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  *President and CEO of Institute for Healthcare Improvement*

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  *Institute for Health Care Delivery Research Intermountain Healthcare*

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- **Bob Waller MD**
  *Former CEO Mayo Clinic*
  *Chairman, Board of Directors Institute for Healthcare Improvement*

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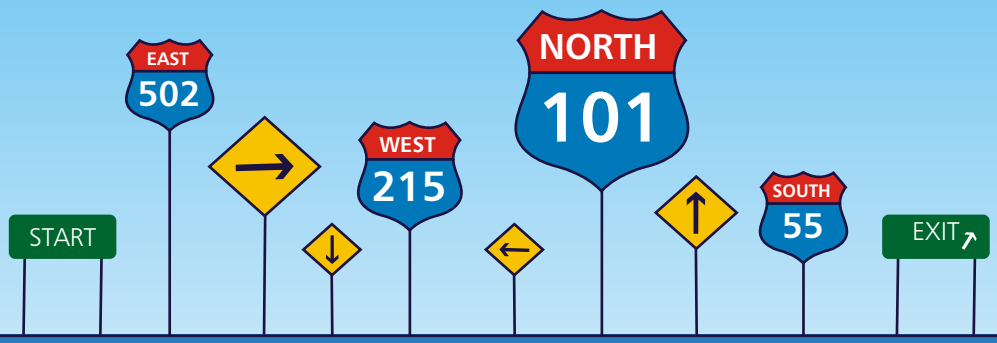



# ROAD MAP FOR QUALITY IMPROVEMENT

A Guide for Doctors

Manoj Jain MD MPH

# Quality Improvement Journey

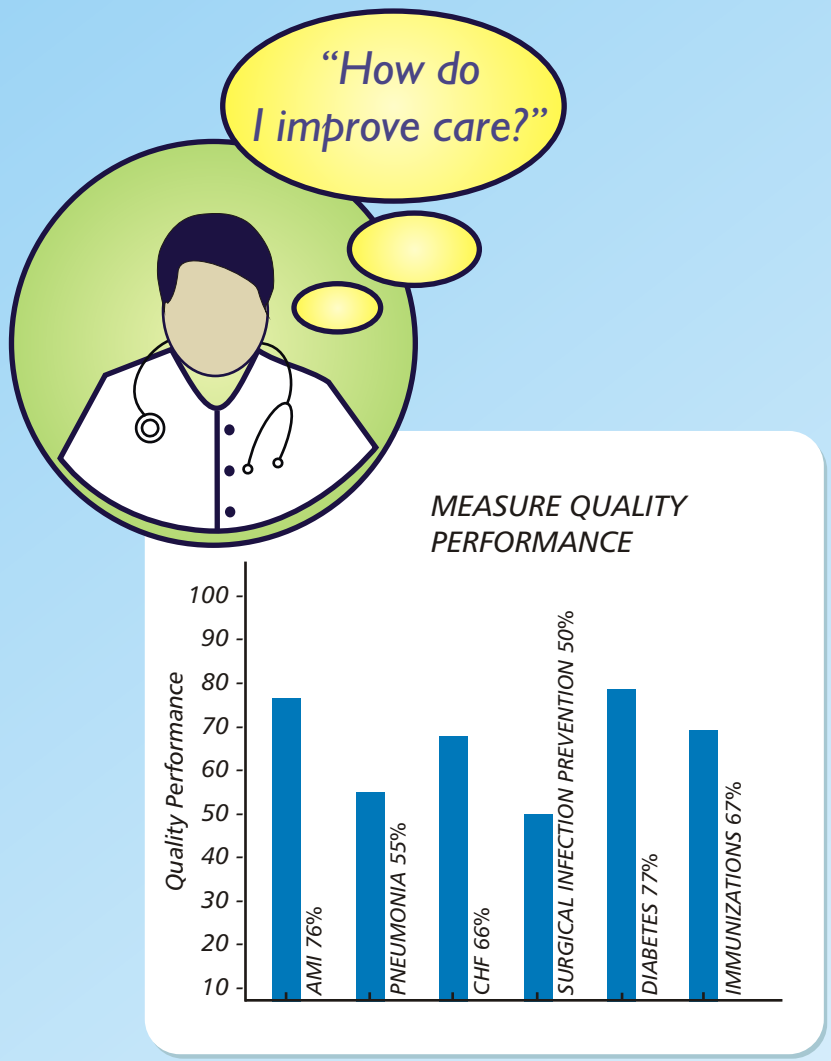

The quality improvement movement is affecting our practices in unprecedented ways. Our reputation, earnings, and credentialing are beginning to depend on quality improvement.

