

A New Framework for Healthcare Performance Improvement

HEALTHCARE PERFORMANCE IMPROVEMENT (PI) has evolved over the past three decades in both theory and practice. During this time, the industry has adopted and discarded different improvement processes and frameworks on the basis of new thinking and approaches that have proved successful in other industries.

Exhibit 3.1 is a partial listing of improvement models and principles that have been prominent in healthcare over the past 30 years. Each of these approaches has specific key principles and methodologies that are complementary to or overlap with other approaches.

Most healthcare organizations adopt improvement models to serve as a unifying philosophy and approach to PI. Today, Lean methods are used in a majority of hospitals and health systems. Many Lean principles build on the foundational work of Deming (1986), Juran (1989), Crosby (1986), and other thought leaders of the total quality management movement. Six Sigma's DMAIC (define, measure, analyze, improve, and control) framework is another approach that is frequently used with Lean initiatives (Wedgwood 2007; Dean 2013; Chalice 2007).

Important lessons can be gleaned from ideas and approaches that were used in the past. For example, reengineering was a dominant approach to PI in the mid-1990s (Hammer 1990). Although reengineering terminology has long fallen out of fashion, the lessons of

Exhibit 3.1: Performance Improvement Methods and Tools in Healthcare Services

Performance Improvement Models and Methods	Time Period	Key Principles
Management engineering (Smalley 1982; Larson 2014)	Late 1970s–1990s	<ul style="list-style-type: none"> • Scientific management method • Productivity management and monitoring • Work measurement and engineered work standards • Activity-based cost accounting
Total quality management (Deming 1986; Juran 1989; Crosby 1986)	Late 1980s–1990s	<ul style="list-style-type: none"> • Focus on quality/ quality is free • Focus on customer requirements • Culture of involvement/ drive out fear
Plan-Do-Check-Act (Deming 1986; Leebov and Ersoz 2003)	1980s–present	<ul style="list-style-type: none"> • Continuous improvement • Performance measurement and checking of results
Baldrige National Quality Program (NIST 2017)	1980s–present	<ul style="list-style-type: none"> • Achieving optimal results through successful leadership, strategy, operations, workforce, and customer focus integration and execution

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Exhibit 3.1: Performance Improvement Methods and Tools in Healthcare Services

Performance Improvement Models and Methods	Time Period	Key Principles
Reengineering (Hammer 1990)	1990s–early 2000s	<ul style="list-style-type: none"> • Challenging fundamental assumptions about how work should be organized and delivered • Radically redesigning business processes to achieve substantial improvements in performance
Patient-focused care (Lathrop 1993; Lean-der 1996)	Late 1980s–mid-1990s	<ul style="list-style-type: none"> • Service redeployment • Job design and multiskilled workforce • Service reaggregation
Performance benchmarking (Reider 2000)	Late 1980s–present	<ul style="list-style-type: none"> • Comparative benchmarking • Identification of best practices • Internal benchmarking
Six Sigma (DMAIC in particular) and Lean (Wedgwood 2007; Dean 2013; Chalice 2007)	Late 1980s–present	<ul style="list-style-type: none"> • Reduce variation • Reduce waste • Statistical process control

Note: DMAIC = define, measure, analyze, improve, and control.

radical redesign and challenging assumptions about work performance remain valid in today's healthcare environment. Similarly, the patient-focused care principles of service redeployment, service reaggregation, and multiskilling are applicable to hospital and health system improvement today (Lathrop 1993; Leander 1996).

The framework presented in this book is inspired, in part, by concepts and approaches from the past that are still relevant. The improvement levers and collaborative team approach are not intended to be an alternative to well-established improvement models. Rather, they are specific interventions and methods that can fit in an organization's established improvement framework. These levers represent ways to accelerate the existing improvement process by focusing leaders on the key issues relevant to all healthcare systems. The framework reduces the time required to identify problems and prioritize opportunities.

