

PROCESS INNOVATION CAN INCREASE ED PROFITABILITY

Abstract: Double-digit gains in ED revenue and IP admissions can result from process innovation, performance management tools and empowered management. This case study documents the multi-faceted approach which produced a comprehensive blueprint for success in a competitive market.

THE SITUATION = OPPORTUNITY TO GROW

This case study describes a minor teaching hospital in a competitive region of New England. The hospital was suffering eroding inpatient admissions, MD referral patterns, and specialized market niches.

Top management recognized an opportunity to offset these losses by growing its emergency department (ED) business. The 2002 budget approved additional RN positions to open beds that could house increased volume. Marketing to ambulance companies and others sought to generate more volume.

Emergency services represented an opportunity to grow both visit revenues and, more important, inpatient admissions from the ED. Currently 20% of ED visits result in admission. All ED's in the region are overcrowded and often forced to divert ambulance cases; Statewide ED visits grew 3.8% in 2002! Yet the client's volumes fell 5% and are roughly 20% below theoretical capacity.

THE COMPLICATION: EARLY EFFORTS WERE THWARTED BY UNDERLYING PROCESS ISSUES

Despite various successful marketing initiatives **underlying process issues were still blocking growth**. Average time in the department was 3.2 hours and over six hours for patients waiting to be admitted.

- This clogged available beds.
- Doctor diagnosis, decisions and handoffs were sequential and cumbersome.
- Inpatient beds were often tied up after discharge waiting to be cleaned and released.
- Bed status tracking was dependent on semi-manual systems and telephone.

Formal **ambulance diversion rates** resumed high levels (70 hours / month); moreover, some crews informally bypassed the client because they sensed the crowding. They were "protecting" the nurses from overload! Yet diversions were computed to be costing 400 admissions per year (4.8% of total). The hospital was losing money and facing drastic action.

Patient and family satisfaction with care itself remained high, but waiting to be brought into the department led to frustration. Even the separate "fast-track" capability with 5 beds and a separate staff averaged nearly 2 hours per patient. Three percent of registered

patients in the past year never were provided enough care before leaving to justify any billing.

THE QUESTION: HOW CAN CLIENT INCREASE THROUGHPUT & ADMISSIONS 15% WITHIN ONE YEAR?

The approach described in this case study addressed length of stay (LOS) problems through process innovation, performance management disciplines and empowered management to produce a comprehensive implementation plan for double-digit gains in ED revenue and IP admissions.

APPROACH OVERVIEW

The reader may visualize the approach as a series of four phases spanning three “tracks” which traversed the entire design process. The tracks were:

- **Process re-design** to suggest breakthrough solutions to long patient care stays, crowding, low productivity and constrained revenues,
- **Performance Management disciplines and tools** to track progress toward goals, build awareness and clarify accountability, and
- **Mobilizing and strengthening management** leaders and infrastructure.

Two of these three tracks are continuing into the implementation phase; while process design efforts have been completed. The steps within these three tracks tended to be sequential (albeit iterative at times) so the case study has been organized chronologically (i.e. within phases).

PHASE ONE: CLARIFY & COMMUNICATE VISION

The first step in genuine process innovation is **creating a clear vision** of what is to be achieved and what is expected. This vision was driven by and consistent with overarching medical center goals. Hence BIG goals, like 15% growth, were needed.

The vision was also stated in positive terms and easy to communicate. The end goal was bottom line improvement from both revenue gains and improved productivity. However, physicians and staff could perceive negatives like more work or even layoffs, while most were not well attuned to the “bottom line”. However, they could readily concur with reducing patient waits and overcrowding and generally understood that filling empty inpatient beds was important. A vision geared to avoiding layoffs was also a positive.

The vision became, **“Reduce patient length of stay (and clinical work per patient) and thereby increase throughput and inpatient admissions by 15%; every 1% gain in inpatient census saves 15 FTE positions.”**

This statement focused process improvement on the underlying causes of patient delays – a very clear and measurable objective. Management immediately began to share this vision.

ASSESS CURRENT STATE PROCESSES AND PERFORMANCE

Compare Current Performance to Benchmarks; Quantify Gaps

A second work plan step introduced the **performance management track**. The assessment combined quantitative comparisons with probing how processes worked. Key performance measures highlighted “gaps” between the current state and both external benchmarks and the vision. Defining gaps enriched the process review because causes for variance were being sought and the order of magnitude was known. Significant gains were needed.

