# Enhancing Quality & Reliability in Healthcare & Respiratory Care

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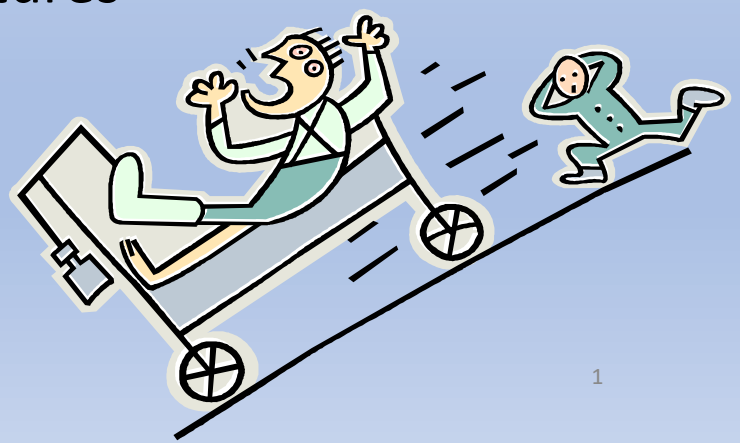


# Learning Objectives

- ***Define healthcare quality & reliability*** and how definitions may vary
- Review ***key milestones*** in the history of healthcare quality
- ***Evaluate facts*** about our current system
- Compare and contrast tools to enhance ***quality & reliability***
- Examine some ***practical case applications in general and specifically in respiratory care***
- Furnish some ***key references and resources***

# What is Quality?

Different stakeholders tend to attach different levels of importance to individual attributes

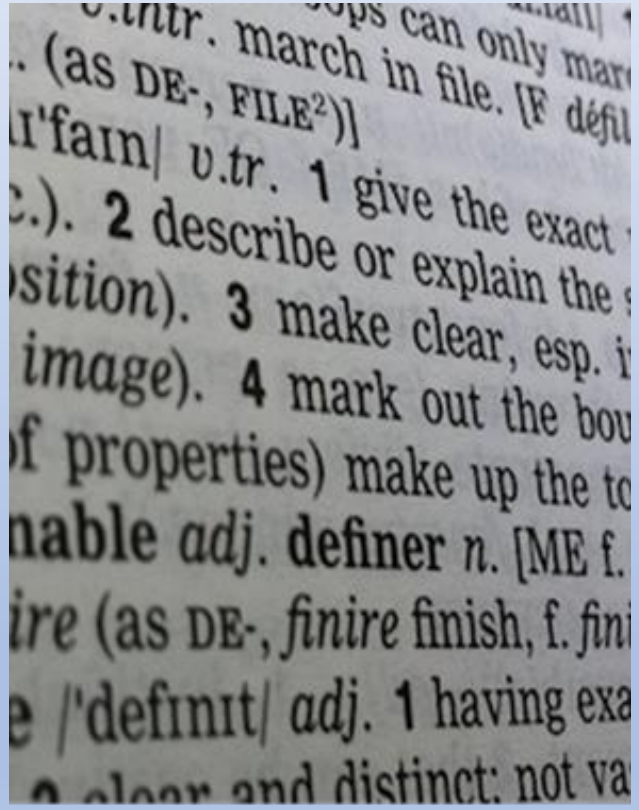
- Clinicians
- Patients
- Payers
- Managers
- Society

# What is Quality—Varying Definitions

**The Institute of Medicine (IOM) –** "Services for individuals and populations which increase the likelihood of desired health outcomes and are consistent with current professional knowledge."

**Journal of the Amer. Med. Assn (JAMA)-** "The capacity of the elements of that care to achieve legitimate medical and nonmedical goals."

**Patients –** "…did I get better?, was the food good?, was the staff polite?, what did it cost me?"



# What Is Quality?

| Attribute | Definition |
|---|---|
| Technical performance | How well current scientific medical knowledge and technology are applied in a given situation |
| Patient centeredness | Encompassing qualities of compassion, empathy, and responsiveness to the needs, values, and expressed preferences of the individual patient |
| Amenities | The characteristics of the setting in which the patient–clinician encounter takes place |
| Access | The degree to which individuals and groups are able to obtain services |
| Equity | The application of all the necessary services of modern, scientific medicine to the needs of all people |
| Efficiency | How well resources are used in achieving a given result |
| Cost-effectiveness | How much benefit the intervention yields for a particular level of expenditure |

# What Is Quality

Stereotypical Differences in Importance of Selected Aspects of Care to Key Stakeholders' Definitions of Quality

| Stakeholder | Technical Performance | Patient Centeredness | Amenities | Access | Equity | Efficiency | Cost-Effectiveness |
|---|---|---|---|---|---|---|---|
| Clinician | +++ | + | + | + | + | + | — |
| Patient | ++ | +++ | +++ | ++ | + | + | — |
| Payer | + | + | + | + | + | +++ | +++ |
| Manager | ++ | + | +++ | +++ | ++ | +++ | +++ |
| Society | +++ | + | + | +++ | +++ | +++ | +++ |

# What Is Quality

- Care quality can be classified in terms of three characteristics: (Avedis Donabedian, 1998)
  - ***Structure*** - characteristics of technological, human, physical, and financial assets (e.g., buildings, equipment, staff)
  - ***Process -*** what takes place during the delivery of care (e.g., protocols, policies/procedures)
  - ***Outcome*** - end result of care and whether the set goals were achieved (e.g., post-procedure mortality, ventilator days, patient satisfaction)

# History of Quality in Healthcare

The modern quality movement has since transformed to include a wide variety of stakeholders, a range of unique and modified approaches, and an evolving set of goals

**1951- The Joint Commission**

- accreditation based on minimum quality standards

**1965- Medicare conditions of participation**

- Utilization Review Committees
  - Appropriate clinical services
  - Conditions of participation

**1972- Medicare's Professional Standards Review Organizations**

- nonprofit physician-run organizations
  - *Focus on overuse, misuse & underuse of services*

**1989- Agency for Healthcare Research & Quality (AHRQ)**

- focus on investing in clinical effectiveness, treatment outcomes, and practice guidelines

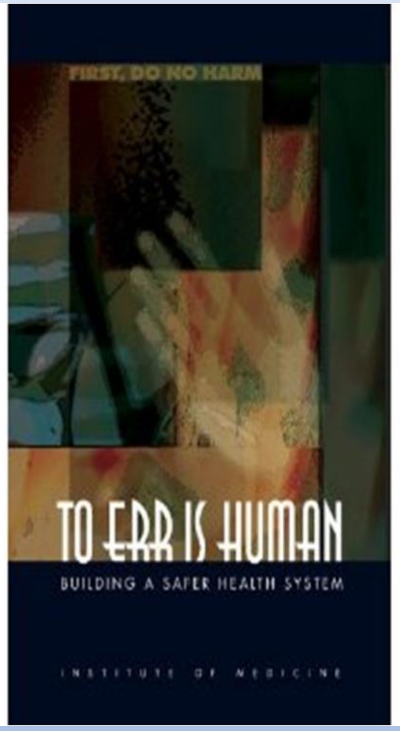
# History of Quality in Healthcare

IOM's To Err Is Human (1999)

Led to the identification of patient safety as a solidifying force for policymakers, regulators, providers, and consumers

Describing a very large number of hospital deaths from medical errors —possibly as great as 98,000 per year.

Preventing death and injury from medical errors requires dramatic, system-wide changes.