Though we were not taught quality improvement in medical school, the well-being and the lives of the patients we care for everyday depends on it. Understanding this, the *Annals of Internal Medicine* has introduced a new section on "Improving Patient Care", comprised of recent research articles on quality improvement.

So as physicians, we need to explore:

- What is quality improvement?
- Why should we work for quality improvement?
- How is quality improvement measured?
- How can we tell if we've achieved the improvements we desire?
- What tools do we need to improve care in our offices, hospitals, and clinics?

# What is Quality?
# What is Quality Improvement?




Far from being abstract and vague, quality is concrete and measurable, much like the vital signs of a patient.

The Institute of Medicine (IOM) has **defined quality** as the extent to which **health services increase** the likelihood of **desired health outcomes** and are consistent with current professional knowledge (evidence based medicine). (1)

Many useful techniques for improving quality and measuring improvements have been borrowed from the aviation and automotive industries and adapted to the realities of medical care. **Healthcare Quality Improvement** is the body of knowledge, attitudes, and skills necessary to efficiently influence and continuously improve the multiple elements of care delivery within a medical practice. (2)

The IOM has proposed six specific aims for improvement. Health care should be: (3)
***Safe*** – avoiding injury from care that is intended to help.
***Effective*** – avoiding underuse or overuse of services.
***Patient-centered*** – providing respectful, responsive, individualized care.
***Timely*** – reducing waits and harmful delays in care.
***Efficient*** – avoiding waste of equipment, supplies, ideas and energy.
***Equitable*** – providing equal care regardless of personal characteristics, gender, ethnicity, geographic location, and socio-economic status.

# Why Quality Improvement?

Why should we learn about quality improvement or work on a quality improvement project?


### *RIGHT THING TO DO*

**101:** Improving the quality of care is the right thing to do. Improvement is a core aspect of all professionalism, and our patients trust us and depend on us to deliver quality care every time they sit in the examination room, rest on the hospital bed, or lie on the operating table. This is why we went to medical school, and this is what satisfies us at the end of a long hard day.

### *REPORT CARD*

**103:** Our credentialing depends on the quality of our performance. As of January 2006, self evaluation module for practice performance will be a required part of maintenance of certification for certain internal medicine diplomats.(5) Hospital medical executive committees are considering physician performance as a criterion for re-credentialing physicians at their facilities.

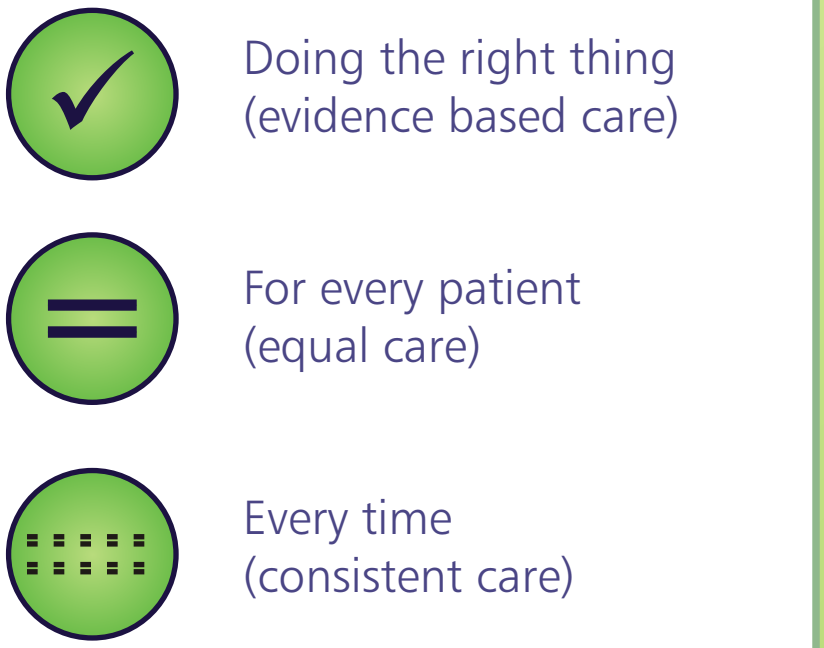
### *PRACTICE PRIVILEDGES*

Our reputation depends on quality performance. A number of credible websites publicly report quality data. Medicare's website for hospital's quality report is **www.hospitalcompare.hhs.gov/** , which provides hospital-specific performance data on pneumonia, acute myocardial infraction (AMI), and congestive heart failure (CHF). Other sites include **www.healthgrades.com** and **www.leapfrog.org.** Like hospital quality report cards, physician profiles are also becoming public. For example, New York State publicly reports physician specific coronary bypass surgery performance rates. (4)

