

UPMC's Metric-driven Revenue Cycle

David Hammer

April Langford

Don Riefner

A commitment to managing by the metrics enabled one healthcare organization to achieve world class revenue cycle operations.

At a Glance

The University of Pittsburgh Medical Center's revenue cycle reengineering effort has consisted of eight steps:

1. Identify responsibility
2. Identify metrics
3. Capture performance data
4. Analyze performance data
5. Share performance information
6. Take improvement action
7. Monitor improvement
8. Celebrate results

"In all human affairs, there are efforts, and there are results, and the strength of effort is the measure of the results."

—James Allen, British-born American essayist, author of "As a Man Thinketh"

The University of Pittsburgh Medical Center (UPMC) has a revenue cycle success story to tell that speaks of strong effort and results to match. In eight broad steps, the organization transformed its revenue cycle operations from an average to an exemplary model. As an example of this success, since FY02, UPMC's average accounts receivable (A/R) days have fallen from 65 to a low of 35 in FY06, rising only slightly to 36 in FY07.

UPMC's story begins in 2001, at a time when the organization's growth and complexity had outstripped the capabilities of its hospital revenue cycle operations. Results, while respectable, left plenty of room for improvement. Senior management were determined that UPMC's revenue cycle should reflect the same excellence as the rest of the organization. Consequently, UPMC centralized hospital revenue cycle authority under a chief revenue officer and made a commitment to managing by the metrics.

Today, UPMC's hospital revenue cycle has been transformed and has achieved sustained best-practice results. Here is a look at the steps UPMC took to achieve these results.

FOCUS AREAS AND PROCESS-IMPROVEMENT THEMES

FY02 Focus Areas—Identifying Responsibility

- > Organizational restructuring (focus on chief revenue officer model [vice president of finance, CRO] and centralized business office)
- > Process and financial assessments
- > Plan, goals, objectives, and high-level metrics

FY03 Focus Areas—Identifying Metrics

- > Organizational restructuring (focus on upstream and midstream accountability and functional specialization of duties)
- > Denials management
- > Late charges greater than one day
- > Automated cash-posting technology

FY04 Focus Areas—Implementing the Plan

- > Organizational restructuring (focus on upstream and midstream accountability, functional specialization of duties, and large-balance unit)
- > Hospital-specific performance reporting
- > Claims-editing technology
- > Direct-to-payer claim-submission technology
- > Self-pay collection technology (predictive dialer and workflow-enabled collector queues)

FY05 Focus Areas—Expanding Metrics

- > Organizational restructuring (focus on transplants, psychiatric, and medium-balance unit)
- > Payer-specific performance reporting
- > Employee-specific performance reporting (functional quality-assurance matrix and employee scorecards)
- > Chargemaster technology
- > Inpatient contractual adjustments at final bill

FY06 Focus Areas—Unifying the Organization

- > Organizational restructuring (focus on patient access and patient financial services under vice president of PFS; Passavant [\$230M net revenue], Magee [\$290M net revenue], and Horizon [\$100M net revenue] hospitals; and A/R valuation and revenue/cash projections under PFS controller)
- > Internal controls for process-variation reduction
- > Sarbanes-Oxley certification
- > Health Insurance Portability and Accountability Act Transactions and Data Sets (837 Claims/835 Remittances, 276 Claim Status Inquiry/277 Status Reply, 270 Eligibility Inquiry/271 Eligibility Reply, 997 Batch Claims Acknowledgement, and 277U Claim-Level Acknowledgement)

FY07 Focus Areas—No-Touch Processing

- > Organizational restructuring (focus on matrix responsibility for managed care contracting, Children's Hospital [\$330m net revenue])
- > E-commerce technology (web-based reservation form, workflow-enabled eligibility-status inquiry, and workflow-enabled claim-status inquiry)
- > Automated underpayments processing
- > Pre-final-bill claim editing

Step 1 Identify Responsibility

UPMC's situation prior to FY02 had evolved under the traditional model. The director of patient business services had, over time, reported to a variety of positions in the finance structure, whose primary organizational focus had not been revenue cycle operations. At the time, UPMC focused on only a handful of revenue cycle key performance indicators (KPIs), including net A/R, cash collection deposits, days outstanding in A/R (A/R days), and A/R aging. Issues typically were addressed through exception-based crisis management, rather than by focusing on metrics and process redesign. Moreover, although the organization recognized there were improvement opportunities, these were typically dealt with through a series of consulting engagements and intermittent turnaround initiatives.