Patient stays (LOS) were measured in several ways and found far too long. Solving delays could increase ED capacity by 20% or more net of current overcrowding!

- Overall stays averaged 3.2 hours; the goal was 2 hours.
- LOS for each stage of care: Time to see MD, complete diagnosis, etc.
- LOS was differentiated by type of patient from express care (1 hour goal) to those awaiting admission.
- The impacts of ancillary testing was also reviewed for each type of patient

Other measures included

- Statistical distributions of each average described above
- Hour of day and day of week patterns; patient type patterns
- Hours on ambulance diversion per month
- Various departmental specifics

Understand Current Processes; Compare to Best Practices and Identify Issues

The “**Track One**” aspect of analyzing current state was use of systems engineering techniques to isolate issues blocking strong performance. **Process assessment** took several forms. All ED-related managers and supervisors were interviewed as were the medical director and administrative leaders. Systems engineering models were built with the interviewees and refined through observation and subsequent interactions. Managers of related ancillary or nursing functions were also involved as was the quality department. Minutes of relevant committees or prior initiatives were carefully reviewed.

A summary of process issues causing extended LOS was prepared with supporting graphics. A clear picture began to emerge which drove both “Track One” process innovation initiatives and set the stage for building management processes and performance management (Tracks 2 and 3) as well.

Organizational and information systems should “**enable**” strong process performance, but in many cases they prove to be **barriers!**

- Several cultural and organizational issues emerged including a “silo mentality” reinforced by a very hierarchical organization and tradition.
- Process ownership was lacking and handoffs weak.
- Control issues and communications styles complicated matters further.

- Similarly, weak and disparate information systems, manual interfaces and workarounds undermined effectiveness.

Finalize Quantitative Goals for Performance Consistent with Vision; Initiate Tracking

Goals were finalized for LOS by patient type and for intervals within the overall times. Patient satisfaction and productivity targets were also set. Data problems had hampered the gathering of performance measures during the assessment; manual estimates and various creative extrapolation techniques had been required. Fortunately, finance worked with ED managers to create some interim reports for key parameters available monthly.

The key was to immediately track a few measures to build awareness and accountability. An internal performance management tool was also created which provided more detailed tracking of nurse and MD productivity as well as the extent of inpatient holds.

Finalize Work-plan, Assignments and Priorities

Track Three leadership activities began - setting the tone, responding promptly to issues and reinforcing desired behaviors. The vision statement and LOS goals were confirmed and all constituencies were briefed on management's expectations. Top management and medical staff leadership "sponsorship" for participation and subsequent implementation began at this point. In fact, several cultural organizational issues began to manifest early and were addressed.

A comprehensive work plan was finalized to facilitate coordination and communicate target dates. All possible approaches and initiatives were discussed and prioritized.

- Some initiatives were assigned to process innovation with heavy involvement by the consultant.
- Others were primarily line management responsibilities both within ED and in other departments.
- Specific help needed from finance, information systems and others was clarified and communicated.

COORDINATED PROCESS INNOVATION and PERFORMANCE IMPROVEMENT INITIATIVES

Four kinds of coordinated initiatives moved forward simultaneously and with mutual sharing.

Systems Engineering Process Design

Nothing short of **process innovation** was sufficient for the kinds of gains needed. Systems engineering principles and tools move managers and clinicians from incremental and defensive sub-optimization to broad, objective and creative breakthroughs. Process

INNOVATION differs from incremental approaches by designing all steps of cross-functional systems from start to finish to achieve RADICAL gains in patient satisfaction, service levels and efficiency. This focused participants on process flows and enablers – breaking down functional silos.

A comprehensive “desired future state” (DFS) model for future operations was conceived. Each function or sub-process was described in future state terms as was the system overview and relationships. Both graphic visualizations and text forms were employed.

- Each major function within the emergency medicine system was defined.
- Interactions with customers and supporting functions were analyzed and redefined.
- Information systems or organizational needs were explicitly defined.
- The model aligned strategy, structure, style, systems, skills, staff, and super-ordinate goals.