# Quality In The Present

## AHRQ's *National Healthcare Quality Report-Where are we now?*

**Patient Safety**
***substantial improvement in hospital-acquired conditions*** between 2010-2014; more than 60% of measures were improving from 2000-2017.

**Person & Family Centered Care**
***improvement in communication with physician***; but disparities were common between 2002-2013; almost 70% of measures were improving from 2000-2017.

**Care Coordination**
improvement lagged behind other priorities; Since 2010 ***disparities were common among poor/low income families***; One-third of measures were improving from 2000-2017.

**Effective Prevention & Treatment**
centered on ***cardiovascular; treatment improved; disparities were less common***; Almost half of measures were improving from 2000-2017.

**Healthy Living**
***least healthy of developed world***; still lagging behind other priorities for obtaining preventive services; disparities were uncommon; almos
60% of measures were improving from 2000-2017.

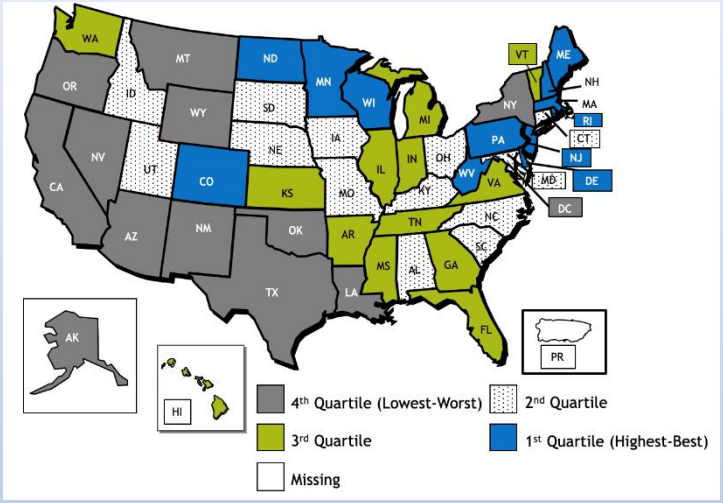
**Affordability**
was worse until 2010 then improved; disparities also decreased; No care affordability measures changed from 2000-2017

# Quality in the Present

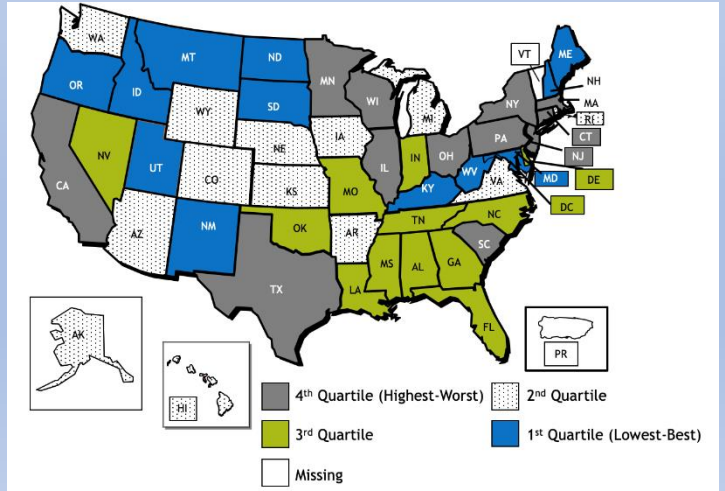
AHRQ's *National Healthcare Quality Report*

- Identifies areas and opportunities for improvement and highlights progress that has been made
- Aims to answer three questions:
  - What is the status of healthcare quality and disparities in the United States?
  - Have healthcare quality and disparities changed over time?
  - Where is the need of most improvement?

**Overall quality of care, by state, 2015-2017**




**Average differences in quality of care for Blacks, Hispanics, and Asians compared with Whites, by state, 2015-2017**




(Reference- 2018 National Healthcare Quality and Disparities Report)

# Quality In The Present

**Rise of Consumerism**

- Patient-centered care focus
  - 2003 Hospital Inpatient Quality Reporting (IQR) program.
    - **Assists consumers in making informed decisions** & Guide hospitals and providers towards improving the quality of inpatient care
    - Evaluation of the program has shown **substantial positive impact**.
      - For example, in 2012, 39 of the 43 measures (91%) showed positive or steady trends
    - Outcome: **Hospital Compare** -7 categories: mortality, safety of care, readmission, patient experience, effectiveness of care, timeliness of care, and efficient use of medical imaging.
      - Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) (2006)
  - 2006-Physician Quality Reporting System (PQRS)
    - Incentivize the discussion of quality between patients and providers, and to promote awareness among providers of the opportunities for quality improvement in daily care.

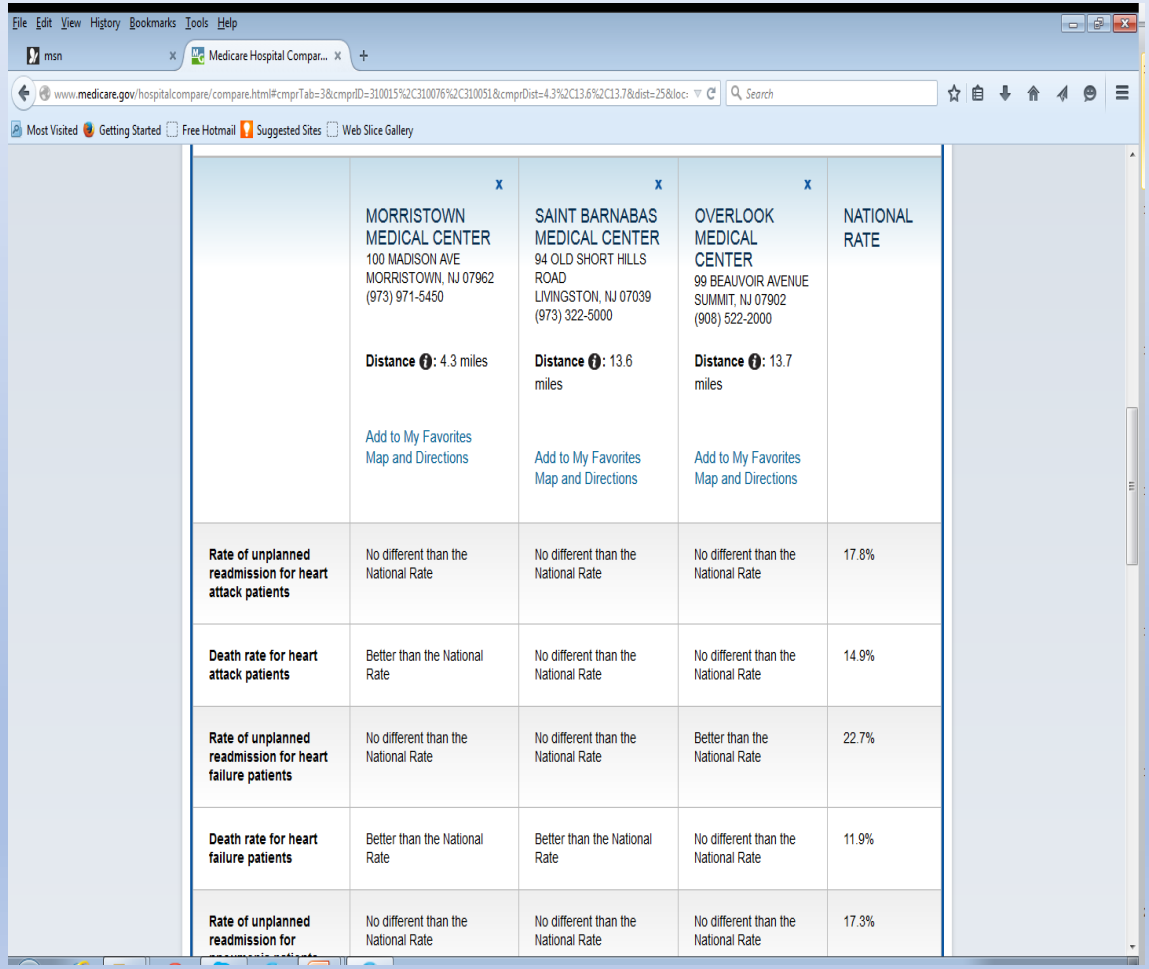
# Quality In The Present

**Patient Protection and Accountable Care Act aka ”Obamacare” (2010)**

- Intense focus on quality in healthcare
- Major shift from ***Volume to Value***
- ***More transparency***
- Multiple provisions designed to modify the manner in which care is delivered to Medicare and Medicaid patients
  - *Hospital Readmissions Reduction Program (2012)*
  - *Hospital Acquired Condition (HAC) Reduction Program (2015)*

