**Professional Caregiver Insurance Risk**

Insurance risk transfers can be beneficial or harmful. When an adequately capitalized insurance company writes insurance policies, aggregating and retaining these risks, there are benefits for both the insurer and its policyholders (Bowers, Gerber, Hickman, Jones, & Nesbitt, 1986). On the other hand, transferring insurance risks to inadequately capitalized operations, such as health care organizations, can be very harmful. Gold, Lake, Hurley, and Sinclair (2002) distinguish between three types of risk transfer arrangements: Global capitation, Professional service capitation, and Hospital services capitation, noting that the difference corresponds to the degree of exposure to risk. Global capitation agreements transfer most or all of the risk from health maintenance organizations to other entities and may include the costs associated with prescription medications. Professional services capitation involves the transfer of risks associated with the customary services provided to health care consumers by health care professionals and may include radiology and laboratory services. Hospital services capitation involves risk transfers that cover hospital-based services, some professional, and additional services. Gold et al. point out that risk assuming entities are regulated in some states, such as California that limits health care providers to risk-assumption for services they normally provide. Gold et al. also report findings related to the functioning of intermediary risk assuming organizations, suggesting that these organizations often accept a great deal of risk.

The assumption of ‘risk’ is well acknowledged but the characterization of the risks transfers is incomplete. When health maintenance organizations or other policy aggregators transfer risks to health care providers and organizations, it is more accurate to call these insurance transfers and to explicitly analyze the behavior of health care providers and organizations that assume insurance risks as though they are insurers, exploring their financial viability, surplus, service quality, and claims management functions in particular. The recognition that health care providers and organizations are engaged in the insurance business also has implications for insurance regulators at the state and federal levels. The
theory of professional caregiver insurance risk assumes that risk assuming health care providers and organizations are engaged in the insurance business and begins to analyze premium adequacy and claims handling implications of health care providers and organizations serving as insurers.

Global capitation agreements (Gold et al., 2002) are the clearest example of the entry of health care providers and organizations into the insurance business. However, other forms of insurance risk transfers occur as well. When a health care organization assumes responsibility for a specific client’s care and delegates the responsibility for care to a budgeted nursing unit, the transfer of responsibility for care may be characterized as an insurance risk transfer and the ability of the nursing unit to manage the resource demands may be analyzed in ways analogous to the analysis of an insurer’s capacity, albeit unique to nursing. Another financing mechanism, diagnosis related groups (DRG) also transfers insurance risks to health care providers and organizations.

Benefits of Insurance Risk Transfers

Insurance policyholders may be individuals, groups, families, organizations, or government. A well-run insurance operation significantly reduces risk for itself and its policyholders because of the benefits of the Law of Large Numbers, the theory of utility, and the Central Limit Theorem (Bowers et al., 1986; Dorfman, 1998; Schmitt, 1969; Stone, 2000; Webb, Harrison, & Markham, 1997). In essence, as insurers write more policies, the estimate of the average cost of paying claims and expenses on those policies becomes more accurate. Insurance companies use other mechanisms to insure their well being, including: writing many different types of policies and writing policies in geographic regions that are remote from each other (Stone, 2000; Webb et al., 1997). These policies help to ensure that the insurance company will not go bankrupt, depriving policyholders and claimants of the benefits they paid for or deserve (Larkin & Casscles, 2003).

However, despite significant regulatory control (Nordman, 2000; Pickens, 2003), detailed financial accounting procedures, and highly skilled personnel such as actuaries, accountants, attorneys,
and underwriters (Davidson, 2001) many insurance companies do fail (Harrington & Niehaus, 1999). In the last decade alone, there have been failures of many well-known and seemingly ‘healthy’ insurance companies such as Reliance, Mutual Benefit Life, and Executive Life. In some cases, insurance companies are rehabilitated when they fail, such as happened with Metropolitan Life Insurance. In other cases, such as Reliance and Mutual Benefit Life, the companies are so lacking in the operating capital and technical and professional infrastructure needed to operate that their assets and obligations are sold off to other insurance companies or liquidated with beneficiaries and claimants bearing the costs.

Multi-line insurance operations, geographic risk spreading, and special relationships between insurers, known as reinsurance, link the entire planet together financially (Michelbacher, 1957; Strain, 1997). The extent of this inter-relatedness became apparent after the loss of life and property accompanying destruction of the Twin Towers in New York City, the attack on the Pentagon, and the plane that crashed in Pennsylvania on September 11, 2001. Insurers and reinsurers around the world soon realized that the insurance covering the planes, the buildings, and the people in the planes and the buildings represented a monumental loss financially, in addition to the social and personal losses involved. What appeared to be a closed and bounded system of insurers and insureds, operating in a fixed, closed, deterministic model of highly predictable events, predictable revenues, expenses, and losses was anything but that. Instead, events never fully considered, suddenly came together and changed the landscape for insurers, reinsurers, and people all over the planet. Those events had always been possible, however unlikely they were to occur at that particular moment. Rogers’s science of unitary human beings, incorporating pandimensionality, open systems, and unpredictability took on new relevance on the morning of September 11, 2001.

**Harms of Insurance Risk Transfers**
The dramatic increases in the costs for health services through the 1980s and 1990s led to a desire to reduce health care costs in private and public health insurance programs. Reductions in costs affect different organizations, service providers, or clients in different ways. What may be benign in one setting may be very harmful and disruptive in another. Some organizations and professionals adjust to reductions in income by changing service priorities to better align with funding opportunities, while other organizations have great difficulty adjusting to changing financial opportunities and risks.

Average cost based reimbursement plans (Cox, 2001a) exist in one form or another in most private and public sector health care operations. Insurance risk transfers to health care providers and organizations can cause significant problems if providers decide to reduce client care services rather than achieve greater efficiency. The theory of professional caregiver insurance risk (Cox, 2002c) suggests that insurance risk transfers will result in financial problems for health care providers and organizations that repeatedly engage in such agreements because reimbursement levels in average cost based reimbursement plans cannot compensate all providers for the risks that they are taking. Financial and actuarial problems exist even if health care providers and organizations streamline operations, reduce inefficiencies, and reduce the use of defensive diagnostic testing (Cox, 2001a; 2002b; 2002c). The reason for this is that competitive pressures in the marketplace will eventually force professional caregiver insurance risk reimbursement schedules to the average cost for providing service, meeting expenses, and a small margin for profitability for the insurer (Samuelson, 1964). At the average cost of services, 50% of health care providers and organizations may spend more to provide these services then they receive in the form of prospective payments or reduce services to levels that are consistent with profitable and sustainable operations.

