

RESEARCH PAPER:

THE CURRENT RECESSION AND U.S. HOSPITALS

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INTRODUCTION

This is the first in a series of research briefs produced by Thomson Reuters on the impact of the current recession on U.S. hospitals. Consistent with Thomson Reuters guiding principles, this series will provide reliable, unbiased insights on factors affecting hospital business performance. We will track metrics at a national and local level that may impact hospital financial or clinical performance. In doing so we will:

- Use quantitative data to identify significant hospital industry changes.
- Avoid reliance on opinion.
- Incorporate proprietary data from Thomson Reuters with public data to construct findings.

A companion research brief examined the history of economic cycles and hospital care.¹

Key findings from this study included the following:

- Hospital inpatient volumes do not change in a systematic way with GDP growth or unemployment.
- Hospital revenues have grown in lockstep with population and do not vary systematically with GDP growth or unemployment. Hospital total margin, since it involves income from investments, has a relationship to GDP and unemployment.
- Hospital employment growth slows during recessionary periods, but also has diminished during some non-recessionary periods.
- Employer-sponsored insurance (ESI) coverage is related to unemployment. Total private coverage has shown a steady decline. Public health insurance programs have grown. The proportion of the population uninsured has been relatively constant between 1997 and 2008.

The focus of these research briefs will change as U.S. economic conditions evolve during 2009. In this installment, we will examine current data and recent trends on:

- Hospital finances and operations.
- Hospital employment.
- Hospital closures.
- Patient volumes.
- Hospital payer mix.



HOSPITAL OPERATION, REVENUES AND PROFITABILITY

The Thomson Reuters ACTION O-I® database provides an array of financial and operational indicators for a large sample of general acute care hospitals.

In this sample, total margins declined for every class of hospital in 2008. (Hospitals use the term margin rather than profit, because many are not-for-profit organizations. Total margin consists of excess revenue derived from operations as well as non-operating margins derived primarily from investments.)

These hospitals maintained consistent operating margins through the third quarter of 2008 — but their non-operating margins began to decline in the third quarter of 2007 and accelerated their decline in the second and third quarters of 2008. This dragged down the median total margin to near zero and left approximately 50% of hospitals in the red (see Figures 1 and 2). When we compare these total margin statistics with historic data, we find that medians this low have not been observed before.¹

Even though median total margin is near zero, there is substantial variation among hospitals. The bottom quartile of hospitals is operating with total margin lower than -7%, while the top quartile has total margin exceeding 4.5%.

Figure 1: Hospitals Total and Operating Margins: 2005 Q2 - 2008 Q3

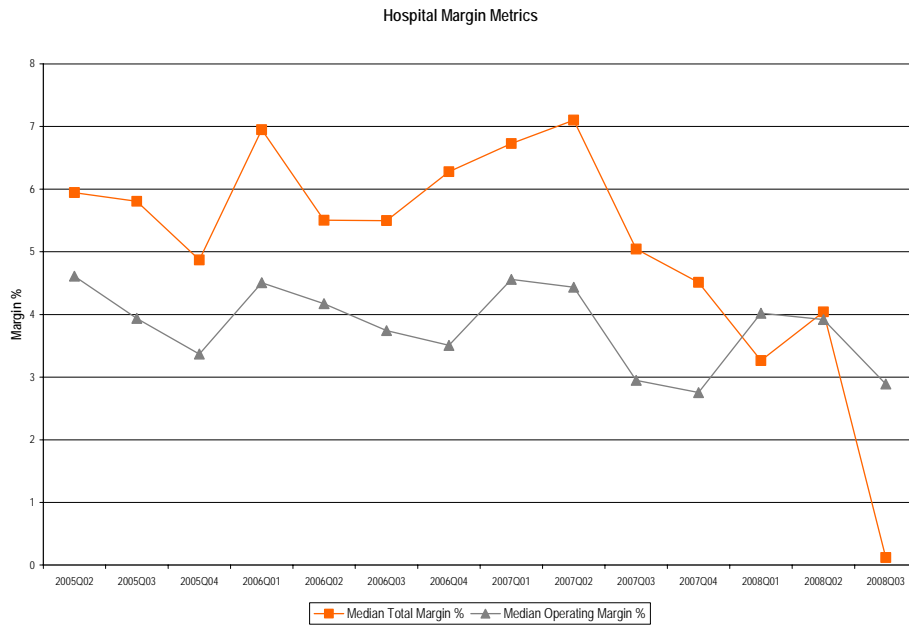
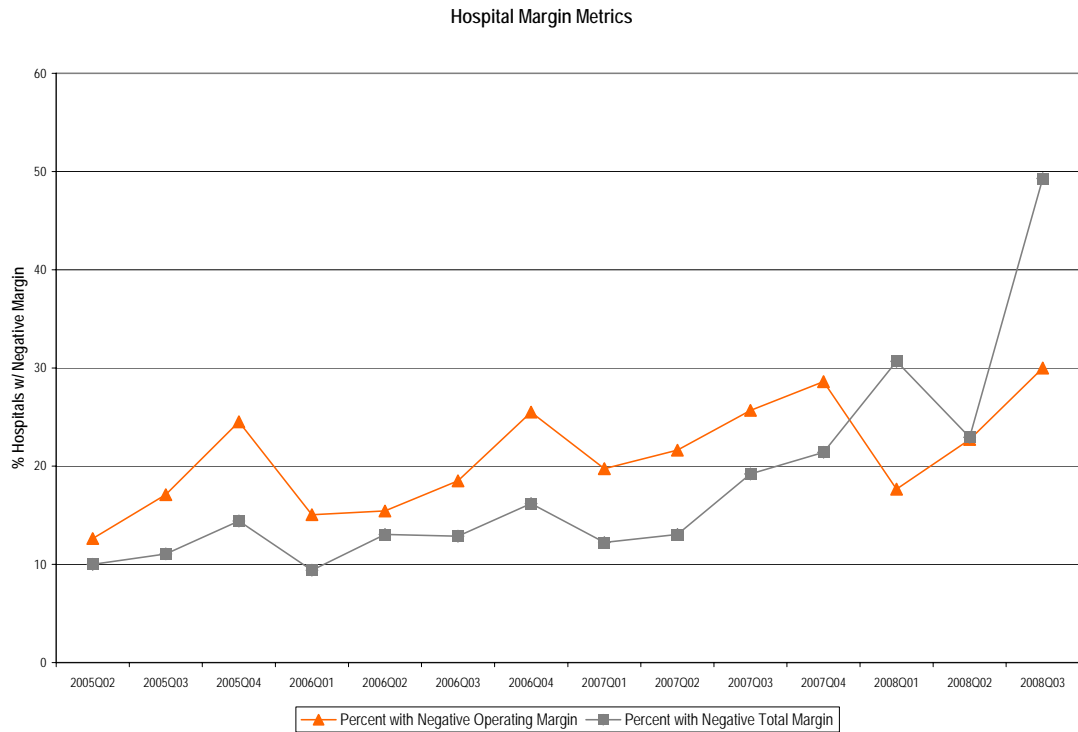


Figure 2: Percentage of Hospitals with Negative Margin, 2005 Q2 - 2008 Q3

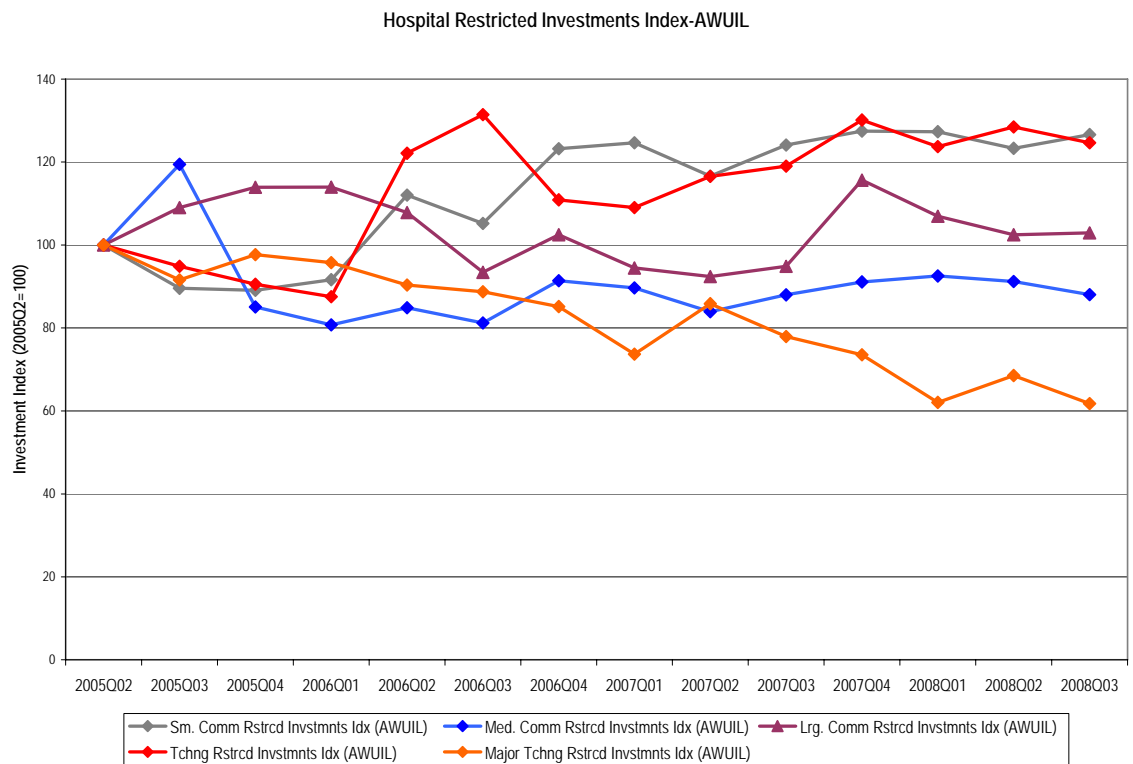


Hospital Assets

The recession has also impacted other hospital assets. Non-operating losses reflect only realized, or permanent, investment losses — but hospital balance sheets indicate much larger *unrealized* investment losses, concentrated almost entirely in major teaching hospitals. These hospitals showed significant decreases in both unrestricted and restricted assets through the third quarter of 2008. In major teaching hospitals, restricted assets have declined by a median \$60 million in the past three years whereas in other hospitals these investments are largely unchanged. Major teaching hospitals have also given up a median \$10 million of their gains in unrestricted assets in the past year. Other hospitals have, on average, maintained or even increased their unrestricted assets (see Figure 3).