Results available on CMS’s “Hospital Compare”

# CMS's Hospital Compare Program




| | MORRISTOWN MEDICAL CENTER<br>100 MADISON AVE<br>MORRISTOWN, NJ 07962<br>(973) 971-5450<br><br>**Distance**: 4.3 miles<br><br>Add to My Favorites<br>Map and Directions | SAINT BARNABAS MEDICAL CENTER<br>94 OLD SHORT HILLS ROAD<br>LIVINGSTON, NJ 07039<br>(973) 322-5000<br><br>**Distance**: 13.6 miles<br><br>Add to My Favorites<br>Map and Directions | OVERLOOK MEDICAL CENTER<br>99 BEAUVOIR AVENUE<br>SUMMIT, NJ 07902<br>(908) 522-2000<br><br>**Distance**: 13.7 miles<br><br>Add to My Favorites<br>Map and Directions | NATIONAL RATE |
|---|---|---|---|---|
| **Rate of unplanned readmission for heart attack patients** | No different than the National Rate | No different than the National Rate | No different than the National Rate | 17.8% |
| **Death rate for heart attack patients** | Better than the National Rate | No different than the National Rate | No different than the National Rate | 14.9% |
| **Rate of unplanned readmission for heart failure patients** | No different than the National Rate | No different than the National Rate | Better than the National Rate | 22.7% |
| **Death rate for heart failure patients** | Better than the National Rate | Better than the National Rate | No different than the National Rate | 11.9% |
| **Rate of unplanned readmission for** | No different than the National Rate | No different than the National Rate | No different than the National Rate | 17.3% |

# Quality In The Present

**Patient Protection and Accountable Care Act aka ”Obamacare” (Cont.)**

- *Value-Based Purchasing*
  - Incentive payments either based on their performance on four domains based on their performance improvement relative to their starting baseline and peer hospitals
    - Clinical Care (25%)
    - Person and Community Engagement (25%)
    - Safety (25%)
    - Efficiency and Cost Reduction (25%)
  - Designed to improve quality, reduce inappropriate care and promote better health outcomes, and patient experiences during hospital stays

# The Good; The Mixed; The Bad

***The Good-***

- Quality over quantity
- Greater transparency
- Facilitation of Data Collection
  - ***Electronic Health Record Systems***
- Network of organizations committed to quality

# The Good; The Mixed; The Bad

***The Mixed-***

- Variable outcomes
- The paradox of technology
    - One of the biggest drivers of cost
    - Rate of Obsolescence
    - Redundancy

***The Bad-***

- Too many oversight organizations
- Administrative burden of reporting & compliance
- Overall cost of healthcare - The US is the Most Costly
- Too many Under/Uninsured

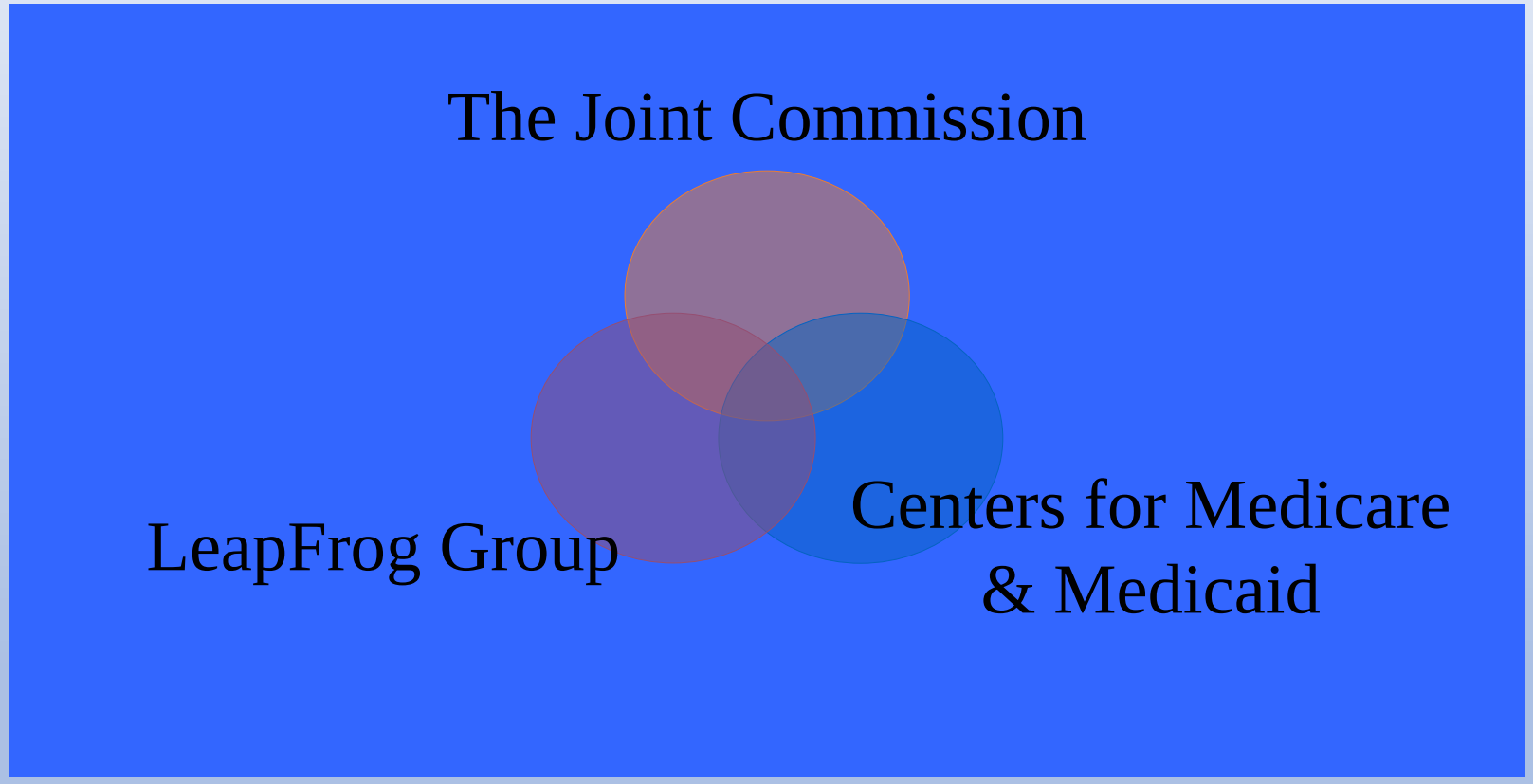
# *Organizations Committed to Quality: Ideally*: A Collaborative Effort