### *INCOME*

104: Our payments will soon depend on quality. Pay for performance, P4P, also known as value based purchasing, is a program that rewards hospitals and physicians based on the quality of care delivered. Medicare is conducting pilot programs such as the CMS/Premier Hospital Quality Incentive Demonstration in over 240 hospitals. Under this, the top 10% performers receive a bonus of 2% while the bottom performers stand to lose up to 2% of their Medicare reimbursement. (6) P4P programs for physicians are being piloted by Medicare and commercial insurers in several states and in large practices. (7)

# Goals of Quality Improvement



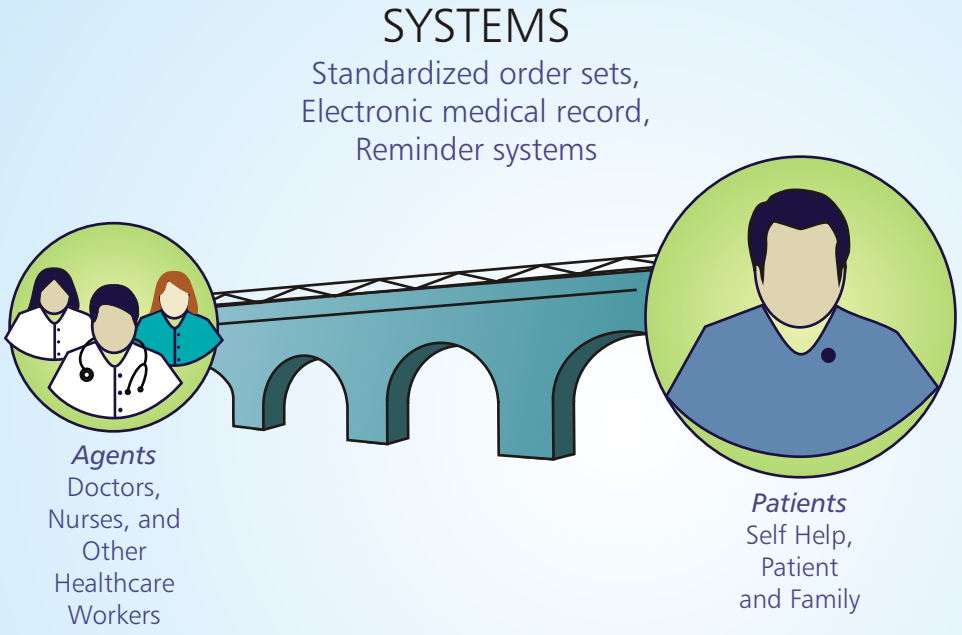

The **goal of quality improvement** in healthcare is to provide the right care for every patient, every time.

**What is right care?** Right care is putting evidence-based medicine into practice with judgment, experience and adaptation to the patient's needs. Often bench research knowledge takes decades to become bedside practice. For example, studies in the 1980s showed the benefit of administering beta-blockers after AMI, yet in 2001 only 69% of patients received a beta blocker at discharge. (8) Knowing what is right care is not enough; we need to put evidence - based medicine into practice.

**Who is every patient?** The Dartmouth Atlas (9) reveals variations in rates of medical procedures and medical care by regions. The IOM report on disparities displays variations in care by race and ethnicity. Often, it is unclear why such large variations in care occur. We must strive to provide the right care for every patient and avoid unnecessary and unjustified variations.

**What is every time?** Most physicians are familiar with the most recent and relevant clinical research (evidence-based medicine), and we obviously work to incorporate this knowledge into our daily practice. Unfortunately, it is difficult to do this on a consistent basis. For example, only about 65% of high risk patients receive pneumococcal vaccination (10), and only 48% of our surgical patients receive an appropriate prophylactic antibiotic within the optimal one hour period prior to surgical incision. (11) In the hustle of a busy clinic or the complexities of a long surgical case, we sometimes overlook routine, yet important, interventions, such as vaccinations or timely antibiotics.

# Quality Improvement: Building Strong Bridges




At the core of quality improvement are healthcare workers, patients, and systems.