At first, this may seem avoidable. However, the reason average cost based reimbursement plans must reach this equilibrium condition is that it is the only stable configuration in competitive insurance markets when health care cost reduction is the primary objective (Samuelson, 1964). If any
insurer consistently pays more to health care providers and organizations than the average cost to supply services, they would have to charge their policyholders more. Another insurer will see an opportunity to profit by offering similar service at lower cost to those policyholders. If an insurer pays out more to providers than it takes in, it will eventually become insolvent. Hence, competitive pressures in the marketplace require a gradual movement to either insurer insolvency or health care provider and organization insolvency as insurers and health care providers and organizations continue these inadequately funded professional caregiver insurance risk transfer relationships.

Why is this the case? The critical flaw is the diminution or elimination of the statistical benefits of risk aggregation when health care providers and organizations accept insurance risk transfers. There are six main reasons for the loss of financial benefit typical in insurance risk transfers. First, properties such as statistical averages for a population are not necessarily true about any of the individuals in that population. This means that average costs for services based on millions of similar cases are, with statistically negligible exceptions, either lower or higher than the costs for each individual. Put another way, the costs of providing services to any particular client will either exceed or fall below the average. When these costs exceed the expected revenues for that client, it may be difficult for a relatively small health care providers and organizations to distinguish between what is clinically appropriate for the individual client in the consultation room and what is fiscally sound for the health care provider and organizations. In particular, insurers and their claims staff are usually insulated from the lives of the policyholders and claimants, while health care provider and organizations often have long-standing relationships with the clients they insure and must make clinical decisions that are based, in part, on the financial impact they will have without the ability to be dispassionate. The same issue of generating higher or lower costs than average is true when the unit of focus is any subgroup of the whole population, such as a particular health care organization’s portfolio, a geographic region, or any specific time interval, operating division, or unit.

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Second, insurance companies perform many specialized functions, developed and refined over many centuries. These special functions include: underwriting, loss control, claims adjustment, rate making, accounting and marketing. Insurers rely on skilled professionals such as underwriters, claims managers, and actuaries. These insurance functions often conflict with the role of a health care provider or organization, imposing ethical and fiduciary conflicts into professional relationships between clients and their health care providers and organizations (American Nurses Association, 2001). The theory of professional caregiver insurance risk suggests that health care providers and organizations accepting insurance risks must perform these insurance functions (Cox, 2001a). The issue is not whether most health care providers and organizations will attempt to perform these functions ethically, but whether all health care providers and organizations can, or will do so, if their own financial well being is at risk.

Third, the variability in estimates of the average cost of health services becomes higher as sample sizes decrease (Bowers et al., 1986; Dorfman, 1998; Stone, 2000; Webb et al., 1997). Health care providers and organizations serving small numbers of clients may have dramatically different results than the average for the whole population. This increasing variability with decreasing portfolio size may be particularly troublesome as the effects of insurance risks transfers to health care organizations move to the level of a specific nursing unit, registered nurse, or single client. At the level of the individual doctor, nurse, or nursing unit the variation in demand and costs for providing client care may exhaust the available resources. At this level there is no benefit of averaging, clients either receive the services they need and are entitled to receive, or they do not. This problem of increased variability also prohibits efforts to mediate the effect of insurance risk transfers because carve-outs, and risk-adjustments all assume that equity can be achieved by distinguishing groups with higher risk or demand characteristics (Finkelman, 2001). However, each of these groupings results in smaller numbers of clients, higher variability, and decreasing access to the services needed. When mental
health services for chronically ill clients are carved out of the customary managed care services will there actually be providers available that are willing and able to handle these higher risk clients? As insurance transfers, these higher variability clients pose greater financial risks once they are identified and removed from the general population.

Fourth, the timing of costs and revenues in average cost based reimbursement plans may also be problematic. Insurers would be guilty of financial impropriety if they disbursed the full amount of the prospective payments in advance of the performance of the insurance services health care providers and organizations provide. If the insurer did do this and the health care providers and organizations became insolvent, the insurer would lose the money that it had transferred. One consequence of this is that insurers often provide health care providers and organizations with amounts lower than the cost of providing the related services, promising bonuses to health care providers and organizations who achieve significant cost-reductions. The funds to pay these bonuses come from the same pool used to fund service costs. Hence, health care providers and organizations that exceed average service costs may receive less than average levels of reimbursement and may also fail to obtain performance bonuses precisely when they are needed most, when costs exceed revenues.

Fifth, unlike insurers, health care providers and organizations must anticipate needs and maintain resources in advance of their use. Offices and beds must be available, staff present, utilities available, and supplies stocked before the professional caregiver insurance risk transfer occurs. Traditional insurers collect premiums long before claims arrive and claims processing may take days, weeks, months, or years before the insurance benefits are paid (Bowers et al., 1986; Stone, 2000; Webb et al., 1997).

Sixth, the sub-portfolios of clients transferred to health care providers and organizations are not, in general, random selections from the populations upon which the rate is based. Self-selection biases (Pauly & Nicholson, 1999), geographic, or occupational risk factors may all increase or reduce the
costs for each health care provider or organization’s portfolio. Some health care providers and organizations may profit greatly, while other health care providers and organizations may lose substantial sums under such conditions.

**Public Health Effects of Professional Caregiver Insurance Risk Transfers**

There are consequences of requisite reductions in health care benefits that affect communities rather than specific individuals or organizations. Shortly after September 11, 2001, while speaking at the American Public Health Association (Cox, 2001c), this researcher remarked that September 11, 2001 was notable for having avoided one such outcome. Very few people were injured because of the events of that day. Either people died or they escaped with little physical trauma. The health care system, as a whole, was untested that day. If, this researcher speculated, there were thousands, or tens of thousands of victims critically injured, it is unlikely that the New York City and surrounding area health care providers and organizations would have been able to meet the needs for such catastrophic, unexpected, and unanticipated health care services. It is difficult to imagine meeting everyone’s needs in such a catastrophe. However, every community has an actual capacity to meet some portion of victim’s needs in a catastrophe. Should this figure be 1%, 5%, 10%, … 50%, 75%, or perhaps 95%? Furthermore, who really decides what this capacity should be? Where is the centralized funding and decision-making that guarantees the community-wide versus individual institutional capacity to respond in a catastrophe? When communities rely on hospitals and hospitals cut costs, staff, and resources to insure profitability, or stop offering unprofitable services such as emergency rooms, maternity, neurology, or orthopedics, communities lose the ability to handle unexpected demand for health care services. There are many factors that contribute to the inability of the health care system, as a whole, to respond to serious epidemics or biological events. Poor planning, inadequate resolve, competitive pressures, and profit motives all contribute, but insurance risk transfers to health care...
providers and organizations may underlie and exacerbate the effects of these other factors. As this study was being written, during an unusually virulent influenza season and an inadequate supply of vaccine, there was mounting concern that the health care system, individual health care organizations and providers, may not be able to respond to anticipatable increases in demand for primary, secondary, and tertiary preventive health care services. The following sections explore different implications of transferring insurance risks to health care providers and organizations.

