interventional Radiology
Massachusetts General Hospital
1996-1997

4th Year Mini-fellowship, MRI
Massachusetts General Hospital
1995-1996

Residency
Diagnostic Radiology
Massachusetts General Hospital
1992-1996

Internship
Yale - New Haven Hospital
1991- 1992

Education

Medical School
Yale Medical School
1987-1991



High Reliability—We're all in this together



High Reliability—Acknowledgements

CT High Reliability

Dr. Mary Cooper

Initiated 2012

25 of 28 hospitals

10, 000 staff trained

“CHAMP” Card



High Reliability—We're all in this together

Institute of Medicine
1999

44, 000 – 98, 000 each year

"A 727 each day"



November 1999

INSTITUTE OF MEDICINE

Shaping the Future for Health

TO ERR IS HUMAN: BUILDING A SAFER HEALTH SYSTEM

Health care in the United States is not as safe as it should be--and can be. At least 44,000 people, and perhaps as many as 98,000 people, die in hospitals each year as a result of medical errors that could have been prevented, according to estimates from two major studies. Even using the lower estimate, preventable medical errors in hospitals exceed attributable deaths to such feared threats as motor-vehicle wrecks, breast cancer, and AIDS.



High Reliability– Medical Disclosures

1. I have been involved with, or present for, medical errors.

High Reliability– Medical Disclosures

1. I have been involved with, or present for, medical errors.

Allow me an exercise.....

High Reliability—We're all in this together

If you have been the victim of a medical error,

High Reliability—We're all in this together

If you have been the victim of a medical error,
If a loved one, or someone you know, has been the
victim of a medical error,

High Reliability—We're all in this together

If you have been the victim of a medical error,
If a loved one, or someone you know, has been the
victim of a medical error,
If, through work, you've been party to, or present
for, a medical error,

High Reliability—We're all in this together

If you have been the victim of a medical error,
If a loved one, or someone you know, has been the
victim of a medical error,
If, through work, you've been party to, or present
for a medical error,

Raise your hand, please

High Reliability—We're all in this together

EXCLUSIVE! DID FATAL MEDICAL BLUNDERS KILL JOAN RIVERS?!

Published on: September 10, 2014

by GIA PORTFOLIO, DOUGLAS MONTERO & LEELA DE KRETZER, NATIONAL ENQUIRER

Photography by: Getty



JOAN RIVERS died as the result of "a horrific medical mistake," The National ENQUIRER has learned exclusively from experts.


After the 81-year-old comedy icon lost her life Sept. 4 — exactly one week after undergoing a routine procedure on her vocal cords at an outpatient clinic in Manhattan — a source claims: "She could have been saved."

An ENQUIRER investigation reveals that the minor procedure Joan underwent on Aug. 28 carried only a tiny 0.5% mortality rate — and we uncovered shocking evidence shedding new light on the tragedy.

"Investigators suspect a fatal drug cocktail" could have been administered to the 5-foot-2, 102-pound star after she entered Yorkville Endoscopy, according to a source.

High Reliability—We're all in this together


EXCLUSIVE! DID FATAL MEDICAL BLU



News Video TV Opinions More...


Published on: September 10, 2014
by GIA PORTFOLIO, DOUGLAS MONTERO & LEELA
Photography by: Getty

U.S. World Politics Tech Health Entertainment Living Travel



Rep. John Murtha dies after surgery complications

February 9, 2010 11:52 a.m. EST



(CNN) -- Rep. John Murtha of Pennsylvania, a longtime fixture on the House subcommittee that oversees Pentagon spending, died after complications from gallbladder surgery, according to his office. He was 77.

The Democratic congressman recently underwent scheduled laparoscopic surgery at National Naval Medical Center in Bethesda, Maryland, to remove his gallbladder. The procedure was "routine minimally invasive surgery," but doctors "hit his intestines," a source close to the late congressman told CNN.

Murtha was initially hospitalized in December and had to postpone a hearing with Defense Secretary Robert Gates on the administration's

Rep. John Murtha, D-Pennsylvania, recently underwent laparoscopic surgery to remove his gallbladder.

STORY HIGHLIGHTS

- **NEW:** Source: Complications came from doctors hitting intestines during surgery

High Reliability—We're all in this together

EXCLUSIVE! DID FATAL MEDICAL BLU



News Video TV

U.S. World Politics

Published on: September 10, 2014

by GIA PORTFOLIO, DOUGLAS MONTERO & LEELA

Photography by: Getty



Dennis Quaid takes aim at health care mistakes

Updated 4/12/2010 8:20 PM | Comment | Recommend

Rep. John Murtha complications

February 9, 2010 11:52 a.m. EST



Rep. John Murtha, D-Pennsylvania, recently underwent laparoscopic surgery to remove his gallbladder.

STORY HIGHLIGHTS

• **NEW:** Source: Complications came from doctors hitting intestines during surgery

surgery," but congressmar

Murtha was i hearing with



Enlarge

By Joe Brier, for USA TODAY

After his newborn twins nearly died because they'd received an overdose of a drug in a hospital, actor Dennis Quaid became a patient safety advocate. Quaid spoke about his efforts with members of the National Press Club April 12 in Washington, D.C.

By Rita Rubin, USA TODAY

WASHINGTON — As a private pilot, actor Dennis Quaid was struck by the differences between how aviation errors and medical errors are handled.

The airline industry doesn't have much choice, Quaid noted in an interview Monday after speaking at a National Press Club luncheon. "When a crash happens, it's so public," he said. "No one is going to fly on their airplanes unless they have that trust."

DOCTORS: 'Soul' tormented by medical errors

But when a mistake occurs in a hospital, the public hear about it. Although an estimated 100,000 Americans die each year because of medical errors, their deaths are often overlooked. "Where people die is over thousands of hospitals," where people die is said. "It doesn't get the same type of attention."

HEALTH REPORTER TWEETS

High Reliability—We're all in this together

Doctors 'Shocked' by Radiation Overexposure at Cedars-Sinai

Oct. 13, 2009

By RADHA CHITALE

ABC News Medical Unit via **WORLD NEWS**



Hospital officials say a computer-resetting error caused radiation overdoses for 206 patients who underwent CT scans at Cedars-Sinai Medical Center in Los Angeles.

ABC News Photo Illustration

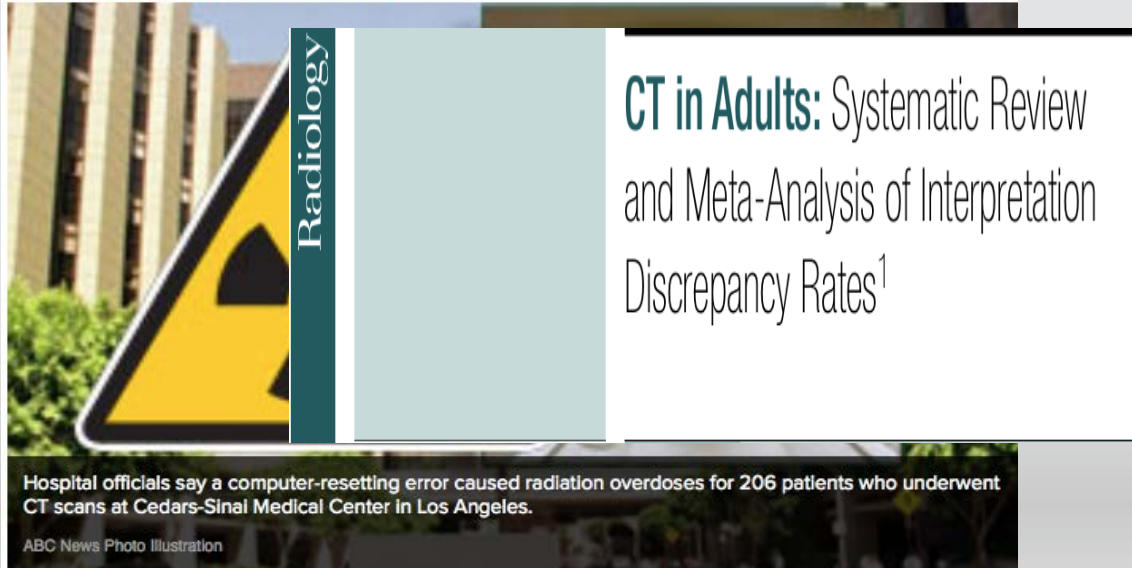
High Reliability—We're all in this together

Doctors 'Shocked' by Radiation Overexposure at Cedars-Sinai

Oct. 13, 2009

By RADHA CHITALE

ABC News Medical Unit via **WORLD NEWS**



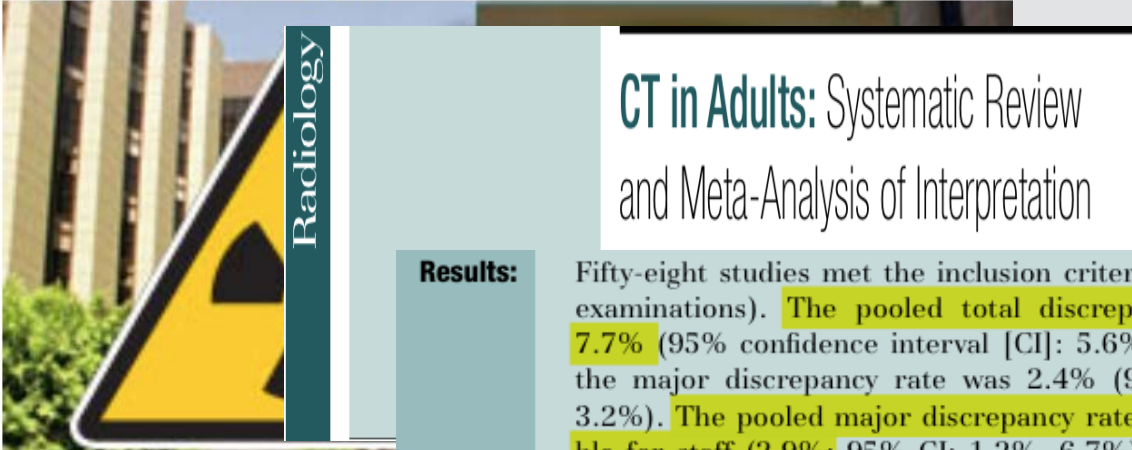
High Reliability—We're all in this together