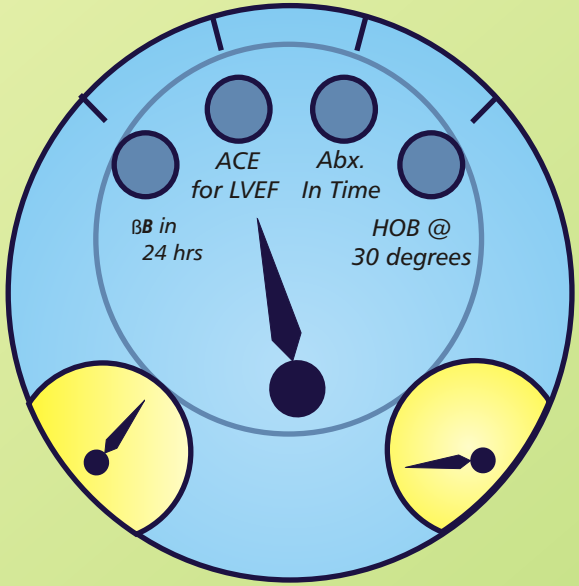
Doctors, nurses, administrators, and other healthcare workers are the agents who create, revamp, modify, or refine the delivery of healthcare. As agents we need to take the leadership in bringing about quality improvement.

Patients and families are a critical part of the quality improvement process. Patients need to take responsibility for their care and be empowered to manage their health. Chronic disease programs (12) incorporate self-management as a critical element in the quality improvement plan.

System improvement is the main focus of the quality improvement philosophy. Some systems have a high error rate like the airline baggage handling service (1 error per hundred). Other systems have an incredibly low error rate like the altimeter on an airplane. A system will only perform as well as it is built. Medical systems currently perform at an error rate of 1 error (injury) per hundred hospitalized patients. (13) The better the system we build, like an automotive engine, the better will be the performance we experience.

In order to improve care we must improve the systems we employ. Standardized order sets or protocols for common diagnoses such as pneumonia, congestive heart failure, sepsis, and AMI improve the likelihood that the critical treatments are delivered consistently and in a timely manner. Maintaining electronic medical records is a comprehensive system, which provides tools for reminders, drug-interaction warnings, and bedside decision-making assistance. However, an improved system is not the complete solution to our quality problems. The agents (doctors and administrators) and users (patients and families) must work collaboratively within the system (hospitals, physician office, home health) to achieve quality outcomes.

# Know Your Quality Indicators




*Process Indicators*

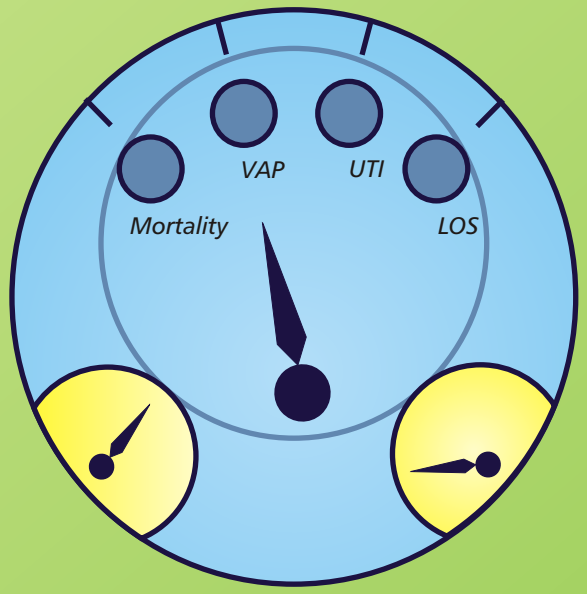
The dashboard of quality contains two types of indicators: the process indicator, which is like the speed measured by the speedometer; and the outcome indicator that is the miles traveled, measured by the odometer.

Process indicators measure the completion of steps in the process, such as beta-blocker use after AMI or antibiotic delivery within one hour of cut time. Outcome indicators measure the result of the process, such as mortality, length of stay, and complications. Significant research has shown that if you improve process indicators the outcome indicators almost always improve.



