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Advancing Patient Quality & Safety

A Scalable Framework for Transformation

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About the Authors

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Most recently, Dr. Nguyen served as System Chief Value Officer at Centra, where he spearheaded efforts to elevate patient safety and quality, expand value-based contracting, and strengthen preventive and wellness care strategies. He also led the redesign of clinical documentation, physician advisor, and care management programs, driving improvements in clinical documentation integrity/case mix index, care transitions, and operational excellence. Dr. Nguyen has successfully operated CMS Medicare Shared Savings Program (MSSP) accountable care organizations (ACOs) and a regional clinically integrated network. He is a certified surveyor and has served as a Physician Surveyor for The Joint Commission, contributing to national standards for quality and safety. In addition to his leadership roles, Dr. Nguyen serves as a trusted consultant to a wide range of healthcare industry stakeholders, helping them solve complex challenges in strategy, operations, and clinical transformation. His work is grounded in real-world experience and guided by a commitment to scalable, sustainable change.

Tina Williams B.S.N., M.S.N., RN is a transformational healthcare executive with over 25 years of experience leading hospital operations, quality, and patient safety across multi-hospital systems. She has a proven record of driving organizational turnarounds, reducing costs, and elevating clinical performance through strategic leadership and cultural transformation.

As Vice President of Quality and Patient Safety at Centra Healthcare, she implemented a systemwide clinical data platform, built high-performing teams, and reduced serious safety events by over 50 percent. Previously, as Senior Vice President of Operations Management at Revint Solutions, she expanded service lines and guided hospitals nationwide in improving care quality, efficiency, and financial performance.

During her tenure as Regional Chief Clinical Value Officer for Abrazo Community Health Network (Tenet Healthcare), she improved six hospitals' core measure performance from 85 percent to over 98 percent, achieved multi-million-dollar operational savings, and secured workforce grants that reduced nursing turnover by more than half.

She holds an M.S.N. from Bellarmine University and a B.S.N. from Indiana University Southeast and is nationally recognized for advancing quality and patient-centered care.

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Executive Summary

Introduction

The U.S. healthcare system is approaching a critical inflection point. Persistent challenges—high labor and supply costs, workforce shortages, margin compression, and increasing system fragmentation—threaten to overshadow the urgent need to improve patient quality and safety outcomes. The COVID-19 pandemic exacerbated these issues, leading to increased rates of adverse events and hospital-acquired conditions across the nation. Although recent data suggests a modest reversal, a more comprehensive strategy is required to ensure sustained progress while effectively managing total care costs.[1]

Historically, the patient quality and safety movement has evolved through decades of research, shared best practices, and incremental advancements. While select healthcare institutions have demonstrated exemplary performance, others continue to struggle due to insufficient infrastructure, talent shortages, and systemic distractions. Additionally, the growing complexity of patient populations, driven by aging demographics and diverse care needs, further challenges healthcare providers.

To overcome these obstacles, health systems must focus on optimizing existing best practices, as articulated by Michael Porter's "Productivity Frontier"—the theoretical boundary where the maximum operational output is attained.[2] Institutions failing to meet this frontier must prioritize integrating proven strategies, while leading organizations should continually expand the frontier through innovation, data-driven insights, and process refinement. As value-based care gains prominence, achieving efficiency alongside optimal patient safety outcomes will be essential to reducing per-unit care costs and enhancing overall system performance.

This paper describes how to implement a three-step framework for achieving the "Patient Quality and Safety Frontier."

1 Greg Peterson, et al., "Evaluation of the Maryland Total Cost of Care Model: Progress Report," *Mathematica,* 2024.
2 Michael E. Porter, "What Is Strategy?," *Harvard Business Review,* 1996.