The asset decreases observed in major teaching hospitals do represent investment losses, as these hospitals did not shift assets to shorter-term, reduce debt, or increase capital expenditures during this period. These losses have been substantial, reducing the hospitals' capacity for capital expenditures both directly (having fewer resources available to spend) and indirectly (by rendering these hospitals less creditworthy).

Figure 3: Change in Hospital Restricted Investments, 2005 Q2 - 2008 Q3



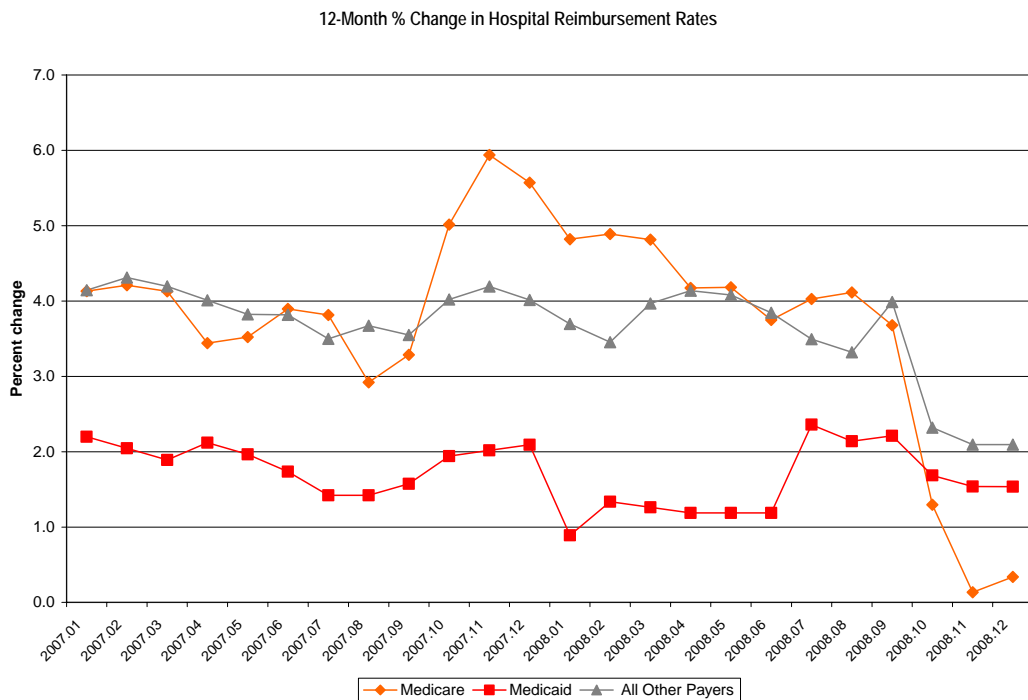
Operating Margins

The fact that hospital operating margins have remained stable implies that net patient revenues, through the third quarter of 2008, remained consistent with historical trends and had not eroded as the economy faltered. What can be said about hospital revenues moving into 2009?

We turned to the hospital producer price index (PPI) from the Bureau of Labor Statistics to answer this question. The hospital PPI represents the reimbursement hospitals receive for a standard market basket of inpatient and outpatient services. Thus, changes in this index over time allow us to estimate increases in the reimbursement rates hospitals are paid for their services — or, equivalently, hospital price inflation.

Figure 4 displays year-over-year changes in the hospital PPI, disaggregated into three payer classes: Medicare, Medicaid and Other (mostly employer-sponsored or private pay). All three classes show declines in reimbursement growth in the fourth quarter of 2008 versus 2007. Note that private pay increases are roughly 2% — half of the historical rate — and Medicare reimbursement increases are near zero. Private payers help many hospitals maintain positive operating margins, so this decrease could be problematic in 2009.

Figure 4: Change in Hospital Reimbursement Rates, January 2007 - December 2008

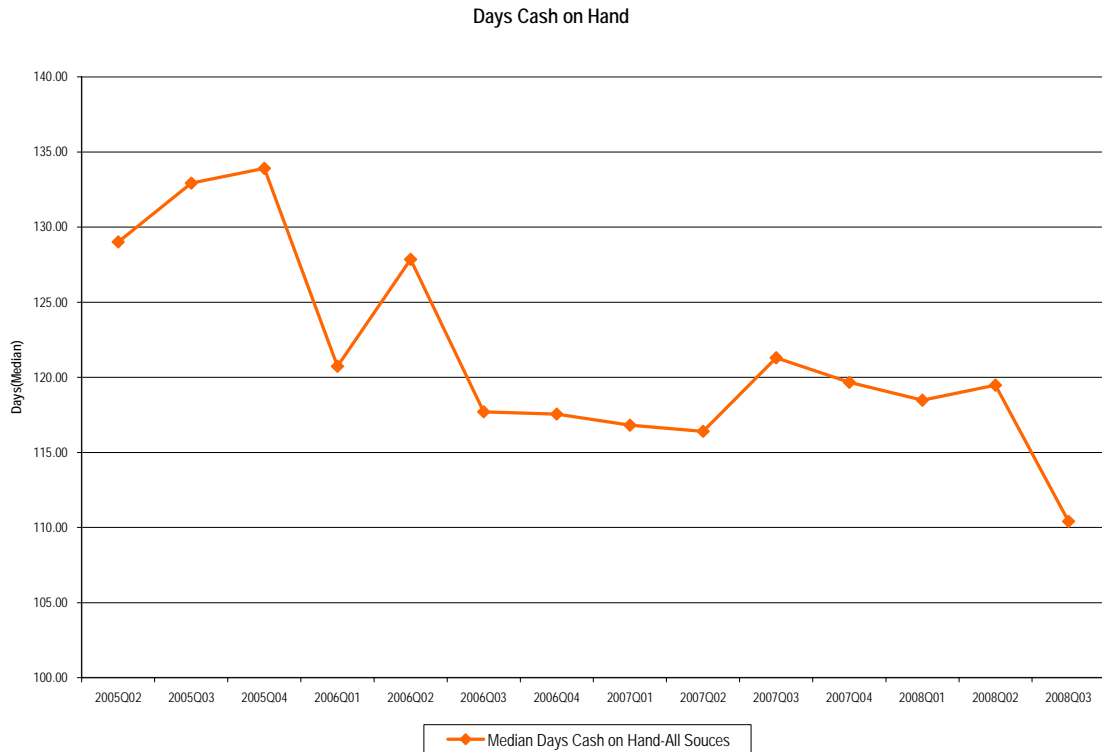


Liquidity

The credit crisis that developed in the summer of 2008 may have had an impact on the liquidity of hospitals. Figure 5 provides estimates of hospitals' median days-cash-on-hand — which fell throughout the series, and reached an historic low in the third quarter of 2008. There is a lot of variability among hospitals around the median value of 110 days that was seen in the third quarter of 2008. The lowest quartile of hospitals had less than 57 days cash on hand, and the highest had 203 days or more.

It is difficult to attribute all of the decrease to recessionary effects, since the downward trend started well before the recession began in the fourth quarter of 2007. It is possible that part of the decline is due to general changes in cash management policies by hospital finance officers.

Figure 5: Hospital Days Cash on Hand (all Sources), 2005 Q2 - 2008 Q3

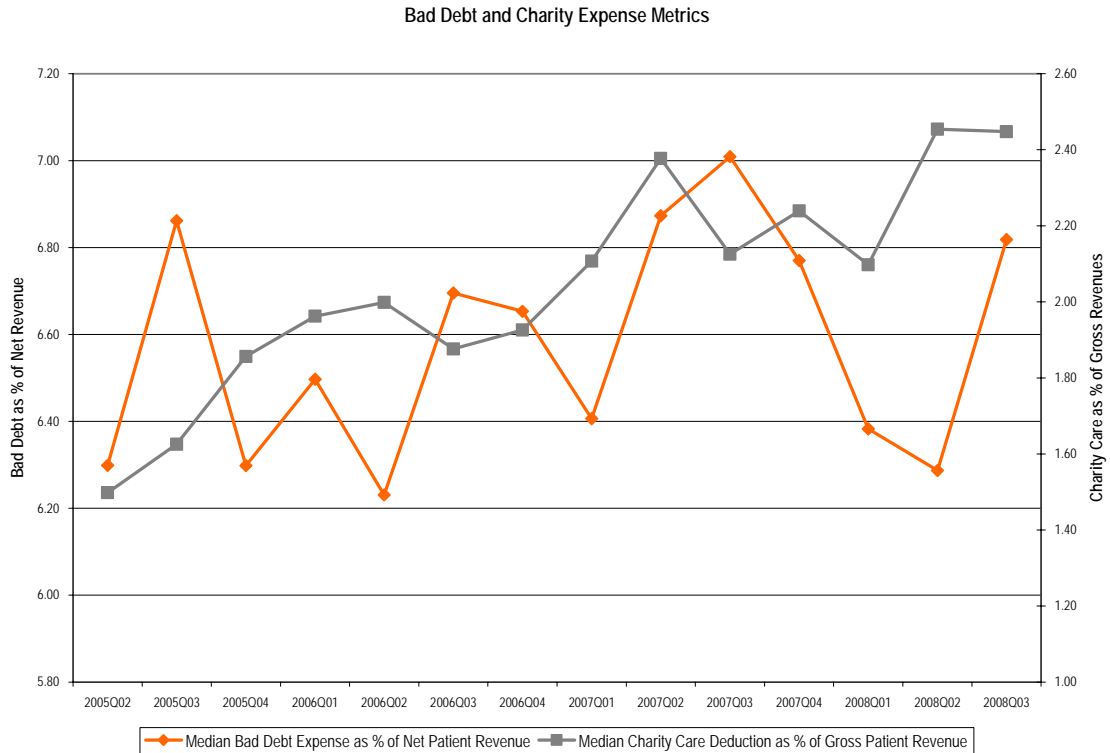


Bad Debt and Charity Care

The recession also may have had an impact on hospital expenses. Two expenses that might be expected to increase are bad debt and charity care. To study this, we turned again to the ACTION O-I® database. Figure 6 contains estimates of median bad debt expense (as a percent of net patient revenue) and charity care expenses (as a percent of gross

patient revenue). The median bad debt percentage is within the historic range, while the charity care percentage shows a consistent upward trend. It is tempting to attribute the upward trend in charity care to the recession, but this movement started well before the fourth quarter of 2007 and possibly reflects more thorough implementation of accounting standards by hospitals in response to inquiries about charity care by state attorneys general.