Regardless of which improvement approach is adopted, organizations need a framework that, at a minimum, defines the following:

- The key tenets and rationale for continuous quality and performance improvement and its criticality to the organization's mission and success.
- The sequential phases and steps in the improvement process, from initial assessment through implementation, that should be followed by leaders and PI teams.
- The roles and uses of data measurement as a requirement for assessing opportunity, measuring progress, and tracking ongoing performance.
- The importance of service excellence and the need to design processes and systems to meet external customer requirements. For healthcare organizations, this includes a focus on processes and systems that affect
 - patients,
 - physicians,
 - payer groups,
 - regulators, and
 - other provider partners.

- The roles and responsibilities of internal stakeholder groups in the improvement process. Health system stakeholder groups include the
 - board of directors,
 - executive leadership,
 - middle managers,
 - line staff,
 - physicians, and
 - suppliers.
- The principles and protocols used to identify, assign, and lead PI initiatives.
- The aspirational cultural values of an organization (e.g., transparency, involvement, empowerment).

ISSUES IN HEALTH SYSTEM PERFORMANCE IMPROVEMENT

Although many healthcare organizations adopt a PI philosophy, the results they obtain can vary considerably. Performance improvement initiatives can tie up time and resources, sometimes without producing tangible results. Some underlying issues that impede healthcare PI include the following:

- *Focus on structure and process rather than on results.* Most healthcare leaders are adept at adopting new management ideas and approaches. They embrace the philosophy, language, and process, and they support training for managers and associates. These efforts often generate considerable activity but yield subpar performance gains.
- *Lack of prioritization.* Many organizations fail to prioritize opportunities that yield the greatest benefit to the organization and patients served. Frequently, leaders focus on small, easy-to-implement ideas while avoiding challenging opportunities with greater performance impact.

- *Lack of engagement.* Large-scale improvement requires the buy-in and involvement of a health system's key constituent groups. These include the management team, associates, physicians, and the board, among others. PI projects typically fail if these groups do not support the project or are not actively engaged in the process.
- *Lack of urgency.* Healthcare systems are slow to move and usually do not undertake large-scale improvement without a degree of financial or strategic urgency. Leaders must create urgency by communicating the reasons driving the need for change and by setting deadlines and targets for managers and improvement teams to meet.
- *Lack of measurement.* Performance improvement requires disciplined measurement and monitoring. Organizations that do not measure performance cannot know if performance is improving, getting worse, or staying the same.
- *Lack of accountability.* A fundamental aspect of successful PI efforts is senior leadership securing buy-in from managers and holding them accountable for their results. Executives must also hold themselves accountable for meeting goals and should institute processes for regularly reviewing performance metrics. Many organizations tie leader compensation, in part, to achieving PI goals.

To succeed in today's healthcare environment, providers need PI processes and strategies that overcome these issues.

A NEW PERFORMANCE IMPROVEMENT FRAMEWORK

Programs and services in a health system are highly interconnected with, and dependent on, other organizational functions and operations. Health services delivery requires continuous orchestration

and coordinated flow of patients, staff, equipment, supplies, and information across numerous departments, services, and care sites.

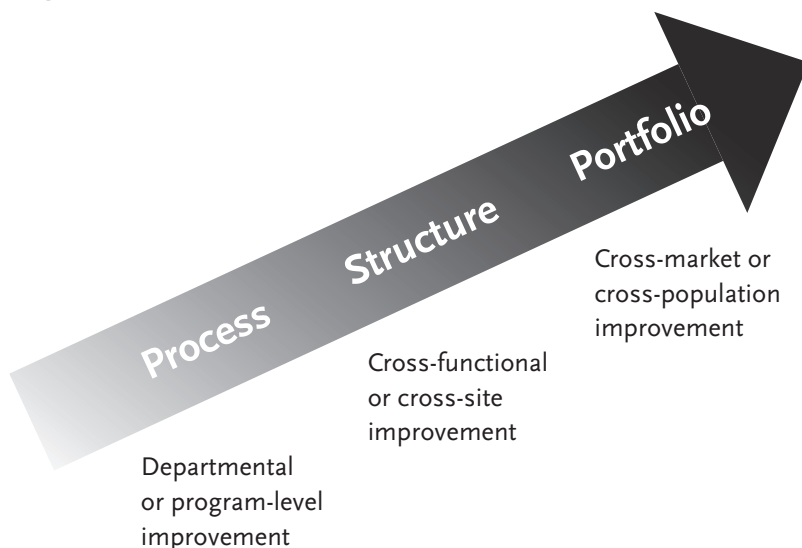
A leader's ability to manage performance in his department depends, in part, on the effective workflow of and support from other departments. An emergency department (ED) director, for example, has control over the staffing and workflow in the ED. Her ability to optimize ED staff productivity and patient throughput, however, is hampered if the systems for expediting emergency admissions to the nursing units are ineffective.

