**CASE 5**

**Rex Healthcare**

**and Service Line Teams**

*Curtis P. McLaughlin and Linda C. Jordan*

Rex Healthcare is a private, nonprofit organization founded in 1894

by Raleigh N.C. tanner, John Rex. It provides a wide range of services

to the research triangle area. The main Rex campus is a 62-acre site in

west Raleigh convenient to I-40 and I-440. This campus includes the

394-bed Rex Hospital, the 140-bed Rex Convalescent Center, and the

Rex Cancer Center. Patients utilizing the Rex Heart Center also have access to the Rex Wellness Centers in Raleigh and Cary. Rex Home

Services serves patients in seven counties through approximately

100,000 home health visits a year. Exhibit 5–1 shows the various centers

and campuses of Rex Healthcare.

ReXMeD is a physician-hospital organization (PHO) formed in late

1995. By April 1998, ReXMeD had credentialed 45 primary care

physicians and over 200 specialty physicians, all of whom were

stockholders together with the hospital in this for-profit limited liability

company. The Rex primary care network included over 50 boardcertified primary care physicians, physician assistants, and nurse practitioners in 12 practices in Raleigh, Cary, Garner, and Wake Forest.

Over 800 total physicians were members of the Rex medical staff. Rex

has a long history of innovation, having been a North Carolina pioneer

in a number of radiological techniques, hospital management training,

the comprehensive cancer center, and employee childcare. The introduction of clinical care service lines in 1996 was a continuation of that history of innovation.

547

**Exhibit 5–1** Special Centers and Services of Rex Healthcare

In Raleigh:

• Rex Hospital

• Rex Cancer Center

• Rex Convalescent Center

• Rex Same Day Surgery Center

• Rex Wellness Center

• Rex Family Birth Center

• Rex Emergency Department Fast Track Services

• Rex Heart Center

• Rex Breast Care Center

• Rex Primary Care (multiple sites)

• ReXMeD (PHO)

• Healthnet Information and Resource Center

• Rex Senior Health Center (downtown)

• Rex Business Health Services (occupational medicine)

• RexAware (employee assistance program)

• Rex Emergency Response Team

• Rex Urgent Care Centers

In Cary and Apex

• Rex Healthcare of Cary (primary care)

• Rex Wellness Center

• Rex Urgent Care Center

• Rex Convalescent Care Center (107 beds)

In Garner

• Rex Healthcare of Garner-Garner Family Physicians

In Wake Forest

• Rex Healthcare of Wake Forest (primary care)

Regionally

• Rex HomeHealth Services

**QUALITY AT REX**

Rex Hospital has an excellent reputation for quality. A 1995 consumer

survey conducted by the Endresen Research Group of Seattle,Washington identified Rex as the preferred hospital in Wake County. It received National Research Corporation’s 1996 and 1997 Quality Leaders awards. This Lincoln, Nebraska-based research organization conducted surveys of 165,000 households in 100 metropolitan areas nationwide with about 2,500 hospitals. Rex was selected as one of the best 119 nationwide based on questions about overall preference, quality of care, best physicians and nurses, best image and reputation, best community health programs, and most personalized care. Rex has consistently earned the Gallup survey’s

premier rating in several patient categories as well as “Likelihood to

Recommend and Likelihood to Choose Again,” placing it in the top 20

percent of Gallup hospitals nationwide. In 1997, Rex was honored by

*Working Woman Magazine* as one of the “Best 100” workplaces for working women. It has also earned the North Carolina Governor’s Award for Excellence for its Workplace Wellness Program.

The hospital’s mission–vision statement read as follows:

Rex is a patient-centered healthcare delivery system in working

partnership with the medical staff. We are a healthcare

leader, designing innovative and flexible solutions that achieve

superior patient outcomes and customer satisfaction. Through

the integration of clinical, financial, and administrative systems,

we are cost effective and deliver a continuum of care that

meets the dynamic health needs of our community. We are

committed to creating a culture that continually improves services,

sustains a high quality team-oriented work environment,

and provides for all of our community healthcare for life.

**COMPETITION IN THE RESEARCH TRIANGLE**

The research triangle area has a population of approximately 1.2 million,

about half of whom live in Wake County. It is generally considered

to be over-doctored with the University of North Carolina and Duke

University medical schools in adjacent Orange and Durham counties.

Wake County and the easterly counties of Johnson, Franklin, and Harnett have a combined population of three-quarters of a million. The market population was growing rapidly, was youthful, and had very low unemployment. There were three substantial hospitals in Wake County—Wake Medical Center, historically the county hospital; Raleigh Community Hospital, formerly Columbia-owned, but purchased in 1998 by Duke

549

Medical Center; and Rex. Wake Medical had a slightly higher share of

market than Rex did, but Rex was dominant in ambulatory surgery,

women and children’s services and oncology. Rex’s payer mix was good

with the highest percentage of commercial and managed care patients.