Figure 6: Hospital Bad Debt and Charity Expenses, 2005 Q2 - 2008 Q3

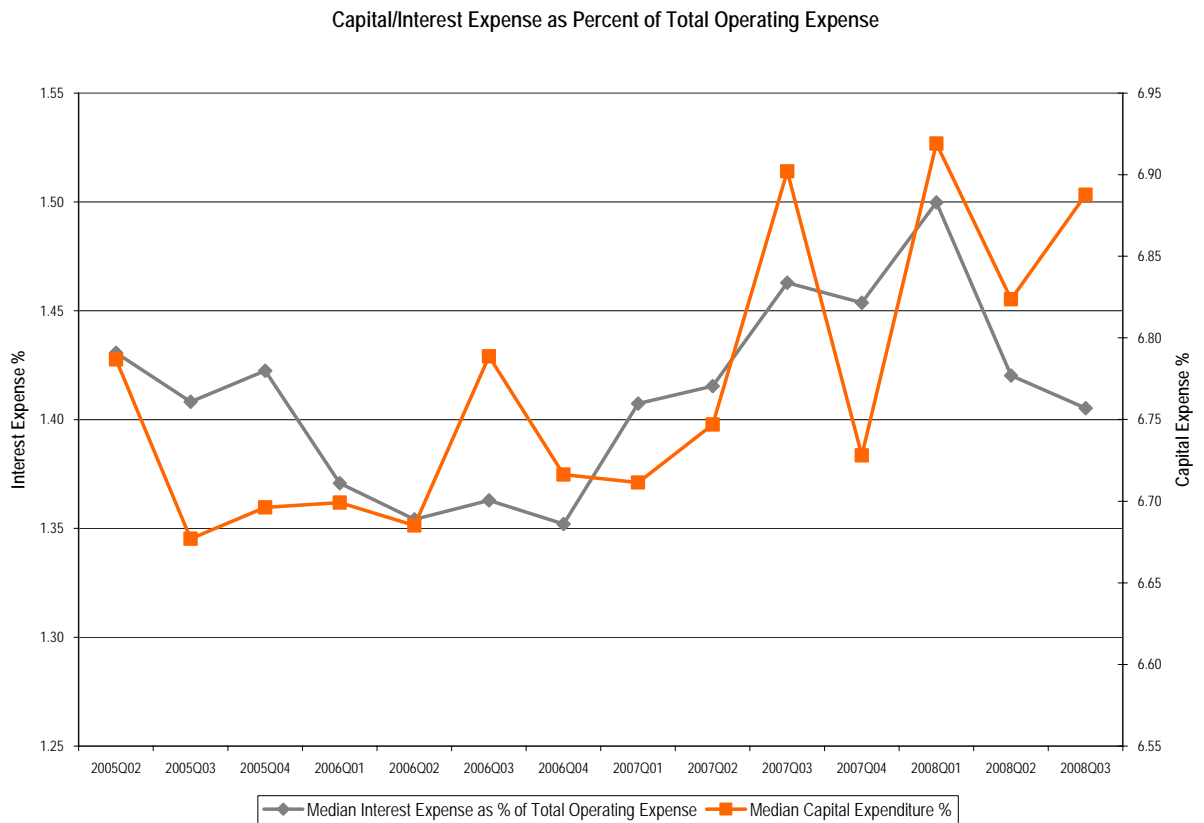


Capital Expenditures and Interest Expenses

Other expenses that might be impacted by the recession are capital expenditures and interest expenses. Figure 7 displays estimates of capital and interest expense as a percentage of total operating expense base on the ACTION O-I® database. We observe generally increasing trends in both metrics, but no abrupt changes after the start of the recession in the fourth quarter of 2007. In fact, the interest expense metric actually declines in the second and third quarter of 2008.

We suspect that the full impact of the credit crisis will be felt by hospitals in the fourth quarter and 2008 and beyond. The third quarter of 2008 may be too early to provide a complete understanding of the impact of the recession on capital and interest expenses.

Figure 7: Hospital Capital Expenditures and Interest Expense, 2005 Q2 - 2008 Q3



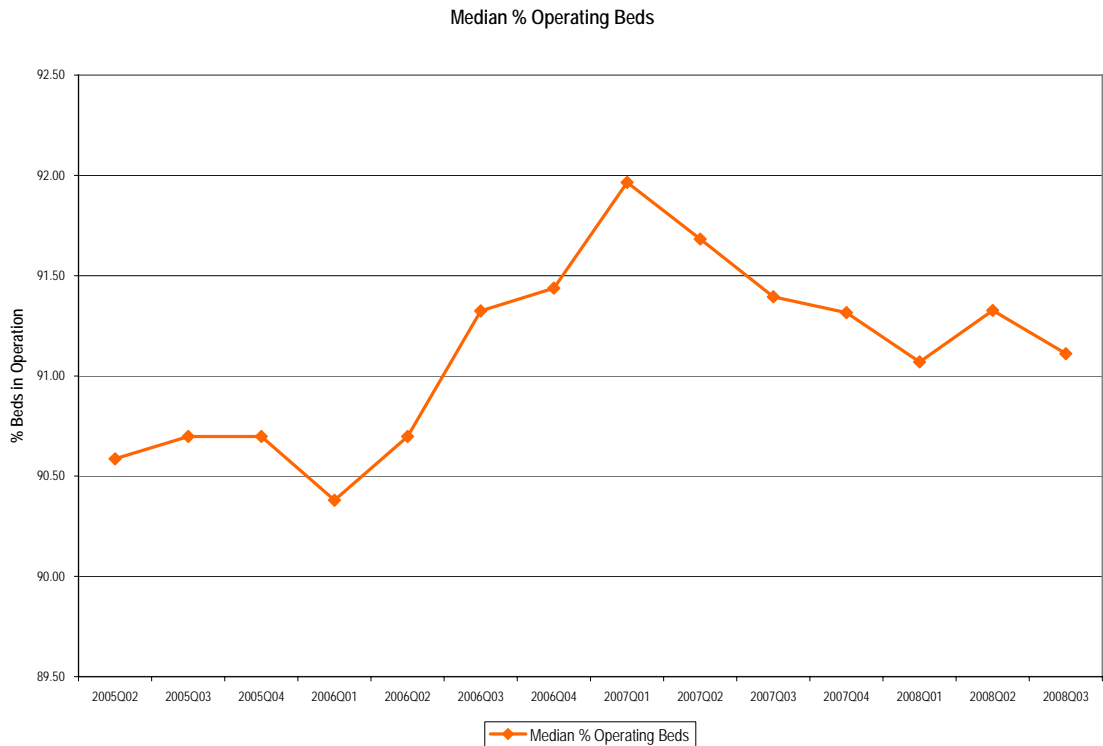
Other Operating Expenses

We also examined other operating expense metrics to determine if hospitals were beginning to reduce cost through reduction in controllable costs. The operating expense metrics we analyzed in the ACTION O-I® database showed no signs of such expense reduction through the third quarter of 2008. Figure 8 contains estimates of median expense per patient discharge and patient day (case mix and area wage index adjusted), and shows no abrupt departure from historical inflation trends. Figure 9, also from the ACTION O-I database, displays the median percentage of licensed beds in operation — there is no evidence that hospitals started closing beds after the recession began.

Figure 8: Expense per Discharge and Patient Day, 2005 Q2 - 2008 Q3



Figure 9: Percentage of Licensed Beds in Operation, 2005 Q2 - 2008 Q3

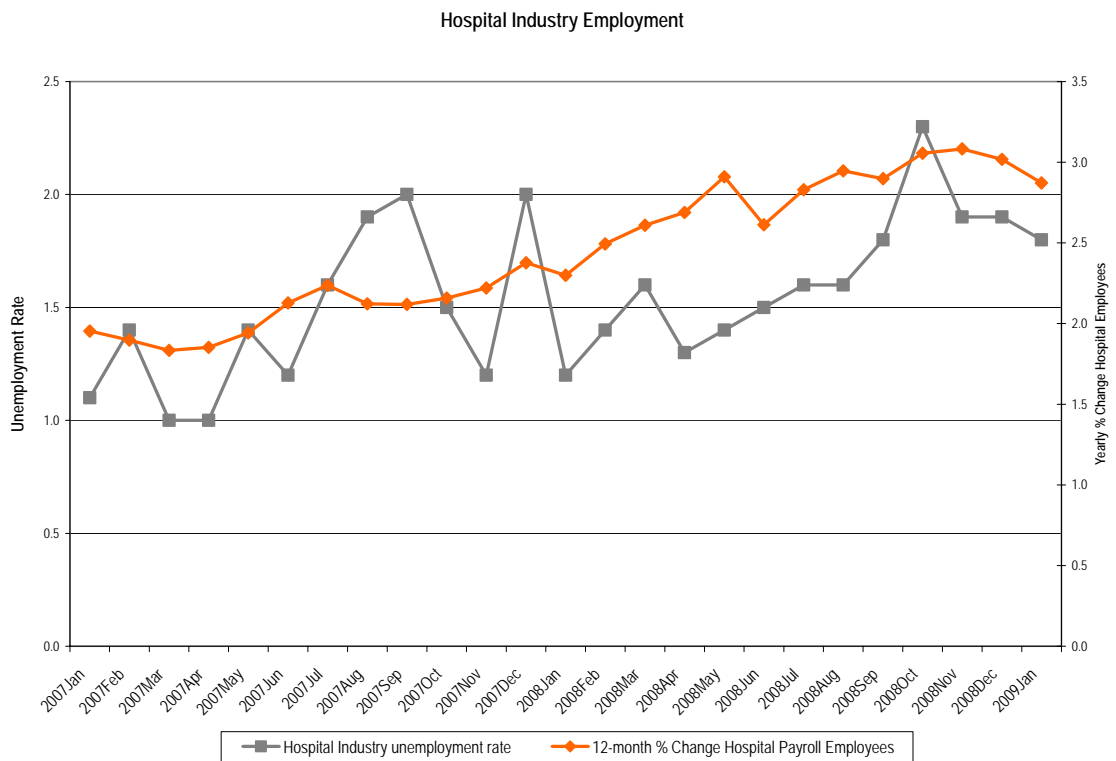


HOSPITAL EMPLOYMENT AND MASS LAYOFFS

Historical analysis of economic cycles and hospital employment shows that hospitals reduce workforce in response to recessions; they also reduce workforce in non-recessionary periods.¹

The Bureau of Labor Statistics tracks employment through two surveys. The first, the Current Economic Survey (CES), is a monthly sample of business payrolls that includes a hospital industry subsample. The second is the Current Population Survey (CPS), a household sample used in part to produce monthly employment estimates. From CPS we also can obtain estimates of unemployment by industry, including the hospital industry. Figure 10 displays hospital unemployment and year-over-year payroll changes for the hospital industry. The year-over-year increase in payroll employees appeared to level off while the unemployment rate declined slightly in the last three months, but it is still well within the historical range. Note that both of these employment estimates are much more favorable for the hospital industry than for the general economy.