This example illustrates how PI opportunities can arise at different levels and with varying scope in the organization. Coffey (2005) suggests that five levels are typical in a healthcare system: patient, department or unit, hospital, multi-institutional/multiorganizational system, and virtually integrated health system. The focus of this book is on PI that takes place at three similar levels: the department or program (process) level, the cross-functional or cross-site (structure) level, and the cross-market or cross-population (portfolio) level (see exhibit 3.2).

Process changes include the routine operational modifications leaders make daily in their specific areas of responsibilities. Regarding productivity, process initiatives represent department-level changes in work schedules, role design, and workflow improvements that improve staff utilization and service to patients. The organizational impact from process-level changes depends on the size and complexity of the department. Organizations in the early stages of PI should first focus on building department-level processes and systems. For health systems, this means prioritizing improvements that

- streamline key processes in a department or program,
- strengthen departmental supply and inventory management systems,
- reconfigure department work areas to improve workflow and capacity,
- redesign roles to meet changes in work requirements, and
- improve labor productivity through improved personnel scheduling and role design.

Exhibit 3.2: Three Levels of Health System Performance Improvement



At some point, health system leaders may find that further improvement can only occur by addressing processes and systems that cross over into other areas of the organization. These improvement opportunities occur at the second, or *structure*, level. Change levers (discussed at length in the next section) that drive structural improvement represent operational interventions that are executed among functions both in a facility and across multiple facilities of a health system.

As hospitals, physician groups, and post-acute organizations merge to create large, complex, integrated systems, operational improvements derive increasingly from structure-level changes. These interventions are categorized as structural because they often challenge and alter the foundational assumptions of hospital and health system processes and organization. Multientity health systems form, in large part, to achieve the scale and efficiencies that are unachievable for independent facilities.

Structural improvement levers address the following essential areas:

- Leveraging the advantages of system scale to rationalize staffing and other resources across multiple entities
- Improving key business processes to enhance service continuity across functions and system entities
- Improving case cost performance and contribution margin by reducing unnecessary utilization of clinical services
- Improving quality outcomes and minimizing the occurrence of off-quality events
- Building effective processes and systems for managing enterprisewide supplies and other nonlabor expenses

Structural improvement projects are often complex, requiring a great deal of time and effort and the involvement of large, diverse groups of leaders and staff. When executed effectively, structural improvement initiatives can yield substantial gains in organizational performance.

Beyond process and structural changes, further PI is achieved through alterations in the portfolio of services and programs provided by a health system. *Portfolio*-level changes occur when health systems reconfigure and redesign programs and services to respond to changes in market demand.

The aim of portfolio management is to maintain a service offering that meets market demand and maximizes revenues and margins. For a healthcare system, portfolio improvement levers are used to

- inform decisions on which services to expand, contract, or divest;
- determine which components of the care continuum should be produced internally versus by a partnering entity;
- identify strategic marketing opportunities and tactical growth initiatives to build top-line revenues; and

- improve net revenues and margins through enhancements to the organization's revenue cycle.

Portfolio improvement is a growing area of focus for large health-care systems. As accountable care and population health initiatives transform healthcare delivery, health systems must institute changes to their service portfolio by reducing investments in existing programs and building new programs and capabilities. Similarly, growth and revenue cycle improvements are necessary for building and sustaining operating margins.

