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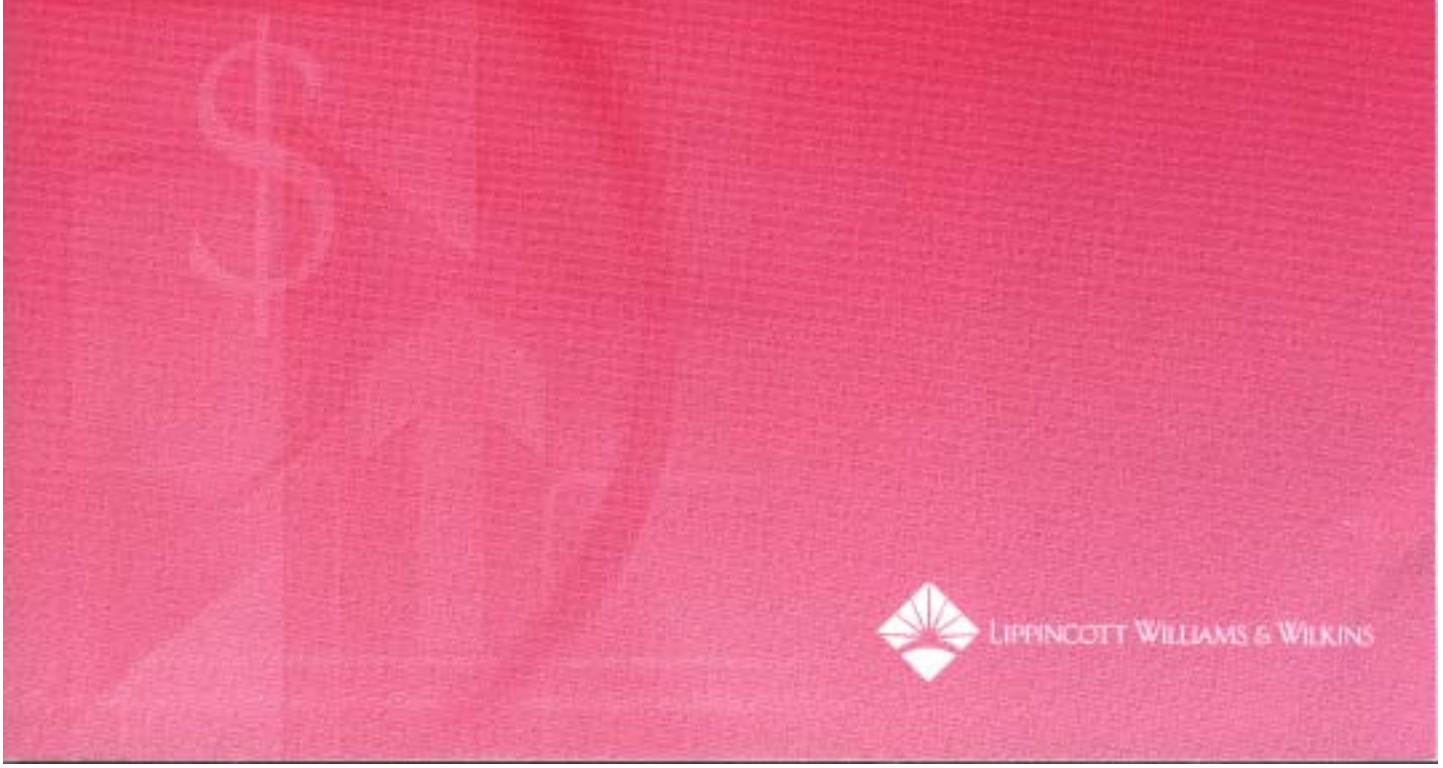

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The Shocking Cost of Turnover in Health Care

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Abstract: Review of turnover costs at a major medical center helps health care managers gain insights about the magnitude and determinants of this managerial challenge and assess the implications for organizational effectiveness. Here, turnover includes hiring, training, and productivity loss costs. Minimum cost of turnover represented a loss of >5 percent of the total annual operating budget.

Clinicians and other health care providers frequently hear the latest news—someone else is leaving for a position across town, elsewhere in the state, or in a new region. In some cases, this may be a cause for celebration. A departing person sometimes cuts corners, compromises quality and safety, risks malpractice claims, or exemplifies any number of adverse traits, behaviors, and attitudes that staff find offensive. In other situations, a resignation, early retirement, or sudden unexplained departure marks a major loss for an organization and staff. The announcement may be unanticipated or well publicized beforehand, bitter or upbeat, and happy or sad. Innumerable reactions accompany the realization that someone is leaving while everyone else is staying—the ambiguity of collegial turnover.

