Dr. Charlie Husson
Ascension Health: Michigan Market, Chief Medical Officer

# Leading Change Toward Quality Improvement

# Disclosure

- **I have no actual or potential conflict of interest in relation to this program/presentation.**

# Learning Objectives

- Describe the role of physicians in the historical development of quality improvement in medicine
- Describe the core components of quality improvement in medicine
- Identify opportunities and barriers to implementing quality improvement projects
- Discuss the ways physician leadership can model and encourage continuous quality improvement in medicine

# References


- Avedis Donabedian. 1989. The End Results of Health Care: Ernest Codman's Contribution to Quality Assessment and Beyond. *The Milbank Quarterly* Vol. 67 No.. 2.
- Avedis Donabedian,. 1985. The Epidemiology of Quality, Inquiry BCBS.
- Leon Wyszewianski, John R. C. Wheeler, and Avdis Donabedian. 1982. Market-Oriented Cost-Containment Strategies and Quality of Care. *Milbank Memorial Fund Quarterly* . Vol 60, No. 4.
- Avedis Donabedian. 1985. Twenty Years of Research on Quality of Medical Care. *Evaluation and Health Professions* Vol. 8 No. 3.
- John Z. Ayanian, Howard Markel. 2016. Donabedian's Lasting Framework for Health Care Quality. *The New England Journal of Medicine*. 375;3.
- Avedis Donabedian. 1966. Evaluating the Quality of Medical Care. *Milbank Memorial Fund Quarterly*. Vol. 44. No. 3.
- Harlan Krumholz, Kun Wang, Zhenqiu Lin, Dharmarajan, Leora Horwitz, Joseph Ross, Elizabeth Drye, Susannah Bernheim and Sharon Lise Normand. 2017. Hospital-Readmission Risk—Isolating Hospital Effects from Patient Effects. *The New England Journal of Medicine*. 377: 1055-1064.
- Improving Health and Health Care Worldwide. Retrieved from www.ihi.org.
- To ERR is Human: Building a Safer Health System (1999). Retrieved from www.nationalacademies.org
- Crossing the Quality Chasm: A New Health System for the 21st Century. Retrieved from www.nationalacademies.org
- Bill Mallon. 2014. Ernest Codman. *Crossroads press.*
- Presidential Address: Achieving our personal best: Back to the future of the American College of Surgeons. Retrieved from www.bulletin.facs.org.
- Donald Berwick. 1989. Continuous Improvement as an Ideal in Health Care. *The New England Journal of Medicine*. 320:53-56.
- Bradley T Gale. 1994. Managing Customer Value. *Free Press*.
- Howard Gitlow, Shelly Gitlow. 1994. Total Quality Management in Action. PTR Prentice Hall.
- A. Blanton Godfrey, Quality Management: Quality Health care. Retrieved from www.qualitydigest.com

# Historical Timeline: Efficiency -- Quality

- Ernest Codman
- Avedis Donabedian
- Institute of Medicine: 1970
- Donald Berwick
- Formation of Institute of Healthcare Improvement (1991)
- National Academy of Medicine: July, 2015

# Ernest Codman

- Born in Boston, 1869
- Attended Harvard Medical School
- He was a surgeon, lecturer, and author
- His ideas were revolutionary at the time and not widely accepted by his colleagues

(ACS, 2010)

# Ernest Codman

- Proposed the End-result system in 1905
- Goal: Review clinical outcomes of patients; because, all surgical outcomes can be explained by one or more of these causes…
- Codification system:
  - E-s: Lack of knowledge or skill
  - E-j: Lack of surgical judgement
  - E-c: Lack of care or equipment
  - E-d: Lack of diagnostic skill
  - P-d: Patients unconquerable disease
  - P-r: Patients refusal of treatment
- Medical Audit: anticipates contemporary approaches
- Codman welcomes publicity: both successes and errors

## Face of End Result Card

Name: Mr. Edward James Gallison — Age: 48 — M. W. S.

| Date of Adm. | Date of Operation | Hosp. No. |
|---|---|---|
| 6/2/14 | 7/7/14 | 201 |

Addr. of Pt.: 50 Crescent St., New York City, N.Y.

