**A LITERATURE REVIEW ON NURSING TURNOVER AND ITS FINANCIAL IMPLICATIONS**

by

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**ABSTRACT**

Healthcare organizations require a stable, well-trained, and fully-engaged nursing staff to provide effective levels of patient care. However, maintaining this foundation is challenged by a shortage of 1 million nurses in the United States projected for 2020. The current nurse shortage is driven by a broad set of factors related to recruitment and retention - fewer workers, an aging workforce, and unsatisfying work environments—that have contributed to a different kind of shortage that is more complex and expected to last longer than previous shortages. The determinant factors of nursing turnover frequently reported in the research are job dissatisfaction, job stress and intentions to leave, control over decisions and organizational commitment. Nursing turnover has tremendous impact on the quality of care and patient outcomes as well as posing a financial burden on the organization; however, research shows only a weak association between the two. The costs of per nurse turnover range between $22,000 to $64,000. It has been a challenge to generalize the financial impact of nurse turnover because of the inconsistent definitions and measurements as the variability in costs reported through different studies. The purpose of this essay is to provide a literature review of the past decade to assess current knowledge on the subject and to provide recommendations to improve nursing retention. The public health significance of organizations to retain nurses is twofold: to improve the quality of care provided and effectively control the costs of care. These factors deserve attention considering the steadily increasing costs of health care in the recent decades and nursing shortages in the industry.

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**I Introduction**

Despite a constant increase in the registered nurse (RN) population in the last three decades and more RNs being employed, nursing shortages remain. In 2011, nursing schools turned away more than 75,000 qualified applicants from baccalaureate and graduate nursing programs due to the inadequate number of faculty, clinical sites, classroom space as well as budget constraints (American Association of Colleges of Nursing, 2013). Another contributing factor impacting the nursing shortage was the changing demographics of an aging population of nurses and baby boomers - the current median age of RNs in the workforce being 46 years **(**AACN, 2013; NSSRN, 2008). The future demand for RNs **i**s expected to increase dramatically as the baby boomers reach their 60s and older, and the incidence of chronic diseases is higher today than ever before. As of March 2008, there were more than 3 million licensed registered nurses in the United States - the largest, well-trained segment of the nation’s health care workforce (NSSRN, 2008; IOM & RWJF, 2010). However, nursing turnover and vacancies are at an all-time high. The American HealthCare Associates reported the national RN Vacancy rate of 8.1% (AHA, 2008). It is estimated that the national annual turnover rates for RNs range between 8.4% and 13.9% (JWJF, 2009; Hodes, 2005). High turnover can negatively impact the morale and the productivity of the nurses who remain. It is believed that nursing turnover can affect the quality of care given at a hospital, and can pose a financial burden on the organization as well. Some argue that the benefits of nurse retention far exceed its costs. However, until there is sufficient data regarding the relationships between nursing turnover, quality of care and cost of turnover, we lack the evidence upon which administrators can construct well-informed policies and strategies to retain nurses. Since nursing attracts individuals with an extremely wide range of career interests and goals, it is difficult to pinpoint one reason a nurse chooses one organization over another. However, it has been suggested that an organization’s career development opportunities, work schedules, and length of commute play a significant role in a nurse’s decision to work for an organization (Hodes, 2005). Some nurses place a premium on job schedules that do not interfere with their commitments outside of work. Others look for jobs that give them opportunities to develop their professional skills and capabilities. It has been suggested recently that RNs are looking for hospitals that are designated as Magnet Hospitals. According to Kramer & Schmalenberg (2003) magnet designation is viewed as the gold standard for nursing practice. Working with staff nurses in eight Magnet hospitals, Kramer and Schmalenberg identified eight attributes, which they termed ‘‘Essentials of Magnetism,’’ that RNs believe are essential to providing quality patient care and lead to job satisfaction. These essentials include positive nurse-physician relationships, autonomy, a culture in which concern for the patient is paramount, clinically competent coworkers, control over nursing practice, adequate staffing, support for education, and nurse manager support. Magnet designation has come to stand for the highest standard of care at a quality institution, by well qualified nurses (2003). Romano further stated that magnet-designated organizations have reported decreased nursing turnover rates due to a high level of satisfaction with the job, autonomy and control over practice (2002).