Doctors 'Shocked' by Radiation Overexposure at Cedars-Sinai

Oct. 13, 2009

By RADHA CHITALE

ABC News Medical Unit via **WORLD NEWS**



CT in Adults: Systematic Review and Meta-Analysis of Interpretation

Results: Fifty-eight studies met the inclusion criteria (388123 CT examinations). The pooled total discrepancy rate was 7.7% (95% confidence interval [CI]: 5.6%, 10.3%), and the major discrepancy rate was 2.4% (95% CI: 1.7%, 3.2%). The pooled major discrepancy rate was comparable for staff (2.9%; 95% CI: 1.2%, 6.7%) and residents (2.2%; 95% CI: 1.7%, 2.9%) ($Q = 0.92$, $P = .633$). The pooled major discrepancy rates for head CT (0.8%; 95%

Hospital officials say a computer-resetting CT scans at Cedars-Sinai Medical Center i

ABC News Photo Illustration



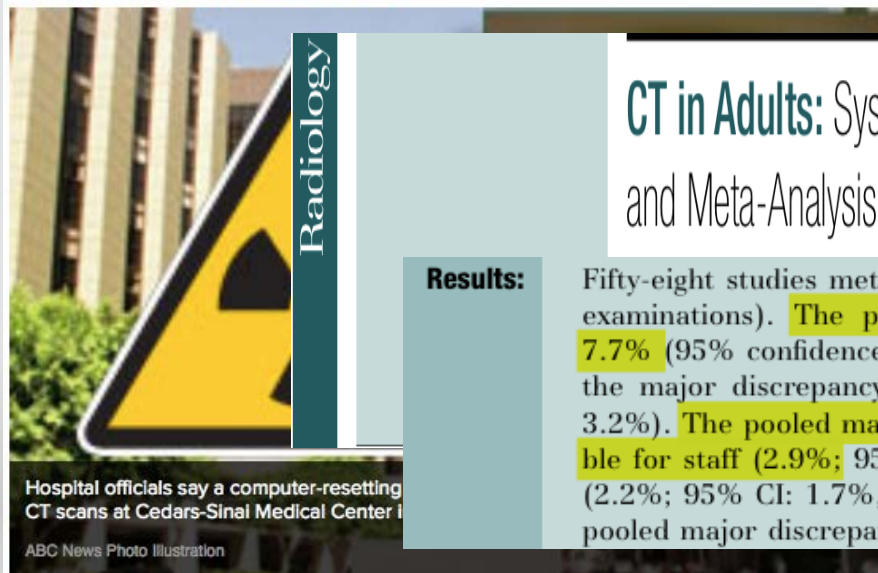
High Reliability—We're all in this together

Doctors 'Shocked' by Radiation Overexposure at Cedars-Sinai

Oct. 13, 2009

By RADHA CHITALE

ABC News Medical Unit via **WORLD NEWS**



ZEVAN & DAVIDSON
LAW FIRM, LLC

Attorneys - Contact Us - Medical Malpractice - Personal Injury - FAQ - Case Records

Missouri Medical Malpractice and Radiology Errors

May 13, 2014 By David Zevan — Leave a Comment

1 0 0 0 0 0

When you undergo an x-ray, CT scan, or MRI scan, a radiologist is responsible for making interpretations.

Have you ever wondered what would happen if a radiologist made an erroneous interpretation? **Missouri medical malpractice lawyers** answer that the consequences can be serious and even fatal. Many **cases of misinterpretations** are reported every

High Reliability—We're all in this together

Doctors 'Shocked' by Radiation Overexposure at Cedars-Sinai

Oct. 13, 2009

By RADHA CHITALE

ABC News Medical Unit via **WORLD NEWS**



Hospital officials say a core CT scans at Cedars-Sinai

ABC News Photo Illustration



ZEVAN & DAVIDSON
LAW FIRM, LLC

[Medical Injury](#) - [FAQ](#) - [Case Records](#)

Cleveland Errors in Interventional Procedures Attorney

Ohio Diagnostic Procedures Malpractice Lawyer

Medical Malpractice in Interventional Radiological Procedures

Interventional radiology is a medical specialty in which radiologists use X-rays, MRIs and other technologies to treat medical conditions. In many procedures, a catheter is inserted into an artery and moved through the body to the site of the problem.

Compensation for Errors in Interventional Procedures

The medical malpractice attorneys of Mishkind Law Firm Co., L.P.A., represent patients who have been injured because of medical errors made in interventional procedures, such as:

- Angioplasty and stent placement
- Placement of occluding devices
- Nonsurgical aneurysm repairs

When a catheter or stent is inserted or advanced improperly, it can perforate the artery, causing a life-threatening emergency. If not placed correctly, a stent or occluding device may become dislodged and damage the artery or heart.

ce and

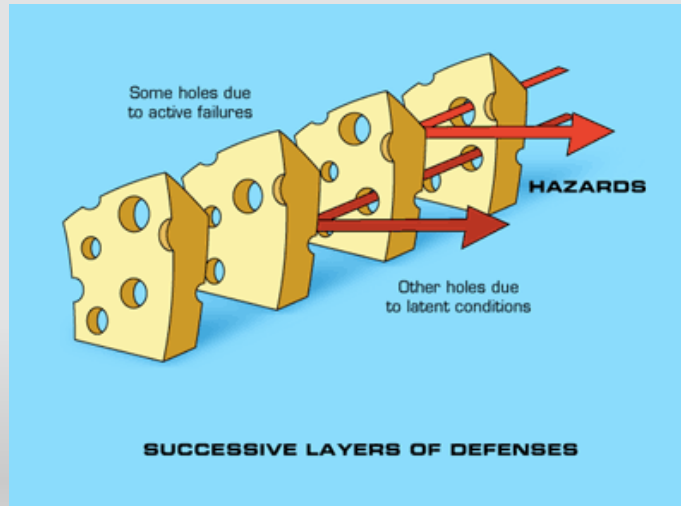
scan, a
stations.



High Reliability—We're all in this together

Swiss Cheese Model

Layered protections for failure prevention

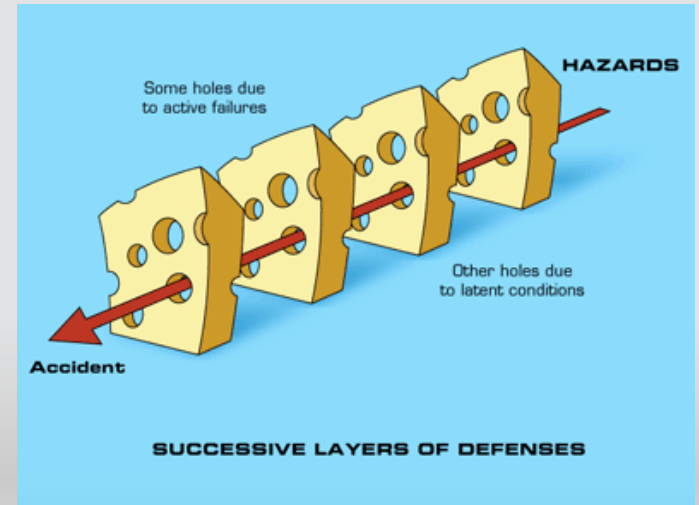
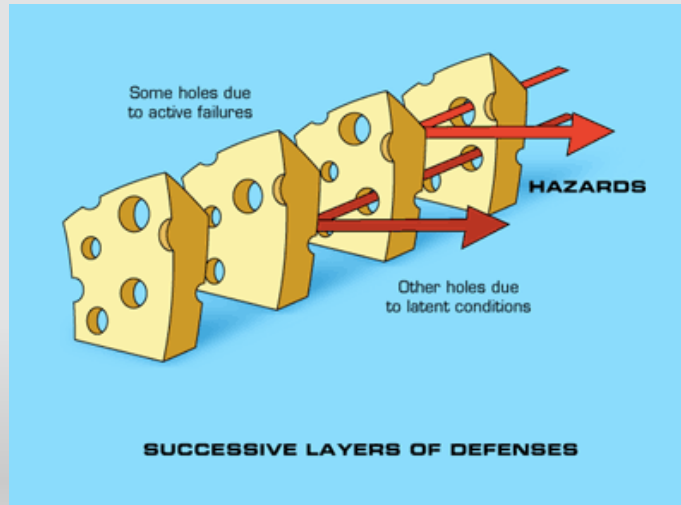


High Reliability—We're all in this together

Swiss Cheese Model

Layered protections for failure prevention

J. Reason
Human Error
Cambridge University Press
1990



High Reliability—We're all in this together

Institute of Medicine

1999

44, 000 – 98, 000 each year

"A 727 each day"



November 1999

INSTITUTE OF MEDICINE

Shaping the Future for Health

TO ERR IS HUMAN: BUILDING A SAFER HEALTH SYSTEM

Health care in the United States is not as safe as it should be--and can be. At least 44,000 people, and perhaps as many as 98,000 people, die in hospitals each year as a result of medical errors that could have been prevented, according to estimates from two major studies. Even using the lower estimate, preventable medical errors in hospitals exceed attributable deaths to such feared threats as motor-vehicle wrecks, breast cancer, and AIDS.