New approaches to key processes were described and discussed with those most involved. Current responsibilities and accountabilities were compared to levels of expertise and authority. Elements of the model assigned to others (see below) were coordinated and remaining areas described in writing with supporting documentation. Examples of redesign included:

- Broadening the role and “**process ownership**” of triage from patient arrival through initial testing where appropriate and to include tracking each patient until the successful handoff to the most appropriate site of care.
- **Streamlining** the express care program (designed to serve walk-in patients with minor issues). Providing adequate staffing and backup as workload varies.
- **Integrating** internal process improvement suggestions for expediting admission with the cross-functional systems model for interactions and communication with inpatient units, admitting and housekeeping.

Support Cross-functional Teams

Several **small process improvement teams** had been convened to tackle the issue of expediting inpatient admissions. Each team had MD’s, nurses and other specialties relevant to the assignment as well as a facilitator from the quality department. Detailed flow charts and lists of symptoms and issues had been compiled. A steering committee reviewed progress and sought to resolve roadblocks. The findings from the process assessment were enriched by this insight and, in turn, findings from the quantitative comparisons were shared with the groups as available. Every effort to coordinate among initiatives and pool findings was employed. Additional means to track process and outcomes were developed.

Plan and Facilitate Rapid Design Session for Ancillary Testing Processes

Patients requiring lab testing, diagnostic imaging and similar procedures averaged 50 to 80 percent longer stays. The impact of **ancillary testing “delays” on LOS** led to in-

depth research on causes and on external best practice. Information available from a membership in the Health Care Advisory Board proved very helpful. Issues ranged from potential over-testing, waiting too long to initiate specimen collection or ancillary orders, internal and transport delays, million-dollar workups by residents within the ED, and to problems within external departments.

Some of these problems had been raised before and various changes attempted!

- Hard feelings and finger pointing resulted more often than significant improvement.
- Much of the “lab problem”, for example, was found to reside within the ED.
- Some over-testing was also contributing, especially for pending admits.

An innovative “**rapid design session**” approach was proposed and approved. A comprehensive group was assembled for a one-time event. First however, heavy preparation was required for planning, advance compilation of research and best practice information, selection of pre-reading, scripting, and assembling workbooks.

- Each department or constituency knew that its representative(s) would contribute and that the consensus emerging from this half day session was binding.
- Senior management sponsors were identified and briefed; in some cases they in turn prepared the ground with direct reports.
- Participants received selected advance reading.
- Sub-groups per topic had more specific material available
- All activities were supported by trained facilitators from the quality department.

All involved were gratified by the substance and extent of the resulting recommendations, especially when comparing this focused approach to the typical protracted “committee” process. Several significant changes were implemented within two weeks.

Action Planning with ED Nurse Manager

This activity complimented systems engineering and cross-functional team activities. The manager, key “process owners” (like triage), and the nursing director for critical care actively planned and implemented internal improvements and policy changes.

But action planning also incorporated discussion of potential innovations and coordinated all activities since internal management was to be responsible for implementation. Ongoing interactions around the evolving action plan built ownership and assured practicality of planned changes.

FINALIZE ROADMAP and INFRASTRUCTURE

Develop Full Documentation for Reference During Implementation

Prior history demonstrated that team efforts, ad hoc reports, new initiatives and good intentions tended to fade after a time. Yet the sum total of all coordinated efforts was

critical to medical center success. An investment was therefore made to create an extensive reference manual and progress tracking mechanism incorporating all efforts. Components included:

- A recap of the 10 most critical implementation priorities
- The initial assessment findings
- Descriptions of DFS process elements
- An Excel implementation work-plan with detail of activities, dates, assignments, performance measure targets

Mobilize Senior Management Support and Sponsorship for Required Changes

Strong support from upper management was effective during the project. It would become even more essential during implementation and ongoing operations. A “change management plan” was developed to focus attention on both the transition strategy and detailed process design specifications for smooth implementation and high return on investment. Planning included:

- Defining top management requirements for sponsoring needed change.
- Resolving an emerging medical leadership issue,
- Finalizing the change management transition plan,
- Accelerating feasible operational process improvements, and
- Creating a strong steering committee for ED operations.

Finalize and Internalize Performance Management Tools

During the active project phases reporting had been driven or improvised with significant effort. However, ongoing success requires sustained focus and mechanisms to detect early indications of slippage. Hence, arrangements were made to internalize and simplify tracking tools. Where possible, these were incorporated in routine financial or nursing reporting routines. Scope included LOS reports, patient satisfaction, clinical factors and measures of workload.