***Public:*** CMS, FDA, AHRQ

***Private:*** The Joint Comm.,"Leapfrog Group"

Enhanced "Bedside" Care

# *Reality*: A Variety of Input from Several Related & Unrelated Organizations



# Food & Drug Administration (FDA)

- Safety & efficacy of drugs and devices
- Multi-phase approval process
- Recent issues:
  - Warnings on naming and labeling of medications, e.g., unit dose medications.
  - Approval of Covid 19 Vaccines (e.g., Pfizer, Moderna, J & J, Others)

# Agency for Healthcare Research & Quality (AHRQ)

- Promote Quality in Healthcare Through
  - Direct and Indirect Support of:
    - Outcomes Research
    - Evidence-Based Medicine & Best Practices
  - Patient Safety Network (Informational)
    - Consumer & Patient Guidelines/Fact Sheets, e.g., *Five Steps to Safer Healthcare*
    - Recommendations for Professionals, e.g., Patient Safety Primers, Adverse/'Never' Events

# Institute of Medicine (IOM)

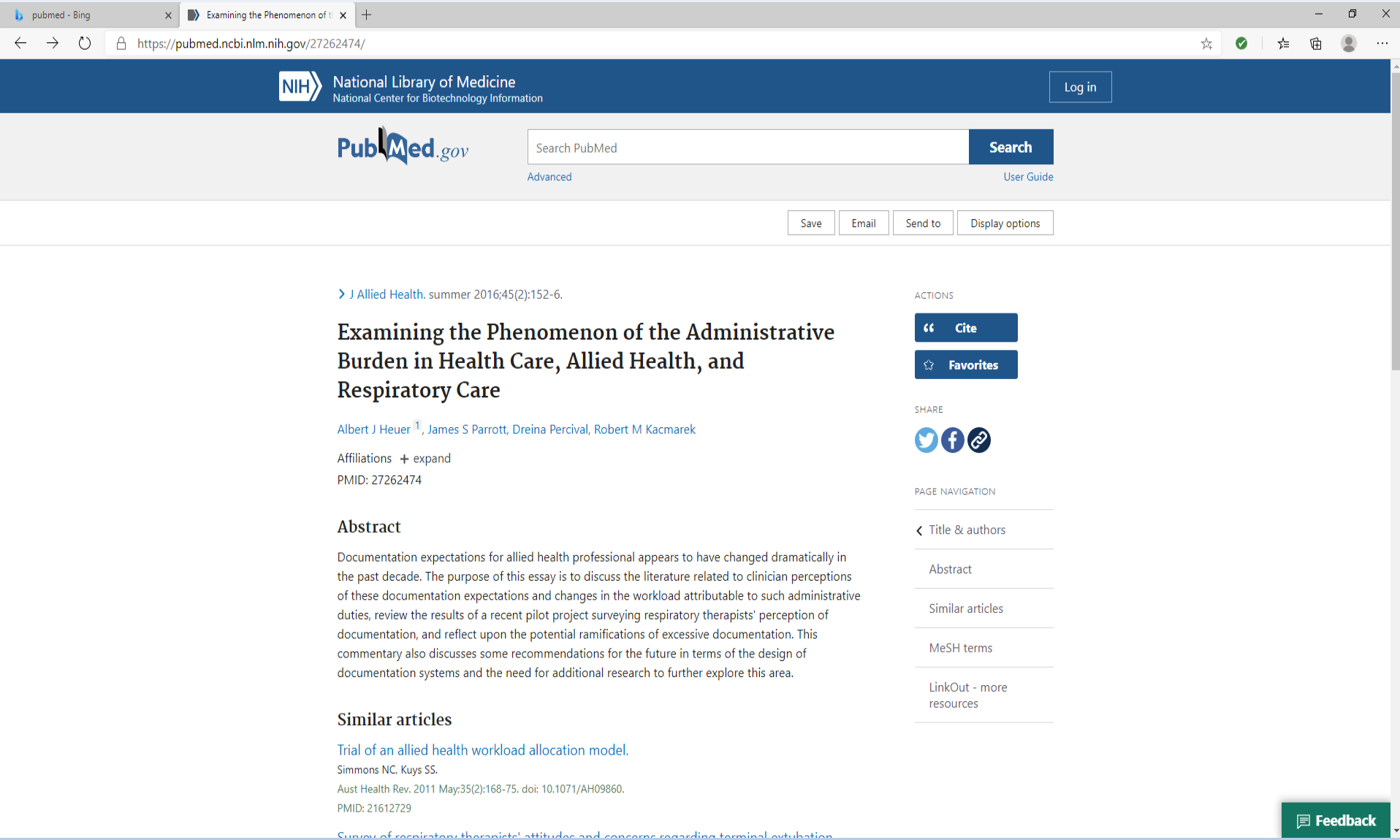
- Phase I: Identify Problems
  - *1996: America's Health in Transition: Protecting and Improving Quality*
- Phase II: Devise Improvement Plan
  - 1999: *To Err is Human: Building a Safer Health System*
- Phase III: Operationalize the Plan
  - 2001: *Crossing the Quality Chasm*
  - 2003: *Reforming Health Professions Education*
  - 2008: *Knowing What Works in Health Care: A Roadmap for the Nation*
  - 2015: *The Learning Healthcare System*
  - 2017: *Patient Safety & Health Info Technology*


- Consortium of 150+ Organizations
  - Represents 34 Million Americans
  - Funded by the Robert Wood Johnson Foundation and Leapfrog Members
- Mission: Recognize/Reward ***Safety***, ***Quality*** and ***Value*** in Health Care
  - Support Informed Decisions: e.g., EBM
  - Promote High-Value Through Incentives

# The Joint Commission

- Accredits > 90% US healthcare organizations
- Quality Enhancement Initiatives
  - Survey Standards (over 1/2 target patient safety)
  - Sentinel Event Policy (targeting "Unexpected occurrence involving death or serious injury…"
    - Reporting is Encouraged
    - Root Cause Analysis
    - Improvement Plan Implementation
- Patient Safety Goals &Tracers for Surveys

# Administrative Burden



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J Allied Health. summer 2016;45(2):152-6.

## Examining the Phenomenon of the Administrative Burden in Health Care, Allied Health, and Respiratory Care

Albert J Heuer [1], James S Parrott, Dreina Percival, Robert M Kacmarek

Affiliations + expand

PMID: 27262474

### Abstract

Documentation expectations for allied health professional appears to have changed dramatically in the past decade. The purpose of this essay is to discuss the literature related to clinician perceptions of these documentation expectations and changes in the workload attributable to such administrative duties, review the results of a recent pilot project surveying respiratory therapists' perception of documentation, and reflect upon the potential ramifications of excessive documentation. This commentary also discusses some recommendations for the future in terms of the design of documentation systems and the need for additional research to further explore this area.