Figure 10: Hospital Industry Employment, January 2007 - January 2008



Mass Layoffs

Another source of information on hospital industry employment is mass layoff data compiled by the Bureau of Labor Statistics. Mass layoffs provide information about economic stress that is somewhat different than unemployment. Unemployment may fluctuate up and down due to hospital demand conditions and decisions to allow open positions to remain unfilled. Mass layoffs affect a large number of employees in specific organizations that are significantly reducing operations. Figure 11 displays an historical series of mass layoffs (number of claimants) for the hospital industry from January 2005 to December 2008. We show the historic data to provide insight into effects of a major industry event: hospital closures and layoffs due to Hurricane Katrina in August 2005.

Figure 11: Hospital Industry Mass Layoffs, January 2005 - December 2008

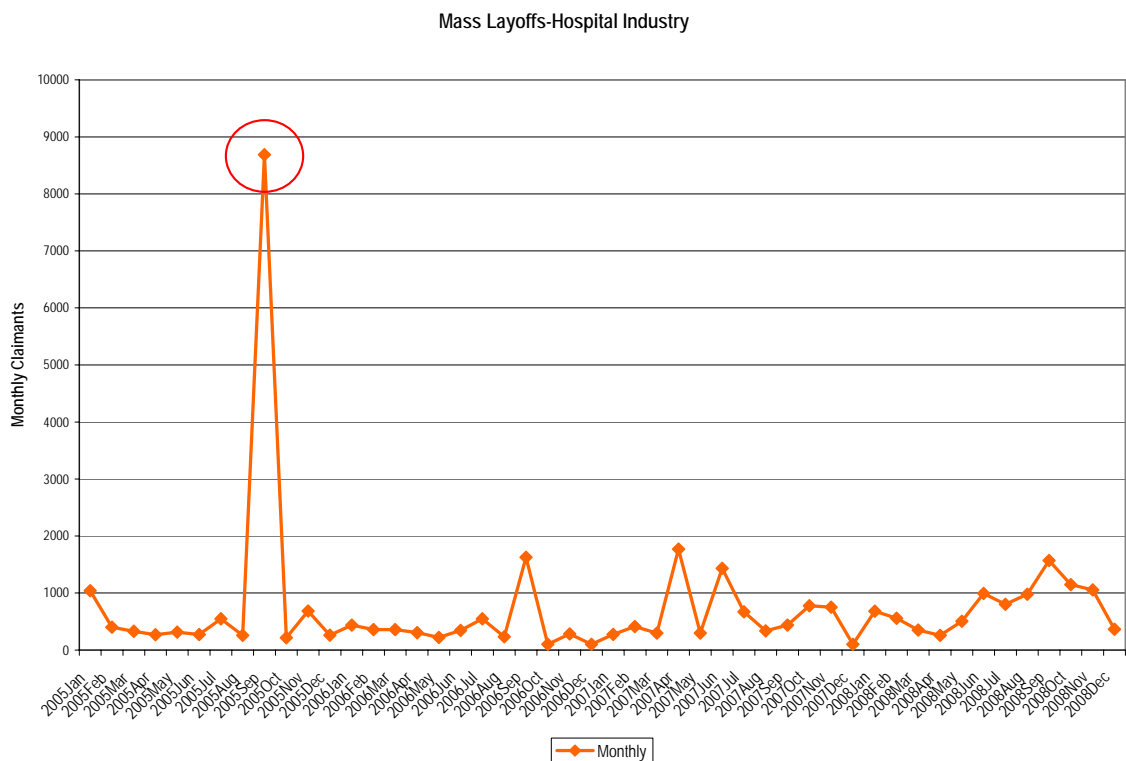
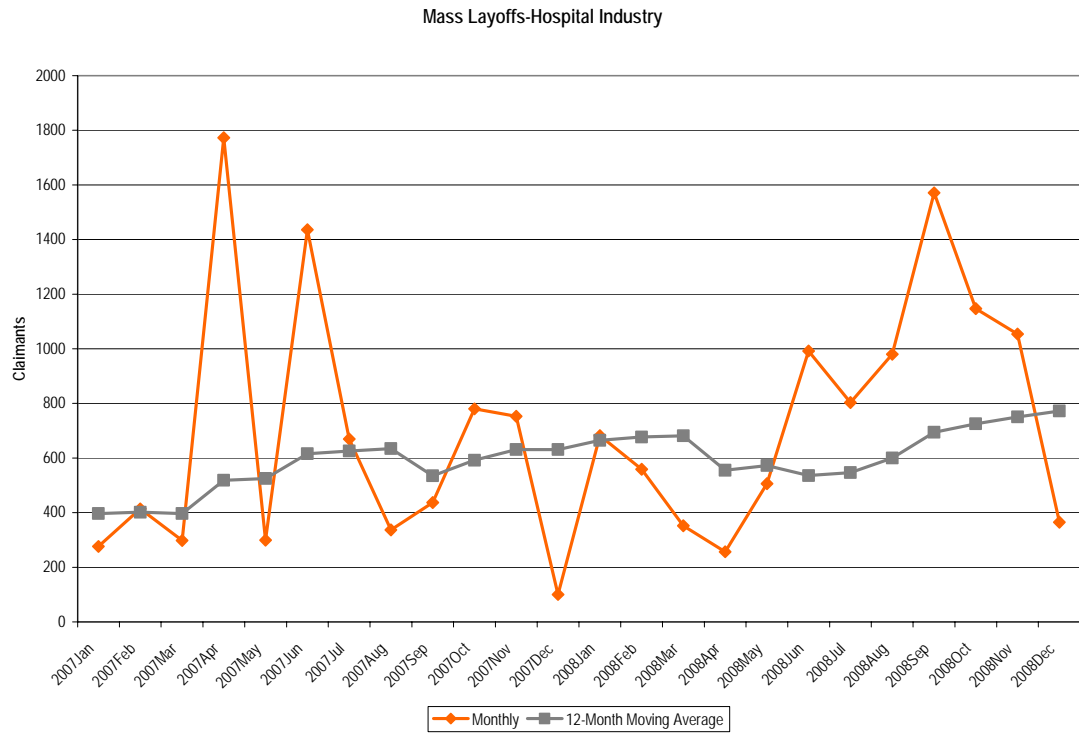


Figure 12 displays the mass layoff data from the same source, showing information from 2007 forward on monthly claimants and a 12-month moving average. There is some evidence of gradual increase in the total number of claimants based on the moving average, and December 2008 is a recent high of the mass layoff moving average series.

Figure 12: Hospital Industry Mass Layoffs, January 2007-December 2008



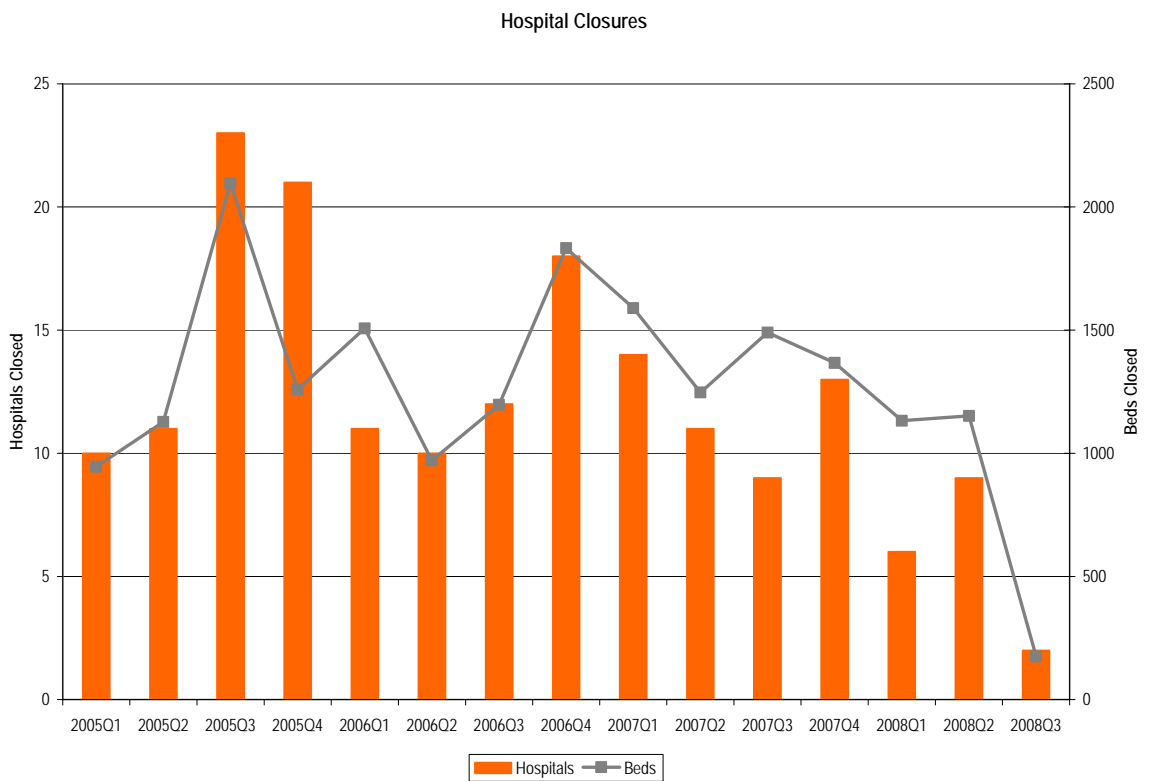
HOSPITAL CLOSURES

We observed in the first section of this report that hospitals' total margins were at historically unprecedented lows in the third quarter of 2008. Conceivably, this could be accompanied by an increase in hospital closures.

We examined this possibility using the CMS Provider of Service (POS) database and identified hospital closures from the first quarter of 2005 through the third quarter of 2008. Hospital closures were defined as termination of the hospital entity, without an acquisition, merger or conversion to another status (such as a critical access hospital).

Figure 13 displays counts hospitals and beds closed by year and quarter. While Hurricane Katrina contributed to mass layoffs in late 2005, it is not completely explanatory of recent highs in last half of 2005. Hospital closures after the start of the recession in the 2007 Q4 are somewhat lower than in recent history.

Figure 13: Hospital Closures, 2005 Q1 - 2008 Q3



HOSPITAL PATIENT VOLUME

Our historical research found no systematic relationship between hospital patient volumes and recessionary periods. This does not prove that a relationship does not exist today, especially at a local level.