" " Pt's Phys.: Dr. C. M. Black, 16 Grove St., Boston.

Prob. Addr. of Pt's Rel.: Mrs. George White, Elm St., Salem, Mass.

Prelim. Diag.: Duodenal ulcer, with grave doubt of cancer of pylorus and stomach.

Post-op. Diag.: Ulcer lesser curvature of stomach about an inch from pylorus. Felt very hard and suggested cancer.

Cause for which rel'd: Epigastric pain soon after meals since September. Vomiting. Achlorhydria. No hematemesis but some melena.

Op'r: O. N. Meier. Asst.: E. W. Force and E. E. Colle.

Anes.: Ether and local novocaine. Ether by E. E. Leed.

Op'l Findings, Surgeon's Pts.: Tumor size pigeon's egg on lesser curvature of stomach. Partial gastrectomy. Gall bladder felt as if full of stones. Duodenum normal except for slight induration of pylorus. Closed without drainage.

Complt. of Convales.: None. Except that during convalescence he vomited several times without apparent cause.

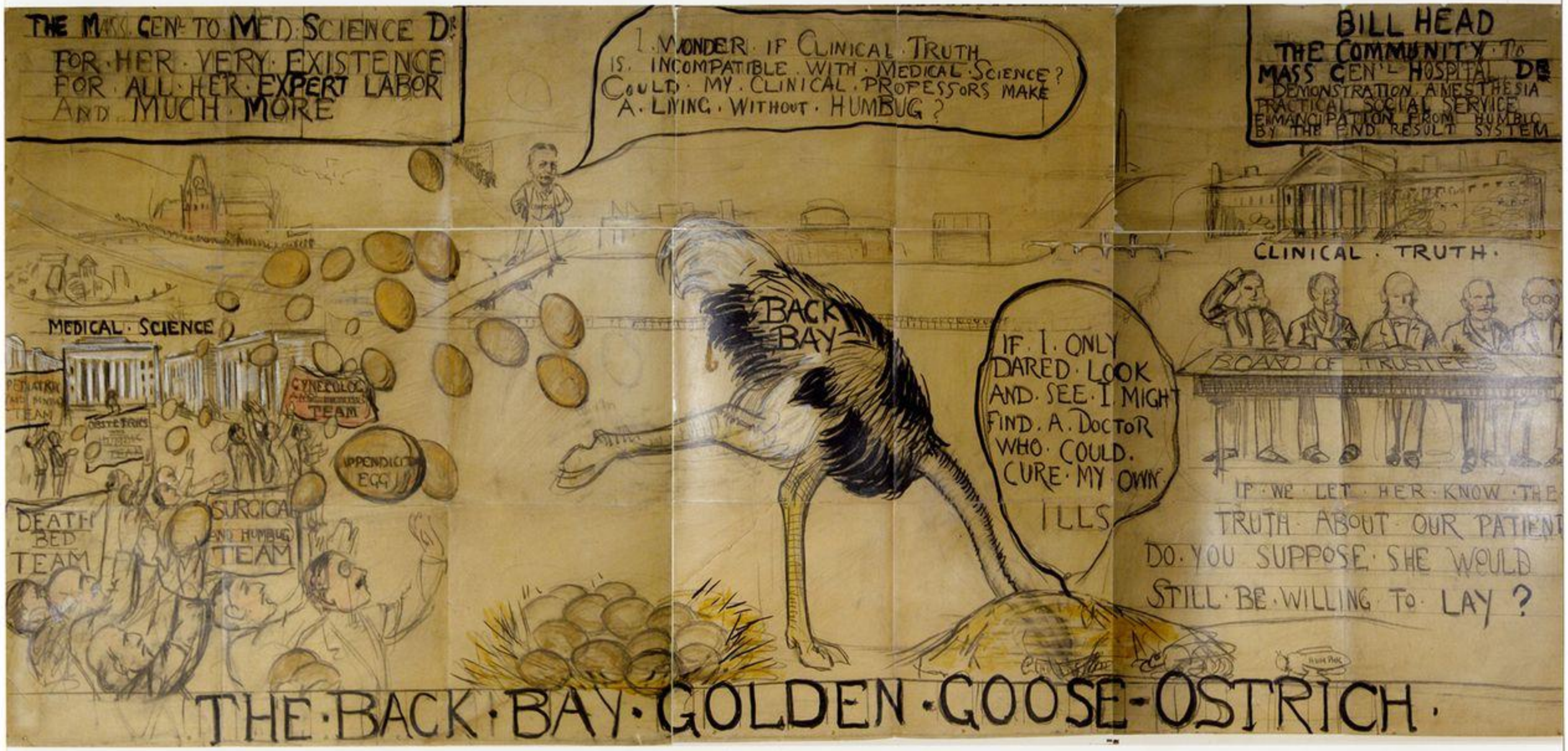
Path. No.: Path. Report by J. A. Wright. Cancer.