Case Example

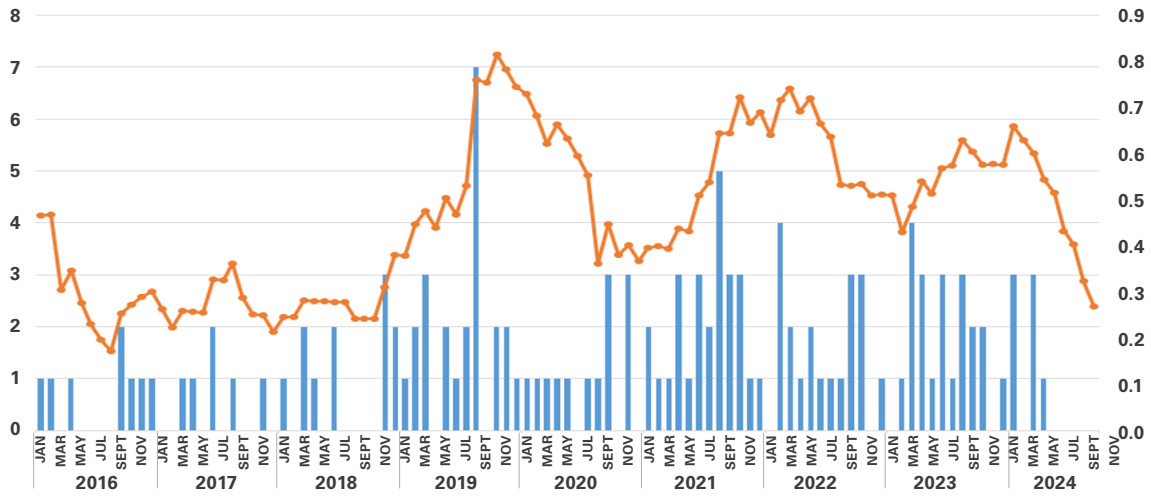
The implementation of this framework at Centra Healthcare, a mid-sized health system based in Lynchburg, VA, was driven by a troubling rise in serious safety event (SSE) rates and financial penalties incurred across all three CMS pay-for-performance programs: the Value-Based Purchasing Program, the Readmission Reduction Program, and the Hospital-Acquired Condition Program. To address these challenges, the organization introduced a Patient Safety Evaluation System (PSES) to standardize event classification and promote a culture of transparency and reporting. Education efforts emphasized the anonymity of the reporting process and encouraged identification of not only serious safety events but also near-miss and precursor events. A streamlined reporting mechanism was developed in collaboration with clinical leaders to ensure ease of use and broad adoption.

Leadership engagement was central to the initiative's success. The CEO served as a visible change champion, and the chair of the board played an active role in elevating safety reporting to the system board level. Monthly meetings with the board chair provided ongoing feedback and alignment, while board members were kept apprised of progress and offered strategic support.

Between late 2022 and 2024, leaders mobilized quickly and worked tirelessly to implement a system-wide framework that could drive meaningful change. Results to date:

Serious Safety Event (SSE) Rate per 10,000 Adjusted Patient Days:

- 2022: 0.534
- 2023: 0.412 (YOY 23 percent reduction)
- 2024: 0.269 (YOY 35 percent reduction)
- **2022–2024: 49.6 percent reduction in serious safety events**



A Three-Step Framework for Achieving the Patient Quality & Safety Frontier

Based on years of experience in the patient quality and safety space, we propose a streamlined, scalable framework designed to accelerate transformation. This approach consists of three critical steps:

Step 1: Identify the Customer

A precise understanding of patient populations is fundamental to shaping an effective quality and safety strategy. Health systems must:

- Conduct community health needs assessments to identify local care gaps.
- Analyze patient demographic data to understand trends and risk factors.
- Leverage business development insights to align quality improvement efforts with growth opportunities.

This data-driven step ensures a targeted approach in designing care strategies that maximize impact and align with population-specific needs.

Step 2: Implement Essential Components

Three interdependent systems are required to reach the Patient Quality and Safety Frontier:

a) Operating System

The operating system (OS) provides the structural foundation for quality and safety initiatives, defining how patient care is delivered. Key elements include:

- Transparent reporting systems for patient safety events
- Classification models to assess harm levels and prioritize interventions
- Psychological safety structures enabling open discussions from senior leadership to frontline providers

b) Data System

A robust data system is vital for tracking improvements and identifying opportunities. Healthcare organizations should:

- Maintain patient safety and clinical quality data to drive decision making
- Utilize predictive analytics to proactively address risk areas
- Ensure benchmark comparisons align with best-in-class standards

c) Management System

The management system focuses on human capital investment to foster continuous learning, collaboration, and development. Essential components include:

- Advancement of Just Culture to support an environment of accountability
- Training programs emphasizing scientific problem solving and team dynamics
- Leadership structures ensuring alignment between institutional priorities and frontline care delivery

Step 3: Operationalizing the Framework

Transitioning from a traditional patient safety program to an integrated care delivery model necessitates systematic implementation. This involves:

- Establishing daily patient safety leadership meetings for ongoing oversight
- Using electronic reporting tools to track events, trends, and outcomes

- Creating multidisciplinary Safety Event Review Teams (SERTs) to investigate incidents and drive corrective actions
- Implementing root-cause analysis (RCA) and action plans to proactively prevent future harm
- Standardizing executive and board-level patient safety reviews to ensure accountability

Conclusion

By leveraging a structured framework that integrates data-driven insights, operational rigor, and strategic leadership engagement, healthcare institutions can advance toward the Patient Quality and Safety Frontier. As new technologies, methodologies, and evidence-based practices emerge, organizations must embrace continuous evolution—expanding the frontier and ultimately redefining what is possible in healthcare excellence.

Identify the Customer

Understanding Patient Populations to Drive Strategic Quality & Safety Outcomes

Before implementing any quality and safety framework, healthcare organizations must establish a deep, data-informed understanding of their patient populations. This foundational step—what we call "identifying the customer"—shapes every aspect of system design and care delivery, ensuring strategies are aligned with the people served and the unique challenges they face.

1. Conduct a Comprehensive Community Health Needs Assessment (CHNA)

The CHNA provides a structured approach to identifying local health gaps, disparities, and service utilization patterns, and provides informative data for quality and safety improvement, beyond community health. Conducted in partnership with community stakeholders, other regional providers, and public health agencies, a robust CHNA should include:

- **Population health metrics:** Prevalence of chronic conditions, behavioral health challenges, and social determinants of health (SDOH) such as housing insecurity, food access, and transportation.
- **Community stakeholder engagement:** Input from public health departments, non-profits, civic leaders, and patient advocacy groups to understand real-world barriers to care.
- **Utilization and access gaps:** Data on ER overuse, preventable admissions, or underutilization of primary care or preventive screenings.
- **Health equity lens:** Demographic breakdowns of outcomes across race, ethnicity, age, income, and geography to identify pockets of inequity.

These insights form the foundation for prioritizing interventions that improve quality and safety at the population level.

2. Analyze Patient Demographic & Clinical Data

Understanding internal patient data allows organizations to tailor care delivery models to evolving needs. This analysis should include:

- **Demographics:** Age distribution, race/ethnicity, gender identity, language preference, payer mix, and geographic segmentation.
- **Clinical risk stratification:** Identification of high-risk/high-utilization cohorts through tools such as HCC coding, risk scores, or complex case registries.
- **Care pathways and patterns:** Trends in length of stay, readmission rates, adverse events, and disease progression across service lines.
- **Segmentation by care setting:** Differentiating inpatient, ambulatory, ED, home health, and post-acute populations for site-specific strategy alignment.

This step ensures care redesign efforts reflect the complexity and diversity of patient profiles within the system.

3. Align with Strategic Growth & Business Development Goals

Population health initiatives must be integrated with organizational strategies for growth and long-term sustainability. Key actions include:

- **Network development collaboration:** Partnering with strategy, marketing, and development teams to understand future service expansions, joint ventures, or acquisitions that will shift population dynamics.
- **Referral pattern analysis:** Tracking geographic and service-line referral flows to predict shifts in volume, acuity, and payer mix.
- **Future market scanning:** Evaluating emerging trends—such as aging populations, migration patterns, or employer health plan changes—that may affect care needs.

Strategic alignment ensures that quality and safety investments deliver both clinical impact and organizational value.

Why It Matters

A precise view of the patient "customer" enables health systems to:

- Design equity-centered, efficient, and patient-centric quality strategies
- Tailor interventions to highest-impact population segments
- Deploy limited resources wisely, focusing on root causes of adverse outcomes
- Accelerate progress toward the Productivity Frontier through smart targeting of best practices
- Understanding who you're caring for isn't just a first step—it's the compass that guides the entire journey toward safer, more effective, and more equitable care.