Then, in July 2001, UPMC created an executive-level position to oversee all hospital revenue cycle operations. This new position's marching orders were to focus organizational attention on the revenue cycle and achieve best-practice results. Further, management had recognized that revenue cycle results were not simply a function of the efforts of "admitting" and "the business office." Instead, they were more broadly the result

of interactions with the hospitals (represented by their CFOs) and UPMC's payer partners (primarily the UPMC Health Plan, Highmark Blue Cross, Medicare, and Medicaid).

To carry out the necessary transformation, UPMC selected a new leader to fill the chief revenue officer (CRO) position, initially referred to as the vice president of finance. The new CRO was a CPA and was previously responsible for hospital financial functions for the system. Management decided this individual was the right candidate for the new role because of his intimate familiarity with operations and financial trends in hospital operations.

The CRO was responsible for centralized patient access and all patient financial services (PFS) functions for nine of UPMC's 18 hospitals. To continue the momentum and drive the transformation, the CRO recruited a PFS director in 2003 who had similar credentials and experience in hospital

financial operations and who had also spent many years in quality and process improvement positions at the system level. The objective was to bring on new management talent with a fresh perspective on process optimization, with few ties to “business as usual.” This effort was so successful that the position was elevated from director to vice president in 2005.

In a matrix relationship with the hospital CFOs, the revenue cycle management team was responsible for oversight and reporting for revenue cycle-related areas, including health information management (HIM), case management, and registration. Later, as the central business office (CBO) grew to 15 of UPMC’s hospitals, these responsibilities expanded to include some aspects of managed care contracting and information technology.

In UPMC’s organizational structure, the CBO is responsible for centralized transactional processes, including:

- Preregistration
- Insurance verification
- Claims processing and transmission
- Specialty billing and follow-up (transplant, psychiatric, rehabilitation, and pediatric)
- Account follow-up
- Self-pay collections
- Denial and underpayment management
- Customer service
- Collection agency and other vendor management
- Chargemaster management

In addition to these traditional patient accounting and registration functions, the CBO is also responsible for projecting and analyzing revenue and performing A/R valuation in conjunction with each hospital CFO and the system’s finance department.

For other revenue cycle functions—such as health information management, noncentralized registration, point-of-service collections, cash posting, case management, and contract management—the CRO and his team work with corporate executives and/or hospital CFOs. As a result, the CBO must work collaboratively in a matrix relationship with the management of these functions to effect positive change. The success of these collaborative efforts has been demonstrated by the improved results achieved since 2001.

Step 2 Identify Metrics

Traditionally, UPMC had paid attention to only a handful of KPIs. One of the first changes was to expand the definition of KPIs to encompass a much broader array of measures. UPMC began a comprehensive reengineering of revenue cycle operations in March 2003.^a This effort was driven by a focus on performance reporting and employee accountability. This critical reporting effort is still in place and being actively used.

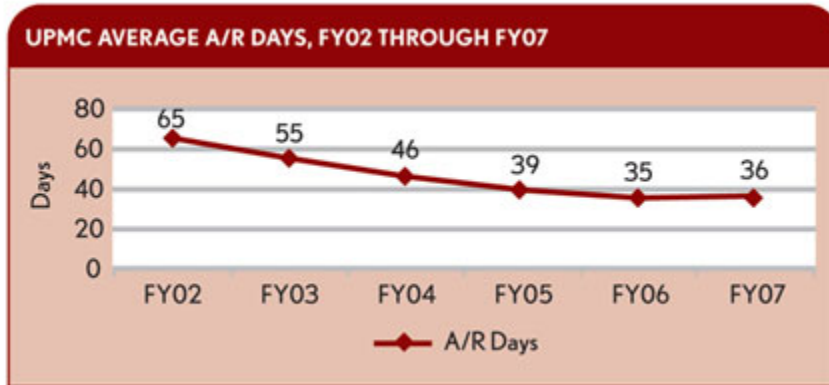


Exhibit Caption.

UPMC's average accounts receivable (A/R) days fell from 65 in FY02 to a low of 35 in FY06, resulting in additional cash of \$206 million.