Key words: health care policy, quality improvement, retention, turnover

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Cost of turnover—a non-value-adding element in the organizational budget—forces managers to focus on retention. The huge recurring expense created by turnover offers opportunities to improve employee satisfaction, reduce turnover, improve quality, and cut costs by diverting the current financial drain into programs and policies that encourage retention.

Experienced health care providers, those having served many years with the same organization, are cautiously critical about how the practice environment contributes to turnover. Management investigators find a profile of turnover that identifies startling trends: excessively high rates of departure by experienced registered nurses, a series of revolving laboratory personnel, or predictable vacancies in a specialty or subspecialty with the negative downstream effects.

Many health care providers see employee turnover of physicians, nurses, and support staff as a necessary and inevitable cost of doing business. Seldom do health care executives make a rigorous attempt to measure accurately this hidden outlay. As executives' plates overflow, stretching them beyond their limits, turnover suffers benign neglect. When an organization experiences consistently high turnover, especially among high-priced clinicians or hard-to-find nurses, the situation warrants another look.

This paper examines turnover and its costs in the health care environment. Pertinent literature helps to

understand the perceived significance of provider turnover and how this perception balances with reality when attempts have been made to measure turnover expenses. Prior empirical work on costing turnover was used as a basis for the development of a new, improved and rigorous accounting methodology. This analytical model was applied to a large academic medical center. Results are discussed in terms of implications for health care policy, research and practice.

CONCEPTUAL FRAMEWORK AND RESEARCH ISSUES

Classic representative studies address turnover in manufacturing, retailing, and service industries.[1–3] The results acknowledge the impressively high costs organizations suffer when employees terminate their affiliation. Health care organizations affected by high provider turnover also experience these costs according to various studies of nursing turnover[4,5] and a few studies involving other groups such as physicians,[6,7] respiratory therapists,[8] pharmacists,[9] and hospital chief executive officers.[10]

Several implications regarding turnover in health care surface from prior research. First, professional disillusionment is a major and accelerating problem among health care providers who switch employers or leave the health care entirely. Second, in addition to financial consequences from turnover, quality of care suffers and malpractice claims escalate.[11] Third, reliability in predicting turnover behavior is low, generally about a power of 0.40.[12] Fourth, statistical and fiscal methods used to measure turnover in health care need to be improved.[13] "Many scholars have speculated that inefficient production by a new hire can be a prime training cost, which also makes costing complicated".[3]

Calculation of turnover costs and understanding turnover implications in health care are conceptually challenging. The imperative to refine measures and to improve the calculus has immediate practical relevance for three reasons. First, accounting terms and concepts cannot be applied directly to health care without significant adaptation. For example, revenue does not equal reimbursement nor does cost equal charges. As a result, manufacturing-based accounting and control systems that accurately reflect turnover metrics cannot simply be transferred to health care without major modification. Health care is simultaneously driven by market forces and controlled by regulation,[14] which adversely influences applying corporate practices to clinical settings. Second, calculation of costs is mathematically complex and varies with the type of employee and employer. For example, turnover costs associated with maintenance staff are less complex to measure compared with turnover costs for physicians. Third, the critical measurement of turnover—*net* effect—is almost noncalculable because of difficulties in attributing revenues and costs. This study focuses on actual out-of-pocket costs; linking complex revenue streams to costs requires future research.

Attempts to instill mathematical rigor when quantifying health care costs entail numerous methodological challenges. Because huge variability in specific turnover cost elements exists, meaningful comparisons may be tenuous. For example, if a medical center hires a recently graduated medical resident from an affiliated training program, the direct costs are primarily bureaucratic, involving licensing and outside advertising as required by law. In contrast, recruiting a senior physician, such as a chair or a chief, from a foreign country may include trips for interviewing and relocation, as many as six to eight search committee meetings (each representing more than $1,000 in work hours), relocating laboratories and ancillary personnel, personal relocation costs plus other personal reimbursements. Such recruitment can easily exceed $500,000. These costs of successful recruitment do not include expenses incurred when considering or interviewing other candidates before making the hiring decision.

The total financial impact of recruiting medical staff is difficult to quantify because of the problem of revenue attribution, the medical analogue of the lead-lag accounting problems in business. Hiring a widely respected cardiologist who is also an effective manager can generate large revenue streams for surgery, anesthesia, and critical care departments as well as their hospital counterparts—laboratories, operating rooms, and intensive care units. Can increased business six months to ten years posthire be attributed to that recruitment? Some centers try to estimate these costs, but in the end health care executives are forced to guess.