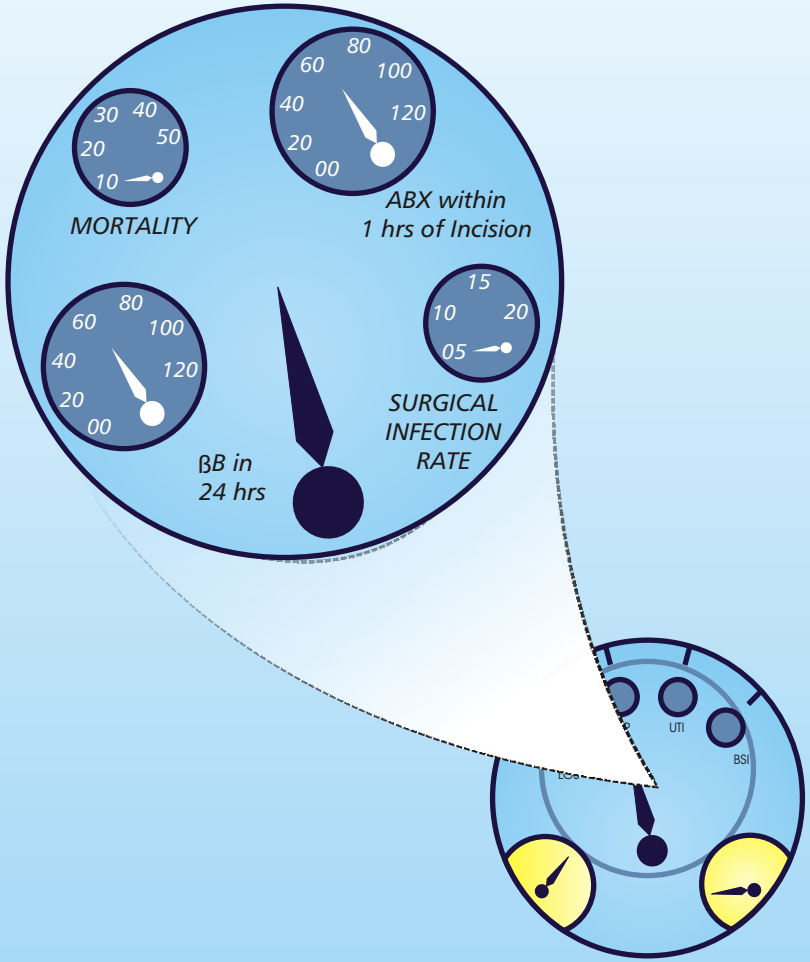
As doctors we are usually only concerned with the outcome indicators, such as reduction in the infection rate, because it relates to our daily practice. However, outcome indicators can be easily skewed by biologic variables such as case mix, environment, data collection, and even poverty. Also, outcome indicators cannot be easily controlled in statistical analysis. For this reason, payment and evaluations are often based on process indicators.

Government agencies or payers do not develop quality indicators; they are often the recommendations of professional societies and research studies. Each indicator has inclusion and exclusion criteria. As practicing physicians we need to study these criteria before we endorse or discredit the indicator or the data.




*Outcome Indicators*

# Measure Data




If we wish to improve quality then we must measure quality. Measurement provides objective and quantitative values to our subjective experiences. These experiences may not be completely valid because of biases and incidents occurring over long periods of time, and multiple providers. For example, it is difficult for a surgeon to estimate and act upon the surgical infection rate at his facility without a standardized data gathering and reporting system.

Relevant data need to be measured in small samples over time if we wish to improve. To be able to influence indicators we need to modify our practice and re-measure our performance to see if our actions have altered the indicator.

Data need to be used for providing feedback to doctors and nurses who affect the indicators. Feedback has to be done in a collaborative and non-punitive manner, so as to build trust, which is essential for further change.

Data need to be profiled by individual units such as hospital floor or physician, in order to be meaningful to individuals, and to motivate change.

# Build a Team

In the past physicians in training were taught to be autonomous and individualistic. A good physician listened to the patient, made a decision and dictated orders so that the patient received the necessary treatment. This model can no longer work.

Today, a good physician has to work as part of a team. An effective team has members representing three different modalities within an organization: system leadership (hospital administrator), technical leadership (physician), and day-to-day leadership (floor nurse manager). (14)

A system leader allocates the necessary time and resources for many of the team members so that the aim is achieved and the implication of the change is understood within the system.

A technical expert understands the subject intimately and knows the process of care. He/she guides in the formation of quality indicators, measurement tools, data collection, and interpretation of the data.