Over time, the collection of KPIs grew significantly and began to evolve toward graphical presentation of results. Between July 2001 and March 2003, management's focus had been on the four high-level indicators mentioned above. Due to system and reporting limitations, these heavily aggregated measures could be sorted only by individual hospital. In general, other "sort keys" could not be reported on without extensive custom programming. Because the only available detailed numbers were on the aged trial balances themselves, A/R improvement initiatives could only focus on receivables segments. Thus management felt the only way to improve results was "to work A/R from high to low and throw bodies at the problem."

As the March 2003 transformation initiative began, UPMC's revenue cycle leadership gained new reporting tools and expanded its KPIs to new indicators. Termed "the Big Five," these indicators are still used today:

1. Net days in A/R
2. A/R aged more than 90 days from discharge/date of service
3. Payer rejects as a percentage of remittance revenue processed
4. Final denials (direct write offs) as a percentage of gross revenue
5. Cash as a percentage of net revenue

Of course, other metrics were, and are, important to the transformation effort. These include:

- Total uncollectible accounts (bad debt and charity) as a percent of gross revenue
- Payer mix
- Net-to-gross revenue ratio

Between March 2003 and June 2006, UPMC went on to establish three major sets of revenue cycle metrics:

- Functional area-specific performance metrics
- Payer-specific performance metrics

- Hospital-centric performance metrics

UPMC named its functional area performance metrics the Quality Assurance Matrix. The QA Matrix has since become management's primary tool for reviewing, controlling, and improving performance across the revenue cycle, through sets of KPIs that were established for the entire array of revenue cycle areas. For example, the billing QA Matrix includes 49 separate indicators, the most-important of which include:

- FTEs
- Claims "scrubbed" per FTE per day
- Percentage of claims billed within two days of "bill drop"
- Daily balancing of total claims submitted by UPMC and acknowledged by payers (at both individual claims and batch levels)
- Claims rebilled as a percentage of total claims
- Return-to-provider (RTP) rate
- Claim error rate

The QA Matrix led to significant changes in roles and expectations for management and employees alike. The transition to metric-driven performance control was challenging. Managers had been used to "anecdotal management," so using numbers was a new concept. In many instances, defining and calculating the new standards involved a major effort in itself. For employees, the new oversight and accountability were also a source of concern. Over time, however, the new environment of "performance transparency" became the norm, and people embraced it as results improved. Those who performed well now had documentation of their efforts and they were appropriately recognized by the management team.

The payer-specific metrics were developed to focus on two of the riskiest areas of the revenue cycle: denials and underpayments. UPMC also was interested in the chronology of its payment cycle—time from final bill to claim submission, claim submission to acknowledgement, and acknowledgement to payment, for example.

Most important, however, UPMC set out to use its payer performance scorecards to build cooperative partnerships with its payers, because both parties realize that denials and underpayments lead to increased rework and, consequently, higher costs. Using payer-specific metrics, UPMC meets with its largest payers to streamline processes, improve information systems capabilities, and reduce administrative overhead. This cooperative effort has been a significant factor in the improved revenue cycle results that UPMC has achieved since 2001.