The Thomson Reuters Hospital Drug Database (HDD) contains extremely current inpatient discharge information for a nationally representative sample of hospitals. The data reported here are for a group of 150 hospitals with continuous, reliable reporting of data since January 2006.

Figure 14 displays admissions per day for this HDD cohort from January 2007 to December 2008. Total and elective admissions are reporting using 12-month moving averages.² There is some evidence of flattening of historic 1-2% growth rates, starting in the fourth quarter of 2007. However, there is no evidence that this is driven by a decline in elective admissions that might be expected during a recessionary period. Elective admissions account for 4.6% of the total in December 2007 and 4.5% of the total in December 2008.

Figure 14: Total and Elective Inpatient Admissions, January 2007 - December 2008

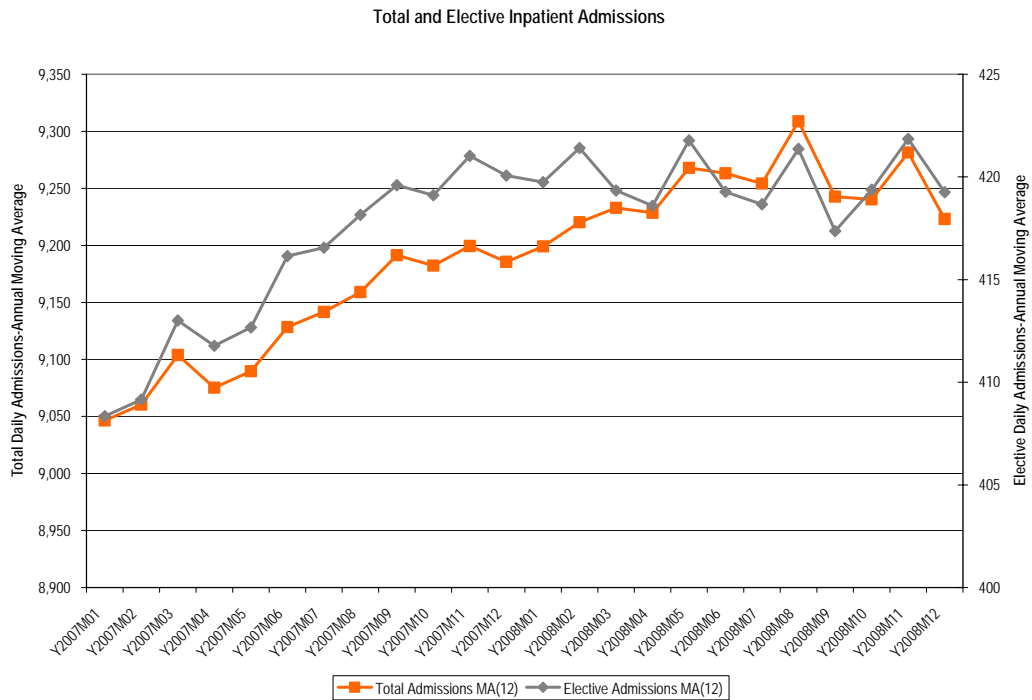
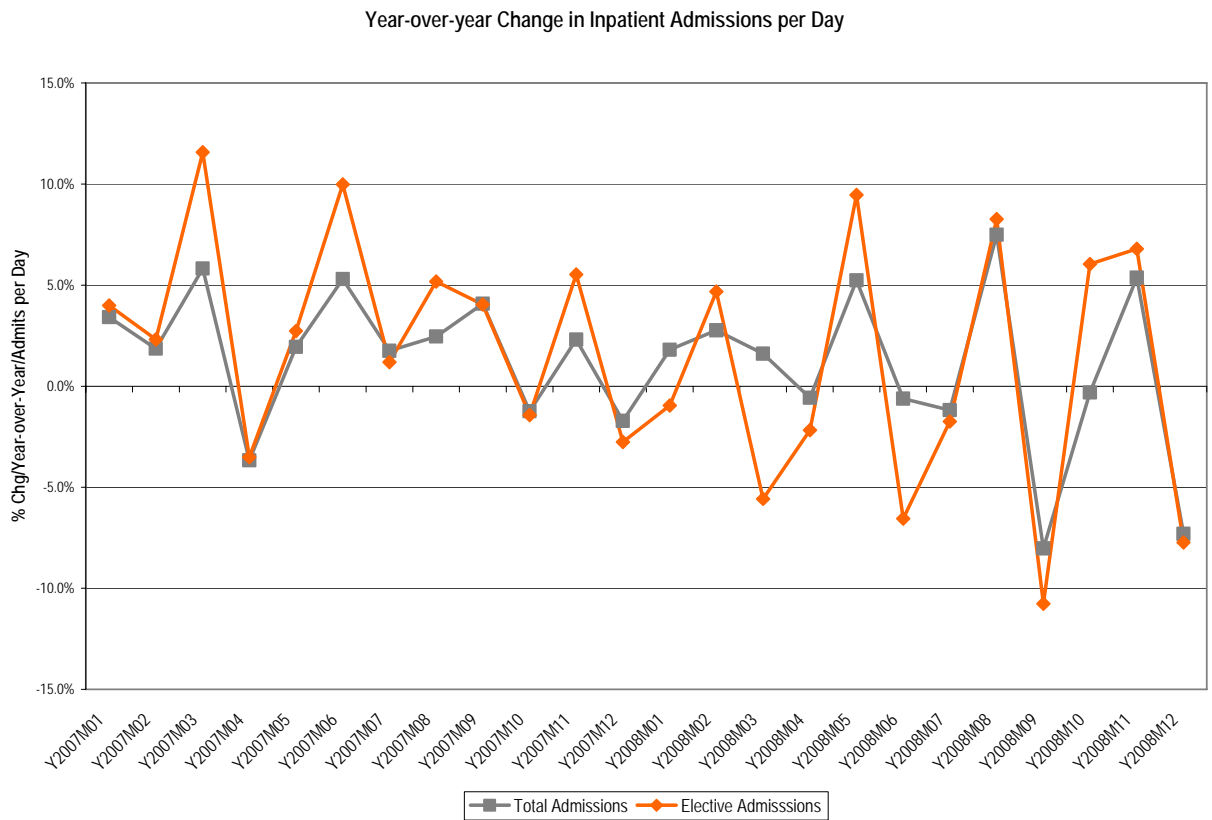


Figure 15 contains another view of the total and elective admission data, with year-over-year changes in inpatient admissions for the HDD cohort displayed. There is some evidence of year-over-year volume decreases. However, the monthly variability in the admission process variance appears to increase in recent periods and makes it difficult to deduce a trend. It is notable that year-over-year variances of +/- 5% are not unusual — and these are averages of a cohort of 150 hospitals. Individual hospitals should use caution when interpreting fluctuations in their own inpatient volume data.

Figure 15: Change in Total and Elective Admissions, January 2007 - December 2008



Two Service Lines

We sought additional insight into possible recession impacts on hospital care by examining two key service lines for hospitals: cardiovascular care and orthopedic surgery. Figure 16 displays monthly data for cardiovascular admissions (medicine and surgery) for the HDD cohort. The data plotted are moving annual average admissions per day. Cardiovascular surgery trends are within historic ranges, and cardiovascular medicine observed decreases simply continue a pattern of long term decline that predates the recession.³