High Reliability—We're all in this together

REVIEW ARTICLE

A New, Evidence-based Estimate of Patient Harms Associated with Hospital Care

John T. James, PhD

**JOURNAL OF
PATIENT SAFETY**

High Reliability- Were all in this together

- James
 - J Patient Safety 2013;9:122-128
- Estimate based on data extrapolated from 4 data mining studies
 - Contemporary data
 - IOM *To Err is Human* ca. 1984
- Estimates error rate (*Preventable Adverse Event*, PAE)
- Extrapolates a LETHAL error rate

High Reliability—We're all in this together

Types of PAEs

The cause of PAEs in hospitals may be separated into these categories:

- Errors of commission,
- Errors of omission,
- Errors of communication,
- Errors of context, and
- Diagnostic errors

High Reliability- Were all in this together

- James
 - J Patient Safety 2013;9:122-128
- Estimate based on data extrapolated from 4 data mining studies
 - Contemporary data
 - IOM *To Err is Human* ca. 1984
- Estimates error rate (*Preventable Adverse Event*, PAE)
- Extrapolates a LETHAL error rate
- 200 000 -400 000 per year

High Reliability- Were all in this together

- James
- Estimate based on data extrapolated from 4 data mining studies
 - Contemporary data
 - IOM *To Err is Human* ca. 1984
- Estimates error rate (*Preventable Adverse Event*, PAE)
- Extrapolates a LETHAL error rate
- 200 000 -400 000 per year
- Serious Harm is 10X-20X more common than LETHAL Harm

High Reliability- Were all in this together

- James
- Estimate based on studies
 - Contemporary
 - IOM To
- Estimates e
- Extrapolate
- 200 000 -4
- Serious Harm

CONCLUSIONS

There was much debate after the IOM report about the accuracy of its estimates. In a sense, it does not matter whether the deaths of 100,000, 200,000 or 400,000 Americans each year are associated with PAEs in hospitals. Any of the estimates demands assertive action on the part of providers, legislators, and people who will one day become patients. Yet, the action and progress on patient safety is frustratingly slow; however, one must hope that the present, evidence-based estimate of 400,000+ deaths per year will foster an outcry for overdue changes and increased vigilance in medical care to address the problem of harm to patients who come to a hospital seeking only to be healed.

High Reliability—We're all in this together



Google maps



High Reliability—We're all in this together



Google maps

NPSG.01.01.01



High Reliability—We're all in this together



National Patient Safety Goals Effective January 1, 2015

Hospital Accreditation Program

Goal 1

Improve the accuracy of patient identification.

NPSG.01.01.01

Use at least two patient identifiers when providing care, treatment, and services.

--Rationale for NPSG.01.01.01--

Wrong-patient errors occur in virtually all stages of diagnosis and treatment. The intent for this goal is two-fold: first, to reliably identify the individual as the person for whom the service or treatment is intended; second, to match the service or treatment to that individual. Acceptable identifiers may be the individual's name, an assigned identification number, telephone number, or other person-specific identifier.

www.jointcommission.org

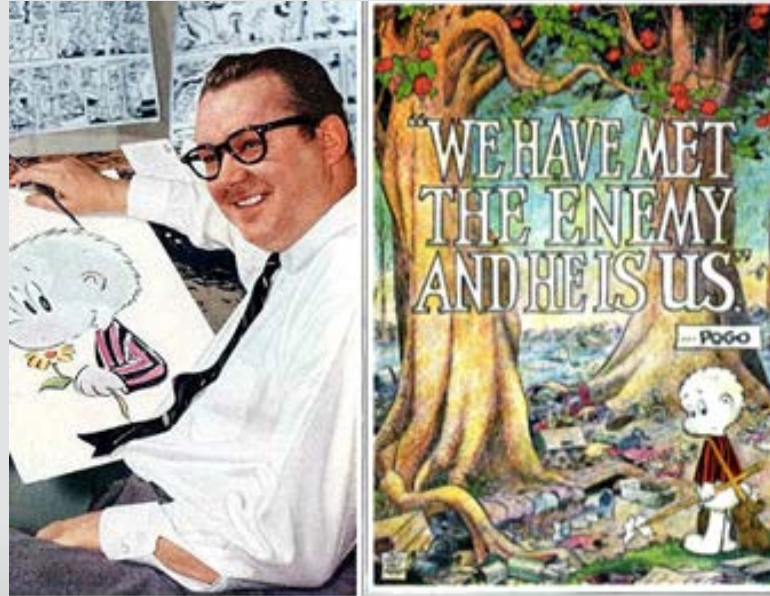
High Reliability—We're all in this together



Google maps



High Reliability—We're all in this together



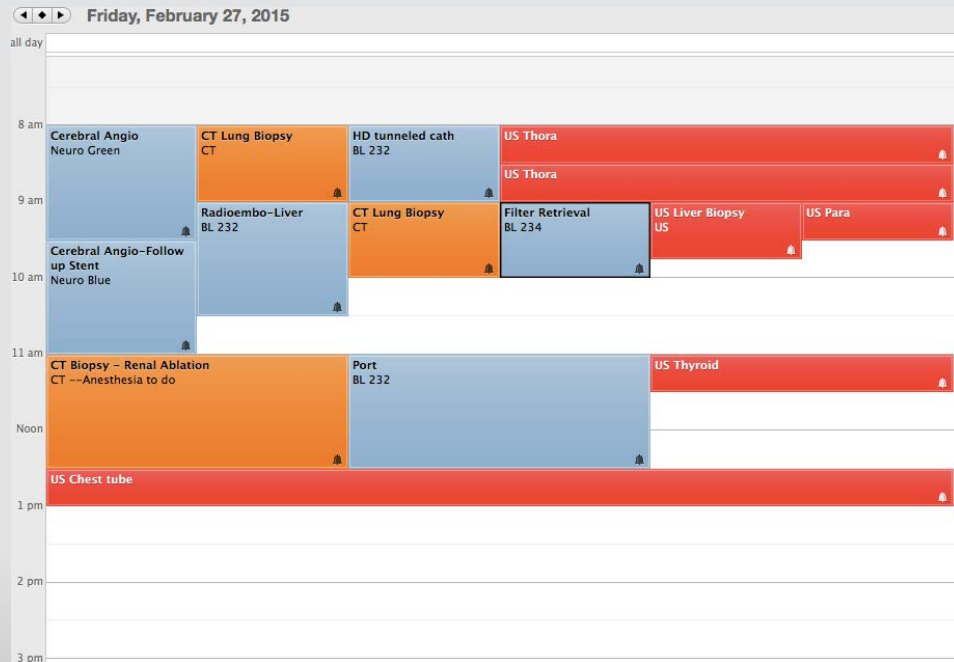
Walt Kelly (1913-1973) and his famous poster for the first Earth Day on April 22, 1970

High Reliability—We're all in this together

Why does this happen?

High Reliability—We're all in this together

We work in a COMPLEX environment



High Reliability—We're all in this together

We work in a COMPLEX environment

Various resources

IR Suites

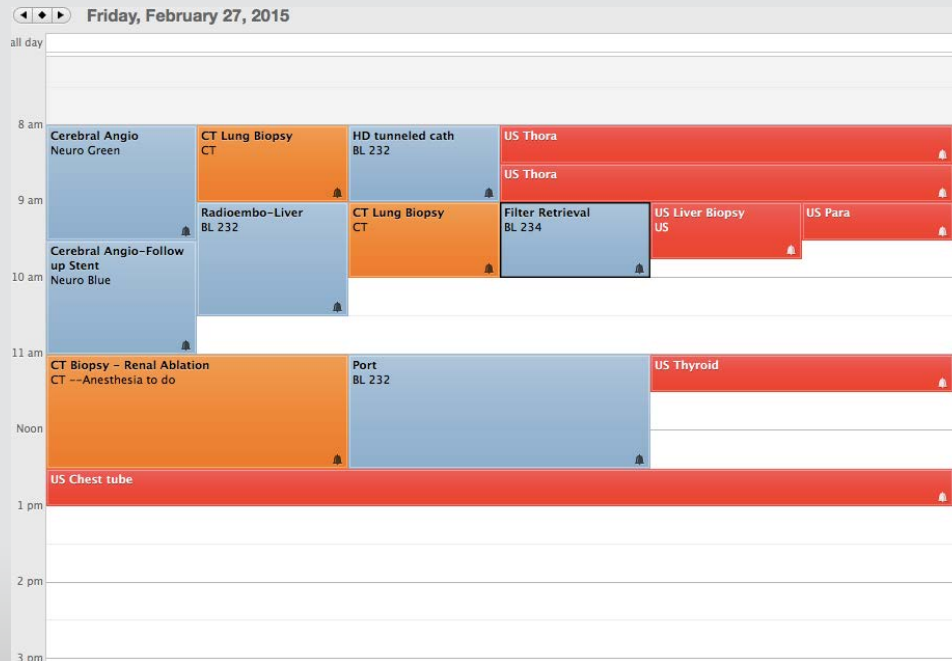
Staff needs

Patient needs

Transport

Equipment needs

IT issues "downtime"