The Operating System for Patient Quality & Safety

A High-Reliability Framework

Achieving high reliability in patient safety requires shifting from a traditional patient safety program to an integrated system that embeds safety principles into everyday operations. This transformation begins by establishing a transparent reporting framework, robust harm classification methodology, and a psychologically safe environment that fosters open dialogue at all levels—from senior leadership to frontline care teams.

Core Components of the Patient Safety Operating System

1. Establishing a Transparent Reporting System

A structured reporting system serves as the foundation for tracking, analyzing, and addressing patient safety events. Essential elements include:

- Electronic reporting tools that facilitate documentation and categorization of safety events
- Standardized harm classification models to ensure objective evaluation, such as ASHRM Healthcare Associated Preventable Harm Level Classification Tool, and World Health Organization (WHO) International Classification for Patient Safety
- Psychological safety mechanisms that encourage transparent self-reporting and constructive discussions

By fostering a psychologically safe environment where adverse events can be reported without fear of reprisal—and establishing a shared language for patient quality and safety—organizations lay the foundation for a culture of continuous improvement.

2. Structuring Systematic Event Review Processes

Patient safety events must undergo a structured review process to ensure timely intervention and informed decision-making. This process includes:

- Daily hospital leadership meetings where executives discuss safety events requiring attention
- Standardized reporting structures that connect individual hospitals with system-wide leadership
- System-wide patient safety committees, which engage Presidents, Chief Nursing Officers (CNOs), Chief Medical Officers (CMOs), and senior executives in prioritizing safety efforts

These mechanisms enable organizations to address patient safety concerns efficiently while ensuring alignment across all levels of leadership.

3. Leveraging Data for Continuous Safety Monitoring

A robust data system is necessary to track trends, assess risks, and identify opportunities for improvement. Healthcare organizations should:

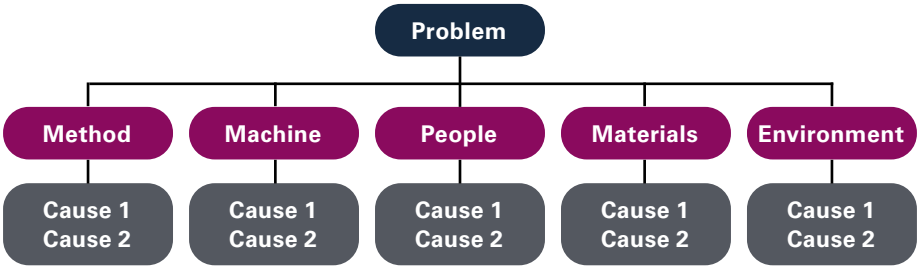
- Utilize predictive analytics to detect patterns in adverse events.

- Maintain classification models for good catches, near misses, precursor safety events, and serious safety events.
- Conduct benchmark comparisons to align performance with industry best practices.

Harnessing these insights enables proactive interventions to mitigate risks.

4. Conducting Algorithmic Reviews & Root Cause Analyses (RCA)
To ensure meaningful safety improvements, healthcare organizations must evaluate serious safety events through algorithmic reviews conducted by a Patient Safety Organization. This approach includes:

- Safety Event Review Teams (SERTs) composed of senior leaders, frontline clinicians, and subject-matter experts.
- Root-cause analysis (RCA) methodology to identify contributing factors and actionable solutions.



- Multidisciplinary investigation protocols involving staff interviews, workflow evaluations, and process mapping.

Each RCA informs corrective actions designed to prevent recurrence.

5. Advancing Leadership-Driven Oversight & Governance
A structured governance model ensures patient safety efforts translate into sustainable improvements. Oversight mechanisms include:

- System patient safety committees that engage leadership in evaluating RCA findings
- Executive sponsor presentations at the board-level quality committee
- Final clinical reviews by board members, physicians, and hospital leaders

Embedding accountability within executive leadership ensures continuous patient safety advancements.

Conclusion

Transforming patient safety into a high-reliability system requires a framework that integrates transparent reporting, structured event reviews, data-driven monitoring, and leadership oversight. By fostering psychological safety and embedding accountability at every level, healthcare organizations can enhance patient outcomes while refining care delivery efficiency. As institutions expand the frontier of patient safety, the healthcare industry moves closer to achieving universally safe, effective, and high-value care.