Signed: A. B. C.

## Reverse of End Result Card

| Date | Results |
|---|---|
| July 15, '15 | Remained well until March, 1915, since which time similar symptoms returned, and also hematemesis and epigastric tumor. |
| Recently | July 15th. Exploration showed numerous metastases in liver and abd. glands. No comp. Discharged two weeks later. |


401-500
601-700
AUGUST
SEPTEMBER


THE MASS. GEN'L TO MED. SCIENCE DR.
FOR HER VERY EXISTENCE
FOR ALL HER EXPERT LABOR
AND MUCH MORE
I WONDER IF CLINICAL TRUTH IS INCOMPATIBLE WITH MEDICAL SCIENCE? COULD MY CLINICAL PROFESSORS MAKE A LIVING WITHOUT HUMBUG?
BILL HEAD
THE COMMUNITY TO MASS GEN'L HOSPITAL DR.
DEMONSTRATION, ANESTHESIA
PRACTICAL SOCIAL SERVICE
EMANCIPATION FROM HUMBUG
BY THE END RESULT SYSTEM
MEDICAL SCIENCE
GYNECOLOGY TEAM
APPENDICITIS EGG
DEATH BED TEAM
SURGICAL TEAM
BACK BAY
IF I ONLY DARED LOOK AND SEE I MIGHT FIND A DOCTOR WHO COULD CURE MY OWN ILLS
CLINICAL TRUTH
BOARD OF TRUSTEES
IF WE LET HER KNOW THE TRUTH ABOUT OUR PATIENT DO YOU SUPPOSE SHE WOULD STILL BE WILLING TO LAY?
THE BACK BAY GOLDEN GOOSE-OSTRICH

# Historical facts: Connections

- 1910 - 1913: American College of Surgeons is founded: The "end result" system becomes an ACS objective.
- 1917: ACS begins on-site inspections; requirements fill one page
- 1926: 1st standards manual is published (18 pages)
- 1951: ACP, AHA, AMA, CMA join with the ACS to create Joint Commission on Accreditation of Hospitals (JCAH).
- 1965: Social Security Amendment recognizes hospitals with the JCAH accreditation as "deemed" to be in compliance with most Medicare Conditions of Participation

# Avedis Donabedian

- Born in Beirut, Lebanon in 1919
- He studied Medicine at the American University of Beirut
- Moves to the United States and receives his MPH degree at Harvard
- He is recruited to the University of Michigan by the School of Public Health in 1961
- He authored 11 books and more than 200 articles on quality assessment and improvement within the healthcare sector
- A landmark article in 1966: Evaluating the Quality of Medical Care

# Evaluating the Quality of Medical Care

- Approaches to Assessment: What to assess.
  - ***Outcomes*:** "The validity of outcome as a dimension of quality is seldom questioned.
  - However…there are limitations…"the first of these is whether the outcome of care is, in fact, the relavant measure."
  - Many factors other than the medical care, may influence the outcome.
  - "Another approach to assestment is to examine the ***process of care*** itself; rather than its outcome " Key: Is whether medicine is properly practiced.
  - Lastly, …"a third approach to assessment is to study not the process of care itself, but the setting in which it takes place and the ***instrumentalities*** of which it is the product." ***Structure.***