**Probability Theory and Insurance**

Insurance works for the same reason that statistical estimates become more accurate as the number of units in the sample increases. The Central Limit Theorem and the Law of Large Numbers explain this effect and make it easy, with a few reasonable and conservative assumptions, to explain why insurance risk transfers being shifted away from insurers and to health care providers and organizations are inappropriate. Statisticians and insurers can accurately determine population parameters, such as average expenditures per policyholder for health services, because most measurements follow the normal distribution. The higher the number of units in the sample, the more accurate the estimate of the population average value, such as a loss ratio, will be (Borowiak, 2003; Hogg & Craig, 1984). This is the major reason that insurance works.

The second element that makes it possible to sell insurance at an attractive price for both the insurer and the policyholder is due to an effect described as the theory of utility (Bowers et al., 1986; Friedman & Savage, 1948; Markowitz, 1952; Mosteller & Nogee, 1951). The theory of utility suggests that the more units we have of any good, the less dearly we hold the last unit. If I have two cabbages I may not want to give either of them up. On the other hand, if I have many cabbages, I may be very happy to trade one cabbage for a roast beef sandwich. If I can find someone with many roast beef sandwiches who wants cabbage, we may be able to acquire something we both value highly for something else we value less. Insurers can charge a premium low enough that policyholders are
willing to pay because the alternative for policyholders is to risk the loss of many dollars. At the same
time, since the insurer has a very accurate estimate of the costs of providing insurance services, it can
price its policies high enough to cover claims, expenses, expected and unexpected losses, and profits.

However, when an insurer redistributes the insurance policies it has written to many different
health care providers or organizations, the mathematical bases that support insurance risk transfers
reverses. The failure to characterize risk transfers to health care organizations and providers, as
insurance risk transfers is a serious omission. These risk-transferring arrangements are only
superficially different from insurance. Characterizing these risk transfers as “risk sharing,” “profit
sharing,” “purchase of services,” or describing them as intrinsically different than insurance based on
the capability of providers to manage service demands as opposed, for example, to a health care
providers lower ability to manage pharmaceutical costs is a misunderstanding. The central premise of
professional caregiver insurance risk is consistent with the shift to dollar-denominated market
economies (Samuelson, 1964). The essential feature achieved through the introduction of currency is
that goods and services have values in terms of the currency. Maintaining the premise that the costs
and value of professional services to be provided in lieu of a prospective premium achieves
considerable economy of thought in analyzing risk transfers to health care providers and organizations.

The benefit of risk aggregation by insurers is lost when insurers pass risk to health care
providers and organizations. This can be demonstrated very easily on the basis of statistical sampling
theory. If we assume that an insurance company’s losses per dollar of premium income are correctly
modeled by a normal distribution with a mean value $0.85 and a Standard Error of the Estimate of the
Mean (SE) of $0.05, we can model what will happen when exactly 1/20th of these risks are passed to
each of twenty health care providers or organizations.
TABLE 1 – Risk and Relative Risk of Losses on Portfolios for Health Care Providers v. Insurers When 5% of the Insurer Portfolio is Transferred to a Provider

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>0.8500</td>
<td>0.5000</td>
<td>0.5000</td>
<td>1.0000</td>
</tr>
<tr>
<td>0.8600</td>
<td>0.4207</td>
<td>0.4822</td>
<td>1.1460</td>
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<tr>
<td>0.8700</td>
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<td>0.4644</td>
<td>1.3480</td>
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<tr>
<td>0.8800</td>
<td>0.2743</td>
<td>0.4466</td>
<td>1.6290</td>
</tr>
<tr>
<td>0.8900</td>
<td>0.2119</td>
<td>0.4290</td>
<td>2.0250</td>
</tr>
<tr>
<td>0.9000</td>
<td>0.1587</td>
<td>0.4115</td>
<td>2.5940</td>
</tr>
<tr>
<td>0.9100</td>
<td>0.1151</td>
<td>0.3942</td>
<td>3.4260</td>
</tr>
<tr>
<td>0.9200</td>
<td>0.0808</td>
<td>0.3771</td>
<td>4.6700</td>
</tr>
<tr>
<td>0.9300</td>
<td>0.0548</td>
<td>0.3603</td>
<td>6.5740</td>
</tr>
<tr>
<td>0.9400</td>
<td>0.0359</td>
<td>0.3437</td>
<td>9.5650</td>
</tr>
<tr>
<td>0.9500</td>
<td>0.0228</td>
<td>0.3274</td>
<td>14.3890</td>
</tr>
<tr>
<td>0.9600</td>
<td>0.0139</td>
<td>0.3114</td>
<td>22.3960</td>
</tr>
<tr>
<td>0.9700</td>
<td>0.0082</td>
<td>0.2958</td>
<td>36.0780</td>
</tr>
<tr>
<td>0.9800</td>
<td>0.0047</td>
<td>0.2805</td>
<td>60.1760</td>
</tr>
<tr>
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<td>0.0026</td>
<td>0.2656</td>
<td>103.9550</td>
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<tr>
<td>1.0000</td>
<td>0.0013</td>
<td>0.2512</td>
<td>186.0540</td>
</tr>
</tbody>
</table>

Assumptions:
Loss ratios distributed as N(0.85, 0.05)
5% of Insurer portfolio is randomly distributed to provider

The relative size of the SE changes with the size of the sample. In particular, Table 1 presents the probability that an individual health care provider or organization will experience any pre-set level of loss if an insurer passes on the full risks, global capitation, associated with policies it assigns to the health care provider. Table 1 also shows the probability of a loss as far from average for the insurer and the relative disadvantage of the health care providers and organizations in the form of a relative
risk of a higher than expected loss compared with the original insurer.