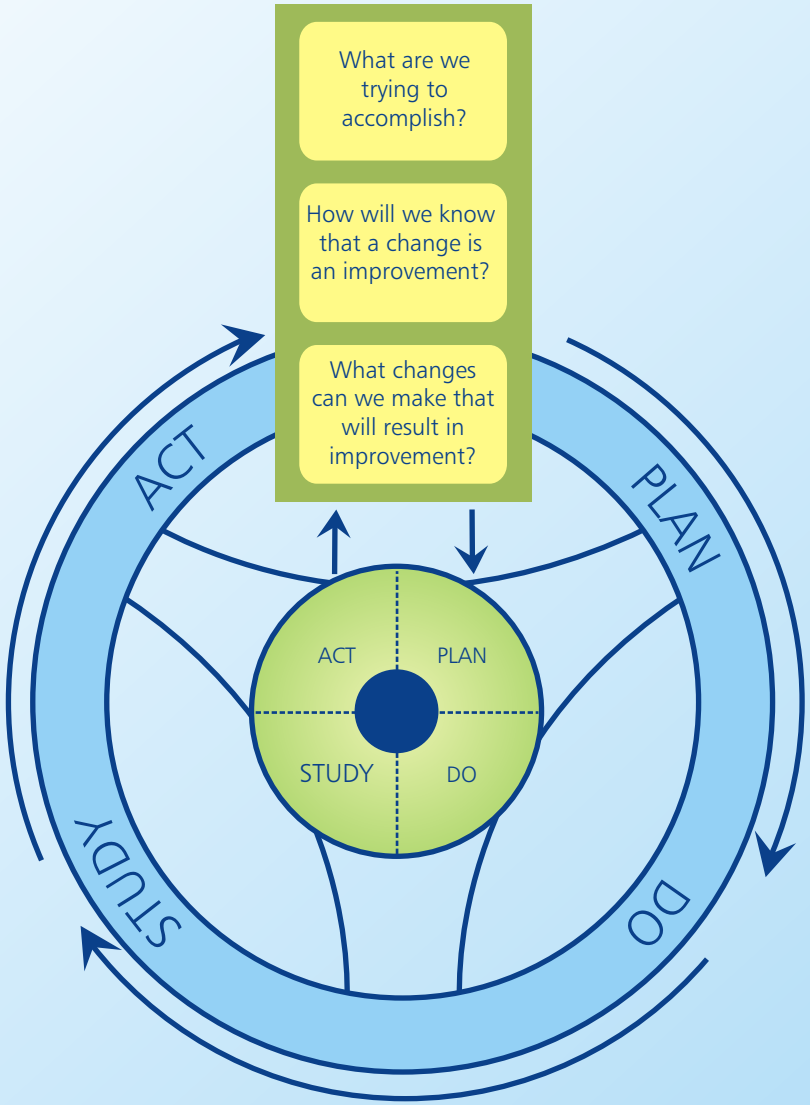
A day-to-day leader drives the project on the front-line, making sure the interventions are implemented and data is collected as planned. He/she also works effectively with physician champions. Here is an example.

Improving Critical Care
Aim: Redesign the leadership and care systems of our Medical Intensive Care Unit (MICU) in order to reduce infectious complications such as ventilator associated pneumonia, central line infections, and urinary tract infections.

Team:
Team Leader: Medical Director, Medical Intensive Care Unit (MICU)
Technical Expertise: Intensivist
Day-to-day Leadership: MICU Nurse Manager
System Leadership: Administrator
Additional Team Members: Respiratory Therapy, Quality Improvement Specialist, Staff Nurse, Clinical Pharmacist, Clinical Nurse Specialist

# PDSA: The Wheel of Improvement

The Model for Improvement using PDSA (Plan-Do-Study-Act) is a powerful and proven tool for accelerating improvement. (15,16) It provides structure to the improvement process just as a "history and physical" provides structure to a patient encounter.




***First step:*** Setting Aims: Ask "What are we trying to accomplish?" It may be reducing the wait-time in our clinic or increasing beta-blocker use among patients with an AMI. The aim should be time-specific and measurable, and define the population that will be affected.

***Second step:*** Establish measures: Ask "How will we know that a change is an improvement?" Measures help the team determine if a change leads to quantitative improvement.

***Third step:*** Selecting Changes: Ask "What changes can we make that will result in improvement?" Improvement requires change, but all change does not lead to improvement. It is the expertise of the team that will determine which changes will lead to an improvement. In a clinical setting this is much like making the correct diagnosis for a patient.

***Fourth step:*** Testing Change: Ask "How can we make changes in the real world setting?" The PDSA (Plan-Do-Study-Act) cycle is the scientific method for action oriented setting.