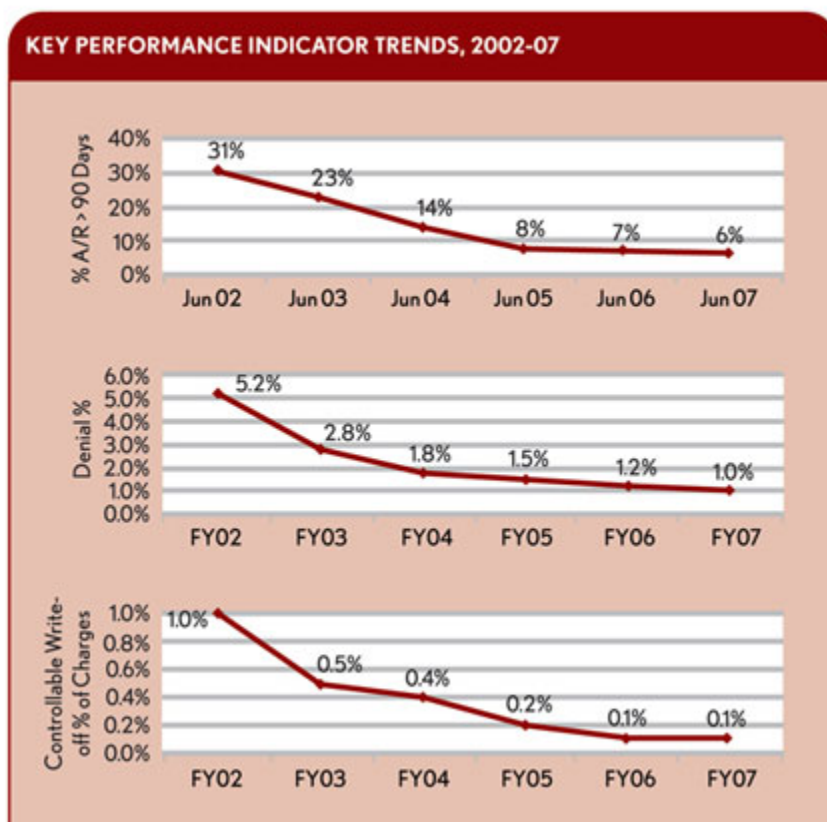


Exhibit Caption. At UPMC from FY02 through 2007, A/R greater than 90 days was reduced 81 percent; the denial percentage was reduced 81 percent; and the controllable write-off percentage of charges was reduced 90 percent, for an annual net revenue realization of \$87 million.

UPMC's hospital scorecards assist management in working collaboratively with hospital CFOs and clinical department heads. Major reporting areas on the scorecards include:

- A/R
- Cash
- Income statement metrics
- Volume statistics
- Clinical intensity
- Uncollectibles (bad debt, charity, denials, and underpayments)

Management uses these reports to monitor overall performance and identify best practices which are then standardized across the system. The scorecards were welcomed by the hospital CFOs, who now use them to actively manage their financial operations.

Step 3 Capture Performance Data

UPMC's strategy was to make revenue cycle performance data relevant, timely, and accessible to as many users as possible. Like many central business offices, UPMC's CBO had to cope with myriad data produced by various sources: the core hospital information system (HIS), which is a mainframe-based application; many vendor-supplied "bolt-on" systems; finance-department systems (general ledger and decision support); and several other outside data sources.

The development of standard metrics was complicated by UPMC's IT environment. UPMC has grown through acquisition or merger, and operates three distinct hospital HISs (or patient accounting systems) from three separate vendors. To augment the performance improvement process the management team made a commitment to aggressively use bolt-on systems to supplement and improve these core patient accounting systems. This approach required a philosophical change in the IT department, which had traditionally focused the bulk of its revenue cycle-supporting resources on the HISs.

Today, UPMC uses bolt-ons for the following functions:

- e-Web reservations
- Eligibility
- Medicare compliance checking
- Insurance verification
- Electronic billing
- Point-of-service collections
- Predictive dialer with workflow
- Cash posting and denial reporting
- Chargemaster
- Executive information system

| UPMC CBO RESULTS IN REVIEW | | | |
|-------------------------------------|-------------------------------------|----------------------------|-------------|
| Key Indicator | Before Engineering | Current | Improvement |
| Days in A/R | 65 days | 34 days | 45% |
| Percentage A/R Greater than 90 Days | 31% | 6% | 81% |
| Write-off Percentage | 1.0% | 0.1% | 90% |
| Cost to Collect | 0.4% | 0.3% | 25% |
| Denials Percentage | 5.2% | 1.0% | 81% |
| Clean Claims Percentage | 70% | 90% | 28% |
| Self-Pay Balance | \$114M | \$20M | 82% |
| Credit Balance | \$45M | \$18M | 60% |
| Blue Cross Payment Lag | 37 days | 10 days | 73% |
| Net Patient Service Revenue | \$1.51B | \$2.61B | 73% |
| FTEs | 350 | 315 | 10% |
| Abandonment Rate | 8% | 2% | 75% |
| Environment | Work as hard and as much as you can | Work smart and fewer hours | 😊 |

UPMC also had the advantage of using an executive information system (EIS). The EIS could aggregate data from many different sources, display it in graphic or table formats, and distribute it to end-users' desktops.

Management first analyzed current reports and data sources, indexed them, and worked with end-users to define their reporting needs and preferences. Finally, CBO leaders and UPMC's IT department collaborated to automate as much data collection as possible and feed information to UPMC's EIS database.