### Similar articles

Trial of an allied health workload allocation model.
Simmons NC, Kuys SS.
Aust Health Rev. 2011 May;35(2):168-75. doi: 10.1071/AH09860.
PMID: 21612729

Survey of respiratory therapists' attitudes and concerns regarding terminal extubation

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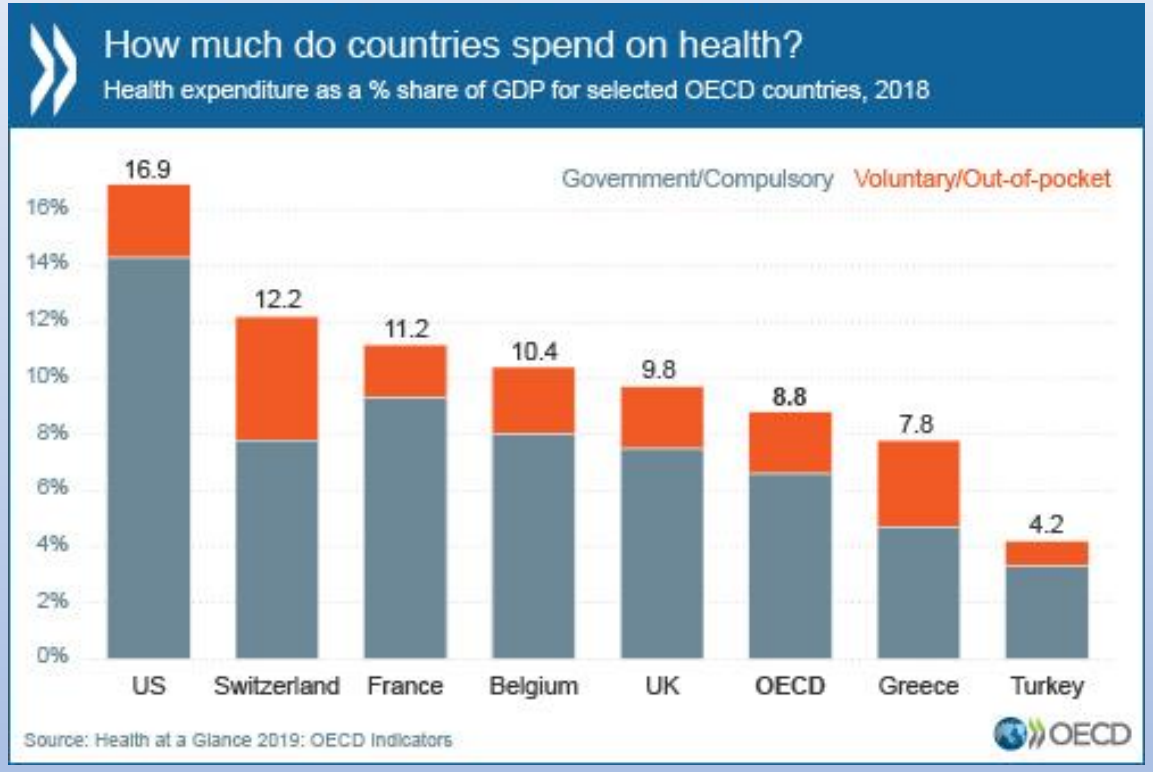
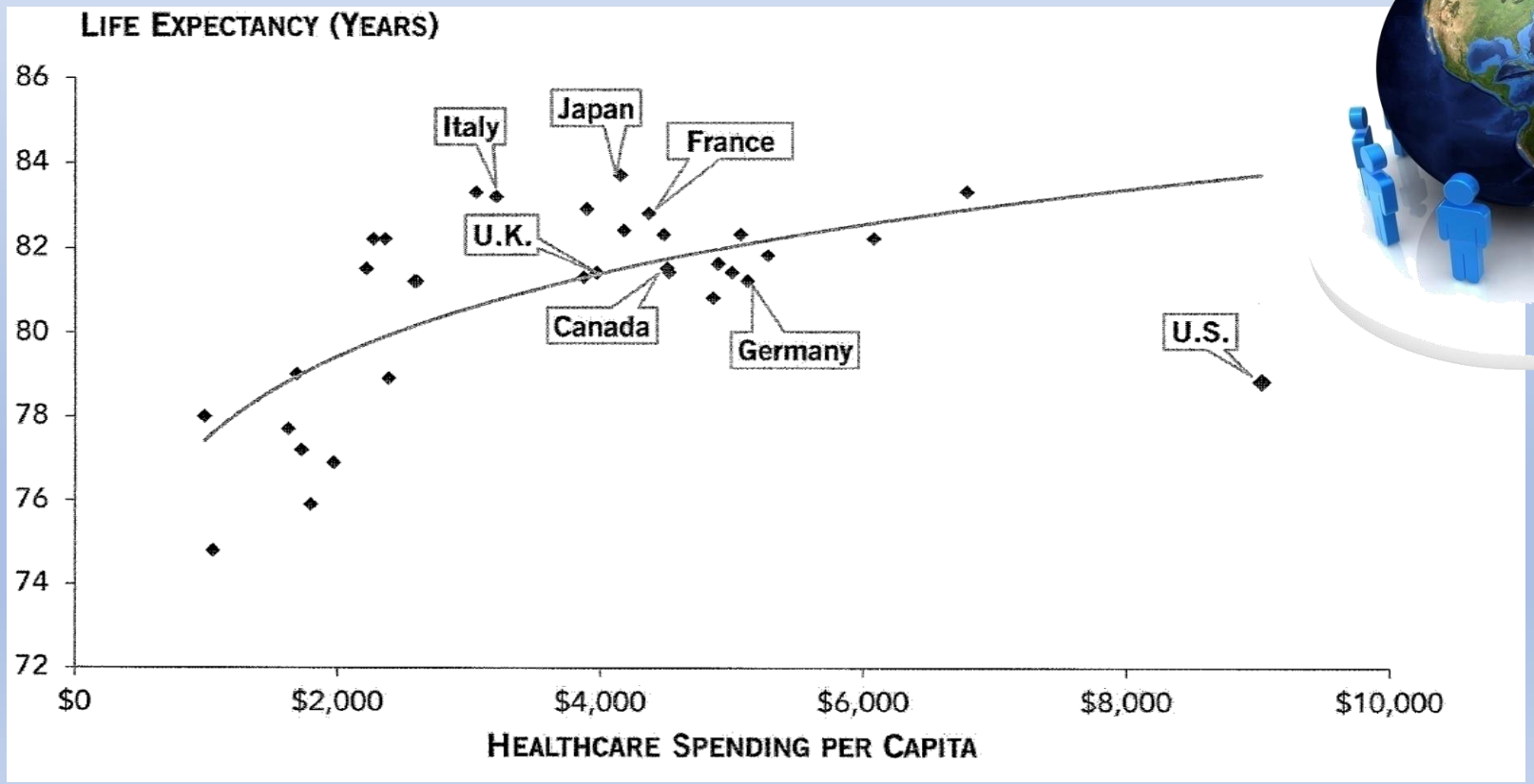
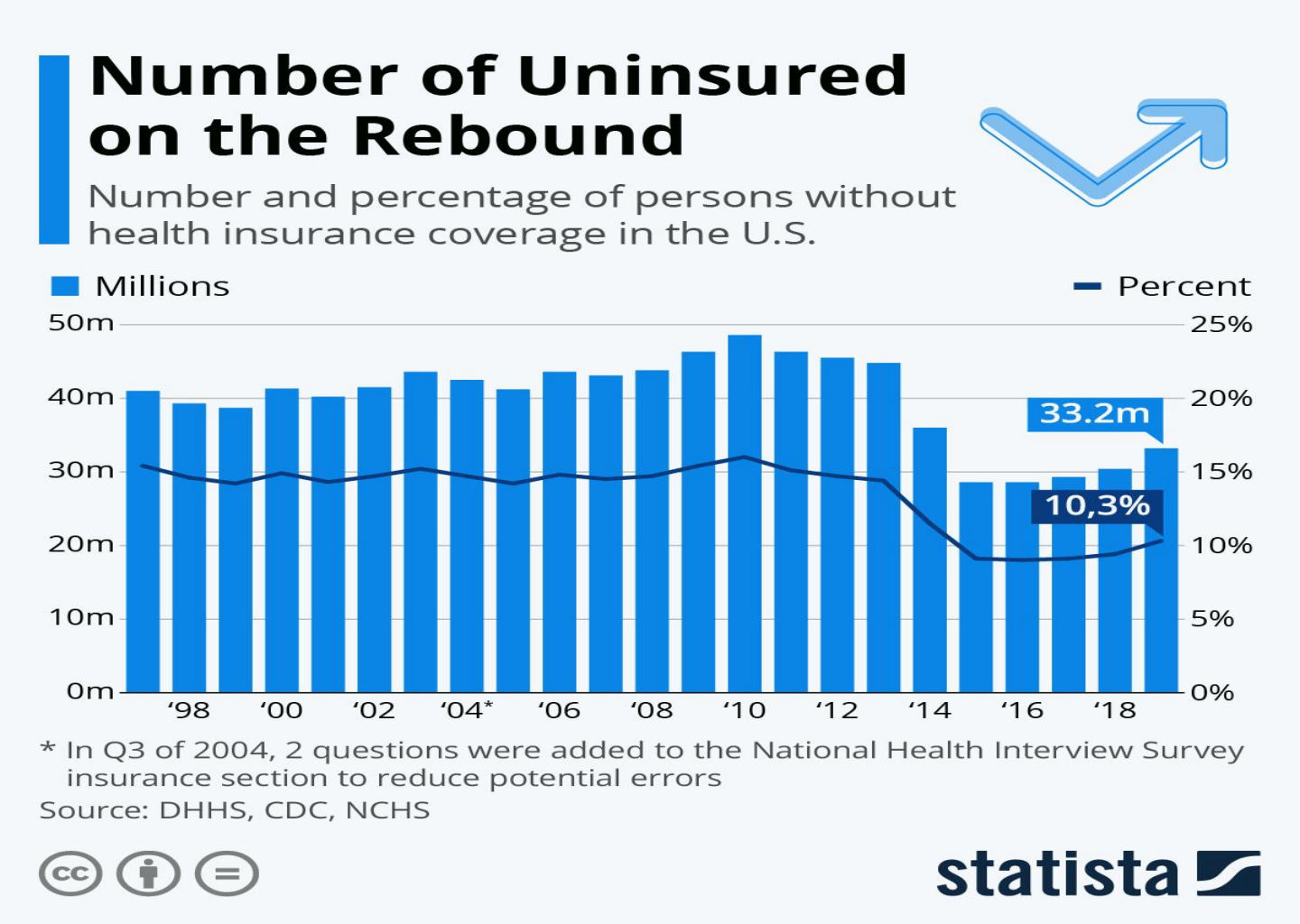