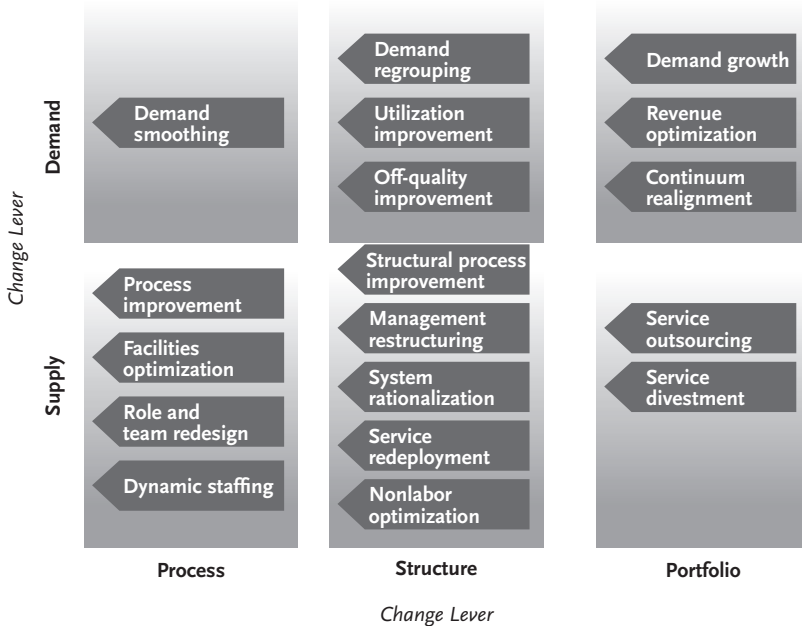
CHANGE LEVERS

Change levers are specific interventions employed at different levels of the organization. As shown in exhibit 3.3, 18 PI levers can be applied to healthcare operations. A detailed description of each lever is provided in appendix B. While depicted as discreet strategies, change levers are often employed with other levers. For example, process improvement frequently drives changes in role design, improvements in facility layout, and efforts to match resources to work demand.

The 18 levers are divided into two categories: supply and demand. Many of the levers deal with balancing the *supply* of labor and resources for a given demand. These interventions are employed to effectively match the right resources to the right demand at the right time. From a portfolio perspective, supply levers can also identify services that should be provided by an outside entity and those that should be eliminated.

Healthcare leaders also seek operational improvement by influencing the *demand* for the work. Demand levers are used to redistribute workload to reduce variation and improve service, reduce demand to minimize non-value-added work, and grow demand to improve resource utilization and contribution margins.

Exhibit 3.3: 18 Performance Improvement Levers for Healthcare Organizations



PERFORMANCE LEVERS AND HEALTH SYSTEM FUNCTIONS

Most hospitals, physician offices, and other medical services are similar with respect to structure, processes, and operational issues. Most hospitals, for example, confront similar operational challenges related to

- scheduling and throughput in surgical services,
- patient throughput and staffing in emergency services,
- patient discharge processes and room turnover, and
- staffing and scheduling for acute care units.

For every functional area in a health system, several operational issues are predictable and common to most organizations. The impact of these issues varies with the size and complexity of the department, the demand dynamics, location and facility requirements, and other factors. A subset of these issues normally comprises most of the operational challenges and resulting improvement opportunities. Consequently, specific improvement levers offer the best or most effective approach for addressing improvement needs in a given department or function.

The primary operational improvement levers can be determined at the outset of a PI initiative. Appendix C provides a summary of primary health system departments and the change levers that are most effective for achieving improvement in each. Focusing on this subset can minimize assessment time and quickly point leaders and teams to solutions with the highest likelihood of improvement success. For example, a physician practice improvement team should initially concentrate on the seven areas highlighted in exhibit 3.4—those that most closely pertain to ambulatory services. Each lever is paired with a corresponding primary question to address. The team can use these questions to brainstorm and identify areas of focus and redesign alternatives.