High Reliability—We're all in this together

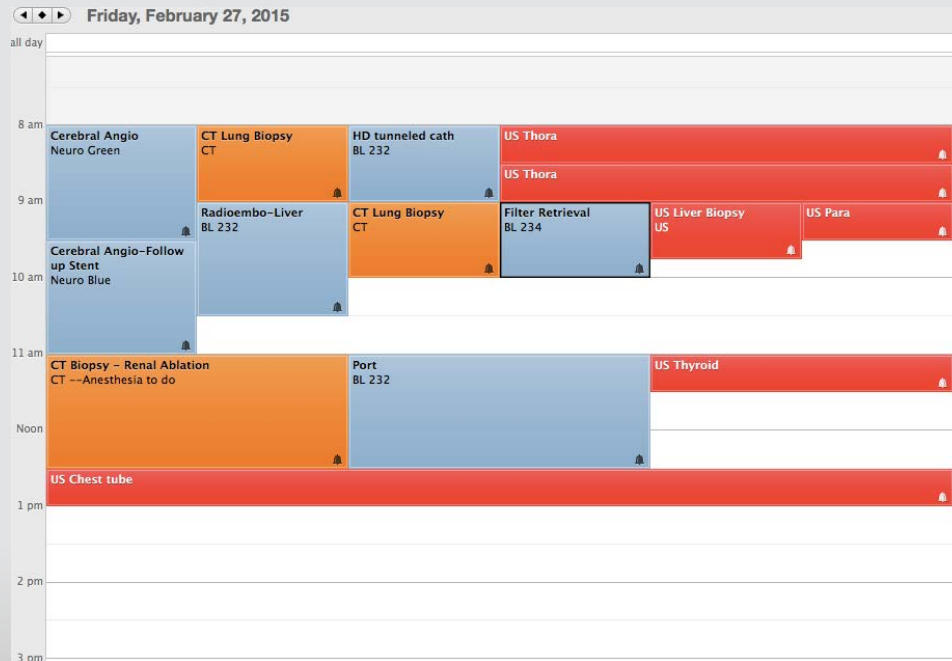
We work in a COMPLEX environment

Various resources

IR Suites

Staff needs

Variable acuity



High Reliability—We're all in this together

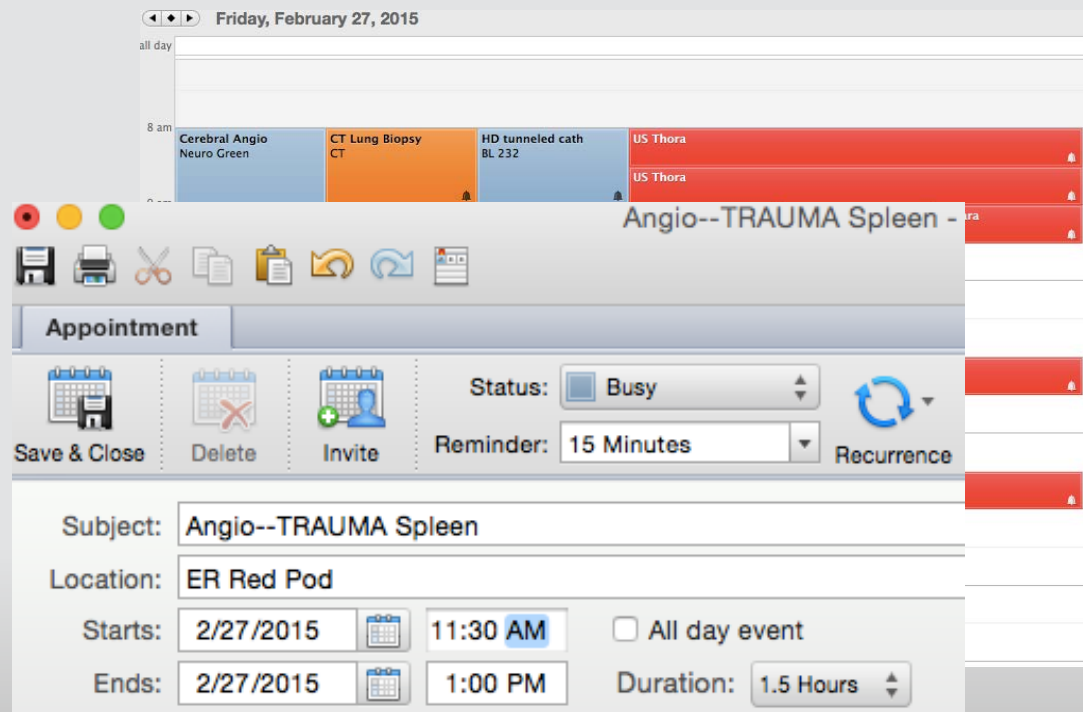
We work in a COMPLEX environment

Various resources

IR Suites

Staff needs

Variable acuity



High Reliability—We're all in this together

We work in a COMPLEX environment

Various resources

IR Suites

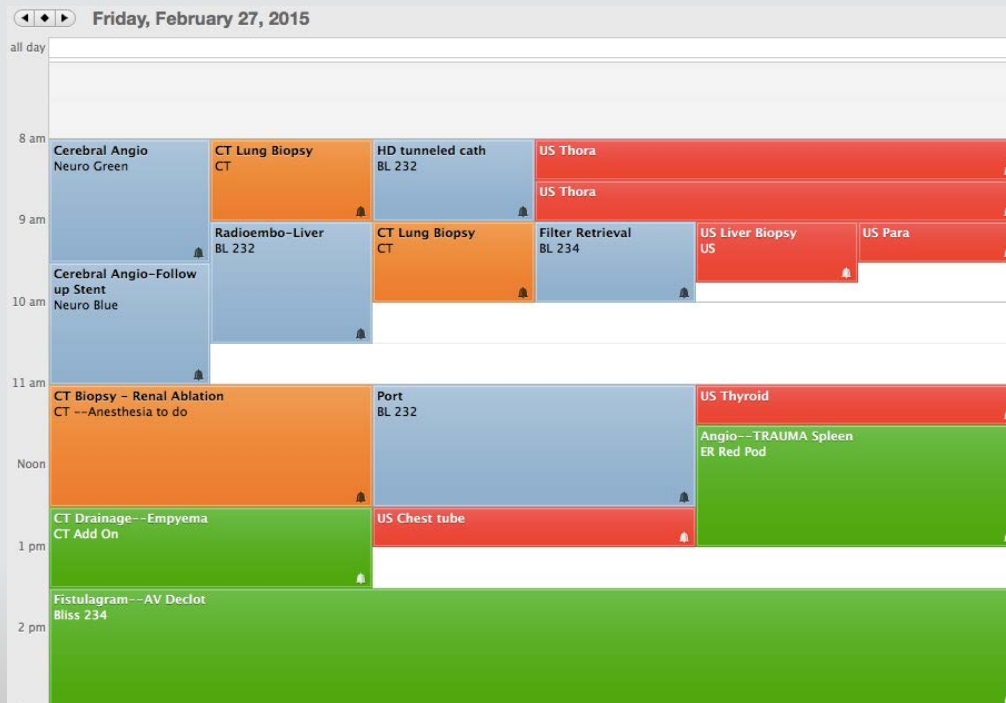
Staff needs

Variable acuity

Emergent add-ons

calls

Equipment issues, phone



High Reliability—We're all in this together

We work in a COMPLETE

Various re

IR Suit

Staff n

Variable a

Emerg

Equipment

calls

Friday, February 27, 2015

all day

Cerebral--S1

Appointment

Save & Close Delete Invite Status: Busy Reminder: 15 Minutes

Subject: Cerebral--STROKE

Location: ER

Starts: 2/27/2015 4:30 PM ☐ All day event

US Liver Biopsy US Para

US Thyroid

Angio--TRAUMA Spleen

ER Red Pod

High Reliability—We're all in this together

We work in a COMPLETE

Various re

IR Suit

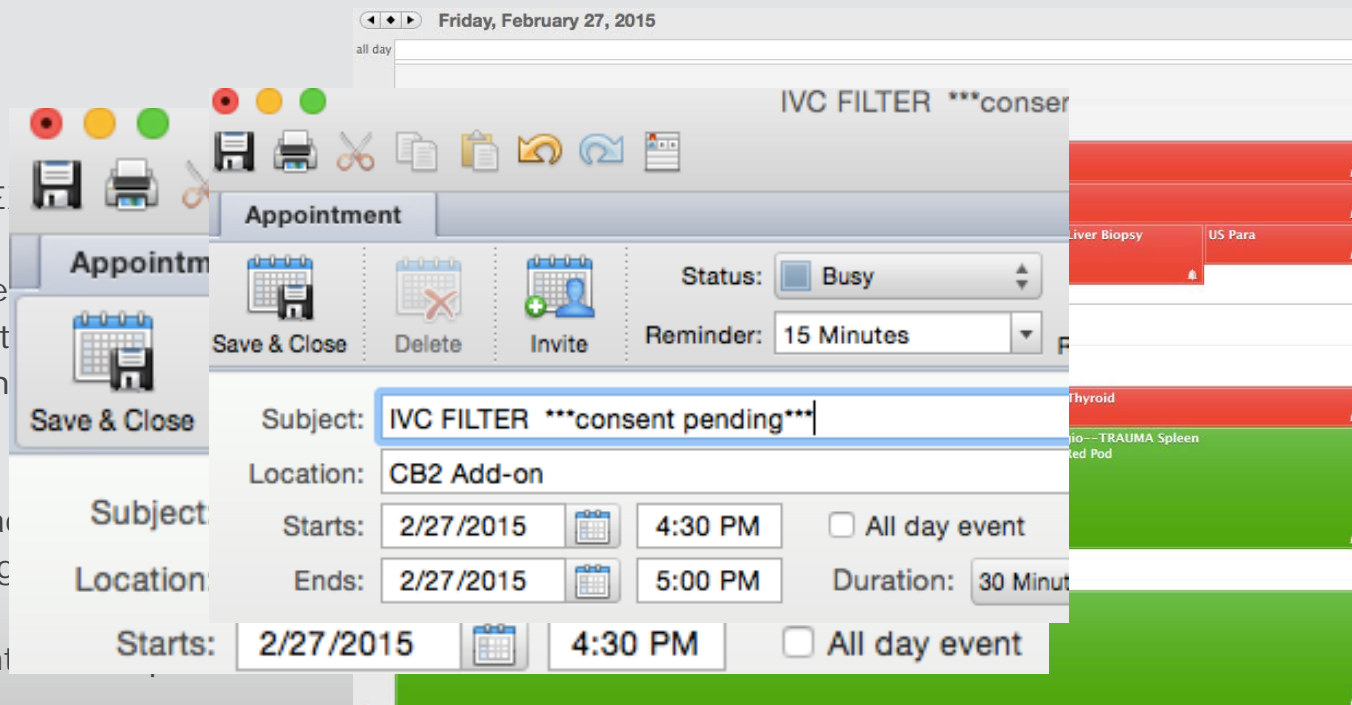
Staff n

Variable a

Emerg

Equipment

calls



High Reliability—We're all in this together

Why does this happen?