# *All That Spending and Oversight Should Translate to Outcomes: But it Doesn't!*

*Life Expectancy in the US is Lower than other Developed Countries!!!*




# Increasing Number of Americans Without Health Insurance



# WHAT IS RELIABILITY ?

# Make the Case for and Define Reliability

*More agreement on the definition of* **reliability***, than quality.*

***Reliability*** is the probability that a system will yield a specified or the same result. (Merriam Webster)

**Institute for Healthcare Improvement (IHI)** defines

*Reliability* as the measurable **capability of an intended process, procedure or health service to perform its intended function in the required time under commonly occurring conditions.** It is a failure-free operation over time that is measured as the inverse of the system's failure rate.

# Healthcare Quality and Reliability are Inseparable

**Lack of reliability contributes to:**

- Medical errors,
- Inconsistent quality, and
- Inefficiencies.

**Why more important than ever:**

- More transparency
- Public awareness of medical errors and quality
- Health information technology (HIT)
- Emergence of quality improvement methodologies

# Reliability and IOM's Aims

The IOM's aims for the health care system include the following:

- Timeliness
- Patient-centeredness
- Effectiveness

# Understanding High Reliability Organizations (HROs)

***High Reliability Organizations*** succeed in avoiding catastrophes in an environment where normal accidents can be expected due to risk factors and complexities (Wikipedia).

They ***minimize unintended variation***, the enemy of reliability!

Examples:

- commercial air travel
- nuclear power
- naval aircraft carriers
- amusement parks; etc…

# Applying High Reliability Concepts in Healthcare

**Weick & Sutcliffe's Principles of HROs (2007)**

# Tools to Achieve High Quality & Reliability

- Systems Thinking
- A Culture of Quality & Safety
  - ***Culture* is a pattern of shared assumptions about the organization's "values", "beliefs", and "behaviors" that have been taught to the workforce.**
- Data
- Continuous Quality Improvement (CQI)
- Plan-Do-Study-Act
- Six Sigma
- Lean
- Root cause Analysis

# Tools – Systems Thinking

- ***Most problems with quality*** and reliability are rooted in ***shortcomings of systems***.
- ***Systems include:***
  - Organizational culture
  - Resources: Physical facilities & equipment, manpower Training, policies, protocols, etc.
- If a clinician makes a mistake because they did not have the resources to succeed (e.g., training, support), then the ***systems in which they operate should be the main focus for improvement***.
  - Oxygen tubing IV mix-up!

# Applying High Reliability Concepts in Healthcare

Joint Commission requirement

"Create and maintain a ***culture of safety***"


Hudson, P. (2007). Implementing a safety culture in a major multi-national. *Safety Science*, 45(6), pp.697-722.

# A Culture Of Quality

**Keys to Successful Implementation**

- *Leadership* – The ***Thinking, Strategizing & Communicating***
  - Working with people and systems to produce needed change
- *Management* – The ***Communication, Execution & Monitoring***
  - Working with people and systems to produce predictable results
  - Obtain clear and demonstrated senior leadership support
  - Have a designated organizer
  - Ensure ongoing communications
  - Allocate resources for staff to do the work
  - ***De-emphasize blame and punishment*** and ***accentuate improvement and excellence***

# A Culture Of Quality

*A Culture of Quality is achieved when:*

- The ***organization is aligned*** from top to bottom.
- ***People know the "why"*** behind everything they do.
- ***Leaders are well trained*** and able to cascade that training to their staff.
- Everyone ***practices specific behaviors*** proven to get results.
- People are ***held accountable*** for their performance.
- ***Processes are standardized*** across the organization.
- The organization is ***geared to innovate***.

# A Culture of Quality

**External tools:**

The **AHRQ Surveys on Patient Safety Culture (SOPS)**

- Assessment tool on **staff perception on aspects of patient safety culture.**
- Raise staff **awareness about patient safety**.
- Diagnose and assess the current status of **patient safety culture**.
- Identify strengths and areas for patient safety culture improvement.
- Examine trends in patient safety culture change over time.
- Evaluate the cultural impact of patient safety initiatives and interventions.
- Conduct internal and external comparisons.