SYSTEM-LEVEL GAP CLOSURE PLAN

Performance improvement strategies must address an increasingly broad range of operational issues and extend over multiple years. Exhibit 3.5 is an example of a four-year financial gap closure strategy for a regional healthcare system. The chief financial officer of this organization prepared a forecast of the organization's expected decline in operating margins under a scenario in which net revenues per inpatient case for all payers would approach prevailing Medicare rates. On the basis of this scenario, the organization's operating margins would drop by \$35 million in the first year and grow to \$68 million by the fourth year.

Exhibit 3.4: Key Improvement Levers—Physician Enterprise Example

Improvement Lever	Key Questions	Brainstorming Ideas
Process improvement	What can we change in our processes to improve patient throughput in our clinics?	Improve check-in process, collect data previsit, perform waiting room rounding.
Role design	How can we redesign roles among our clinical and nonclinical staff to increase staffing flexibility and utilization?	Cross-train medical assistant (MA) role with the front-desk role; have MA perform patient data collection.
Dynamic staffing	What staffing models give us the most cost-effective team design and meet the needs of our patients?	Increase use of physician extender staffing.
Demand smoothing	How can we schedule patients in a manner that balances workload with staff schedules while ensuring access for our patients?	Standardize office hours and scheduling protocols for physicians, and introduce central scheduling to balance demand across practices.
System rationalization	What clinic-based administrative functions can be offered more effectively as a centralized service?	Consolidate administrative functions (e.g., medical records management, authorizations management, coding).
Divestment	What underperforming clinics need to be reduced or eliminated as a result of changing market demand?	Target 2–3 underperforming practices for shutdown or reduction in scale.
Demand growth	What can we do to increase access to accommodate unmet demand in our clinics?	Open new practice in western suburbs.

Exhibit 3.5: Example of a System-Level Gap Closure Plan

Performance Improvement Initiative	Improvement Levers	Economic Improvement Targets				Notes
		Year 1	Year 2	Year 3	Year 4	
Labor productivity	1–Process improvement, 2–Structural process improvement, 3–Facilities optimization, 4–Demand smoothing, 5–Demand regrouping, 6–Role and team redesign, 7–Dynamic staffing, 10–Service redeployment	\$10,450,000	\$11,495,000	\$12,644,500	\$13,908,000	Target: 35th percentile benchmark staffing in all departments.
Leadership restructuring and functional consolidation	8–Management restructuring, 9–System rationalization, 10–Service redeployment	\$2,000,000	\$5,340,000	\$9,450,000	\$10,395,000	Start with regional management restructuring.
Supplies and purchased services	11–Nonlabor optimization	\$3,500,000	\$4,025,000	\$4,628,500	\$5,323,000	Examples include physician preference, commodities, pharmaceuticals, purchased services.
Portfolio review	16–Service outsourcing, 17–Service divestment, 18–Continuum realignment	\$500,000	\$1,000,000	\$3,200,000	\$4,000,000	Will take longer to implement.
Clinical utilization	13–Utilization improvement	\$2,500,000	\$3,250,000	\$4,387,500	\$6,142,000	Focus on LOS for Medicare patients and cost per case in cardiac, neurosciences, and orthopedic service lines.
Quality improvement	12–Off-quality improvement	\$0	\$1,950,000	\$2,340,000	\$2,808,000	Focus on reducing readmissions; DVT, VAP.
Revenue cycle	15–Revenue optimization	\$5,800,000	\$5,280,000	\$5,280,000	\$5,280,000	Improve charge capture and coding; reduce denials.
Growth	14–Demand growth	\$2,580,000	\$2,760,500	\$2,953,000	\$3,614,000	Reduce patient leakage; build service line referrals.