Today, patient accounting transaction data, as well as data feeds from other data sources, are downloaded daily into a huge data warehouse repository to drive critical operations and financial reporting. Key reporting areas include:

- Operations management reporting, including A/R, volume, and other associated KPIs by functional area
- Hospital performance scorecards
- Payer scorecards, with payer KPIs, such as payment lag times, denials, and A/R aging
- A/R and revenue projections, including weekly and monthly revenue and cash for each hospital
- A/R reserve calculations, recently automated through the EIS (This A/R valuation process is Sarbanes-Oxley compliant and facilitates a five-day monthly close schedule.)

Not surprisingly, management still relied heavily on spreadsheets and mainframe “report writer” software for analyses and reporting, but much of the reporting overhead formerly required for revenue cycle management was significantly reduced by increasing UPMC’s reliance on the executive information system. The CBO financial staff is now able to spend valuable time analyzing information rather than compiling spreadsheet data.

Step 4 Analyze Performance Data

As mentioned above, the QA Matrix was an important component for monitoring operations and day-to-day management performance. To improve the QA Matrix from a simple recording tool to a more-powerful analytic tool, the matrix was enhanced by using “conditional formatting” logic on many of the fields. With this capability, management could perform statistical analysis on many KPIs. In particular, management was interested in seeing standard deviation data to be able to quickly and easily identify process variability.

Another enhancement was automated highlighting of trends. This capability was beneficial to allow management to put single-period results (days, weeks, or months) into a long-term trend context.

After UPMC’s CBO performance-improvement initiative had been under way for some time, the revenue cycle management team decided to challenge the organization to improve on all fronts by adopting a new, broader set of revenue cycle performance metrics to serve as components of a revenue cycle “balanced scorecard.”⁶ Thus, they redesigned UPMC’s revenue cycle performance scorecard to include the following elements:

- KPIs
- UPMC standard
- Best practice benchmarks
- Actual results
- Variance

- Variance percentage

To give management a quick view of performance by functional area, the number of KPIs in each area was totaled, as was the number of KPIs in each section that met or exceeded the goal. These numbers were then compared to calculate an overall KPI score by functional area. This process allowed stakeholders to get a functional-area score at a glance, similar to a radar chart presentation, making it easier to identify areas with performance-improvement needs.

Step 5 Share Performance Information

CBO management used its hospital scorecard reports to engage hospital management in performance improvement efforts and to standardize and normalize all revenue cycle performance reporting at the individual-hospital level. Management holds regular meetings or conference calls with hospital CFOs to review results, confront issues, and discuss performance-improvement plans.

UPMC recognized that its most important revenue cycle resource was its employees and was determined to use KPIs to positively drive employee performance. Thus, management established a three-part human-resource goal, to ensure that:

1. Each employee would understand the expectations for his or her role
2. Employee performance would be monitored on a continual basis
3. Employee performance would be appropriately rewarded and recognized

The key elements of management's plan included:

- Standardized performance measures
- Employee performance scorecards are to set expectations, measure and audit process improvements, and increase employee role comprehension
- Reward and recognition programs
- Comprehensive career-development pathways designed to provide an outline to enhance professional growth through development of business skills, attributes, competencies, and behaviors, and to offer defined, measurable, and attainable steps and accomplishments

Step 6 Take Improvement Action

UPMC's performance-improvement efforts did not end with the completion of its 2003 reengineering efforts. Instead, management made a renewed commitment to continued progress, based on several key principles:

- A culture of success is based on the application of people, process, and technology, with a foundation of accountability and continuous quality monitoring.
- Workflows and job functions must be continually redesigned to achieve best-practice results.
- An effective technology infrastructure must be maintained.

- A comprehensive reporting toolkit and a proven quality-improvement methodology will be utilized.

These efforts and accomplishments were not, however, without their challenges. Many obstacles had to be overcome to create the changed environment and achieve improved results. Certainly, as the effort began, there were more things to do than there were resources to do them. Thus, one of management's essential duties has always been to prioritize projects and assign resources to them.

For example, one of UPMC's hospitals had to be moved to a new patient accounting system. This effort required so much management attention that most other improvement initiatives were either put on hold or intentionally slowed.