Turnover cost models typically omit the cost of reduced productivity (CoRP). These calculations require both use of learning curve (LC) algorithms and retention rate methodologies.[15] Production outcomes that affect both expenses and revenues change constantly. Local, regional, and national forces—especially market and regulatory pressures—impact the costs of drugs, supplies, and labor as well as allowable and actual reimbursement. Furthermore, virtually no health care contracts have a thirty- or sixty-day net clause with penalties; this results in long and unpredictable delays in payments, sometimes requiring years before receiving revenues.

Not only is the finish line for delivery of health care goods and services constantly moving but so is the market as represented by patient type and volume. One train crash creating several severely injured patients, two new babies with complex congenital heart disease,

or a local epidemic can drastically affect the bottom line of an entire medical center.

Inconsistent usage of outcomes measures creates another problem for quantifying costs and revenues in health care. Everything from discharge diagnoses to morbidity rates and cost per discharge diagnosis or cost per procedure is idiosyncratic. This prevents formulation of consistent benchmarks and national standards, and complicates the creation of viable comparative metrics.

A final problem in costing turnover is the lack of primary data. While managers and support staff track millions of data bits, ranging from ethnic composition of emergency room admissions to rubber glove size used in intensive care units, recruitment expenditures and relative productivity measures are not typically tracked. Thus, creativity, critical thinking, and innovation are required to collect valid turnover costs data in health care.

METHODOLOGY

Multiple databases at an academic medical center in the Southwest provided the foundation for measuring costs of employee selection, hiring, training, and termination as well as qualitative and quantitative yardsticks used to measure employee productivity. Specific organizational units within the academic medical center from which data were drawn included the University Hospital (UH), School of Medicine (SOM), and entities such as human resources staff in both UH and SOM, academic affairs at SOM, clinical practice sections (in both UH and SOM), and specific departments of the SOM. Turnover costs were categorized by phase of employment: hiring, training, working, and termination. Accounting records were used to measure these costs. In a few instances, cost estimates were made. These estimates are reported at the lower threshold rather than at upper bounds. Because no previous data or methodologies have been reported for calculating the costs to hire physicians, an algorithm was developed based on primary cost drivers of recruitment.

Costs to train individuals consist of mandatory courses, orientation classes, and reimbursed time when not generating charges. A range of training costs per staff member ($1,125–23,525) was reported across personnel in the index medical center. Additionally, several not readily quantifiable costs associated with training can be identified but are not practically accountable including time invested by staff members whose jobs require more than one set of courses, decreased productivity when supervisors train new hires, time required for satisfaction of competencies (generally a large but nonreimbursed time commitment), and administrative overhead and course materials. Although these costs are excluded from the present study because they cannot be readily quantified, it is important to acknowledge their presence. Future research on turnover costs may offer progress in developing measures and acquiring appropriate data for such costs.

In 1981, the concept of *efficiency recovery cost*[2] did not include this expense in force loss cost analysis because the then prevalent method for calculating turnover did not address this factor. Currently, the term *CoRP* describes the lesser effectiveness of new employees compared with experienced workers who have achieved job mastery. No published data on experience-based CoRP in health care was found. This value was estimated by using employee LCs[16] and inputting four factors: percent starting efficiency, time to job mastery, annual salary, and retention rates. These values were derived from interviews with managers at all levels of the medical center.

CoRPs were calculated using two different LCs: a straight line (linear) and a Pareto relationship where 80 percent of the learning occurred in the first 20 percent of the time to achieve job mastery. In summary, because CoRPs are proportional to annual salary, physicians generated the highest cost followed in order by administrators, nurses, technical, allied, and support staff. As turnover cost calculations are usually expressed annually, the results reported in this study consider only the first year of learning using both LCs. The shape of each LC and starting level of job efficiency had very large effects on the CoRPs.

FINDINGS

Table 1 shows the results for determining turnover costs in 2001. The first analytic phase considered the medical center as a single organization. The average number of active employees working >70% time was 5,118. Of those, 1,641 were new hires in the job categories listed, resulting in annual one-year turnover rates (e.g., number of new hires divided by average active number of staff) ranging from 9 percent for physicians to 49 percent for allied health personnel.

Average costs to hire varied from $276 for administrative assistants to $36,743 for attending physicians. Training costs were generally less than $3,700 for most individuals. Clinical nurses were paid for a one-month period during which they did not perform billable services. When this was added to their extensive posthire training, the total costs for a newly hired nurse averaged $15,825. CoRPs for nurses ranged from $5,245 to $16,102.

