

Introduction to Quality Improvement in Healthcare

Introduction to Quality Improvement (QI) in Healthcare
Designed as a quick-reference guide for students, clinicians, and health system leaders.

1. What Is Quality Improvement?

Aspect	Description
Definition	Systematic, data-driven efforts to make health care processes safer, more effective, patient-centered, timely, efficient, and equitable.
Goal	Close the gap between current performance and best-available standards of care.
Scope	Applies to clinical care, administrative workflows, technology use, and population health programs.
Key Principle	<i>Continuous</i> – improvements are iterative, not a one-time project.

2. Core Concepts & Terminology

Term	Meaning
Structure	Physical and organizational resources (e.g., staffing, equipment, IT systems).
Process	Activities that transform inputs into outcomes (e.g., medication reconciliation, hand-off communication).
Outcome	Result of care (e.g., mortality, readmission, patient satisfaction).
Balancing Measure	Metric that detects unintended consequences of a change (e.g., reduced LOS vs. increased readmissions).
PDSA Cycle	Plan-Do-Study-Act – the fundamental iterative method for testing changes.
Lean	Focus on waste elimination and flow optimization.
Six Sigma	Reduces variation; aims for 3.4 defects per million opportunities.
Root-Cause Analysis (RCA)	Systematic investigation of why an adverse event occurred.

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Term

Meaning

**Failure Mode & Effects
Analysis (FMEA)**

Healthcare

Prospective tool to anticipate potential failures before they happen.

**Clinical Practice Guideline
(CPG)**

Evidence-based recommendation that serves as a benchmark for
QI.

3. The Quality Improvement Framework

1. Identify the Problem

- Use data sources (EHR reports, patient surveys, incident logs).
- Define the problem in a measurable way (e.g., “30-day readmission rate for heart failure is 22%”).

2. Set a SMART Aim

- **Specific, Measurable, Achievable, Relevant, Time-bound.**
- Example: “Reduce 30-day heart failure readmissions from 22% to 15% within 12 months.”

3. Select Measures

- **Outcome measure** (e.g., readmission rate).
- **Process measure** (e.g., % of patients receiving discharge education).
- **Balancing measure** (e.g., patient length of stay).

4. Analyze the System

- Map the current process (flowchart, SIPOC, value stream map).
- Identify waste, variation, and failure points.
- Conduct RCA or FMEA if needed.

5. Develop Change Ideas

- Brainstorm interventions (e.g., standardized discharge checklist, telemonitoring).
- Prioritize using an **Impact/Effort matrix**.

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6. Test Changes (PDSA)

- **Plan:** Define objective, prediction, and data?collection plan.
- **Do:** Implement on a small scale.
- **Study:** Compare results to predictions; use run charts or control charts.
- **Act:** Adopt, adapt, or abandon the change.

7. Scale & Sustain

- Expand successful tests