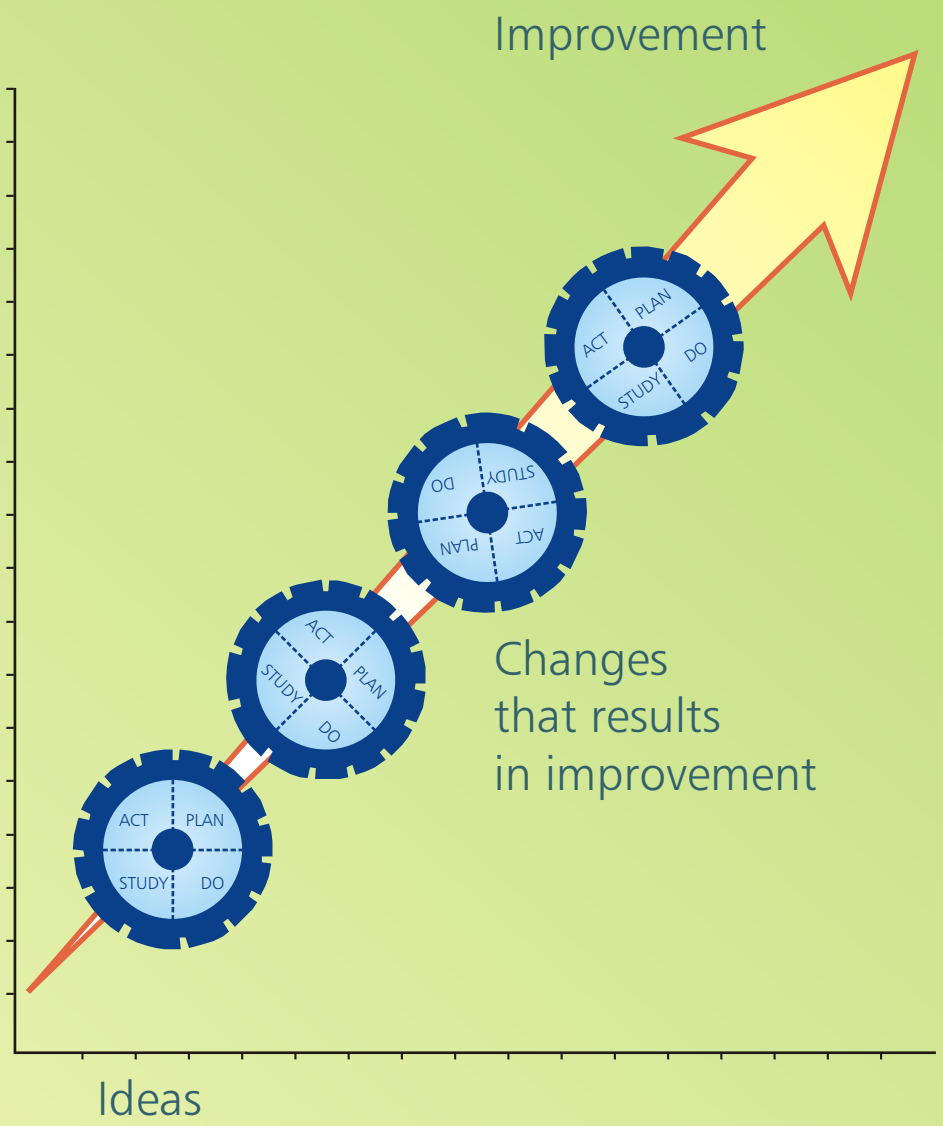
**Plan** is answering the questions in the first three steps above – setting aims, establishing measures, and selecting changes. It happens when we meet in the conference room with the team.

**Do** is implementing the changes. It happens when we train the nurses, and educate the doctors and the patients. It happens when we use "bundles", which are packages of evidence-based interventions that help in providing consistency of care.

**Study** is evaluating the pilot change to see if it produced the desired effect.

**Act** is to adopt, reject or modify the change plan, so that the next cycle can begin.

# Wheels in Motion:
## Continuous Quality Improvement




The PDSA cycle offers a route for improvement in a systematic manner. Often the desired improvement is not achieved in one cycle, and so the cycle is repeated. Even if the desired aim is achieved, new aims and goals arise and the process begins with step one.

With each new cycle the gains are held and new frontiers of process improvement become a possibility.

***Fifth step:*** Implementing changes: Ask "We know this works – what do we do now?" After several successful PDSA cycles we need to implement the change on a broader scale. For example, we must move the new way of doing things from one floor to the entire hospital, or from one clinic to all the clinics.

***Sixth step:*** Spreading changes: Ask "How can we help others bring about change?" After our hospital or unit has enjoyed the fruits of improvement, it is critical to share them with other organizations and to spread best practices. We often learn more from others than we anticipate when we share our successes

These simple steps have brought profound changes within healthcare organizations.

# Transformation to a CULTURE of Quality

**Variations → Uniformity**

**Paper records → Electronic Medical Records**

## System

A focus on quality will lead to a change in our culture just as patient's rights and confidentiality have changed our practice with informed consent and new regulations.