Complex Systems are intrinsically hazardous systems

How Systems Fail



How Complex Systems Fail

(Being a Short Treatise on the Nature of Failure; How Failure is Evaluated; How Failure is Attributed to Proximate Cause; and the Resulting New Understanding of Patient Safety)

Richard I. Cook, MD

Cognitive technologies Laboratory
University of Chicago

High Reliability—We're all in this together

Why does this happen?

Complex Systems are intrinsically hazardous systems

Complex Systems contain changing mixtures of latent failures within them

How Systems Fail



How Complex Systems Fail

(Being a Short Treatise on the Nature of Failure; How Failure is Evaluated; How Failure is Attributed to Proximate Cause; and the Resulting New Understanding of Patient Safety)

Richard I. Cook, MD

Cognitive technologies Laboratory
University of Chicago

High Reliability—We're all in this together

Why does this happen?

Complex Systems are intrinsically hazardous systems

Complex Systems contain changing mixtures of latent failures within them

Complex Systems run in degraded mode

How Systems Fail



How Complex Systems Fail

(Being a Short Treatise on the Nature of Failure; How Failure is Evaluated; How Failure is Attributed to Proximate Cause; and the Resulting New Understanding of Patient Safety)

Richard I. Cook, MD

Cognitive technologies Laboratory
University of Chicago

High Reliability—We're all in this together

Why does this happen?

Complex Systems are intrinsically hazardous systems

Complex Systems contain changing mixtures of latent failures within them

Complex Systems run in degraded mode

Catastrophe is always just around the corner

How Systems Fail



How Complex Systems Fail

(Being a Short Treatise on the Nature of Failure; How Failure is Evaluated; How Failure is Attributed to Proximate Cause; and the Resulting New Understanding of Patient Safety)

Richard I. Cook, MD

Cognitive technologies Laboratory
University of Chicago

High Reliability—We're all in this together

Why does this happen?

Why don't these things happen more often?

High Reliability—We're all in this together

Why does this happen?

Why don't these things happen more often?

How Systems Fail



How Complex Systems Fail

(Being a Short Treatise on the Nature of Failure; How Failure is Evaluated; How Failure is Attributed to Proximate Cause; and the Resulting New Understanding of Patient Safety)

Richard I. Cook, MD

Cognitive technologies Laboratory
University of Chicago

High Reliability—We're all in this together

Why does this happen?

Why don't these things happen more often?

Complex Systems are heavily and successfully defended against failure

How Systems Fail



How Complex Systems Fail

(Being a Short Treatise on the Nature of Failure; How Failure is Evaluated; How Failure is Attributed to Proximate Cause; and the Resulting New Understanding of Patient Safety)

Richard I. Cook, MD

Cognitive technologies Laboratory
University of Chicago

High Reliability—We're all in this together

Why does this happen?

Why don't these things happen more often?

Complex Systems are heavily and successfully defended against failure

Human Operators have dual roles: as Producers of and Defenders against failure

How Systems Fail



How Complex Systems Fail

(Being a Short Treatise on the Nature of Failure; How Failure is Evaluated; How Failure is Attributed to Proximate Cause; and the Resulting New Understanding of Patient Safety)

Richard I. Cook, MD

Cognitive technologies Laboratory
University of Chicago

High Reliability—We're all in this together

Why does this happen?

Why don't these things happen more often?

Complex Systems are heavily and successfully defended against failure

Human Operators have dual roles: as Producers of and Defenders against failure

Catastrophe requires multiple failures – single point failure is not enough

How Systems Fail



How Complex Systems Fail

(Being a Short Treatise on the Nature of Failure; How Failure is Evaluated; How Failure is Attributed to Proximate Cause; and the Resulting New Understanding of Patient Safety)

Richard I. Cook, MD

Cognitive technologies Laboratory
University of Chicago

High Reliability—We're all in this together

Why does this happen?

Why don't these things happen more often?

Complex Systems are heavily and successfully defended against failure

Human Operators have dual roles: as Producers of and Defenders against failure

Catastrophe requires multiple failures – single point failure is not enough

Human practitioners are the adaptable element of complex systems

How Systems Fail



How Complex Systems Fail

(Being a Short Treatise on the Nature of Failure; How Failure is Evaluated; How Failure is Attributed to Proximate Cause; and the Resulting New Understanding of Patient Safety)

Richard I. Cook, MD

Cognitive technologies Laboratory
University of Chicago

High Reliability—We're all in this together

High Reliability Organizations (HROs)

Concept developed based on complex systems that successfully avoid accidents and catastrophic failures

Examples studied: Aircraft Carrier operations
Nuclear Power generation
Commercial aviation

© Academy of Management Executive, 2001, Vol. 15, No. 3

Must accidents happen? Lessons from high-reliability organizations

Karlene H. Roberts and Robert Bea

High Reliability—We're all in this together

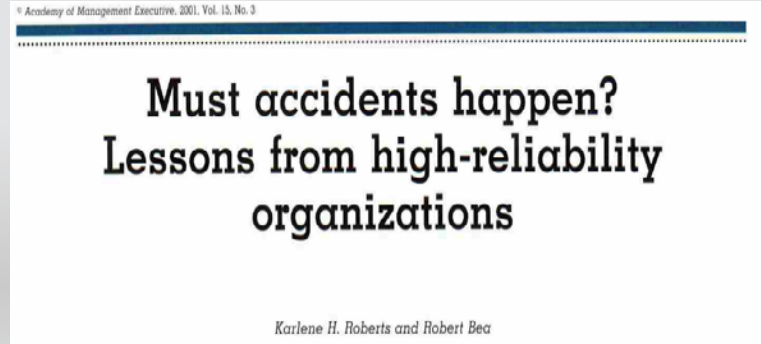
High Reliability Organizations (HROs)

Concept developed based on complex systems that successfully avoid accidents and catastrophic failures

Examples studied: Aircraft Carrier operations
Nuclear Power generation
Commercial aviation

Recommendations put forth:

1. **Seek to know what you don't know**



High Reliability—We're all in this together

High Reliability Organizations (HROs)

Concept developed based on complex systems that successfully avoid accidents and catastrophic failures

Examples studied: Aircraft Carrier operations
Nuclear Power generation
Commercial aviation

Recommendations put forth:

1. Seek to know what you don't know
2. Recognize the cost of failure and the benefits of reliability

© Academy of Management Executive, 2001, Vol. 15, No. 3

Must accidents happen? Lessons from high-reliability organizations

Karlene H. Roberts and Robert Bea

High Reliability—We're all in this together

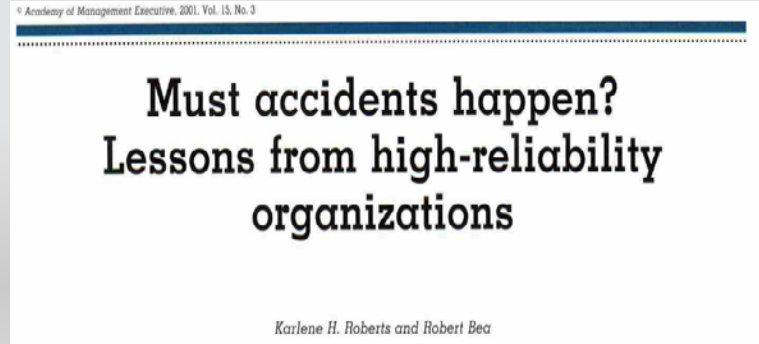
High Reliability Organizations (HROs)

Concept developed based on complex systems that successfully avoid accidents and catastrophic failures

Examples studied: Aircraft Carrier operations
Nuclear Power generation
Commercial aviation

Recommendations put forth:

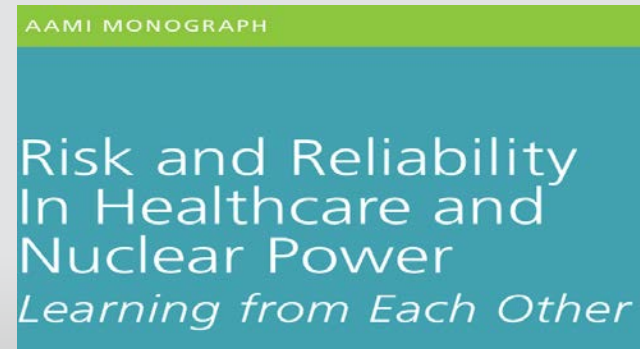
1. Seek to know what you don't know
2. Recognize the cost of failure and the benefits of reliability
3. Keep everybody in the loop



High Reliability—We're all in this together

1. High Consequence Industries

1. Healthcare
2. Nuclear Power
3. Military Command and Control
4. Commercial aviation
5. Space Exploration
6. Wildfire firefighting
7. Chemical process control
8. Deep Sea Oil/Gas exploration
9. Deep ground mining
10. Mass transit systems
11. "Big Science" projects



High Reliability—We're all in this together

"The healthcare industry may be the largest and most expensive endeavor in the developed world, with the United States at the top of the list of per capita expenditure."