Several points are important. The value of the mean is not as important as the value of the SE. Second, insurers base their estimates of losses per dollar on historical averages, possibly adjusted for future cost trends (Borowiak, 2003; Hogg & Craig, 1984; Salzmann, 1984). Trends in health care costs may mean higher or lower service provision costs than anticipated, during the contract. Third, the ability of a well operated insurer to withstand unusual losses is higher than a health care provider or organization because of regulations requiring the insurer to maintain adequate resources to meet both anticipated and unanticipated past and future obligations. The most critical point however, is that the data in Table 1 are based solely on the differences in size of the portfolios transferred from insurers to health care providers and organizations holding true regardless of the specific values of the mean and SE.

**Insurance Risk Transfer Impacts on Health Care Providers.** This researcher’s explicit characterization of common health care finance mechanisms as insurance risk transfers is new. As insurance risk transfers permeate through health care organizations, different operating units may experience profoundly different effects (Cox 2001a, 2002c). One unit may have far lower costs than the revenues available while another unit may have costs that dramatically exceed the resources it has available. Insurance companies can shift funds from one operating unit to another. Hospitals and nursing units cannot achieve resources in time to meet unexpected demands during a single nursing shift which is when the needs of clients will be met or not met.

Much information suggests that professional caregivers, and in particular, RNs, are very dissatisfied with their roles, status, and perquisites (Aiken, Clarke, Sloane, Sochalski et al., 2001; Boyle, Grap, Younger, & Thornby, 1991). Manifestations of this dissatisfaction are documented in surveys of RNs, and research on substance abuse and suicide among nurses. (Blythe et al., 2001; Buxton 1985; Clark 1988b; Crowley 1984; Feskanich, Hastrup, Marshall, Colditz, Stampfer et al.,
Nursing Units, Budgets, and Intra-organizational Risk Transfers. RNs usually work in environments with fixed operating budgets, the impact of which is similar to a capitation agreement. A fixed budget for a nursing unit represents an attempt to meet the highly variable demand for nursing services with a budget that is, on average, adequate (Cox, 2002c). However, the demands on a nursing unit may vary dramatically by time within shift, shift within day, day within week, unit, budget period, and unit within hospital. Efforts to substitute average costs for highly variable service demands may leave some nurses and nursing units inadequately resourced. While insulated from the direct, personal, financial consequences of insurance risk transfers, RNs may experience unpleasant consequences of risk transfers as the effects filter through their worksites. RNs may be unable to find the medications, supplies, or a physician to order a treatment their client needs. RNs may have to work unexpected overtime shifts, or there may be fewer RNs and paraprofessionals to handle both routine and unexpected client needs. RNs risk their licenses to practice or may be subject to malpractice litigation if they work in environments that are later determined to have violated norms and standards for the profession. RNs may experience emotional trauma, ethical conflict, or financial jeopardy when their clients suffer because of inadequate material and non-material resources or unmet standards of care. RNs who work in consistently under-resourced environments may encounter high levels of stress and other negative effects or may simply feel unfulfilled.

The level of funding and the predictability of funding influence the way nursing units and nurses operate and the experiences nurses have in health care organizations. The severity of the current situation may vary by institution and even units within an institution. Some organizations may thrive
when they participate in risk transfers while other organizations do not. Even within a single organization, some units could be well funded while the adjacent unit is under-funded. Depending on reimbursement opportunities, some organizations may concentrate their attention on profitable services, de-emphasizing, withdrawing support from, or shutting down unprofitable operations. General medical-surgical care units in inner city, urban areas may have high numbers of clients with inadequate personal resources and insurance to meet their expenses. Another unit, coronary care, might only admit and treat well-insured clients. The hospital could conceivably shift the additional revenues from one unit to another unit with inadequate revenues, the same way an insurer efficiently shifts assets from one line of business to another. However, this may not occur in practice. Cost-shifting from one unit to another, less profitable unit may be difficult to implement since such decisions are political as well as economic decisions. The ability of health care providers and organizations to fluidly transfer assets from profitable units to unprofitable units is yet to be proved.

Reformulation of the Theory of Professional Caregiver Insurance Risk

Introduction

This section reviews several aspects of the theory of professional caregiver insurance risk to explain changes in nursing environments described by these nurses. This section also develops an analogy between the capacity of a nurse, nursing unit, or nursing department to offer services to clients and the capacity of an insurance company to meet its obligations to policyholders, beneficiaries, and stockholders.

The researcher’s original formulation of professional caregiver insurance risk assumed that the focal concern was whether whole organizations, such as hospitals, nursing homes, rehabilitation centers, or physician’s practices had sufficient assets to accept and manage insurance risks. This is still
a major area of research concern. However, the interviews with these RNs resulted in new insights into how insurance risk assumptions affect nursing units, nurses, and clients. Based on these insights, the researcher made two refinements in the theory of professional caregiver insurance risk. The first refinement is that the standard error of the estimate of the mean (SE) and reasonable assumptions about provider profit-seeking behavior demonstrates that professional caregiver insurance risk transfers limit services provided to consumers. This happens because the risk transfers are not compensated and so providers must target the costs of service provision below the level assumed in the rates or face unacceptable risks of contract losses. As well, this suggests that the problems of managing risk become more severe the closer the unit of study is to the bedside. Hospitals have greater difficulty managing varying demand for nursing services than insurers; and units in hospitals have greater difficulty managing risk than the hospital as a whole. Individual nurses and physicians also have greater difficulty managing insurance risk transfers than units or divisions. This increasing inability to effectively manage risk closer to the bedside is a consequence of the ever-smaller number of clients involved as one moves from the insurer to the bedside.

The second refinement compares insurer surplus and the capacity of a nursing unit to provide nursing care, hereafter referred to as *nursing capacity*. Together, these two refinements complete the investigation concerning how professional caregiver insurance risk transfers influence RNs experiences of risk induced professional caregiver despair at the bedside and how to reduce the impact of professional caregiver insurance risk transfers on bedside RNs.

**Reinterpreting the Standard Error of the Estimate (SE)**

One important consideration in the theory of professional caregiver insurance risk is the meaning of the SE and the associated probability of an outcome other than average, for the provider. One interpretation of the SE is that it provides a way to measure the probability of a profit or loss on the contract. If the provider is profitable, whenever its losses are below 0.92, then the probability of an
unprofitable contract is 0.38 because that is the probability of a loss ratio greater than 0.92 (see Table 1). It is also important to note that other factors affect the loss ratio for the provider.