The Wake County market in 1997 was:

HMO 43%

Commercial–Other 33%

Medicare 8%

Medicaid 5%

Uninsured 10%

Physician practices were consolidating with MedPartners and FPA

Medical Management having practices in the county, with WakeMed having started an medical service organization (MSO) and Rex a physician hospital organization (PHO) while both Duke and Carolina were developing independent practice associations (IPAs) in the area. In 1997, Wake County hospital discharges per 1,000 dipped below 100 and hospital days per 1,000 below 500.

**HISTORY OF QUALITY AND PERFORMANCE**

**IMPROVEMENT EFFORTS AT REX**

Exhibit 5–2 provides a chronological list of quality events at Rex. Early

efforts to implement clinical pathways were not as successful as hoped,

because the software was used for documentation rather than for variance identification, but were again being encouraged and the overall infrastructure to support this effort was being restructured.

**Structure for Governance and Implementation**

The leaders at Rex established a Joint Conference Committee (JCC) to

oversee performance improvement activities. It included representatives

from the board of trustees, medical staff executive committee, and Rex

Healthcare executive staff. Its purpose was to direct the selection of organizational measures for important processes, prioritize and reprioritize these measurement activities, and establish performance objectives for

550

them. It received regular reports from the Performance Improvement

Committee (PIC) concerning process improvements and outcomes. This

organizational relationship is outlined in Exhibit 5–3.

551

**Exhibit 5–2** Chronological Events at Rex Healthcare

*Date and Event*

1894 Rex Hospital founded in Raleigh, NC

Before 1995 Installs Trendstar cost reporting system

1995 Rex named preferred hospital in Wake County by

Endreson Research Group survey

Case Management and Performance Improvement–Risk

Management Departments created (October)

ReXMeD PHO formed (November)

1996 Case Management Services implemented (January)

Master Performance Improvement Plan developed

(February)

Service Line Teams implemented (March)

Performance Improvement Committee replaces Hospital

Quality Assurance Committee (August)

Mediqual Atlas data collection starts

Starts using Gallup survey of customer satisfaction

Starts using Health Management Council Clinical

Benchmark cost data

HCIA hospital discharge benchmarking data set introduced

Named as one of “Best 100” workplaces for working

women by Working Mother’s Magazine

1997 Arthur Andersen report suggests organizational structure

for performance improvement with matrix of functional

teams and service line teams

Received National Research Corp.’s Quality Leader Award

Earned State of North Carolina Governor’s Award for

Excellence for its Workplace Wellness Program

MedPartners acquires Cardinal and Piedmont IPA bringing

its Raleigh membership to about 500 physicians

1998 Duke University Medical Center announces purchase of

Raleigh Community Hospital from Columbia–HCA

The Performance Improvement Committee was an interdisciplinary

medical review committee reporting to both the medical staff executive

committee and the JCC. Its functions were to oversee organizational compliance with the performance improvement plan adopted by the leadership; identify and recommend priorities and priority changes to the JCC; receive and review regular reports from all of the service line teams, committees, and departments; identify opportunities to improve performance; and recommend and establish “action teams” where indicated. Priorities were based on their potential to enhance patient care, achieve corporate goals, improve the financial strength of the organization, and/or improve quality of work life for employees and physicians.

**Introduction of Service Lines**

Service lines grouped inpatients according to similar diagnosis-related

groups (DRGs) so that the care team could better meet the patients’ needs.

Ten services lines were developed. They were:

1. Oncology

2. Neuroscience

3. Orthopedics

4. Cardiovascular

5. Medicine

6. General Surgery

7. Women and Children

8. Pulmonary–Nephrology

9. Emergency Services

10. Primary Care Division

552

**Exhibit 5–3** Performance Improvement Reporting Structure

Board of Trustees

Joint Conference Committee

Medical Executive Committee Performance Improvement

 Committee

Medical Staff Service Line Teams Departments

The objective of the service line team was to promote accountability for

the care of its population across the continuum of care. Representation on the teams was multidisciplinary and was determined by the particular

needs of the population served. Each team had a physician team leader

and a nursing team coordinator. The service line team members assessed

data on an ongoing basis to identify opportunities for improvement and

promote achievable patient outcomes and satisfaction. Each team’s charge also included cost-effective utilization of resources, identification of the need for clinical pathways, and minimization of risks where feasible. It compared internal performance over time, compared Rex’s performance with similar facilities, and compared performance to other sources such as practice guidelines as appropriate. It initiated intensive assessments by establishing action teams when variations in performance occurred or when opportunities to improve were identified.