" A decentralized and massive undertaking"

4000-6000 hospitals (Same number of surgicenters)

Owned by 1000-2000 firms

200 000 physician offices

20 million surgical procedures with Anesthesia

1 billion prescriptions written per year

Risk and Reliability in HealthCare and Nuclear Power: Learning from Each Other. AAMI Monograph 2013. Eds: Weinger MB Halbert BD Logan MK

High Reliability—We're all in this together

In contrast, Nuclear Power....

About 100 Nuclear power plants in the United States

Owned by 30-40 firms

Regulated and scrutinized by the NRC

Highly-trained individuals

Extensive use of simulation and team work



High Reliability—We're all in this together

High Consequence events: Health Care v. Nuclear Power

Scale of catastrophe

Publicity

Operator risk

Facility Risk

PERSPECTIVES—WHAT ARE THE ISSUES

Thorniest Issues in Healthcare

I cynically suggest that if the aftermath of medical errors or preventably suboptimal care events in an OR, ICU room, or emergency department bay would be to take that room out of service for days or months, that would generate a much more aggressive response for improvement by the healthcare institution than we currently see.

D Gaba MD. AAMI Monograph. Page 22

High Reliability—We're all in this together

In contrast, Nuclear Power....

About 100 Nuclear power plants in the United States

Owned by 30-40 firms

Regulated and scrutinized by the NRC

Highly-trained individuals

Extensive use of simulation and team



"If you've seen one hospital....
you've seen *one* hospital"

High Reliability—We're all in this together



High Reliability—We're all in this together

Innovation Series 2004

Improving the Reliability of Health Care

Conclusion

This paper offers ideas for using reliability principles to reduce production defects in health care, one aspect of improving reliability. Reliability principles provide a way to examine a complex system and its processes, calculate its overall reliability, and develop mechanisms to increase the likelihood that the system will perform its intended functions reliably. Applying the lessons from reliability engineering to a health care setting requires strong leadership and commitment, but holds the promise of moving our health care system to new levels of consistency and quality.

High Reliability—We're all in this together

Medical Errors—

OR Fires happen maybe 600 times per year

Wrong patient or wrong side surgery happen maybe 50 times per week in the U.S.

High-Reliability Health Care: Getting There from Here

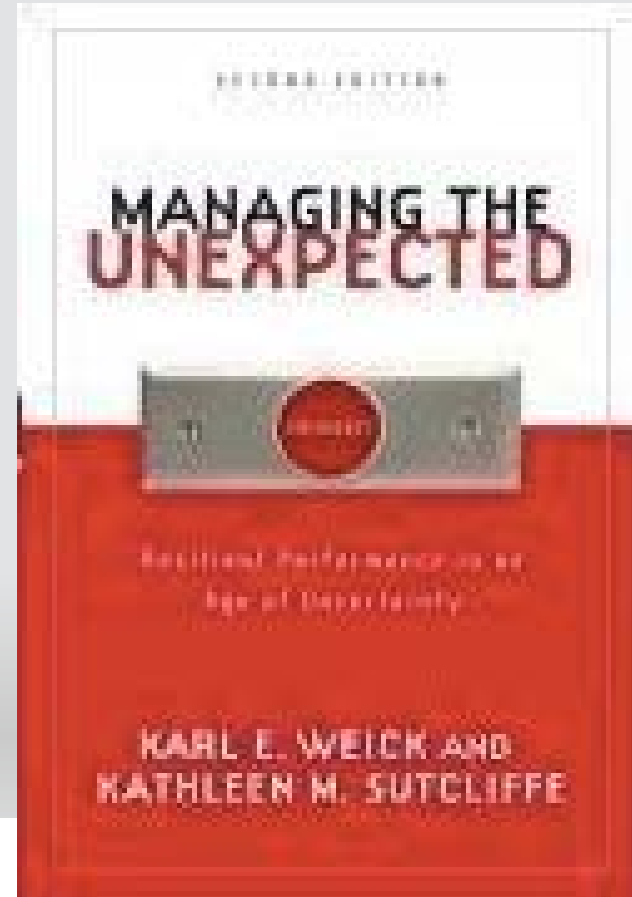
MARK R. CHASSIN and JEROD M. LOEB

The Joint Commission

Chasen MR Loeb JB Milbank Quarterly 2013;91(3):459-490.

High Reliability—We're all in this together

Managing the Unexpected

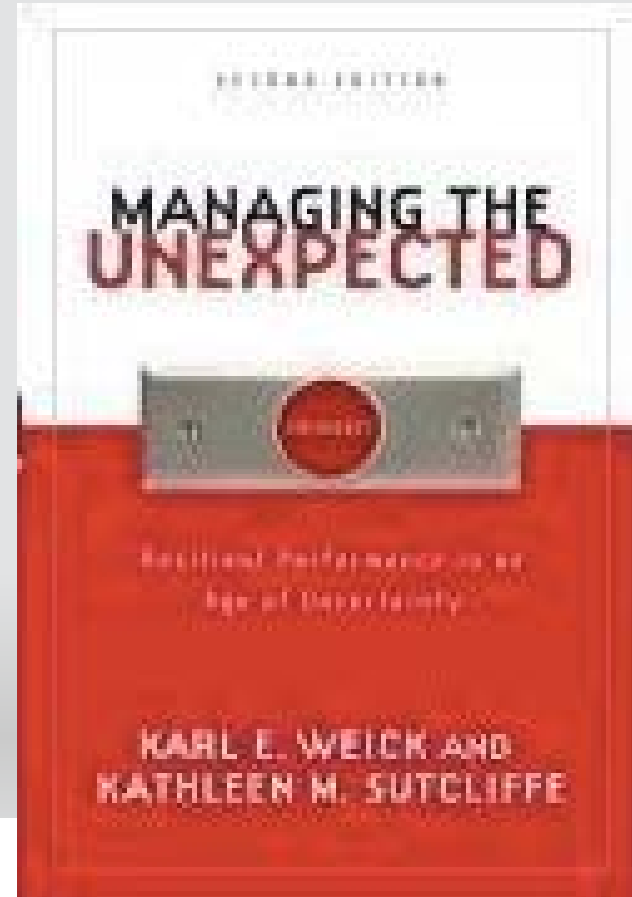


High Reliability—We're all in this together

Managing the Unexpected

Characteristics of HROs

1. Preoccupation with failure.
2. Reluctance to simplify.
3. Sensitivity to Operations
4. Commitment to Resilience
5. Deference to Expertise



High Reliability—We're all in this together

Managing the Unexpected

The Basic Message of This Book

This book is about organizations, expectations, and mindfulness. Our basic message is that expectations can get you into trouble unless you create a mindful infrastructure that continually does all of the following:

- Tracks small failures
- Resists Oversimplification
- Remains sensitive to operations
- Maintains capability for resilience
- Takes advantage of shifting locations of expertise

Managing the Unexpected KE Weick KM Sutcliffe, 2nd edition

KARL E. WEICK AND
KATHLEEN M. SUTCLIFFE

Chara

1. P
2. R
3. S
4. C
5. D

High Reliability—We're all in this together

Mindfulness



High Reliability—We're all in this together

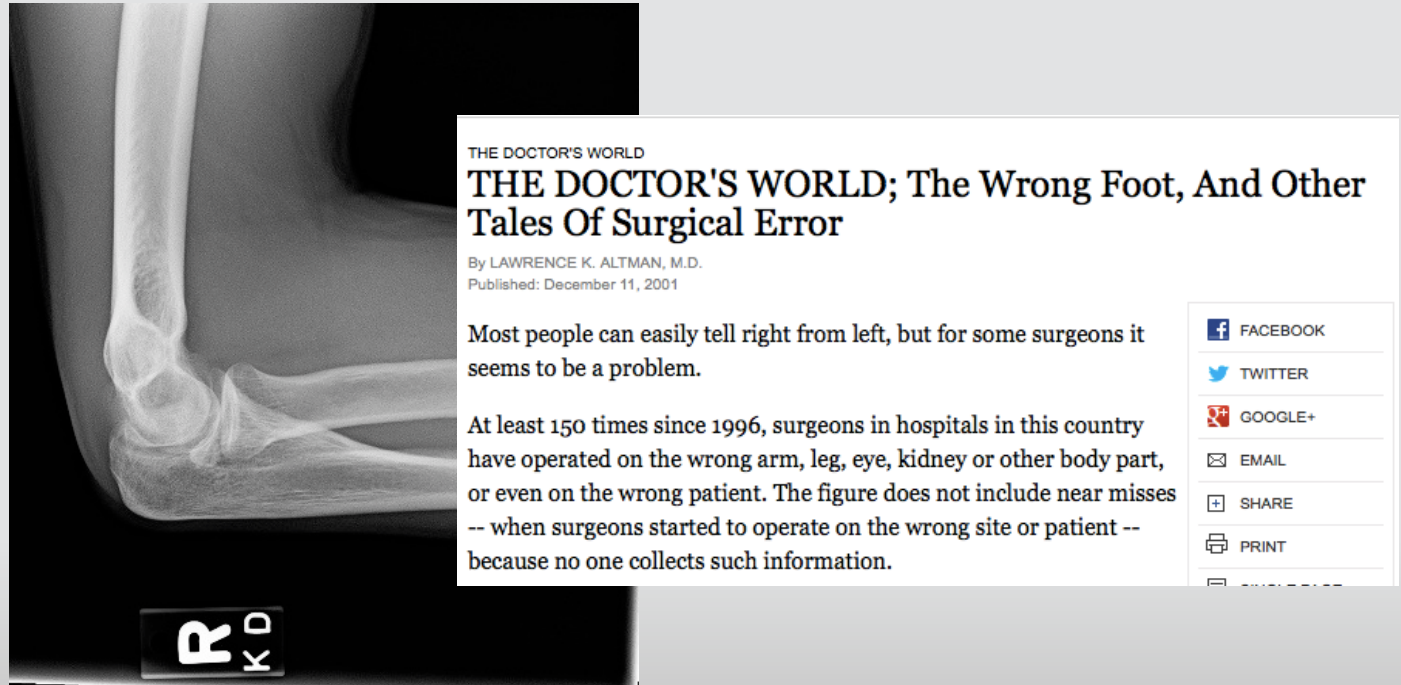
Mindfulness

History: *L elbow pain*



High Reliability—We're all in this together

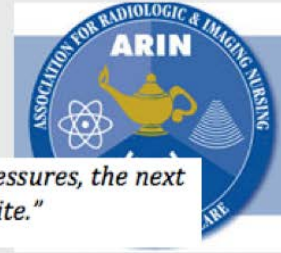
Mindfulness



High Reliability—We're all in this together

Highly Reliable Organizations (HROs)

High Reliability—We're all in this together



"With current health care and reimbursement pressures, the next innovation in IR is team performance in the IR suite."