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Labor productivity	1–Process improvement, 2–Structural process improvement, 3–Facilities optimization, 4–Demand smoothing, 5–Demand regrouping, 6–Role and team redesign, 7–Dynamic staffing, 10–Service redeployment, 17–Service divestment	\$1,580,000	\$1,896,000	\$2,370,000	\$2,844,000	Improve staffing to 65th percentile against MGMA benchmarks; divest low-performing practices; consolidate support and administrative services.
Revenue cycle	2–Structural process improvement, 15–Revenue optimization	\$1,500,000	\$3,000,000	\$3,000,000	\$3,000,000	Improve clinical documentation and coding.
Growth	14–Demand growth	\$4,950,000	\$5,692,500	\$6,546,500	\$7,528,000	Open new practices, and improve access to existing practices.
Forecasted gap		\$36,500,000	\$45,000,000	\$51,000,000	\$60,000,000	
Gap closure total		\$35,360,000	\$45,689,000	\$56,800,000	\$64,842,000	
Remaining gap		\$1,140,000	-\$689,000	-\$5,800,000	-\$4,842,000	

Note: DVT = deep vein thrombosis; LOS = length of stay; MGMA = Medical Group Management Association; VAP = ventilator-associated pneumonia.

The executive team then developed a multiyear gap closure strategy featuring the deployment of 11 expansive PI initiatives, including three initiatives focused exclusively on the physician practices division. If this plan succeeded, the organization would produce a positive operating margin by year 2.

Of note is that the strategy was built on assumptions of when benefits were expected to be achieved and an assumption that these savings would be sustained over time. For example, the labor productivity team forecasted a savings of 175 full-time equivalent staff in the first year. The \$10.4 million savings would be sustained and accrue over subsequent years.

This example illustrates several dynamics of multiyear performance improvement:

- Short-term improvements are found primarily through a focus on labor productivity and nonlabor expenses.
- Revenue cycle improvements may generate substantial revenue gains in the short term as well, depending on the organization's current performance.
- These short-term initiatives are necessary but insufficient for closing large financial gaps over an extended period.
- Savings resulting from clinical utilization, off-quality, and portfolio improvements can be substantial, but they take longer to implement than revenue cycle improvements do. Benefits from the long-term initiatives generally accrue two to three years after launch.
- Revenue growth normally includes short-term tactical improvement and long-term strategic opportunities.

This example also illustrates how the 18 improvement levers align with the initiatives. The levers become the building blocks for the initiative teams to achieve the economic targets.

SEVEN PERFORMANCE IMPROVEMENT CATEGORIES

Improvement levers can be further categorized according to the focus of the intervention and the expected impact on the organization (exhibit 3.6). When categorized this way, the levers represent seven overall areas of improvement opportunity:

- Improving processes and facilities
- Aligning resources with demand

Exhibit 3.6: Seven Performance Improvement Categories

Improvement Category	Desired Outcomes	Improvement Levers
Improving processes and facilities	Improving the functional and cross-functional business processes and care environment factors that have the greatest impact on service, quality, and the cost of care	<ul style="list-style-type: none"> • Process improvement • Structural process improvement • Facilities optimization
Aligning resources with demand	Ensuring the right resources are available at the right time to fully meet the work demand	<ul style="list-style-type: none"> • Role and team redesign • Demand smoothing • Dynamic staffing • Demand regrouping
Leveraging the system	Exploiting the scale and efficiencies of a multientity health system	<ul style="list-style-type: none"> • Management restructuring • System rationalization • Service redeployment
Optimizing non-labor expenses	Ensuring supplies and other nonlabor expenses are effectively managed and deployed	<ul style="list-style-type: none"> • Nonlabor optimization
Improving quality and clinical utilization	Maximizing the clinical outcomes of patients who receive care while minimizing unnecessary care and costs and mitigating patient and organizational risk	<ul style="list-style-type: none"> • Utilization improvement • Off-quality improvement
Building top-line revenues	Growing top-line revenues through effective revenue management and strategic growth	<ul style="list-style-type: none"> • Demand growth • Revenue optimization
Optimizing the service portfolio	Building a strong service continuum through internal development and strategic sourcing	<ul style="list-style-type: none"> • Service outsourcing • Service divestment • Continuum realignment

- Leveraging the system
- Optimizing nonlabor expenses
- Improving quality and clinical utilization
- Building top-line revenues
- Optimizing the service portfolio

In part II, one chapter each is devoted to these categories, along with a detailed description of the associated improvement levers.