# Evaluating the Quality of Medical Care

- Sources and Methods of Obtaining Information
  - Physician records
  - Diagnostic testing
  - Issue: rating the quality of the record vs the quality of care
  - Interviews
  - Observations
- Sampling and Selection
- Measurement Standards and Measurement Scales
  - Empirical Standards
  - Normative Standards
- Reliability of assessment: need details and specifications of criteria
- Bias: need to control
- Validity: complex interplay between health and satisfaction
- Indices of Medical Care: multidimensional assessment of care is difficult, costly, and laborious to gather.
- Some problems of Assessing Ambulatory Care

# What to measure?

NHS
Improving Quality


The environment in which care occurs

What care is delivered, and how

The impact on patients and the population

*'Outcomes remain the ultimate validators of the effectiveness and quality of medical care' but they 'must be used with discrimination'*

Avedis Donabedian

# A classic approach to developing measures

**Dr. Avedis Donabedian**
(1919-2000)

**S + P = O**

**Structure + Process = Outcomes**

Source: Donabedian, A. *Explorations in Quality Assessment and Monitoring. Volume I: The Definition of Quality and Approaches To Its Assessment.* Ann Arbor, MI, Health Administration Press, 1980.

# Institute of Medicine: founded 1970

# Institute of Medicine:

- To ERR is Human: Building a Safer Health System (1999)
  - ~ 100,000 patients are losing their lives to iatrogenic harm within US hospitals
- Crossing the Quality Chasm: A New Health System for the 21st Century (2001)
  - Safe
  - Effective
  - Patient-Centered
  - Timely
  - Efficient
  - Equitable

# Don Berwick: IHI Journey

- 1986: National Demonstration Project on Quality Improvement in Healthcare (NDP)
- 1989: Continuous Improvement as an Ideal in Health Care, NEJM
- 1990: Curing Health Care: New Strategies for Quality Improvement 1st Edition
- 1991: Institute of Healthcare Improvement is founded
- 1993: Associates in Process Improvement (API) introduces its model of improvement
- 1995: First IHI Breakthrough collaborative aims to reduce the US C-section rate
- 1999: To Err is Human: Building a Safer Health System (1999)
- 2001: Crossing the Quality Chasm : A New Health System for the 21st Century
- 2010: Triple Aim
- 2012: Book: Triple Aim
- 2014: Promising care: How we can rescue healthcare by improving It
- 2018: Collaboratives, Initiatives, Leadership development, Redesigning primary care

# Why we must measure outcomes

The ultimate measure by which to judge the quality of a medical effort is whether it helps patients (and their families) as they see it. Anything done in health care that does not help a patient or family is, by definition, waste, whether or not the professions and their associations traditionally hallow it.
Don Berwick, *BMJ* 1997

## Better Health and Well-Being

- Systems Strategies for Better Health Throughout the Life Course
- Addressing Social Determinants of Health and Health Disparities
- Preparing for Better Health and Health Care for an Aging Population
- Chronic Disease Prevention: Tobacco, Physical Activity, and Nutrition for a Healthy Start
- Improving Access to Effective Care for People Who Have Mental Health and Substance Use Disorders
- Advancing the Health of Communities and Populations

## High-Value Health Care

- Benefit Design to Promote Effective, Efficient, and Affordable Care
- Payment Reform for Better Value and Medical Innovation
- Competencies and Tools to Shift Payments from Volume to Value
- Tailoring Complex Care Management, Coordination, and Integration for High-Need, High-Cost Patients
- Realizing the Full Potential of Precision Medicine in Health and Health Care
- Fostering Transparency in Outcomes, Quality, Safety, and Costs
- The Democratization of Health Care
- Workforce for 21st Century Health and Health Care

