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Quality Improvement and the Bottom Line

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Quality Improvement and the Bottom Line

By Caryl E. Carpenter, MPH, PhD

Do improvements in quality of care result in improvements in the bottom line? To answer this question, we need to know the impact of quality improvement (QI) on costs and revenues, plus the net effect on profits. Although the positive impact of quality on the bottom line has been documented in other industries, there is little recent empirical evidence in the health care industry.

The business case for health care QI (ie, that investments in QI will result in better clinical outcomes and better financial performance) is primarily based on anecdotal evidence from case studies. Larger empirical work is about 10 years old; for example, a study[1] of more than 1700 hospitals in the late 1990s concluded that effective implementation of QI could improve financial and cost performance. This study and others predate quality incentive systems such as pay for performance (P4P) and nonpayment for preventable complications or never events.

Perhaps one of the most important breakthroughs in health services research in the last 20 years has been the growing body of evidence that better quality is not necessarily more expensive. In consumer product markets, we have traditionally assumed that higher priced products are better quality products. This assumption carried over into the health care industry until recently, when numerous outcomes studies documented that it is possible to improve quality and reduce costs at the same time. What has not always been clear is whose costs have been reduced – the provider's, the payer's, and/or the consumer's. This article considers only the impact of quality improvement on the hospital provider's costs. The impact of better outcomes on revenues has not been examined. For example, the Premier P4P demonstration project documented improvements in processes, reductions in mortality rates, and decreases in associated costs in the demonstration hospitals.[2] However, no data were collected to measure the impact of the P4P incentives on revenues or the net effect on profits.

The Income Statement Perspective: To determine the relationship between QI and profitability, it is necessary to take an income statement perspective. The income statement represents a summary of financial activity over a period of time. The bottom line (net *income*) results from subtracting expenses from revenues. Although the terms *expense* and *cost* are often used interchangeably, in the language of accounting they have different meanings. Studies that examine the impact of quality of care on hospital *costs* may actually mean hospital *expenses*. From an income statement perspective, the question becomes, "How do QI programs impact expenses (costs) and revenues, and what is the resulting impact on income (profits)?" In this context, the relevant costs (or expenses) are those incurred by the provider of care, not the payer or the consumer.

Figure 1. Impact of Quality Improvement on Hospital Expenses

+	Expense of designing and implementing QI programs
–	Expense from shorter stays, fewer ancillaries, or less costly drugs
+	Expense from longer stays, more ancillaries, or more costly drugs
+	Expense from changes in nurse staffing ratios
–	Expense from avoiding "never events"
+	Expense from increased utilization resulting from enhanced reputation???

Impact on Expenses: We start with the impact of QI strategies on costs for hospitals (ie, the expenses reported on the income statement) (Figure 1). First, there are expenses associated with designing and implementing a QI program or complying with quality guidelines from a payer. If an inpatient hospital QI program results in shorter stays, fewer ancillaries, or the use of less expensive drugs for a given condition, hospital expenses will decrease,

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particularly the variable expenses associated with patient care. Fixed expenses, primarily staff salaries, decrease only if the reduction in utilization leads the hospital to downsize. On the other hand, if better quality of care results in longer stays, more ancillaries, and more expensive drugs, variable expenses for the hospital will increase. Fixed expenses also could increase if higher utilization required additional staffing or a state mandated a lower nurse-to-patient ratio to improve quality.

The recent advent of nonpayment for preventable complications or "never events" raises questions about the impact of these payer policies on hospital expenses. Presumably, complications and never events result in higher expenses for the hospital than if the complication or event had been avoided. Does that imply that a QI or patient safety program that targets preventable complications or never events would result in lower expenses for the hospital? The answer is not clear, although it should be yes.

Figure 2. Impact of Quality Improvement on Hospital Revenues

	No change under DRG reimbursement
–/+	Under per diem payment (depending on change in length of stay)
+	Under pay for performance
	No loss of revenue from "never event" denials
+	Revenue from increased utilization resulting from enhanced reputation???

DRG = Diagnosis Related Groups

Impact on Revenues: While estimating the impact of QI on expenses can be difficult, estimating the impact on revenues is even more complex. The impact on revenues depends on the payer (Figure 2). Under a case-based reimbursement system such as the diagnosis-related groups (DRG) system used by Medicare, reducing hospital expenses does not result in higher revenues. Medicare pays a fixed rate per admission based on the diagnosis. That rate does not decrease when a hospital reduces length of stay or services per admission.

Revenues from payers that use per diem reimbursement methods will decrease if QI methods result in shorter inpatient stays, whereas revenues from these payers will increase if QI results in longer stays. QI programs that result in more or fewer services per day will not affect revenues from per diem payers.

Under a P4P system, revenues should increase as a hospital complies with quality standards and improves outcomes of care. The impact of nonpayment for never events is more ambiguous. Although avoiding preventable complications or never events will avoid nonpayment and a loss of revenues, it will not increase revenues.

Many hospital managers believe that improvements in quality will result in a better reputation for the hospital in the community. It could also result in better ratings through programs like HospitalCompare (www.hospitalcompare.hhs.gov) and HealthGrades (www.healthgrades.com). If such improvement in reputation results in increased utilization of a hospital's services and increased market share, the hospital's QI efforts could increase revenues. Unfortunately, it is costly and time consuming to measure the increase in utilization that can be attributed to QI or an enhanced reputation, so these measurements are rarely done.

Impact on Income: Hospitals earn operating income when their revenues exceed expenses. Therefore, the question of the impact of QI on profitability depends on its net effect on expenses and revenues (Figure 3). The effect will depend, again, on the method of reimbursement. QI that reduces expenses will increase income under DRG payment; QI that increases expenses will decrease income under DRG payment. However, the net effect of QI on profits under per diem payment or P4P is unclear. The reduction in expenses must be greater than the reduction in revenues under per diem payment for QI to increase net income. This would be most likely to occur if the hospital reduced fixed as well as variable expense. Similarly, the increased revenue from P4P may or may not exceed the reduction in hospital expense, so the net effect on profits is ambiguous.

Figure 3. Impact of Quality Improvement on Income (Profits)

+/–	Under DRG reimbursement
+/–	Under per diem payment
+/–	Under pay for performance
+	Income from avoiding "never event" denials
+/–	Income from increased utilization resulting from enhanced reputation???

DRG = Diagnosis Related Groups

Conclusion: Do improvements in quality of care result in improvements in financial performance? It depends on the impact of QI on hospital expenses and revenues. That depends, in turn, on the type of QI intervention, its impact on utilization, and the reimbursement method. Conceivably, QI could increase net income for some payers and decrease it for others. There is a clear need to measure the effects of QI carefully in order to answer this crucial hospital management question.

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