# Quality & Reliability Applied--Data

***You can't manage what you can't measure!!!***

***Data***

- Clinical quality (including process & outcome measures)
- Financial performance
- Patient, physician, and staff satisfaction
- Functional status

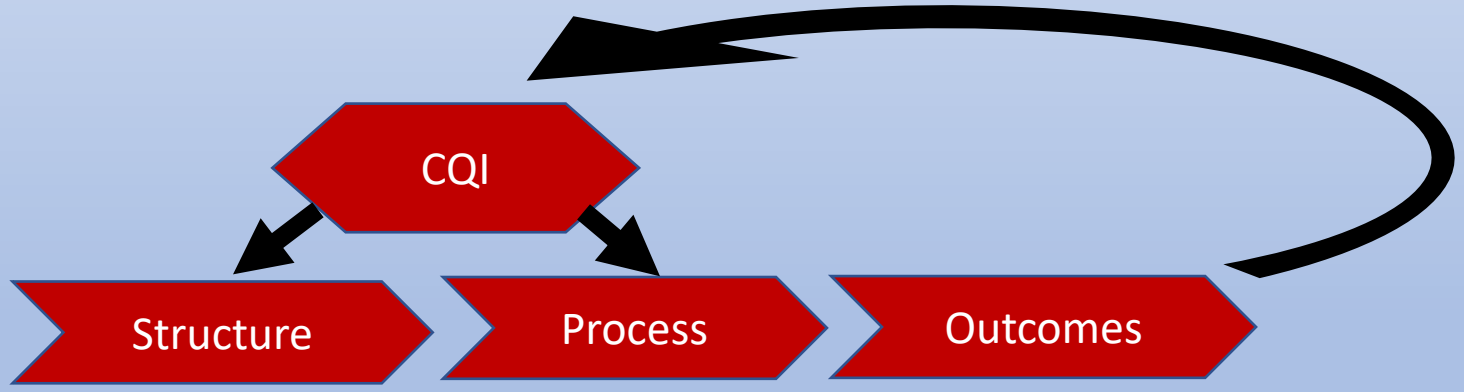
***Sources of Data***

- ***Electronic Medical Record review (retrospective)***
- Prospective data collection, data collection forms, and scanners
- Administrative databases
- Patient surveys: satisfaction and functional status
- Functional status surveys
- Health plan databases

# Still More Quality & Reliability Strategies/Tools

***Continuous Quality Improvement-***
A quality management approach that emphasizes:

- the organization and systems (Structure-Process-Outcomes)
- internal & external needs/expectations
- use of evidenced-based measures and practices




Seeking to answer:

- How are we doing?
- Can we do it better?

# Quality Strategies/Tools

**Plan-Do-Study-Act (PDSA) cycle**

- **Plan: develop the initiative**
  - Where is improvement needed (performance data)
  - Set aims & make prediction(s)
  - Create test/observation
  - Create form of data collection
- **Do: implement your plan**
  - Carry out test/observation (small scale first)
  - Document issues
  - Collect data
- **Study: check the results**
  - Analyze data & compare to prediction(s)
- **Act: make further improvements**
  - Refine change based on conclusions
  - Test change

# Tools in Action

***Reducing Variation***

A newly adopted EHR system permits RT's to acknowledge medications as they give them or do so for the entire shift at the end of their shift. As a result, RT's practices vary in this regard.

1. Based on a PDSA approach, the open-endedness of the process was deemed inappropriate and a major contributor in excessive variation.
2. PDSA Steps

   ***Plan:*** Open-endedness was contributing to variation
   ***Do:*** A policy to record all medication administration at the time given was instituted.
   ***Study:*** Adherence was studied and clinician feedback obtained.
   ***Act:*** The EHR template was modified to better facilitate recording of medication administration.

# Quality & Reliability Strategies/Tools

**Lean System**

- Focus is on the **removal/minimizing of waste**
- Looks to make processes smoother; alleviate overburden
- The need of the ***customer comes first***

- ***Steps***:
  - **Identify value**
    - From a patient's perspective
  - **Identify value stream**
    - Identify steps/activities that contribute value (create main set of activities)
  - **Improve workflow process**
    - Leadership should ensure identified activities are implemented smoothly
  - **Test the process**
    - Pilot with a few patients get feedback
  - **Perfect process**
    - Make appropriate changes as per feedback and tensions that arise from process

# Quality Strategies/Tools

**Six Sigma**

- Aims to reduce variation (eliminate defects) in processes
- Combination of statistical analysis & quality management methods
- Main goal is to reduce waste and errors
- 5 Principles known as DMAIC
    - ***Define***: the process and outcome to be improved and key characteristics
    - ***Measure****:* track performance via data collection
    - ***Analyze****:* use data to identify causes of problems
    - ***Improve****:* develop solutions and make changes to process; adjust as necessary
    - ***Control****:* ongoing monitoring and improvement if necessary

# Tools in Action: Lean

***Lean Thinking in Action***

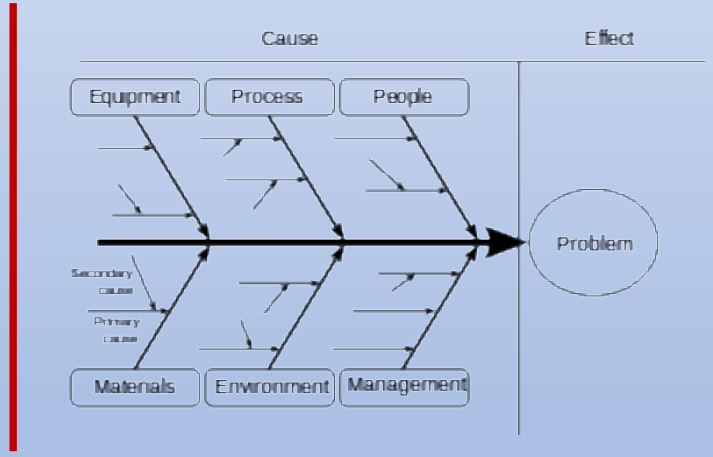
ABC clinic is looking to adapt their patient flow to the **Covid pandemic**. In the past, the process was the following: (1) patient arrives and signs in at reception desk and waits to be called (2) when called patient meets with Patient Services Representative (PSR) who provides paperwork to be filled out. (3) patient fills out paperwork and waits to be called by PSR (4) PSR collects paperwork and patient is checked in (5) patient waits for nurse (6) nurse calls patient in to room and gets vitals; updates history (7) patient waits for physician (8) Physician encounter occurs (8) Outside records and labs are needed; patient waits while physician and staff obtain information (9) Additional diagnostic tests are needed; patient waits while orders are validated (10) Patient gets tests completed and waits for physician top return (11) Physician meets with patient regarding care plan (12) patient waits for available PSR to check out (13) Patient receives visit summary; referral orders and follow-up appointment (14) patient leaves clinic

Based on Lean Principles, the process was reduced to 5 steps.

# Quality Strategies/Tools

**Ishikawa "Fishbone" Diagram (cause & effect)**

- Used to identify & organize possible causes for a problem
- Major categories used are:
  - Equipment
  - Process/Methods
  - People
  - Materials
  - Environment
  - Management/Measurements



# Root Cause Analysis (RCA)

- ***Recreate the event***: what, who, where
- ***Debrief the event***: what factors/issues contributed
- ***Devise a results summary***
  - What happened,
  - Who was involved
  - Causes & prevention
- ***Implement a preventive action plan***

# Tools in Action: RCA-NIV Facial Sore

- Issue Identification typically done using ‘fish bone’ diagrams
- Results Summary Root Cause =
  - **Equipment:** Better NIV masks and skin barriers
  - **People:** RTs not aware of risks or consequences
  - **Process:** Purchasing Dept Prohibiting purchase of more expensive, but better masks/interfaces
- Action plan
  - **People:** Educate staff
  - **Process:**
    - Educate Purchasing on consequences of cheaper masks.
    - Protocols to inspect patient's face with NIV check.
  - **Equipment:** Better masks and use protocols.