Data System Components:
Advancing Patient Safety & Quality

To enhance patient safety and quality data usage, organizations must invest in two critical data systems. In our case example, each system required two to three years of development and implementation to achieve the necessary execution level for supporting patient safety and quality programs.

Patient Safety Event Reporting System

The first of the two data systems is the patient safety event reporting system (PSES). This needs to be established as the foundational tool for patient safety improvements. Leadership must prioritize this investment to streamline reporting, analysis, and action planning related to patient safety events.

Implementation Strategy

The PSES implementation is guided by:

- A steering committee and an information technology project plan
- Decision-making by the PSES data governance committee
- A structured organizational training and development plan
- A system-wide patient safety operating system (OS)

These components facilitate data collection, event tracking, action planning, root-cause analyses, clinical redesigns, and training tools such as unit-based huddles for error awareness and mitigation.

The data governance committee is a cross-functional operational committee that brings together stakeholders from IT, data management, analytics, and legal and compliance, along with the Chief Medical Informatics Officer (CMIO) and the VP of Quality and Safety. For our initiative, this committee was led by the CMIO, with strong collaboration from the VP of Quality/Safety. The SVP/Chief Value Officer served as the executive sponsor, ensuring alignment with strategic priorities and accountability across the system.

Accessibility & Usage

The PSES is designed for ease of use and rapid data entry. All system members must have access, and reporting is encouraged without predefined event categorizations to foster open participation.

Over three years our annual entries grew from 12,300 (2022) to 15,600 (2024), reflecting increasing engagement:

- Events are reviewed daily by patient safety consultants for harm assessment, further review, and management responses.
- New employee orientation includes PSES access training.
- Reports on serious safety events (SSE) are sent to senior leadership for immediate awareness.

Evaluation & Continuous Improvement
The patient safety program should undergo an annual review, using nationally benchmarked surveys facilitated by a patient safety organization (PSO). Each hospital's leadership team is responsible for responding to survey results and refining programs. A system-wide program focused on monthly recognition of "good catches" is a culture accelerator.

Quality Data Management System

The second of the two data systems is the quality data management system (QDMS). This is required to provide risk-adjusted clinical data and benchmarking insights from national hospital databases. Access to scientifically validated, and up-to-date benchmarks supports visibility into progress, opportunities, and continuous improvement.

System Development & Maintenance
Ownership of QDMS development and maintenance should reside within the Quality Management Department. Composition recommendation for a typical health system with 725 licensed beds is as follows:

- 1 Data Coordinator
- 1 Data Scientist
- 2 Clinical Outcomes Program Managers (clinical & technical)
- Collaboration with Information Technology, Clinical Documentation, Coding, and physician leaders

Twice-monthly data submissions generate error reports, which are corrected for accuracy and future process refinement.

Data Reporting & Physician Engagement
Initial data socialization can occur within service line (SL) leadership teams, ensuring physician involvement in performance improvement. SL reports—covering Surgical Services, Orthopedic Services, Cardiovascular Services, Hospitalist Services, Perinatal Care, Women and Children, Sepsis Management, and others, can be developed to track key outcome metrics:

- Length of stay (LOS)
- 30-day readmissions
- Mortality rates (risk-adjusted and categorized)
- Patient safety indicators (PSI-90)
- Hospital-acquired conditions (HACs)
- Hospital-acquired infections (HAIs)

Physician and nursing leaders are engaged to review and present findings to peers, fostering collaboration and data-driven clinical improvements.

Organizational Metrics & Transparency
Beyond SL-specific data, reports can include indicators relevant to key performance metrics, reputational programs (Leapfrog, CMS Star Ratings, Anthem QHIP, Magnet), and annual CMS updates. Metrics should be updated frequently as available to support leadership analysis of patient-level data, identification of trends, and refinement of strategies.

Ongoing Data Evolution
Transparent data-sharing across the system ensures accessibility and informed decision-making. As data literacy matures, QDMS capabilities can evolve to support continuous clinical quality advancements.

Conclusion

By integrating PSES and QDMS, organizations will strengthen patient safety reporting, quality monitoring, and data-driven decision-making. These tools provide the foundation for sustained improvements in clinical outcomes, risk mitigation, and organizational learning.