In a quality culture, systems are designed to reduce unwarranted variations, yet they permit clinically necessary and patient-desired variations. For example, systems using information technology such as electronic medical records can help in bringing about changes and reducing variation.

**Financial Focus → Quality Focus**

**Restricted → Transparent**

## Administration

**Autocratic → Team**

**Practice focus → Patient centered**

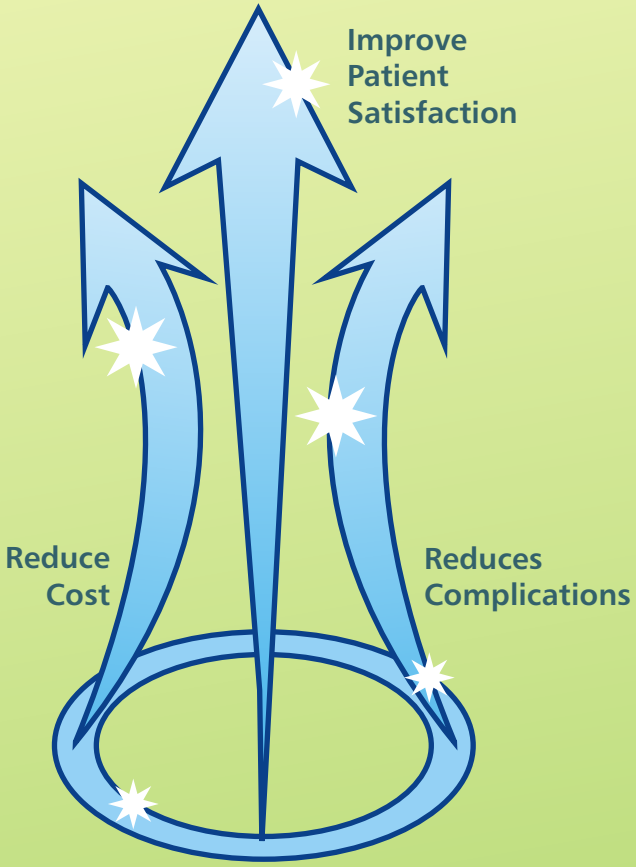
## Doctors

In a quality culture, administrators increase their focus on quality. Transparency of all quality data is the rule rather than the exception. For example, at hospital administrators' meetings, reports on quality need to be given at least the same amount of time and attention as the census or the financial report. Also, quality data should be shared between departments and among facilities.

In a quality culture, doctors take teamwork seriously. Team decision-making lessens the burden and shares the responsibility of complex and critically ill patients. For example, multi-disciplinary team rounds in the ICU lead to significant improvement in quality.

Quality improvement creates patient-centered care. Quality improvement is the right thing to do.

# Success




The strategy of quality improvement has shown success (17).

Hospitals and clinics have shown improvement by applying these principles. For example:

- Mortality has declined
- Rates of adverse events have plummeted.
- The cost of care in the ICU has seen a gradual decline.
- Critically ill patients have been recognized early by medical response teams.



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# Quality Improvement Resources for Doctors

*www.ama-assn.org*

**Physician Consortium for Performance Improvement**
The Physician Consortium for Performance Improvement is convened by the **American Medical Association (AMA)** and represents views from over 70 national medical specialty and state medical societies.

The Consortium identifies and develops evidence-based clinical performance measures that enhance quality of patient care and that foster accountability. It promotes the implementation of effective and relevant clinical performance improvement activities; and advances the science of clinical performance measurement and improvement.

*www.ihi.org*

**The Institute for Healthcare Improvement (IHI)** is a non-for-profit organization leading the improvement of health care throughout the world.
**IHI** is a reliable source of energy, knowledge, and support for a never-ending campaign to improve health care worldwide. The Institute helps accelerate change in health care by cultivating promising concepts for improving patient care and turning those ideas into action.

*www.cms.hhs.gov*

**Quality Improvement Organizations**
Under the direction of CMS, the Quality Improvement Organizations (QIO) work with consumers, physicians, hospitals, and other caregivers. QIOs refine care delivery systems to make sure patients get the right care at the right time, particularly patients from underserved populations.

**Hospital Compare – www.hospitalcompare.hhs.gov**
A Medicare web site which presents hospital quality data on selected quality measures.

**Physician Voluntary Reporting Program (PVRP)**
**www.cms.hhs.gov/PVRP/**
PVRP was launched by Medicare in January 1, 2006 to allow physicians to voluntarily report quality of care delivered to Medicare beneficiaries. PVRP consists of 16 evidence-based, clinically valid measures that are part of numerous guidelines endorsed by physicians and their medical specialty societies.