The objective of an action team was to provide intensive assessment,

analysis, and recommendations for improvement. The expected outputs

were recommendations, an implementation plan, and a measurement plan. Rex adopted the FOCUS-PDCA methodology of process improvement. It was included in the leadership development core training program offered to all employees. Education included the use of performance improvement tools, analysis of data, and leading and facilitating teams. New employee orientation included an introductory session on this process improvement methodology.

**1995–1996 Reorganization**

The reorganization into service line teams highlighted the need to

change the way that the staff services that support quality improvement

were organized. Rex Hospital had traditional and separate departments of utilization review—quality assurance, social work, and continuous service improvement (also responsible for pathway development). Pathway implementation had not been as successful as hoped except for orthopedics. To prepare for an environment of more risk-based reimbursement and to counter reduced margins, these departments were intensified, re-engineered, and integrated to have greater impact on clinical and financial outcomes without adversely affecting existing high quality levels.

In October 1995, two new departments were created—case management

and performance improvement–risk management. Case management

553

combined utilization review–quality assurance and social work and added a pre-entry case management function. Within three months, the new case management model with concern for clinical, financial, and quality improvement was implemented in the inpatient setting. Nurse case managers and medical social workers were assigned to each of the eight inpatient core specialties and became core members of the service line teams. By 1998, the Case Management Program included the following:

• Pre-entry coordination

• Screening and referral

• Assessment

• Problem identification

• Care planning

• Utilization management

• DRG analysis

• Variance management

• Discharge planning

• Psychosocial intervention

• Crisis management

At the same time, the performance improvement–risk management

(PI–RM) department was established to support the organization’s quality assurance, quality improvement, outcomes management, risk management, and clinical pathway development. It coordinated, analyzed, and reported improvement data. Wherever possible, measurement activities were incorporated into processes and performed and reviewed concurrently by caregivers. The PI–RM department coordinated systems for the collection of specific data (Atlas, RiskKey) and worked directly with other departments to acquire other data (Trendstar, Gallup, National Nosocomial Infection Survey). These data were compiled and initial analysis performed. Comparison was made to historical experience, reference databases, accreditation guidelines, and practice guidelines. These data and analyses were then presented to service line teams, departments, and committees on a routine basis. Exhibit 5–4 lists the measures regularly collected or acquired. Quality control issues were reported to the Performance Improvement Committee on a “report-by-exception” basis. Regular Performance Improvement Service Line Reports were issued as

well. An example is shown in Exhibit 5–5.

555

**Exhibit 5–4** Reporting Systems Used for Performance Improvement

Atlas

Variance Reports

Clinical Path Variance Reports

Infection Control Surveillance

Comments

Improvement Initiatives

JCAHO Indicator Monitors

Gallup Satisfaction Results

Department Specific Monitoring Reports

MMI Clinical Indicators

HCIA comparative hospital discharge summary data

Trendstar internal cost reports

Sentinel Events

Quality Control in the Organization– \_ or\_30 cases up to 5% sample

quarterly

• preoperative and postoperative diagnosis discrepancies

• adverse drug reactions

• confirmed transfusion reactions

• adverse anesthesia events

• appropriateness of admissions and hospital stays

• patient satisfaction

• staff views regarding performance and improvement operations

• autopsy results

• restraints

• risk management activities

• quality control activities for clinical labs, diagnostic radiology, dietetic,

nuclear medicine, radiation oncology, medication administration equipment,

pharmacy equipment used to prepare medications

Additional measures identified and prioritized by Joint Conference

Committee:

• patient care functions

• organization functions

• high risk, high volume, high cost, problem-prone procedures–processes.

The key coordination mechanism for performance improvement continued to be the PIC. It fulfilled a wide variety of roles and its agenda

became extensive and complex. For example, the calendar for the

September 1998 meeting called for third quarter Gallup results, the quarterly Infection Control report, review of quarterly HCIA data, and quarterly informational presentations from the cardiovascular, medical, and surgical service line teams and from the Rex Convalescent Center team. In addition, it included a quarterly report on risk management issues, medical staff review of clinical pathway team recommendations, and review of other procedural changes. Also, it would consider additional items that might come up such as sentinel event reports, adverse drug reaction re-

556

**Exhibit 5–5** Example of Service Line Report

PERFORMANCE IMPROVEMENT SERVICE LINE REPORT

WOMEN AND CHILDREN DATE \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**GLOBAL INDICATORS BENCHMARK** Q1 Q2 Q3 Q4