"Team success occurs when the team achieves tasks and works more effectually than a group of individuals working alone. The Team realizes a collective synergy from the members."

G. Laukhuf, ND RN, CRN, RN-BC, NE-BC ARIN Update: Teamwork is Innovation
IR Quarterly Winter 2015

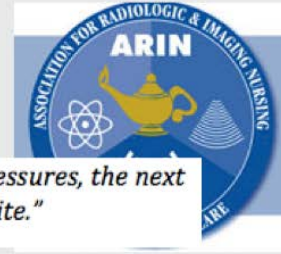
Spillane ARIN ATL 2015 | MARCH 1, 2015 | 10



High Reliability—We're all in this together

Highly Reliable Organizations (HROs)—Teamwork is Innovation

High Reliability—We're all in this together



"With current health care and reimbursement pressures, the next innovation in IR is team performance in the IR suite."

"Team success occurs when the team achieves tasks and works more effectually than a group of individuals working alone. The Team realizes a collective synergy from the members."

G. Laukhuf, ND RN, CRN, RN-BC, NE-BC ARIN Update: Teamwork is Innovation
IR Quarterly Winter 2015

Spillane ARIN ATL 2015 | MARCH 1, 2015 | 10



High Reliability—We're all in this together

Highly Reliable Organizations (HROs)—Teamwork is Innovation

High Reliability—We're all in this together



"With current health care and reimbursement pressures, the next

THINK GLOBALLY ACT LOCALLY



Peace Resource Project 888-822-7075 www.peaceproject.com (MS#10)

Hospital

High Reliability—We're all in this together

1.Crew Resource Management (CRM)

1.Cockpit Resource Management

1.IR SUITE RESOURCE MANAGEMENT

2. Coined by John Lauber

1. NASA

3. NTSB analysis of United Airlines flight 173 in 1979

1. Crew was focused on a landing gear problem and the plane ran out of fuel

Wikipedia, "Crew Resource Management"

High Reliability—We're all in this together

1.Crew Resource Management (CRM)

1.Cockpit Resource Management

1.IR SUITE RESOURCE MANAGEMENT

2. Coined by John Lauber

1. NASA

3. NTSB analysis of United Airlines flight 173 in 1979

1. Crew was focused on a landing gear problem and the plane ran out of fuel

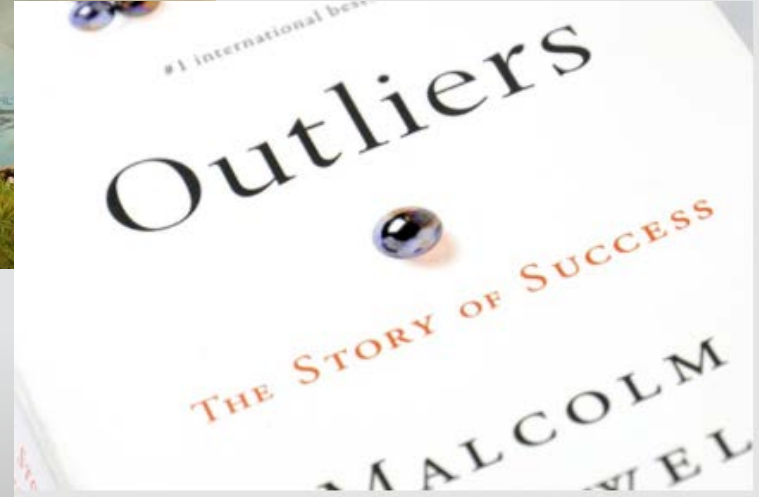
"...a set of training procedures for use in environments where human error can have devastating effect."

"focuses on interpersonal communication, leadership, and decision making in the cockpit."

"communication barriers are reduced and problems can be solved more efficiently, leading to increased safety."

High Reliability—We're all in this together

Assertiveness



High Reliability—We're all in this together

Crew Resource Management

The need to speak up: HIERARCHY and the POWER DISTANCE INDEX (PDI)

IBM HR researcher Geert Hofstede, 1960s-1970s

- Cross cultural psychology and its workplace impact
- Questions about **how people worked together**,
how they solved problems, how they felt about authority

Hofstede's cultural dimensions theory

From Wikipedia, the free encyclopedia
(Redirected from [Power distance](#))



High Reliability—We're all in this together

Crew Resource Management

The need to speak up: HIERARCHY and the POWER DISTANCE INDEX (PDI)

Cultures have different POWER DISTANCE INDICES or POWER GRADIENTS

Moderate to Low in the United States

Industries and Teams have different POWER GRADIENTS

Anesthesiologists and Surgeons view it as **LOW**

Nurses tend to view it as **HIGH**

High Reliability—We're all in this together

Crew Resource Management

The need to speak up: HIERARCHY and the POWER DISTANCE INDEX (PDI)

Cultures have different POWER DISTANCE INDICES or POWER GRADIENTS

Moderate to Low in the United States

Industries and Teams have different POWER GRADIENTS

Anesthesiologists and Surgeons view it as **LOW**

Nurses tend to view it as **HIGH**

PERCEIVED POWER GRADIENTS LEAD TO AUTHORITY GRADIENTS

High Reliability—We're all in this together

Crew Resource Management is about **Communication !**

Expertise, training, equipment, and procedures appeared to be adequate protection, yet the presence of multiple defences obscured their faulty functioning, just as they often do in medical settings. A number of other problems occurred aboard *Greeneville* which we also see in health care. The problem was the total breakdown of communication. The *Greeneville* team also failed to move from a rigid hierarchical structure to a more flexible adaptive structure. Communication often breaks down in healthcare settings, which are organized to maximize status and hierarchical differences, thus often impeding information flow



LEARNING FROM OTHER INDUSTRIES

Lessons learned from non-medical industries: the tragedy of the USS *Greeneville**

K H Roberts, C T Tadmor

High Reliability—We're all in this together

Crew Resource Management is about

Communication ! **Box 1 Problems aboard Greenville**

- Video monitor that tracks the courses of other ships failed
- Response to monitor breakdown was "business as usual" instead of hypervigilance
- Lunch ran late
- The Captain took the controls and failed to use the crew as "back up"
- Communication broke down among crew members
- Initial periscope depth observation gave cause for concern that wasn't noted
- The fire control technician did not update contacts
- The sonar data collection and analysis was at
- Fire control and sonar failed to notice disc position of *Ehime Maru*
- The final briefing was not held
- The final periscope search was abbreviated

Qual Saf Hlth Care 2002;11:355-357

Key messages

To maintain safety healthcare organizations must:

- Routinely make observations of situational cues and indicators of poor safety and report them to accountable sources.
- Ensure equipment failure back ups exist and are used.
- Ensure that everyone openly discusses errors, near misses, and adverse events.
- Value and teach teamwork in the running of the organization.
- Develop a leadership team that can recognize possible time and resource constraints and reduced redundancy, and will take extra steps to compensate for increased risks.

High Reliability—We're all in this together

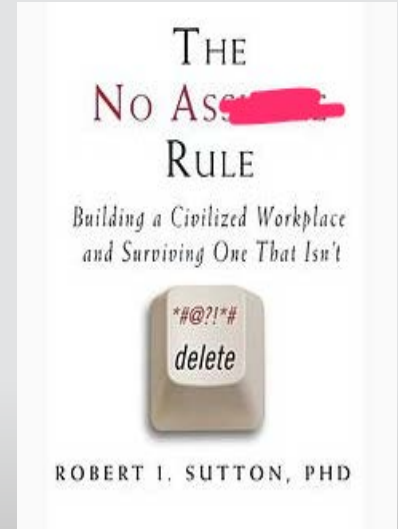
Intimidating behavior

Often ascribed to MDs, but it's not just the MDs

Occurs with MDs, RNs, Techs, Pharmacists

Includes **loud or profane language**, but also things like,

- condescending language
- not returning phone calls or pages
- intimidating or belittling body language
- impatient behaviors or language



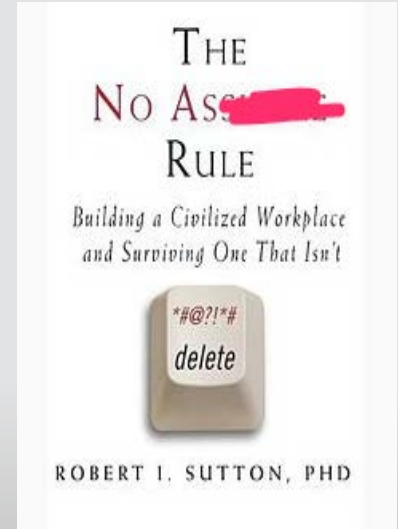
High Reliability—We're all in this together

Intimidating behavior

Not tolerated by HROs

Why?

Because they suppress reporting of safety concerns



High Reliability—We're all in this together


What are we doing with this at Hartford Hospital?