## Strong Science & Technology

- Information Technology Interoperability and Use for Better Care and Evidence
- Data Acquisition, Curation, and Use for a Continuously Learning Health System
- Innovation in Development, Regulatory Review, and Use of Clinical Advances
- Targeted Research: Brain Disorders as an Example
- Training the Workforce for 21st Century Science

Vital Directions
for Health and Health Care
A National Academy of Medicine Initiative
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nam.edu/VitalDirections

# Quality Improvement: Key Elements

- End results
- Structure, Process, and Outcomes: Data is key
- Apply industrial methods of continuous quality improvement in health care: Model of Improvement
  - Ask pertinent questions, measure, and change
  - Not randomized placebo controlled studies
  - Intended to Move fast: Fail Quickly towards success
- Aim4Execellence training

# The Model of Improvement

What are we trying to accomplish? → **Goal !**

How will we know that a change is an improvement? → **Measure !**

What changes can we make that will result in improvement? → **Ideas !**

PDSA-cycle


→ **Test !**

*Ref Deming, Nolan*

# Quality Improvement: Barriers

- Awareness and knowledge
- Motivation
- Skills
- Internal environment
- External environment
- Financial pressures
- Time
- Competing priorities
- Leadership
- The physician is responsible for the clinical outcome

# Quality Improvement: Opportunities

- Awareness and knowledge: *Starting in Medical School*
- Motivation: *Exposure and personal experience*
- Skills: *IHI*
- Instrumentalities: *CQI – Improvement model works (Aim4Execellence)*
- External environment: *May force physicians to become engaged*
- Financial incentives: *Grants, Fee for Value, MACRA, Contracts, etc…*
- Time: *Legacy*
- Competing priorities: *Physicians can prioritize with defined roles*
- Leadership: *Its there…, just need to cultivate it and recognize it.*

# Physician leadership

- Dyadic model
- Medical Director roles
- Medical Staff evolution
- Peer review processes: new models
- Graduate Medical Education: new changes
- Cross collaboration between Engineering and Medicine
- Collaboration with payers: Value Partnerships with BCBS of Michigan

# Graduate Medical Education

- GME Peer Review
  - Code A
  - Code R
- GME Council
  - Alignment of System level goals
  - Alignment of resources and talent
- Alignment of Hospital / Quality Initiatives
    - Sepsis
    - Transition of Care Committee
    - Multi-disciplinary rounds: Attendings and Residents participate


Current Collaborations

**Anesthesiology**
**Bariatric surgery**
**Blood clot prevention**
**Cardiothoracic surgery**
**Cardiovascular**
**Care Transitions**
**Emergency Medicine**
**General surgery**
**Hospital medicine**
**Knee and hip replacement**
**Oncology**
**Pharmacy**
**Prostate cancer**
**Radiation oncology**
**Spine surgery**
**Trauma**
**Value collaborative**

CENTER FOR
HEALTHCARE ENGINEERING & PATIENT SAFETY
UNIVERSITY OF MICHIGAN

## About CHEPS

***The mission of CHEPS is to improve the safety and quality of healthcare delivery through a multi-disciplinary, systems engineering-based approach.***

**We do so by:**
**COLLABORATION: The University of Michigan has nationally-recognized strengths in engineering, medicine, nursing, public health, business, and more. We work to identify, foster, and promote collaborative projects across these units.**

**IMPLEMENTATION: The research of the Center is grounded in real problems that affect real patients. We conduct hands-on projects both inside and outside of the University, locally, nationally, and globally. Because of this geographic diversity, research at the Center has an immediate and measurable impact.**

**INNOVATION: Hands-on projects form the foundation for longer-term, cutting-edge research projects that advance the state-of-the-art in both medicine and engineering.**

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**DISSEMINATION: The Center will serve as a source of information for the broader community about new advances in healthcare engineering and patient safety through its web site, white paper series, seminar series, symposia, and outreach activities.**

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“Ultimately, the secret of quality is ***love***.

…… If you have love, you can then work backward to monitor and improve the system”.

**Avedis Donabedian**

**Father of quality and safety**