The SE also determines how much lower than the mean loss ratio the provider must target its service delivery costs to ensure a predetermined probability that it will not sustain a loss on the professional caregiver insurance risk transfer. Because the insurance risk transfer is not compensated, astute hospitals must target costs below those assumed in the insurer’s rates to avoid the prospect of losses that exceed contract reimbursements. Because each such contract transfers uncompensated insurance risks, hospitals that engage in repeated professional caregiver insurance risk transfers will face increasingly stringent operating conditions as these nurses report occurred during the last few years. The theory of professional caregiver insurance risk suggests that stringent operating conditions will eventually result in efforts to reduce the quality and quantity of services to consumers solely because the efficiency of insurance risk management declines as insurers transfer risk to smaller entities.

Suppose the provider wants to limit the probability of a net loss on the contract to 0.25 and it is unprofitable when the loss ratio on the contract exceeds 0.90. Table 1 shows that unlike the insurer, the probability of higher loss ratio for the provider does not fall to 0.25 until three SEs above the mean at a loss ratio of 1.00. To reduce the probability of a loss on the contract to 0.25, the provider must shift its targeted operating costs two SEs below the loss ratio in the insurers rates (0.85) or greatly reduce the variability in its costs. By shifting its target loss ratio to 0.75, the provider has a probability of 0.25 that its actual losses on the contract will not exceed 0.90.

This conclusion bears emphasis. Due to the increased variability in losses as insurance risks move from insurers to providers, providers have to offer less service or accept unacceptably high probabilities of contract losses. While the two SE shift is necessary due to increased variability alone, an astute hospital executive would want to target service delivery costs even lower to mediate the

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impact of non-random selection, geographic concentration and the potential for a loss during, rather than at the end, of the contract period.

**Can Providers Manage Risk Effectively?**

If the provider can operate more efficiently, it may achieve cost reductions without sacrificing quantity or quality of services. However, two problems influence the provider’s ability to achieve such cost reductions. First, the same income shortfall exists in each professional caregiver insurance risk transfer. Because the benefits of the Law of Large Numbers and the Central Limit Theorem are lost whenever insurers transfer risks to smaller entities, hospitals must repeatedly cut costs to cover their uncompensated insurance risk assumption. On each such contract, the provider must reduce service costs below the levels anticipated in the insurer’s rates to remain financially viable. In addition, because the insurer reflects reduced costs in future rates, this service inadequacy will continue in each future contract. Even when insurers increase their rates, trends in costs in their new rates may not meet the needs of providers because the insurer’s risk management costs drop when insurers transfer risk management functions to providers. As suggested earlier, some health care providers will adapt to new operating conditions, but even in those that do well under capitation or managed care, the units within the organization may be either over-funded or under-funded depending on organizational priorities and commitments.

At worst, the insurer is liable for the loss provision in the old rates, so the insurer guarantees a minimum profit at contract signing. Only the provider has an uncertain outcome on the risks covered by the contract. As suggested in Chapter 3, insurance is a competitive marketplace. If the insurer does not reflect decreased costs in lower rates, another insurer may offer similar coverage at a lower rate.

A second set of problems limits the efficiency of service delivery that hospitals can achieve through rationalized service delivery. Four factors impede such rationalization. First, each contract may provide different benefits to consumers; hence, providers must treat clients in different ways
depending on the specific contract provisions involved. Hence, providers cannot rationalize care in the same way that factories rationalize production lines by controlling the uniformity of incoming materials and standardizing production processes. Second, a basic assumption in health care, independent of contract differences, is that each client deserves individually tailored care. What is good for client A may not be adequate for client B and health care providers have a duty to deliver individually appropriate care. Third, if providers attempt to offer identical services to all their clients, they must do so at a level that is appropriate for their lowest revenue clients or face operating losses. Their clients, who have the best access to resources, will choose to leave, preferring providers that provide the higher levels of services they can afford. Fourth, offering different levels of services to their clients based on ability to pay may be unethical and illegal. These four factors alone suggest that health care providers cannot achieve reduced variation in service costs without adversely affecting their attractiveness to clients with the ability to pay. In insurance, this reflects the fact that for any category of policyholders, half will be paying a rate that is higher than their expected losses while they subsidize the rate for the other half.

**An Example of the Inability of Providers to Achieve Efficiency.** An example of a common method of achieving service efficiency may help to explain a negative consequence of professional caregiver insurance risk transfers. If a diagnostic test has a low probability of a positive outcome, providers may not order the test unless they are very confident of a positive result. However, the provider does not know the outcome for any individual client, so the provider may fail to perform the test on a patient who would have a positive outcome. While the probability that the provider fails to test an individual patient who needs the test is low, the same is not true about the probability that the provider will fail to test at least one client who needs the test. A critical error in statistical reasoning produces an unacceptable consequence of rationalized service.
Statisticians use the Bonferroni correction to adjust the probability of a Type I error on all tests when they perform multiple hypothesis tests (Miller, 1981). A provider that does not test large numbers of clients may assume that the probability of making a mistake is independent of the number of decisions not to test. This is not the case. If the provider makes a decision not to test 100 patients, when the probability of an incorrect choice for each patient is 0.001, the probability that one or more of those patients would have a positive result is 0.0952, almost a 10% chance that the provider makes a clinically significant mistake for at least one client for that single test. While the risks of an erroneous decision for each individual patient are low, the risk for the provider is relatively high. If the consequences of delayed treatment are severe for the patient, the patient could face illness, disability, or death. The implicit assumption of deferred testing is that it has minimal impact. However, the impact for providers may be unacceptably high, especially if the provider considers the cost of potential malpractice lawsuits.

**Other Factors Limiting Service Delivery.** Two other factors bring this method of financing health care services into further question. First, providers must meet current expenses at all times. The probability of an operating loss at targeted delivery levels applies to the end of the contract period. Astute providers will further decrease targeted service costs in anticipation of the prospect of losses exceeding revenues at any time during the life of the contract. The implication is that the provider must reduce costs even further to avoid an interim operating loss on the contract. Unlike insurers, providers are limited in their ability to manage the timing of losses and revenues. Second, as suggested in Chapter 3, insurers cannot prepay the full amount of anticipated services in advance. Hence, providers must actually target costs even lower to be certain that they will not exceed their guaranteed revenues.