Figure 16: Cardiovascular Services Admissions, January 2007 - December 2008

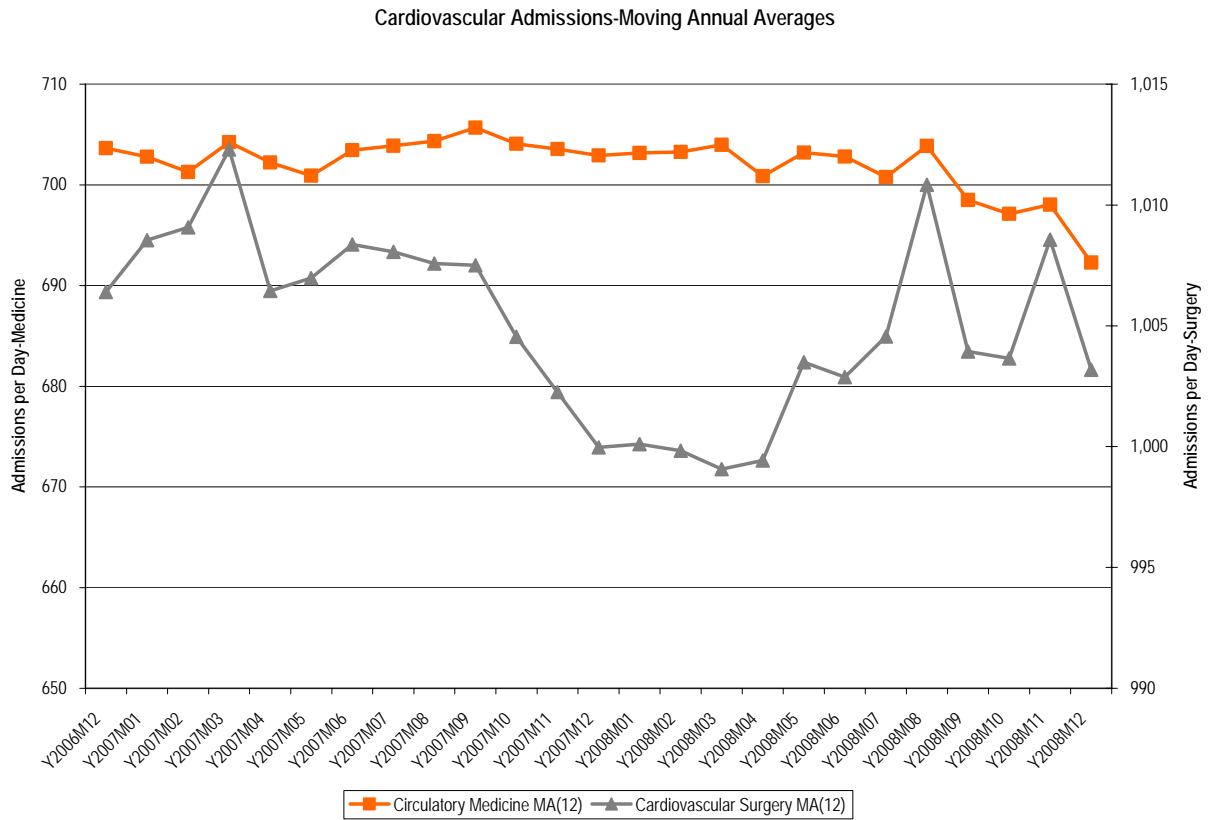
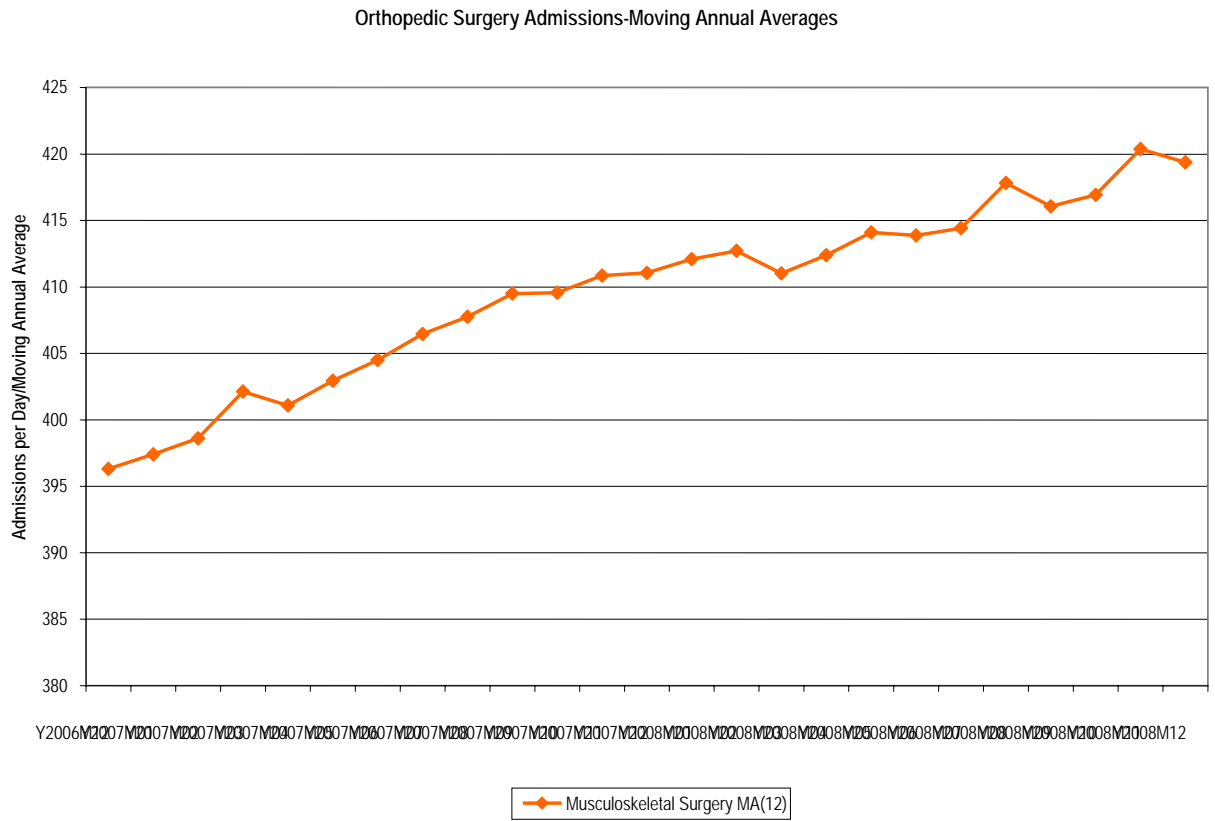


Figure 17 contains admission data for orthopedic surgery from the same HDD cohort. Orthopedic inpatient admissions show no sign of decrease in this set of hospitals.

Figure 17: Orthopedic Surgery Admissions, January 2007 - December 2008



Outpatient Trends

Hospital inpatient admissions may not be sensitive to the recession, but is this true for hospital outpatient care? Figure 18 contains estimates of procedures per day for the HDD hospital cohort. We display information for three procedure groups — major invasive diagnostic, major imaging and major outpatient surgery — because they are of key business importance to most hospitals.⁴ We find no evidence of volume trend breaks following the start of the recession in late 2007.

Figure 18: Hospital Outpatient Major Procedure Group Volumes, January 2007 - December 2008

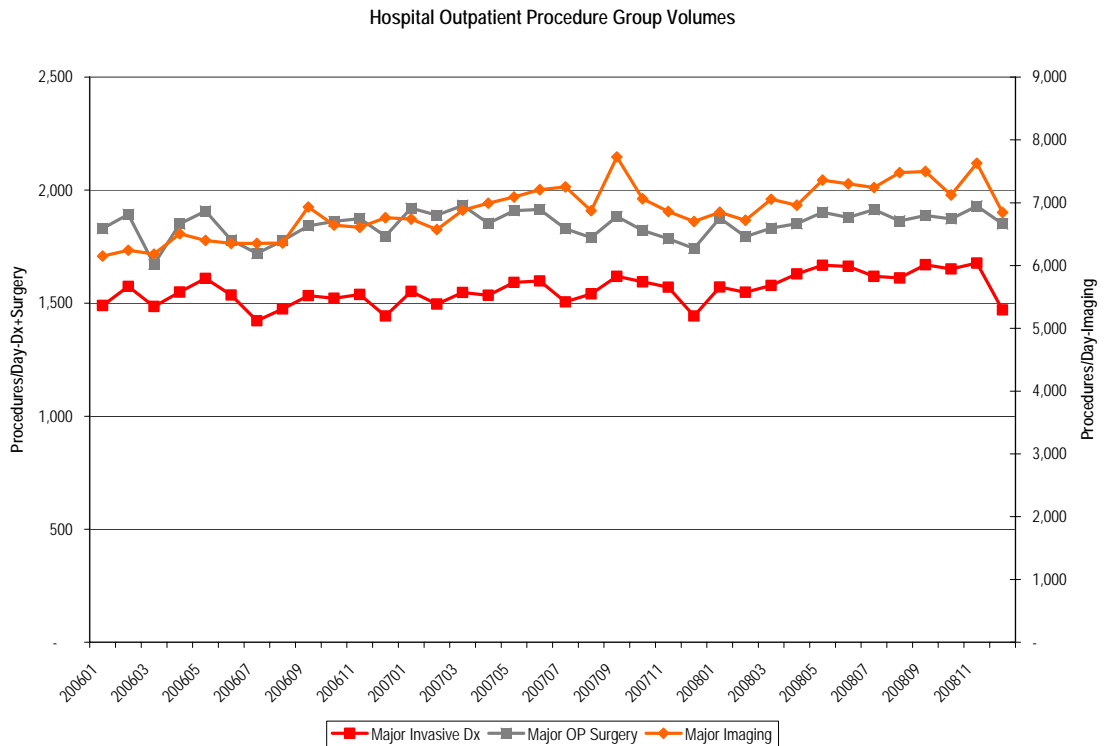
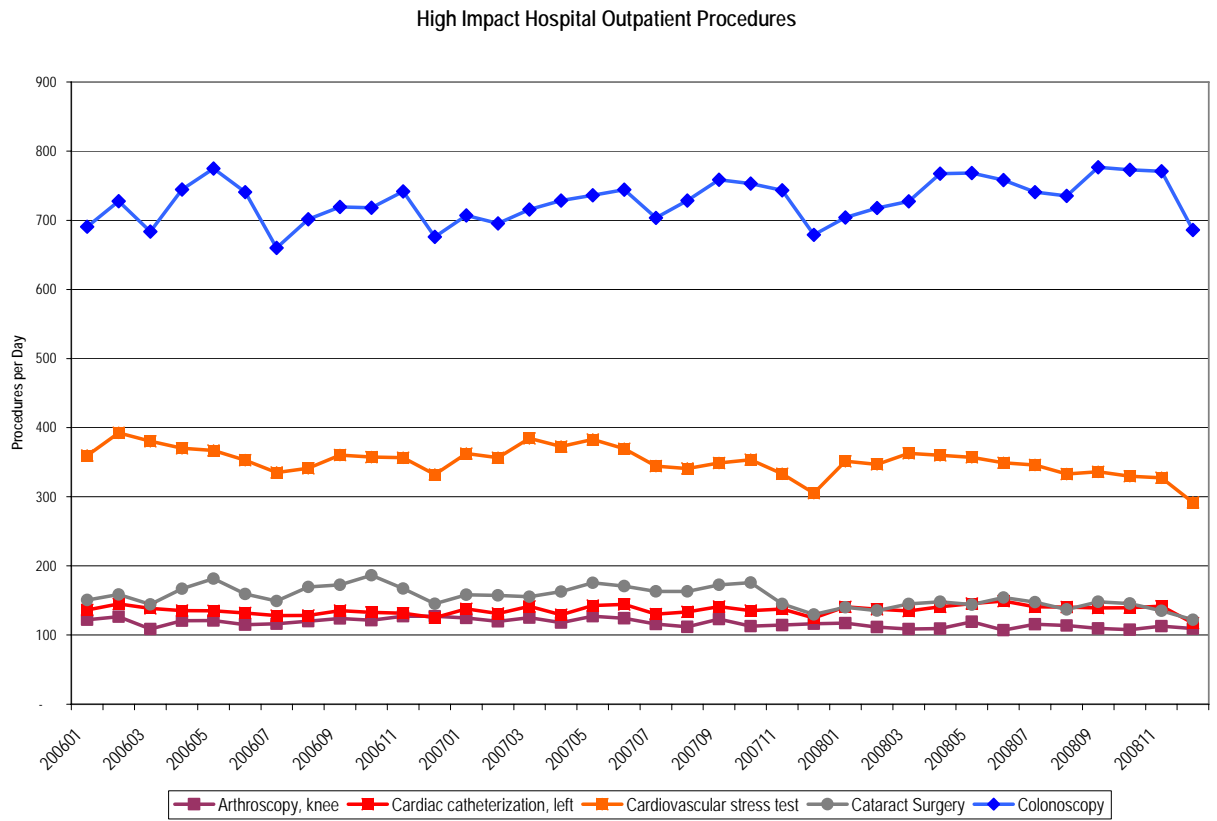


Figure 19 also displays hospital outpatient data from the HDD cohort, but focuses on specific procedures important for hospital outpatient revenues.

Figure 19: Hospital Outpatient Key Procedure Volumes, January 2007 - December 2008



Figures 20 and 21 contain the same outpatient volume data as the previous charts, restated as year-over-year volume change. Annual percentage changes in major invasive diagnostics, major imaging procedures and major surgeries vary within the historic range (Figure 20). There is some evidence of downward trends in cataract surgery, stress tests, and knee arthroscopies (Figure 21). However, these trends are consistent with movement of key procedures to non-hospital outpatient settings.