# *Respiratory Care Quality in Action: Case 1—Variability in Covid Response*

- ***The Case***: Each of the acute care facilities with a 5-hospital system have somewhat different protocols for treating Covid-19 patients with acute, severe hypoxemic (oxygenation) respiratory failure. Some facilities employ a treatment known as High-flow Nasal Cannula to help prevent intubation and mechanical ventilation with some success. Some facilities do not, citing (unsubstantiated) potential exposure to healthcare workers from aerosol dispersion. Other differences among facilities in treating such patients include vastly different clinician patient-load and policies regarding cohorting or not cohorting Covid + and non-Covid patients.
- ***Debrief:***
  - *Lack of collaboration and communication among sites.*
  - *Failure of high-level leadership to create a structure to promote such collaboration*
- ***Action Plan****:*
  - Create a ***structure and process for ongoing collaboration*** among sites.
    - Five-site ***Practice Council***
    - Director or "Czar" overseeing all sites
  - Review what research exists on clinical ***best practices***
  - ***Collaboratively decide on consistent policies and procedures***
    - Allow for variation only when justified (e.g., sites not using INO)
  - Monitor adherence
  - Modify as appropriate

?

# *Respiratory Care Quality In Action: Case 2 – Ventilator-Patient Checklist*

- ***The Case/Event***: A quality audit revealed inconsistencies in practices when RT's are performing ventilator-patient checks in the Adult ICU's at a large 700-bed hospital. The trend has worsened with increased use of agency staff, less familiar with such policies and procedures. These inconsistencies include when and how to conduct spontaneous breathing trials (SBTs), alarm setting thresholds, as well as intervals for changing circuits, suction catheters and ET tube securing devices.
- ***Debrief:***
  - ***Insufficient standardization*** of processes.
  - Inadequate training and education of RT staff on vent-patient management.
  - ***Lack of tools*** to help staff adhere to guidelines
- ***Action Plan:***
  - Ensure that policies and procedures reflect best practices
  - ***Enhance staff training*** and education on vent-patient management
  - Create ***effective tools and resources***
    - Ventilator patient checklist
  - ***Monitor*** ongoing training and education needs

# *Case 2 (cont.) Vent- Patient Checklist- Excerpt*

**SICU/MICU Vent-Patient Checklist (excerpt)**

Please remember the following when setting up a ventilator and for ongoing ventilator patient checks in SICU & MICU.

| Vent-Patient Checklist Item | Completed? |
|---|---|
| 1. Label the vent circuit with change date and change every 7 days or sooner | |
| 2. Label date to be changed on the in-line suction/wiper catheter and change every 3 days or sooner. | |
| 3. Date ET tube holder and change every five days or sooner. | |
| 4. With each vent-patient check, inspect the skin/lip integrity under and around artificial airway and holder. If skin breakdown is discovered, inform nurse, use corrective action (e.g., change/reposition A/W holder), document in the EHR and inform assistant mgr. | |
| 5. ET tubes should be repositioned each vent-patient check and document this in the EHR. | |
| 6. Assess suitability for daily AM awaking trial /spontaneous breathing trial (SBT) and begin SBT as appropriate. Document this in the EHR | |
| 7. If patient fails AM SBT due to sedation or other reversible cause, recommend corrective action (decrease sedation) and repeat SBT when appropriate. Document in the EHR. | |
| 8. Set alarms per policy (e.g., VT no less than 150 mls below prescribed VT, RR no higher than 35…) | |

# *Respiratory Care Quality In Action: Case 3 – Implementing New(er) Mode of Ventilation*

- ***The Case/Event***: A medium sized 375-bed hospital has recently begun using Airway Pressure Release Ventilation (APRV) due to the demands of the newly hired ICU Medical Director. However, one-month after implementation, they have found that patients on APRV mode have lingered longer on the ventilator, and appear to, have a higher incidence of atelectasis, despite the use of this "open-lung" mode of ventilation. The RT manager has asked you to make recommendations
- ***Debrief:***
  - ***Evaluate RT's knowledge and comfort level*** with setting up, maintaining and weaning patients on APRV.
  - ***Identify knowledge and comfort gaps.***
  - Set up a ***communication/collaboration*** channel with new ICU Medical Director
- ***Action Plan:***
  - ***Review the latest evidence*** on the use and limitations of APRV.
  - Set-up a ***training and education*** program to enhance MD's, and RT's knowledge and comfort with APRV.
  - ***Engage the Medical Director*** to help train and educate the staff on APRV.
  - Set up system for ***ongoing monitoring***, education and training.

# *Respiratory Care Quality In Action: Case 4 -- Tubing Connection Mix-Up*

- ***Event***: O2 tubing connected to an IV causing massive gas emboli and death
- ***Debrief:***
  - Individual factors: Human error
  - System factors:
    - Connectors should not have been compatible
    - Inadequate training of physician-resident
- ***Action Plan:***
  - Equipment (connector) switch
  - Intensive re-training & review of training protocols
  - Monitor ongoing training and education needs

# *Quality in Action: Case 5- Unit Dose Confusion*

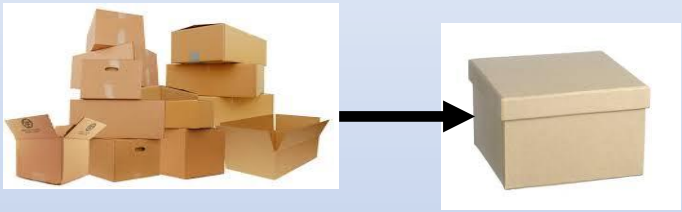
- ***Event***: patient with albuterol allergy given the drug -> anaphylactic reaction
- ***Debrief:***
  - Individual factors: Human error
  - System factors: Mix up of unpackaged unit-dose bronchodilators (e.g., unit dose of both Albuterol and Atrovent)
- ***Action Plan:*** evidence based protocols
  - Unit dose "packaging"
  - Barcode scanning & medication profiling

# *Case 6: Ventilator Failure*

- ***Event***: Pneumatically-powered electrically controlled ventilator set-up but not connected to AC outlet. Stops operating after battery drains; patient suffers arrest cerebral hypoxia.
- ***Debrief:***
  - Individual factors: Human error
  - System factors:
    - Inadequate vent warning system
    - Lack of set-up checklist
- ***Action Plan:***
  - Interim notification of all potential users
  - Create/monitor setup checklist

# Healthcare Quality & Reliability Tomorrow

- National Quality Forum moves to streamline quality reporting and oversight



- Transition to ***Population Health***
  - Expansion of Pay for Performance
  - Increasing use of evidence-based preventative health services
  - Push for Coordinated Care: Accountable Care Organizations (ACO's)

- Advancement in Technology
  - Telemedicine
  - Mobile Health
  - Health IT for Consumers

- ***High Reliable Organizations*** will have a better chance of success

# Summary Of Key Points

- Few industries are as complex, dynamic heavily regulated and high-risk as healthcare.
- Those factors result in varying definitions of quality.
- However, there are some key elements in healthcare quality & reliability that many/most would agree on.
- ***Quality & reliability are inseparable.***
- There are also some fundamental strategies for managing quality and maximizing reliability that have been supported by research…which seem to work!
  - Reactive—Fishbone, PDSA, RCA
  - Proactive – Culture of Quality
- The healthcare landscape is dynamic and therefore quality management strategies will need to be flexible and modified in the future.

# Recommended Readings & References

• Nash, DB, Joshi, M.S., Ransom, E.R., & Ransom, S.B. (2019). *The Healthcare Quality Book* (4th ed.). Chicago: Health Administration Press. (ISBN 978-1640550537)
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# Questions & Concluding Discussion