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Conclusion

The assumption in this study was that professional caregiver insurance risk transfers have an impact on the well-being of front-line health care providers. The theory of professional caregiver insurance risk suggests that providers must systematically target diagnostic and treatment service costs below the loss ratios in the insurer’s rates, potentially failing to meet the needs of their clients and professional and ethical standards. How registered nurses feel about these situations may be manifest in many forms but it appears appropriate to define such responses as risk-induced professional caregiver despair. While a provider might do better in subsequent, more favorable contracts, no provider can assume this will happen. Only very large providers would be able to withstand one or more adverse contracts without threatening its profitability. These unavoidable consequences of the difference in variability are due to the relative size of the provider’s portfolios compared with that of the insurer.

Nursing Capacity

Review of Insurer Solvency

As suggested in Chapter 3, insurance companies maintain large assets in the form of government bonds, cash, and other liquid investments. Insurance companies earmark funds in special accounts, called reserves, to meet expenses that will not be paid out until many years in the future. Insurers call the difference between their assets and liabilities surplus. The surplus of an insurer determines how much new insurance it may write. Insurance regulations limit insurers with inadequate surplus from writing new policies.

State and federal regulatory authorities vest two professional groups, actuaries and certified public accountants (CPAs), with the responsibility for analyzing the financial health of insurers. Actuaries establish fair, adequate, and competitive rates for insurance products and determine the adequacy of insurer’s reserve accounts. CPAs attest that insurance companies are meeting other...
financial requirements. Both actuaries and CPAs follow the Financial Accounting Standards Board (FASB) and Generally Accepted Accounting Principles (GAAP) standards. Only actuaries and CPAs have the expertise and authority to sign insurance company annual statements attesting to the insurer’s solvency.

Insurance regulators’ principal concern is whether the insurance company is, and will remain, solvent. Actuaries forecast long-term financial liabilities, incorporating interest rate assumptions and changes in the costs of policy benefits that may stretch many years, even decades, into the future.

Accountants perform audits, account for assets and liabilities, and incorporate actuarial forecasts of liabilities. Insurers become insolvent when their liabilities exceed their assets. However, the most significant liabilities of insurance companies are estimates and a company that appears solvent one day may actually be insolvent, depending on the accuracy of forecasted future liabilities and the CPA’s accurate assessment of assets and non-reserve liabilities.

Insurance regulators identify troubled insurance companies by analyzing the detailed quarterly and annual statements in which insurers describe their operations, assets and liabilities. Large shifts in accounts from one reporting period to another may trigger greater scrutiny by regulators. Still, despite very sophisticated regulatory procedures, some insurance companies hide their solvency status. An insurer may underestimate liabilities, overestimate assets, and increase its cash flow by lowering underwriting standards, disregard known claims, or shift funds into frequently reviewed accounts to present an inaccurate portrait of its solvency.

Just as insurers can appear to be solvent when they are not, the capacity of nursing units to render services to clients may fall short of clients’ needs. The capacity of an entire nursing unit, or an entire health care organization, to deliver nursing services, is hereafter called nursing capacity. Nursing capacity depends on many considerations including the capacity of individual nurses to care for their clients. The participants in this study cited many factors they believed impaired their ability to

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provide nursing care. The sections below consider the capacity of nurses and nursing units to provide
service and compares this capacity to the ability of insurers to honor the policies they write.

**Nursing Capacity Analogy**

In order to reflect the participants’ experiences and to develop a more powerful theory, the
researcher developed an analogy with an insurers’ surplus, the concept of *nursing capacity*. Using the
concept of *nursing capacity*, this researcher suggests that researchers, executives, and managers can
make better management decisions if they view nurses and nursing departments as though they were
managing insurance risks as well as providing nursing care.

In his early conception of professional caregiver insurance risk, the researcher considered the
ability of health care organizations to manage risk to be purely financial. Did health care organizations
have the redundant financial resources needed to manage the uncertain financial consequences of risk
from period to period? However, through dialogue with these RNs, the researcher realized that when
health care organizations accept professional caregiver insurance risk transfers, the insurance risks flow
to the level of the nursing unit and the individual nurses on that unit. Even when the hospital, as a
whole, has sufficient resources, the resources may be inadequate in one unit and abundant on the next
unit. Gloria highlighted the impact at the bedside when she noted that she and her colleagues felt that
they themselves were turning a patient out of the hospital who needed care.

Like insurance companies, nursing units must manage uncertainty in demand for their services.
Unlike insurance companies that fluidly move resources from one line of business to another, one state
to another, or from year to year, the resources available on a nursing unit, primarily RNs’ time,
knowledge, and skills, are difficult to supplement. According to these RNs, the amount of time they
have available to meet clients’ needs is frequently and significantly reduced by the time it takes to
document their activities and find or replace equipment and supplies that are unavailable or which fail
when used. These RNs also reported that inappropriately assigned clients and unfamiliar staff such as
agency, part-time, or float staff drain their ability to provide nursing services.

Where actuaries forecast the needs for resources based on different characteristics of claims in different lines of business, the needs of clients on nursing units may vary between minimal care and clients that require continuous monitoring and care. The ability of a particular nurse, or the unit as a whole, to meet the demands of a cohort of clients could be estimated based on past trends in care and treatment protocols in use. Current nursing classification systems for nursing diagnoses, interventions, and outcomes (Iowa Outcomes Project, Johnson, Maas, & Moorhead, 2000; McCloskey & Bulechek, 2000; NANDA Staff, 2003) could provide the bases for projecting demand for nursing services as the cohort of clients on the unit changes from shift to shift or hour to hour. In addition to forecasting the demand for nursing services, nursing managers and executives could forecast the adequacy of nursing resources by projecting the skills and resources of the RNs assigned on each shift. As insurer capacity and losses vary by line of businesses, geographic regions, and time, nursing units, as reported by these RNs, even within the same hospital, may vary dramatically in capacity and demand. Unlike insurance companies, the ability of nursing managers to forecast the demand and supply of nursing services and correct mismatches in capacity and demand is limited.