1. C/S \*\* 20%

2. APGAR <4 @ 5\_ \*\* 18

3. Meconium aspiration \*\* 13

4. NB w/ cerebral hemorrhage \*\* 1

5. Pts\_24 wks. gestation who

do not receive baseline monitoring \*\* 5

6. Use of Pit w/o fetal monitoring \*\* 11

7. C/S for fetal ind not started

w/in 30\_ \*\* 8

8. Neonates delivered in a Level I or II

facility @\_34 wks. & tr. to NICU \*\* 29

9. Neonates deliv. >34 wks.& tr

to NICU \*\* 130

10. Maternal deaths \*\* 0

11. Neonatal deaths

\_ 34 wks.

\_34 wks. & \_/\_500 gms. \*\* 10

12. Neonatal temp <35 C in first

4 hours of life \*\* 5

13. Pneumothorax after neonatal

resuscitation using ppv \*\* 1

14. Neonates w/intubation prior to

use of ppv \*\* 42

\*\* Based on MMI

**Gallup Survey Results**

Service Line Overall

Rex Overall 3.59 3.56 3.55 N.A.

**Resource Management**

Cost per Case

Cost Index

557

ports, and accreditation concerns. At other meetings, the PIC reviewed

plans and performance of the performance improvement–risk management department and reports required by the hospital’s liability insurance carrier; analyzed safety issues, pathway utilization, and variance reports; reviewed proposals for new action teams; approved forms for reporting; and reviewed Atlas Mediqual, Trendstar, and other benchmarking systems. Exhibit 5–6 shows the schedule of reviews planned for each of the monthly PIC meetings during the fourth quarter of 1998.

**Exhibit 5–6** Quarterly Schedule of PIC Presentations

**October 1998 November 1998 December 1998**

Safety Procedure Review Gallup customer

satisfaction survey

Pharmacy & Therapeutics Pulmonary Service Infection Control

Committee Line Team

Risk Management Orthopedics Service Cardiovascular

Line Team Service Line Team

Oncology Service Women and Children’s Medicine Service

Line Team Service Line Team Line Team

Neuroscience Service Nursing Performance Surgery Service

Line Team Improvement Team Line Team

Rex Home Services

Emergency Department

Service Line Team

Blood Utilization Committee

Cancer Committee

**Future Plans**

By mid-1998, the assessment of the services showed that service line

team leadership was in place with adequate staff support and functioning

with clear targets. The next step was to begin to involve the service line

teams (SLTs) in the 1999 budget process to allow service line savings to

track back to the bottom line. In 1999, the hospital would try to develop an affordable team reward system that could be implemented in 2000. This would have to be coordinated with the development of job description changes reflecting the new organizational structure and supported through a new communication plan to explain the changes to all the Rex community. Beyond that, the leadership saw the need to increase medical staff involvement in SLTs and action teams, to move the program beyond acute care, and balance the focus on outcomes, satisfaction, and cost effectiveness. They also saw needs to develop mechanisms and/or incentives for following protocols, to streamline the approval process of SLT actions, and to streamline and clarify data sources and processes for decision-making.

**CASE ANALYSIS**

This case illustrates the organizational complexities introduced by the

need for outcomes measurement as well as process enhancement. This

hospital was much further along than most at this point in time, but it still had a number of issues to deal with in the future, such as the roles of administration, of the performance and measurement committee, and of the medical staff in this transition period and in the long run.

**ASSIGNMENT QUESTIONS**

**Introduction**

1. Evaluate the mission statement of Rex Hospital.

2. How does the competitive environment of the Triangle influence the

situation here?

**Basics**

3. How has the historical development of quality systems at Rex

Hospital affected the evolution of its quality improvement effort?

558 CONTINUOUS QUALITY IMPROVEMENT IN HEALTH CARE

4. Evaluate the performance improvement reporting structure as outlined

in Exhibit 5–3.

5. Evaluate the makeup of the service line team and explain its impact

on the quality improvement effort.

**Implementation**

6. What do you think of the 1995–1996 reorganization creating the two

new departments: case management and performance improvementrisk

management?

7. What recommendations do you have about the reporting systems

used for performance improvement (Exhibits 5–3 and 5–4)?

8. What further recommendations do you have to the individuals responsible for clinical quality improvement at Rex Hospital?

**Application**

9. Rex Hospital has since been acquired by the University of North

Carolina Health Care System (www.unchealthcare.org). How would

you modify its quality improvement programs to enhance their potential

contribution to teaching CQI to health professionals in training?