The Management System (MS)

Infrastructure: Advancing Patient Safety & Quality

The development of the Quality Frontier requires a comprehensive, integrated approach involving leadership at all levels, including the board of directors. The three foundational structures—operating system (OS), data system (DS), and management system (MS)—must evolve together to ensure long-term success. This alignment prevents process abandonment, builds trust across all levels of the organization, and drives strategic execution.

Leadership Engagement & Change Management

The **OS and DS development process** actively engages leadership, physicians, nursing, and front-line users to improve adoption, utilization, and performance. Effective change management ensures leaders understand key indicator systems, driving quality improvement.

Committee structures—whether newly established or enhanced—play a critical role in patient safety and quality efforts. The management system (MS) leverages OS and DS to:

- **Define priorities** and guide data-driven discussions
- **Monitor progress** through structured updates
- **Support ongoing initiatives** via resource allocation, leadership guidance, and skill development

These efforts include education, budget management, strategic planning, and the alignment of patient safety and quality goals.

Data Transparency & Utilization

Data must be **accessible, frequently updated, and easily understood** to empower informed decision-making. Within the MS framework, Teams pages, for example, can serve as a transparent repository for all publicly reported and reputational data.

Senior leaders determine how best to utilize this data to drive improvement work. For example, a Chief Nursing Officer (CNO) can engage and develop a data literacy and improvement strategy for nursing directors—focusing on metrics selection, goal setting, and expectations for quality advancements over the next calendar year.

Data needs to be actively leveraged by clinical leaders and the Performance Improvement Department to refine methodologies, using tools such as:

- Rapid cycle change
- Institute for Healthcare Improvement (IHI) methodologies
- A3 process
- Lean tools and thinking

Service Line Leadership Integration

The MS structure supports **dyad leadership partnerships** between senior executives and physician leaders across key clinical domains—including cardiovascular, surgical, hospitalist, neurological, acute care, and orthopedics, etc.

Each service line (SL) dashboard provides monthly reports with core metrics:

- Mortality rates
- Readmissions
- Length of stay (LOS)
- PSI-90 complications
- Hospital-acquired conditions (HACs)

Additional SL-specific metrics may be incorporated based on evolving needs. This tailored approach strengthens physician engagement and fosters **data-driven clinical improvements**.

Advancing Patient Safety Through MS Infrastructure

Beyond quality improvements, the MS plays a **critical role in patient safety**. Using the DS for patient safety, harm events are reviewed daily by patient safety consultants, department managers, and senior leaders.

Key elements of the patient safety framework include:

- **Severe harm event notifications**: auto-generated emails provide immediate alerts to senior leadership.
- **Serious Event Review Teams (SERT)**: collaborative reviews determine necessary actions for high-risk events.
- **Transparent review processes**: advancing psychological safety and reinforcing a **Just Culture** within the organization.

Regular **evaluations against national best practices and industry standards** ensure policies align with accepted norms. Internal reviews consistently challenge assumptions such as "policy adherence guarantees best practice compliance," fostering **continuous improvement**.

Organizational Coaching & Change Management

Effective execution of Patient Quality and Safety Frontier Framework requires a robust **coaching strategy**. Leadership engagement ensures change management is embedded throughout MS infrastructure.

A **patient safety and employee engagement survey**, conducted annually, provides insights into organizational readiness and priority-setting for coaching efforts.

Rather than defining coaching as a formal role, the organization cultivates coaching as a core leadership skill, allowing clinical and operational leaders to proactively respond to patient safety and quality data.

The Healthcare Inflection Point

The industry faces unprecedented challenges, including:

- Labor shortages
- Supply chain disruptions
- Rising drug prices
- An aging population
- Health equity concerns
- Suboptimal patient quality and safety

These pressures exacerbate shifts in case mix, payer mix, cost constraints, and pricing limitations, further straining the healthcare system.

In this era of transformation, **patient safety and quality must remain the True North**. The framework outlined here—refined through years of dedicated work—provides a **disciplined, structured approach to achieving measurable success**.

With *chaos* comes *clarity*. Transformation occurs when we rediscover our *purpose* and *why*. A commitment to disciplined implementation, leadership engagement, and continuous improvement ensures that patient safety and quality remain at the heart of healthcare excellence.

Quality & Patient Safety Framework