The total turnover cost by group is shown in the lower half of Table 1. Physicians generated 67 percent (e.g., $2 million of a total $3 million hiring costs) of the total annual costs *to hire*. The *training* of nurses generated 59

TABLE 1

Annual Costs of Turnover in a Major Medical Center

(A) Primary Cost Data on Health Care Turnover

Work Group	Average Active		New Hires			Cost per Person by Phase of Employment ($)			
	SOM	UH	Total	*n*	Percent Work Group	To Hire	To Train	CoRP Pareto LC	CoRP Linear LC
Physicians	624	0	624	56	9	36,743	89,800	27,790	58,711
Nurses	24	885	909	261	29	1,635	15,825	6,027	14,026
Allied health personnel	186	360	546	265	49	720	1,587	4,061	10,709
Technical staff	325	484	809	310	38	347	1,587	3,728	9,638
Support	820	720	1,540	474	31	286	2,247	629	5,245
Administrators or managers	362	328	690	246	36	276	3,650	6,105	16,102
Totals	2,341	2,777	5,118	1,612	N/A	2,986,173	7,095,628	7,161,108	19,221,489

(B) Actual Costs Calculated from Primary Data (Above)

Work Group	Best Case: Using Pareto LC ($)				Worst Case: Using Linear LC ($)			
	To Hire	To Train	CoRP	Totals	To Hire	To Train	CoRP	Totals
Physicians	2,057,608	89,800	1,556,240	3,703,648	2,057,608	89,900	3,287,816	5,435,324
Nurses	426,735	4,130,325	1,573,047	6,130,107	426,735	4,130,325	3,660,786	8,217,846
Allied health personnel	190,800	420,555	1,076,165	1,687,520	190,800	420,555	2,837,885	3,449,240
Technical staff	107,570	491,970	1,155,680	1,755,220	107,570	491,970	2,987,780	3,587,320
Support	135,564	1,065,078	298,146	1,498,788	135,564	1,065,078	2,486,130	3,686,772
Administrators or managers	67,896	897,900	1,501,830	2,467,626	67,896	897,900	3,961,092	4,926,888
Totals	2,986,173	7,095,628	7,161,108	17,242,909	2,986,173	7,095,728	19,221,489	29,303,390

Cost to train new physicians is a fixed cost. CoRP considers only the first year of employment and is shown using both linear and Pareto LCs where $f(0) = 0.5$. All calculations in B are derived from A, multiplying individual costs by number of new hires. In B, costs to hire and costs to train are unaffected by choice of Learning Curve (LC) for calculation of CoRP. "Best case" total turnover cost in B was calculated using a Pareto LC and "worst case" used a Linear LC.

percent (e.g., $4 million of a total $7 million training costs) of total training costs. Excluding support personnel, for each of the other groups, CoRPs were $1.0–1.5 million using the best case scenario (Pareto LC) and $2.8–4.0 million assuming a linear LC (worst case scenario). The total CoRP for the entire medical center was $7–19 million depending on the scenario (Pareto vs. linear LC) chosen. Support personnel required one year for job mastery. Under the Pareto assumption, this resulted in a relatively small productivity cost.

Over one-fourth of total turnover cost was due to nurse turnover. Although one-year turnover of physicians (9%) was much lower than other groups, the costs associated with these replacements were so high that the physician group, with only fifty-six recruitments, represented the second largest element of total turnover cost. Putting the numbers in Table 1 in the medical center context, CoRPs represented 1.4–3.8 percent of the annual operating budget and total turnover cost represented 3.4–5.8 percent of the $500 million annual operating budget.

Most medical centers are organizationally divided into two components: hospital and medical staff or faculty related to a SOM. Turnover costs for these two entities were compared, and although occasional differences surfaced such as turnover rates (UH support staff = 47% while SOM support staff = 35%), net costs were not significantly different.

DISCUSSION

The magnitude of the turnover cost in this study's academic medical center was astounding: annual cost of turnover represented 3.4–5.8 percent of the annual operating budget ($17–29 million on a $500 million base across the entire medical center). The largest cost driver was the loss and necessary replacement of nurses. Expensive training costs were also incurred. These are partly due to clinical education specific to the institution and partly for administrative aspects such as employee benefits, computer capabilities, and especially regulatory compliance. Expenses for physician recruitment were remarkable. Likely, the process of recruiting physicians to UHs and public institutions is more costly than that of nonacademic medical centers because of bureaucracy and academic obligations. The costs of turnover for both support and administrative employees were driven more by the supply of replacements than the cost per new hire. It is interesting to note that direct value adders—physicians, nurses, and allied health groups—represent less than half (45%) of all the medical center's employees.