Hartford
Hospital
A Hartford HealthCare Partner

The Recommendations

31



Do the **safe** thing...for every patient every time

Objectives

- Discuss safety culture
- Introduce our expected behaviors to support patient safety.
- Engage you in what you can do to prevent errors and eliminate patient harm.



Hartford
HealthCare

BE A SAFETY "CHAMP"

Do the **safe** thing...for every patient every time

- Communicate Clearly**
 - Read back/confirm back
 - Clarify and confirm directions
- Handoff Effectively**
 - Consider patient's present and future situation, background, assessment, recommendations
- Attention to Detail**
 - Look to the patient first and last in the moment
 - Tell clearly using **SBAR** Stop Think Act Review
- Mentor and Coach Others**
 - Speak up for safety using **AROS**. Ask a question, make a Request, Offer a Resource, Use Words of concern
 - Cross Check and Coach teammates
 - Health accountability
- Practice a Questioning Attitude**
 - Stop the Line "I need clarity" to ask for clear and specific expectations
 - Monitor and verify

Safety Starts with Me |

| 32

Hartford
Hospital

High Reliability—We're all in this together

The Recommendation

Hartford HealthCare

BE A SAFETY "CHAMP"

Do the **safe** thing... for every patient every time

- Communicate Clearly**
 - Avoid backchannel talk
 - Phonetic and numeric clarification
- Handoff Effectively**
 - Use **SBAR** (Introduce yourself and role, Situation, Background, Assessment, Recommendation)
- Attention to Detail**
 - Look to the patient first and be in the moment
 - Self-check using **STAMP** (Stop, Think, Act, Review)
- Mentor and Coach Others**
 - Speak up for safety using **ARCC**: Ask a question, make a Request, voice a Concern, use Chain of command
 - Cross Check and Coach teammates
 - 100% accountability
- Practice a Questioning Attitude**
 - Stop the Line "I need clarity" to ask for clear and specific expectations
 - Initiate and Verify

...for every patient every time

cy culture

r expected behaviors
patient safety.

in what you can do
errors and eliminate

Hartford HealthCare

BE A SAFETY "CHAMP"

Do the **safe** thing... for every patient every time

- Communicate Clearly**
 - Avoid backchannel talk
 - Phonetic and numeric clarification
- Handoff Effectively**
 - Use **SBAR** (Introduce yourself and role, Situation, Background, Assessment, Recommendation)
- Attention to Detail**
 - Look to the patient first and be in the moment
 - Self-check using **STAMP** (Stop, Think, Act, Review)
- Mentor and Coach Others**
 - Speak up for safety using **ARCC**: Ask a question, make a Request, voice a Concern, use Chain of command
 - Cross Check and Coach teammates
 - 100% accountability
- Practice a Questioning Attitude**
 - Stop the Line "I need clarity" to ask for clear and specific expectations
 - Initiate and Verify

with P10

| 32



High Reliability—We're all in this together

Crew Resource Management

Improved Communication

Structured interaction

3-Way Repeat Back

When information is transferred...



Sender initiates communication using Receiver's Name. Sender provides a request or information to Receiver in a clear and concise format.



Receiver acknowledges receipt by a repeat-back of the request or information.



Sender acknowledges the accuracy of the repeat-back by saying, **That's correct!** If not correct, Sender repeats the communication.



A Safety Phrase:
"Let me **repeat that back...**"

Train our ears to listen for "**That's Correct!**" – it's a codeword for "we understand each other"

Safety Starts with Me |

| 33



High Reliability—We're all in this together

Crew Resource Management

Phonetic Clarifications

For **sound alike words and letters**, say the letter followed by a word that begins with the letter...

A Alpha	J Juliet	S Sierra
B Bravo	K Kilo	T Tango
C Charlie	L Lima	U Uniform
D Delta	M Mike	V Victor
E Echo	N November	W Whiskey
F Foxtrot	O Oscar	X X-Ray
G Golf	P Papa	Y Yankee
H Hotel	Q Quebec	Z Zulu
I India	R Romeo	

Adopted by NATO, International Civil Aviation Organization, Federal Aviation Administration, International Telecommunication Union, and US Nuclear Power Industry

Numeric Clarifications

For **sound alike** numbers, say the number and then the digits

15...**that's** one-five

50...**that's** five-zero

45...**that's** four-five

425...**that's** four-two-five

4 to 5...**that's** the range four dash five

...and **always** use leading zeros – as in 0.9

High Reliability—We're all in this together

Crew Resource Management

Expectations for interactions

Hartford HealthCare

BE A SAFETY “CHAMP”

Do the **safe** thing... for every patient every time

- Communicate Clearly**
 - Read back/repeat back
 - Phonetic and numeric clarification
- Handoff Effectively**
 - Use **IBAR** (Introduce yourself and role, Situation, Background, Assessment, Recommendation)
- Attention to Detail**
 - Look in the mirror first and be in the moment
 - Self check using **STAR**: Stop-Think-Act-Review
- Mentor and Coach Others**
 - Speak up for Safety using **ARCC**: Ask a question, make a Request, voice a Concern, use Chain of command
 - Cross Check and Coach teammates
 - 100% accountability
- Practice a Questioning Attitude**
 - Stop the Line “I need clarity” to ask for clear and specific expectations
 - Validate and Verify

High Reliability—We're all in this together

Multi-tasking is bad

Be in the Moment



Safety Starts with Me |

| 42

Self-Check Using STAR

- Stop** Pause for 1 to 2 seconds to focus our attention on the task at hand
- Think** Consider the action you're about to take
- Act** Concentrate and carry out the task
- Review** Check to make sure that the task was done correctly and that you got the correct result

STOP is the most important step. It gives your brain a chance to catch up with what your hands are getting ready to do.

Safety Starts with Me |

| 43



High Reliability—We're all in this together

Multi-tasking is bad

Self-Check Using STAR

- S**top Pause for *1 to 2 seconds* to focus our attention on the task at hand
- T**hink Consider the action you're about to take
- A**ct Concentrate and carry out the task

- R**eview Check to make sure that the task was done correctly and that you got the correct result

STOP is the most important step. It gives your brain a chance to catch up with what your hands are getting ready to do.

Be in the Moment



Safety Starts with Me |

| 42

Safety Starts with Me |

| 43

Hartford
Hospital

High Reliability—We're all in this together

Focusing on the human interaction and the transfer of information

Pay Attention Moments



Conditions that **increase the chance** you will experience an unintended error when performing a familiar, routine task:

- Working under time pressure
- Doing multiple things at the same time
- Distractions
- Interruptions
- Boredom
- Mental or physical exhaustion
- *Just not paying attention*

Any sound familiar???

STAR reduces your chances of making an unintended mental slip or lapse by **more than 10 times...**



High Reliability—We're all in this together

Focusing on the human interaction and the transfer of information

Pay Attention M



Conditions that increase the chance you will experience an unintended error when performing a familiar, routine task:

- Working under time pressure
- Doing multiple things at the same time
- Distractions
- Interruptions
- Boredom
- Mental or physical fatigue
- *Just not paying attention*

Any safety critical task



Safety Starts with Me

TAR requires
increased chances of
intended
collapse b

10



Hartford Hospital

High Reliability—We're all in this together

Crew Resource Management

The expectation to speak up



Hartford HealthCare

BE A SAFETY “CHAMP”
Do the **safe** thing... for every patient every time

- Communicate Clearly**
 - Read back/repeat back
 - Phonetic and numeric clarification
- Handoff Effectively**
 - Use **IBRAH** (Introduce yourself and role, Situation, Background, Assessment, Recommendation)
- Attention to Detail**
 - Look in the mirror first and be in the moment
 - Self check using **STAR**: Stop-Think-Act-Review
- Mentor and Coach Others**
 - Speak up for Safety using **ARCC**: Ask a question, make a Request, voice a Concern, use Chain of command
 - Cross Check and Coach teammates
 - 100% accountability
- Practice a Questioning Attitude**
 - Stop the Line “I need clarity” to ask for clear and specific expectations
 - Validate and Verify

High Reliability—We're all in this together

Staff training at Hartford HealthCare

***The Permission
AND
The Expectation
to
QUESTION THE SITUATION***

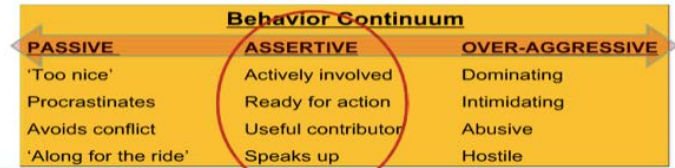
Safety Starts with Me |

| 24



Assertiveness

- The willingness to state and maintain a position until convinced otherwise by facts
 - Requires initiative and courage to act



Novant HEALTH

21

First
Do No Harm

Safety Starts with Me |

| 25



High Reliability—We're all in this together

*The Permission
AND
The Expectation
to
QUESTION THE SITUATION*

Safety Starts with Me |

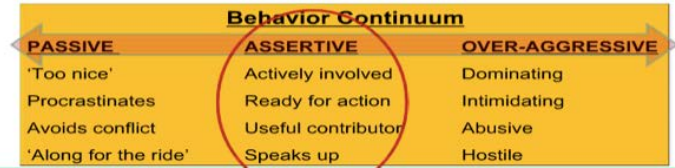
| 24



POLITE PERSISTENCE

Assertiveness

- The willingness to state and maintain a position until convinced otherwise by facts
 - Requires initiative and courage to act



Novant HEALTH

21

First
Do No Harm

Safety Starts with Me |

| 25



GRACIOUSNESS

High Reliability

*We're all in this
together.*

**Human practitioners are the adaptable
element of Complex Systems—** *Richard I Cook MD*

High Reliability *We're all in this together*

**Human practitioners are the adaptable
element of Complex Systems—** *Richard I Cook MD*

Thank you for having me.