Figure 20: Changes in Hospital Outpatient Major Procedure Group Volumes, January 2007 - December 2008

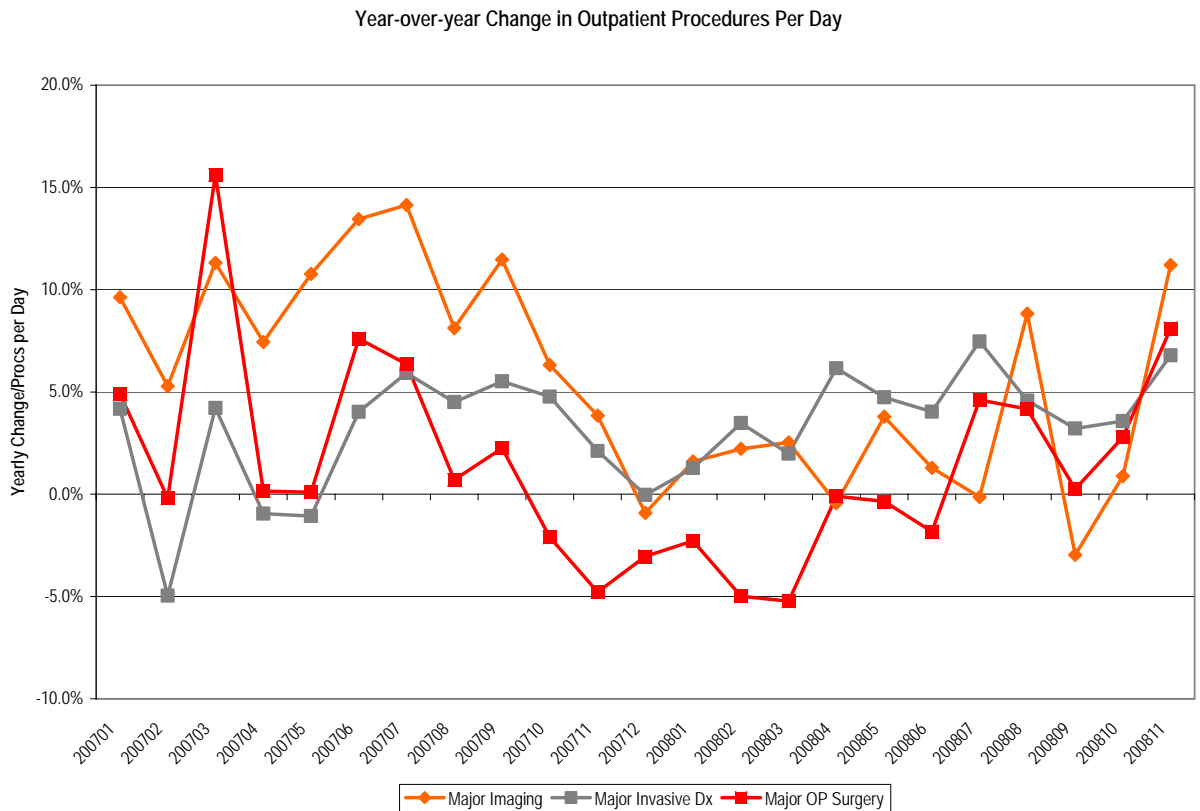
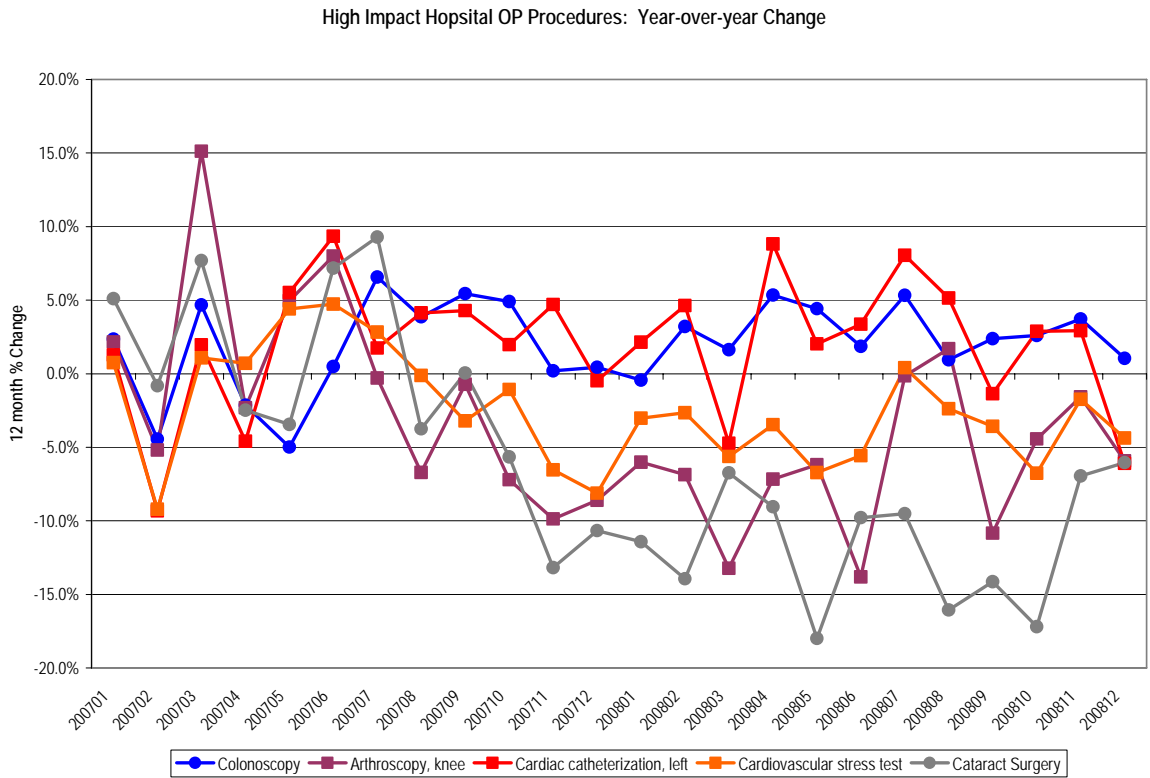


Figure 21: Changes in Hospital Outpatient Key Procedure Volumes, January 2007 - December 2008



Hospital outpatient volume estimates do not account for shifts of care to non-hospital sites. The Thomson Reuters Physician Activity Database (PADB) contains information on physician procedural activity across all settings of care for a large sample of physicians. We are tracking a subset cohort of the PADB, containing approximately 17,000 physicians, who provide consistent and reliable reporting of data from February 2007 through January 2009. Figure 22 displays estimates of mean procedures per working day for the PADB cohort, using the major procedure groups used to track hospital outpatient volumes.⁴ All series are following historic trend lines or are within range of historic variation (visits and consultations have been displayed on a second axis for clarity).

Figure 22: Physician Service Volumes, Major Procedure Groups, February 2007 - January 2008

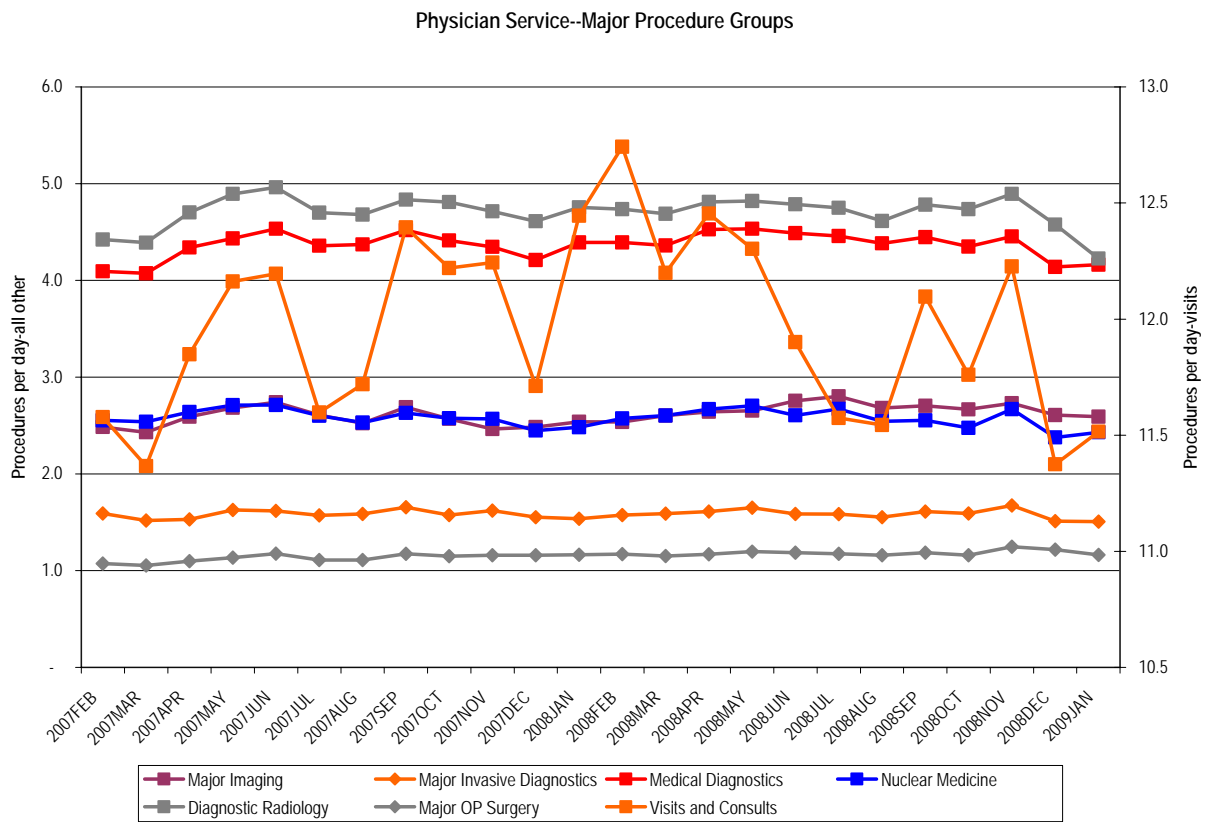
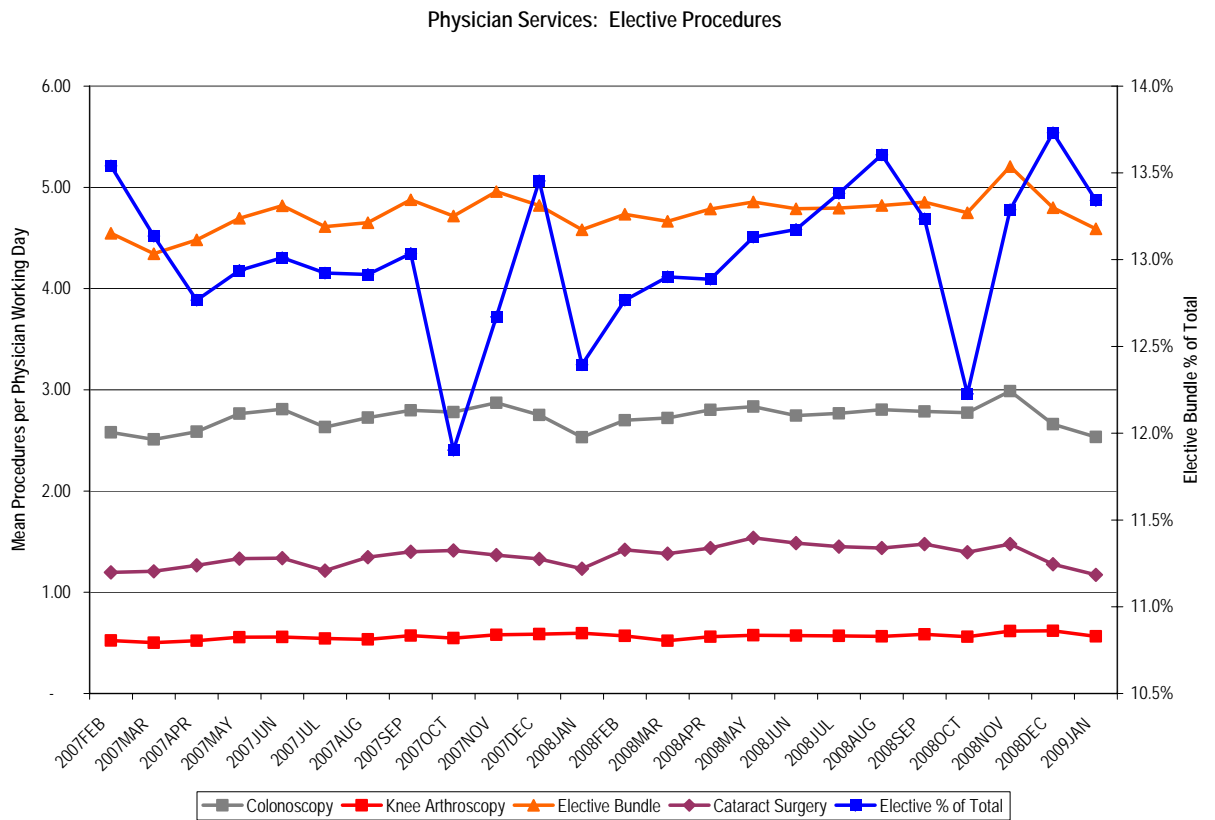