Of the three quantifiable components of turnover costs—hiring, training, and reduced productivity—the first two are readily calculable and together represent ~2 percent of the annual operating budget. Even a small increase in employee retention would have a major impact on this $10 million annual expense.

Reduced productivity annual cost assuming the best case scenario is $7.1 million or 42 percent of total turnover costs; worst case scenario is $19.2 million or 66 percent of total turnover costs. Either way, the cost associated with the lower productivity of new hires is a significant component of turnover. Because reduced productivity has not been quantified before and because it does not appear as an item on any report or budget, it is an unrecognized expense. Management should consider this very large outlay when evaluating turnover and the effects of human resource policies.

Several cost drivers in the study were not readily quantifiable while some identifiable training items were insignificant relative to the bottom line. For example, costs associated with termination may be quite large and not readily quantifiable. When termination is voluntary, out-of-pocket expenses are often trivial but the revenue lost before and after termination can be considerable. Before departure, a physician no longer have an incentive to generate patient contacts (and therefore charges), and after leaving, positions may remain unfilled for long periods of time. Although pretermination sabotage is a known potential in many businesses, there are no data in health care, either in the literature or from our study, to confirm this phenomenon. Involuntary termination is much more problematic because of defensive behaviors by supervisors. Given the current litigious environment, managers may expend considerable time and energy preparing the case for termination; this is just one form of opportunity cost that is large, not readily quantifiable, and created by employee turnover.

In addition to the not readily quantifiable financial costs of turnover, other nonquantifiable disadvantages of employee turnover exist. These include multiple opportunity costs such as repetitive training obligations of remaining employees, defensive behaviors related to terminations, and lack of discretionary energy. Turnover also saps the morale of remaining employees, adds administrative time, and is disruptive to both organizational culture and structure.

IMPLICATIONS AND RECOMMENDATIONS

Based on this medical center case study, turnover costs represent an expenditure of about 5 percent of the annual operating budget. Stated differently, it would be revenue neutral to offer each departing nurse (who chose to remain rather than leave) a *staying bonus* equal to 86 percent of his or her annual salary or give *every* nurse

on staff a 33 percent retention supplement *every year.* Furthermore, the calculated turnover cost is undoubtedly less than the actual total cost; the not readily quantifiable components are likely to be financially significant; thus, turnover costs are even higher than the totals reported in Table 1.

How should health care executives view these data? Is this one more rock for Sisyphus to roll up the hill, or the prospect of unrecognized potential? We see the huge cost of turnover as a great opportunity, a chance to divert resources from wastage to productive activities. By improving working conditions, managers can increase job satisfaction, improve retention (thereby reducing turnover costs), ultimately giving care-providers time to learn, to develop, and to improve both themselves and the system in which they work.

Some managerial approaches are implicit in our analysis. Attempts at reducing turnover cost must be tailored to the individual work group—physicians, nurses, allied health care practitioners, support staff, and so forth. Methods to calculate turnover cost must be tailored specifically to health care. Simple transfer of standard accounting practices will produce data with limited managerial value. Innovative approaches like systems dynamic modeling[17] may be applicable to health care. The obvious, safest, and most effective way to lower turnover cost is by increasing employee retention. Retention is not the simple inverse of turnover, however, and must be tracked by a different methodology.[15]

Two fundamental issues result from this work. First, cost reduction must be considered from both short-term and long-term perspectives. For example, training nurses is costly and seems to be an obvious place to reduce turnover. If the ultimate effect of less training is lower quality, adverse patient outcomes, lawsuits, great dissatisfaction, and more turnover, reduction in training would be a disadvantage.

The second fundamental issue relates to the primary purpose of any organization. Contrast two companies such as GE Capital and a major medical center. Both perform useful services for the general public, employ thousands of citizens, and pay close attention to their budgets. However, GE Capital's primary purpose is to "create wealth."[18] The fact that the company provides a public good is a by-product or a means by which it markets its services. For a medical center, the goal is to promote and "create health."

When resource stewardship and wealth creation negatively impact patient care, it counters the primary goal of a medical center. Nonetheless, administrators focus on the budget in isolation, without recognition of the downstream effects of cost cutting on the delivery of quality health care services. It is optimal to consider cost data in full context of a medical center. Hopefully, cost data will be considered in a full context, viz., systems' analysis,[19] not simply used as a means to reduce the operating budget.

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