UPMC'S CBO: BEST-PRACTICE RESULTS

UPMC's central business office (CBO) cites the following best-practice results of its efforts to reengineer its revenue cycle:

- > The CBO collects 99.9 percent of its billable charges from its third-party payers, with minimal technical denials for untimely filing or lack of authorization/precertification.
- > The CBO maintains about 35 net days in A/R, about 11 of which are in the in-house and discharged-not-final-billed segments. UPMC is in effect able to bill and collect its invoices within 25 days.
- > The CBO has only 6 percent of its final-billed receivables aged over 90 days from discharge/service date. The new goal is no more than 10 percent aged over 60 days from discharge/service date. The CBO's objective is to have all of its claims adjudicated and paid within one to two weeks from their receipt by payers
- > The CBO achieves this performance with a labor-cost-to-collect of 0.3 percent, which is decreasing over time, even as UPMC's volume continues to grow.

Source: UPMC Central Business Office.

UPMC is committed to performance improvement, and believes that it can continue indefinitely, based on current and future reengineering initiatives.

Step 7 Monitor Improvement

UPMC's metric-driven revenue cycle approach has considerably grown in complexity and sophistication since the days when the only KPIs measured were net accounts receivable, cash collection deposits, A/R days, and A/R aging. Today, management employs a best-practice set of KPIs and distributes results to hundreds of stakeholders throughout the system, using a variety of numeric and graphic reports. Meanwhile, UPMC's commitment to becoming a metric-driven revenue cycle operation has paid off in ever-improving results.

UPMC has continued its revenue cycle reengineering on many new fronts. Initiatives currently planned or under way include:

- Continual process improvement, to decrease claim errors and denials
- Expansion of electronic processes, including greater electronic interchange with payers for insurance verification and claim status, optimized chargemaster and charge capture audit methodologies, and improve system-to-system data transfer
- Continual efforts to improve performance, to meet or exceed targets for measures such as an A/R days average of 35 days, an over-90 aging percentage of less than 6 percent, and a denial write-off percentage of less than 0.1 percent
- Leveraging of CBO economies of scale (for example, to reduce labor-cost-to-collect below 0.3 percent, continue integration and standardization efforts, and improve payer collaboration and negotiation)
- A continued effort to market UPMC's revenue-cycle expertise in a management services organization (MSO) model
- Continued integration of disparate revenue cycle operations

Step 8 Celebrate Results

UPMC's revenue cycle has had much to celebrate since 2001. From the beginning, management has made a conscious decision to reward employees for their achievements. Employee-recognition efforts have ranged from incentive-compensation programs to the ever-popular "casual dress days." At every step, however, one of the most important rewards has been to praise employees to their peers—the other UPMC employees who deliver the patient care for which revenue cycle employees collect the cash. This improved visibility and recognition is one of the most-appreciated rewards that revenue cycle employees have enjoyed.

Commitment Is Key

UPMC is justifiably renowned for its clinical excellence and superior financial results. Less widely known, but equally impressive, is its world-class revenue cycle operation. Since 2001, UPMC has achieved best-practice results through its commitment to having a metric-driven revenue cycle.

About the authors

David Hammer, FHFMA, is vice president, revenue cycle solutions, McKesson Provider Technologies, Fort Lauderdale, Fla., and a member of HFMA's Florida Chapter (david.hammer@mckesson.com).

April Langford, CPA, is vice president, revenue cycle operations, University of Pittsburgh Medical Center, Pittsburgh, PA., and a member of HFMA's Western Pennsylvania Chapter (langforda@upmc.edu).

Don Riefner, CPA, is vice president and chief revenue officer, hospital services, University of Pittsburgh Medical Center, Pittsburgh, PA., and a member of HFMA's Western Pennsylvania Chapter (riefnerdc@upmc.edu).

Footnotes

a. This process was documented in Langford, A., and Milliken, J.M., "Reengineering Patient Business Services," Revenue Cycle Strategist, August 2005.

b. The new, broader set of revenue cycle performance metrics were based on those described in Hammer, D., "The Next Generation of Revenue Cycle Management," hfm, July 2007.

About UPMC

Over the past two decades, University of Pittsburgh Medical Center (UPMC) has evolved into one of the nation's leading integrated health systems, with 43,000 employees on 19 hospital campuses, more than 2,300 employed and 4,500 affiliated physicians, various community-based facilities and outpatient programs, and a health plan with more than 1.1 million covered lives. UPMC is the second largest employer in Pennsylvania. The system generated \$6.3 billion in net revenue in FY07.

Source: UPMC 2006 Annual Report