Two characteristics of insurance companies demand special attention. Insurance policies are promises between an insurer and a policyholder or beneficiary. Most of the production costs in insurance companies is in support of selling insurance policies or managing insurance claims. Because most of the non-claim expenses in an insurance company are in support of sales or claims adjustment, insurers spend a great deal of money analyzing and optimizing the performance of repetitive tasks in sales and claims departments. Workflow analysts concentrate on eliminating bottlenecks by breaking complex tasks into component actions, and distributing work tasks to the lowest cost workers who can deal with them. Insurers also divert unusual cases to specialists so that regular staff can deal efficiently with homogeneous claims or sales applications. Insurers achieve cost efficiencies by providing

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personnel with the resources they need to do their work, when and where needed and by moving resources from one area to another as needed.

An insurer’s ability to continue operations depends on its monetary ‘surplus’ and its infrastructure. The infrastructure includes the assets it has, the expertise of its employees, the quality of its information systems, and the accuracy of its forecasts of future assets and liabilities. In addition, insurers also need to maintain the synergy of the organization, that is, the way operating units work together.

The central problem in professional caregiver insurance risk transfers is the adequacy of nursing capacity at the level of the individual client, nurse, or unit. As suggested above, one impact of professional caregiver insurance risk transfers to hospitals is that the hospital must target service delivery costs below the level of services anticipated in the insurers’ rates. The cost-containment efforts of these nurses’ hospitals reflect the need to reduce service costs implicit in each contract.

**Participants Stories of Professional Caregiver Insurance Risk Effects on Nursing Capacity**

Comparing the situations reported by the participating RNs to the way insurers operate reveals interesting similarities and differences. First, several nurses described situations that caused their work to become unmanageable. Betty noted that RNs do not have time to be stock clerks, although RNs typically do many things that a stock clerk could do. She also pointed out that most of her clients were not oncology clients although she worked on an oncology unit. Betty lacked supplies she needed for routine care resulting in multiple dressing changes, clothing changes for clients, and linen changes. She noted that despite physicians’ failures to provide information required for clients to give their informed consent for surgery, she was held accountable for getting clients to sign informed consent forms. Betty also voiced a frequent complaint of nurses, that the orders, as written by physicians, were illegible, requiring several nurses to compensate for a legibility problem that only the physician can correct. Betty pointed out that such circumstances wasted her time and impaired her ability to render
adequate care to her clients.

Carol mentioned that the failure to maintain adequate quantities of supplies left nurses and surgeons to ‘make do’ with inadequate equipment and supplies, or to waste their time looking for replacements or compromising sterile surgical packs to find needed supplies and equipment. In some cases, as noted by Carol, these situations placed clients at unnecessary risk. Carol also reported that she was often asked to begin new operations before she completed the unnecessarily inefficient documentation procedures for the last operation. In essence, what Carol described as a “ship ‘em in, and ship ‘em out” system is a wastefully inefficient operating environment that compromised clients’ safety and well being.

Deborah cited inadequate training and equipment to ensure the safety of her fellow nurses and their clients and the inappropriate recycling of disposable pillows despite the risks of cross-contamination from one patient to another. Deborah most directly addressed the tedium and inefficiency of RNs repeatedly attesting to the fact that they did what they came to work to do: care for their clients, when she stated: “I showed up to do my job.” Deborah said that nursing care for clients suffered because routine supplies and equipment were unavailable or difficult to obtain, including IV pumps critical to client care and that nurses often lacked the authorization to provide care that both nurses and physicians could anticipate in advance. The latter situation was exacerbated when palliative care clients were transferred to the oncology unit despite the fact that neither their physicians nor their families were ready to institute palliative care protocols. Citing Goethe [sic], Deborah said: “Against stupidity, the god’s themselves contend in vain.”

Elaine, echoing Deborah’s comments, cited wastefully inefficient documentation procedures that made it difficult for her to both meet the needs of neonates in the nursery and keep up with the documentation of their care. She also noted that even minor problems could throw her work schedule off if she had to take time to find supplies or to get malfunctioning equipment to work.
Felicia, who worked in many different hospitals and in many different units within hospitals, pointed out that resource disparities between units were commonplace in nursing environments. Felicia also noted that the quality of client care differed dramatically from unit to unit within each individual hospital. Felicia regularly brought her own supplies to work so she would have the equipment and supplies she needed no matter where she worked.

Gloria, in her poignant example of the impact of the absence of a Foley catheter on the unit addressed a critical issue, that supply inadequacies can interrupt an entire unit, compromise client care, and impact many nurses schedules. Gloria also pointed out the often-dramatic disparities in resources from unit to unit within the same hospital. In the end, Gloria left a dysfunctional work environment for another unit where the treatment of both clients and nurses was better.

Hannah spoke about problems getting assistance from other operating units and described a case in which the maintenance department failed to advise her that they would be interrupting the unit not for a few hours, as originally stated, but potentially for several days when they unexpectedly engaged in a major renovation project. She also pointed out that inadequate funding created a situation where she and her fellow nurses released clients too quickly to manage their own care, creating a situation where they would be recycling through the hospital, but never getting better.

**Professional Caregiver Insurance Risk Effects on Nursing Capacity**

An insurer hiding insolvency may shift resources from one account to another, to appear healthier than it is. Nursing executives and managers may move clients or nurses from one unit to another without acknowledging the effect at the bedside. These nurses know the effect however. Accepting terminally ill clients on an oncology unit, as reported by Deborah, places a strain on staff and resources as does assigning nursing home clients without cancer to an oncology unit, as reported by Betty. In each case, there may be a barely discernible mismatch between the resources available and the needs of the client. However, the cumulative effect of dozens of barely perceptible
mismatches, take their toll on the capacity of the nursing unit as a whole and the capacity of each individual nurse.

Using recycled, disposable, surgical equipment may save money on acquisition costs but there are hidden costs associated with such savings. Surgeons and nurses expend time to get more resources, make do with other equipment, or psychologically adjust their schedules to allot time for anticipatable problems. When preventable delays occur, they compromise other professionals’ schedules, client care and may compromise other supplies and equipment. As Carol noted, a nurse may have to open a fresh operating kit just to get a pair of surgical scissors. These hidden costs of cost control efforts are difficult to document. Problems occur, nurses deal with them, and then they turn to the next problem. No classification systems exist to record, report, and analyze the effects of supply shortages, equipment malfunctions, and defective equipment. The effects of these problems, while potentially profound, do not surface in management reports. If, as Deborah noted, the nurse does not ambulate a client, does anyone really notice the omission if the client recovers and goes home without incident?