Figure 23 provides another view of the PADB cohort activity, namely elective procedure volume.⁵ The bundle of elective procedures and other key elective procedures follows standard patterns of seasonal variation. Knee arthroscopy and cataract surgery volumes are stable, affirming the assertion that volume declines for these procedures in the hospital setting really represent a shift in site of care.

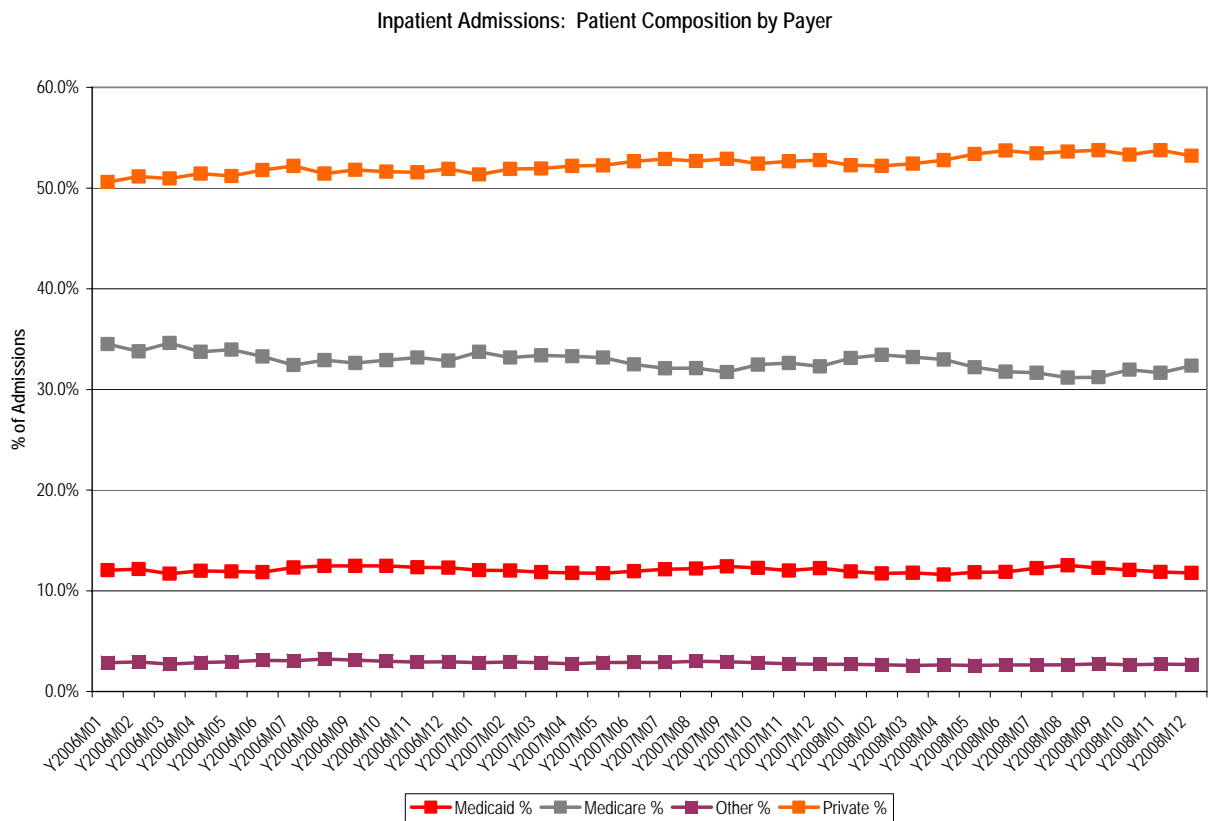
Figure 23: Physician Service Volumes, Elective Procedures, February 2007 - January 2008



HOSPITAL PAYER MIX

The most current information we possess on insurance coverage and hospital care is the principal payment source for patients who are admitted to hospitals. Looking again at the Hospital Drug Database cohort, we recorded the expected principal source of payment for admissions from January 2007 to December 2008. We are able to classify admissions by private insurance coverage/private pay, Medicaid, Medicare, and other sources of payment. Figure 24 shows very little movement in the principal payer composition for inpatient in our HDD cohort. Contrary to other industry information, we see a slight increase in the fraction of private pay patients in this cohort.

Figure 24: Inpatient Admissions by Principal Payer, January 2007 - December 2008



SUMMARY

The hospital industry has been viewed as recession-proof, which is largely supported by the historical data. Even so, the current recession presents unprecedented challenges for hospitals' operations. This raises questions about the value of historical information as a guide for understanding the present.

The hospital industry is not recession-proof, but it appears to be recession-resistant. Here's what we know as of January 2009 (all conclusions are based on national data):

Observed impacts that appear related to the recession:

- Hospital non-operating and total margins have decreased dramatically, especially in the third quarter of 2008. Total margins are at historically unprecedented lows.
- Approximately 50% of hospitals are operating in the red.
- Hospital days-cash-on-hand has decreased significantly, following a pre-recession trend.
- Restricted investment assets have shrunk substantially for major teaching hospitals. These are non-realized losses that are not reflected in total margins declines.
- Hospital reimbursement rate increases appear to be shrinking — with possible negative impacts on net patient revenue in 2009.
- Total inpatient admission volumes may be falling below expectation. Note that our trend data are not yet conclusive.

Possible recession impacts that we have not observed:

- Rising hospital unemployment rates or declining payrolls.
- Bed closures.
- Increases in hospital bad debt or interest expense.
- Decreases in hospital capital expenditures.
- Deferral of elective procedures (in hospital and non-hospital settings).
- Decreases in private pay or increases in Medicaid/uninsured patients for hospitals.

DATA SOURCES AND METHODOLOGY

- The hospital operational and financial performance data used in this study is quarterly financial data (Q2 2005 through Q3 2008) for general acute care community hospitals in the proprietary Thomson Reuters ACTION O-I® database. The quarterly samples have an average 439 reporting hospitals, comprised of 76 small community hospitals (26-99 beds), 127 medium community hospitals (100-249 beds), 74 large community hospitals (250+ beds), 102 teaching hospitals, and 60 major teaching hospitals. Data have been weighted and projected to the universe of general acute care community hospitals.
- The hospital inpatient and outpatient cohorts in this research brief are constructed from the MarketScan® Hospital Drug Database. This Thomson Reuters database provides monthly projections of hospital inpatient and outpatient volumes and pharmaceutical use. The projections are based on a non-random sample of hospitals that submit near real-time discharge and pharmaceutical information to the Hospital Drug Database. Approximately 200 of the submitting hospitals are able to send full discharge, procedural, diagnostic and drug detail within 30 days of the close of each month. Sample data are projected to represent the universe of short-term, general, non-federal hospitals.
- The physician cohort used in this study is constructed from the Thomson Reuters Physician Activity Database. This database provides claims for all sites of care and all payers for a sample of approximately 120,000 allopathic and osteopathic physicians. Data from the sample are projected to the universe of physician activity at a national level.
- The Bureau of Labor Statistics provides estimates of hospital employment, reimbursement, mass layoffs and the producer price index. See www.bls.gov for additional information on these estimates.
- Information on hospital closures is derived from the CMS hospital provider of service (POS) file. For more information on the POS, see www.cms.gov.

NOTES

¹ The Impact of Economic Cycles on U.S. Hospitals, Dennis Dunn, David Koepke, Gary Pickens , Thomson Reuters, January 2009.

² Information on inpatient elective procedure definitions is available from the authors.

³ See, for example, Recent Trends in Hospital Utilization for Acute Myocardial Infarction and Coronary Revascularization in the United States, Brahmajee K. Nallamothu et al, American Journal of Cardiology, 2007.

⁴ Information on outpatient procedure group definitions is available from the authors.

⁵ Information on outpatient elective procedures is available from the authors.