When an insurer runs out of policy forms or applications, the sales force immediately reacts to this inability to conduct business, but when pharmacy does not deliver medications in a timely manner, no similar urgency may exist. The nurses know that it is a problem, but pharmacy does not report to nursing, so pharmacy may not change its delivery schedules to meet the needs of nurses. Physicians may not return calls in a timely fashion or the cafeteria may fail to deliver client’s food. When these events occur, the nurses may engage in repeated efforts to resolve these problems. However, these activities waste the time of nurses, impair nursing capacity and reduce nursing service quality and quantity. In many cases, these problems occur repeatedly for months or years without resolution.

Hospitals make many efforts, as pointed out by Betty, Gloria, and Hannah, to increase the amount of work done by nurses. The hospital that Betty, Gloria, and Hannah worked in attempted to decrease costs by increasing patient to nurse ratios. Unfortunately, as they reported, decreased access to
supplies accompanied the increased ratio of clients to nurses on their units, as did decreases in support staff. According to these nurses, the reduced support personnel, failure to maintain redundant supplies and equipment, and failure to coordinate and control supportive services created additional problems for nurses, leading to resignations, transfers within the hospital, and declining standards of care. Several of these RNs reported that overworked bedside nurses left their jobs because their facilities failed to support them. According to these nurses, as skilled, knowledgeable, caring, and dedicated nurses became frustrated and left their nursing units, they were being replaced by float, temporary, and part-time staff members. These substitutions may appear to save money without affecting care in the short-term but the long-term costs, measured in lower quality care, increased errors and omissions, legal actions, and lost revenues may be formidable, albeit hidden.

Several nurses reported that nurses were asked to leave the unit when the patient to nurse ratios fell below targeted levels. Other nurses stated that staffing was being adjusted on a four-hour basis. When nurses leave a unit in mid-shift, the remaining nurses have to care for new patients. Their work plans for the balance of their shifts are interrupted and deferred activities may not be completed at all. Managers and executives, who do not acknowledge a difference between a nurse with 20 years of experience and a newly graduated RN, will fail to note that there is a profound difference between having two new graduate nurses on a unit and two nurses with 20 years of experience on the unit. However, according to the statements of Betty, Carol, Deborah, Felicia, Gloria, and Hannah, precisely these situations occur repeatedly in their hospitals.

**Creating and Restoring Nursing Capacity**

_Nursing capacity_ incorporates both individual resources, such as the numbers of support services, and the coordination and control of support services in health care organizations. The number of pharmacy staff may be adequate or inadequate without affecting the coordination of delivery schedules with the needs of nurses. The critical issues for bolstering _nursing capacity_ are: Do
medications arrive on the unit sufficiently before nurses need them and with minimal interruption of
to support nursing functions easy to use, working, and conveniently located? Do allied
health personnel schedule arrivals with nurses so that clients will be ready and available for service?
Does the facility employ sufficiently many trained and skilled support staff and do nurses have
administrative control over these support staff? Do physicians respond in a timely manner to requests
from nurses or do nurses repeatedly call physicians for new prescriptions or authorization to perform
routine care?

Are nursing supplies, equipment, and other resources available in excess or are the levels of
support sufficient only under best-case scenarios? Does the hospital periodically review documentation
procedures and eliminate redundant forms and practices so that nurses’ time devoted to documentation
activities is minimized? Are there redundant personnel on all units so that the unit can respond to
marked increases in demand for services and does the staff have time to keep the nursing unit, its
equipment, supplies, and other resources in a constant state of readiness? Are clients assigned to
nursing units and nurses because their predictable care needs meet the service capabilities of the
specific nurses on the unit and are nurses assigned to nursing units in ways that optimize the use of
their skills and abilities in meeting the care needs of clients currently on the unit?

As noted by these participants, most of the issues that impair their performance and limit their
ability to provide care are repetitive and predictable. Running a nursing unit at or near full capacity for
days, weeks, or months has a predictable effect on nurses, just as running an insurance company with
insufficient surplus will eventually lead to insurer bankruptcy. Describing and addressing the problems
nurses face as analogous to managing insurance risks, suggests a very different approach to
management than was being used in the worksites of the participants. If nurses, nursing managers, and
executives address the uniqueness and variability of each nursing environment rather than attempting to

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impose national average characteristics on nurse/client ratios they may be able to improve nursing capacity and reduce costs.

One way to begin to address and correct nursing capacity deficits is by developing classification systems for impediments to nursing care. Such classification systems may make it easier to report common supply and coordination problems enabling nurses, nursing managers, and executives to address obvious impediments to care in a timely manner. Using management information systems to collect and analyze nursing capacity deficits in real time may make it possible to address resource shortfalls and correct them during shifts when they occur. Fully implementing computerized documentation, ordering and tracking of nursing support services and supplies, and analyzing performance data for ancillary services may help nurses identify sources of problems and address needed reforms. Maintaining detailed profiles of individual nurses’ skills could help nursing managers assess the appropriateness of assignments of full-time, float, part-time, or agency nurses to units and clients and achieve optimal assignment of nurses to clients.

**Conclusion**

Nursing capacity deficits may occur for a variety of reasons: inadequate professional and ancillary staff; inappropriate assignment of clients to units and nurses; inadequate supplies; malfunctioning equipment; inadequate amounts and inconvenient locations of equipment; lack of information on where supplies are available; and failures to coordinate and control services, equipment, and supplies necessary to the delivery of nursing services. These conditions of inadequacy may persist or worsen over weeks, months or years if hospitals fail to focus on the needs of nurses. Just as insurance companies require redundant fiscal resources, nursing units need redundant supplies, equipment, and personnel to handle variability in demand for nursing services. As insurance companies need coordination, control, and flexible allocation of resources across lines of business and geographic regions, health care organizations must be able to move appropriate resources from one
operating unit to another.

The researcher derived the themes that led to the concept of *nursing capacity* from 593 pages of interview transcripts, emails, and phone calls with registered nurses who participated in this study. The details that went into these themes are unique to the nurses who participated, but they may reflect the experiences of other nurses as well, suggesting that *nursing capacity* may be a useful concept for nurses and nursing to explore in the future. Just as the unitary pattern of each individual is unique, each nursing unit in each health care organization has its own unique pattern. Felicia spoke of being able to tell on arrival, whether a shift was going to be good or bad. *Nursing capacity* offers a new framework for assessing the capacity of a nursing unit to offer nursing services that specifically addresses variability in supply and demand and offers new strategies to optimize the delivery of nursing services by optimizing the support for nurses.