* 1. *Purpose of the paper*

The purposes of this paper are to conduct a literature review to examine recent findings related to the issue of nursing turnover, its causes and consequences in terms of costs and the impact of turnover on patient, nurse, and system outcomes, and explore the implications for hospital practice to retain nurses. Much of the literature to date has focused on factors contributing to turnover and a few recent studies provide cost estimation at the organizational level. This study is restricted primarily to recent literature in the past decade and includes both scholarly and peer-reviewed articles written in English to provide further study recommendations.

* 1. *Current RN Workforce and Demographics*

The analysis of turnover requires a good understanding of the nation’s current workforce. The 2008 National Sample Survey of Registered Nurses (NSSRN), developed for the U.S. Department of Health and Human Services, Health Resources and Services Administration, is the nation’s most extensive and comprehensive source of statistical data on all active RNs licensed in the United State, whether they are currently practicing nursing or not. The survey assesses the current RN population and its demographics as well as identifying the geographic distribution and the demographic characteristics of nurses throughout the nation in terms of gender, racial/ethnic background, age, and family structure. The 2008 NSSRN, Sigma Theta Tau International Society of Nursing (STTI) and the AACN provided complete characteristics of the current RN workforce as discussed further below.

More RNs today are pursuing higher education as evidenced by the fact that the percentage of RNs with bachelor’s or master’s degrees rose from 17.6% in 1980 to 34.2% in 2008 while the number of RNs with diplomas in nursing dropped, a continuous decline since 1980 as shown in the Figure 1. Only 6.6 percent of all RNs were enrolled in March 2008 as students in nursing and nursing-related academic education programs. Of these, 91% were pursuing a bachelor’s degree or master’s (NSSRN, 2008). More RNs are getting an advanced degree in response to the more complex demands of today’s healthcare environment.

The National Advisory Council on Nurse Education and Practice recommends that at least two-thirds of the basic nurse workforce hold a BSN or higher degree in nursing (AACN, 2013). In 2008, only 13.2% of the nation’s RNs held either a master’s or doctoral degree (NSSRN, 2008; AACN, 2013). The current demand for these nurses, in order to fill roles in advanced practice, teaching, and research, far exceeds the supply.



Figure 1: Trends in RN Education from 1980 -2008 in the US. (NSSRN, 2008).

Upon graduating from their initial nursing education, the average age of RNs is 31 years in 2004 as compared to 24 years before 1985. The median age of all licensed nurses in the workforce also rose to 46 years in 2004 from 38 years in 1988. In 1988, the age group with the largest number of nurses was 30 to 34 years, representing 18.3 percent of all RNs. There has been a steady shift away from the high proportion of younger to older age cohorts in subsequent surveys. By 2008, 16.2 percent of RNs were 50 to 54 years old. The decline in the share of younger nurses continued through 2004, by which time only 26.6 percent of the RN population was under 40 years of age as compared to 54 % in 1980, meaning that high retirement rates are in the near future and nursing shortage will plateau (NSSRN, 2008; STTI, 2013; AACN, 2013).

 The aging trend in the RN population has raised concerns that future retirements could substantially reduce the size of the U.S. nursing workforce at the time when the general population is growing (BLS, 2008). The elderly proportion is also increasing, raising demand for health care and nursing services across the nation especially in acute care setting where direct care is hugely impacted (Figure 2).

 Figure 2: Trends of the US. Population by Age Cohort from 2001-2021

 Sources: U.S. Bureau of Labor Statistics, 1998; U.S. Census Bureau, 1998

Hospital and ambulatory care are the two most common work settings for RNs, with about 62% and 11% employed in hospital and ambulatory care, respectively. Of the 62% employed in hospital setting, 83% of RNs are working in a community hospital setting while 17% are employed in other hospital settings. Both the NSSRN and American Hospital Association (AHA) reported a 16.6% to 17.7% increase in RNs working in hospitals from 2004 to 2008. Even though more RNs are being employed, the need for nurses remains. In the 2008 NSSRN, RNs were asked to report the number of months and hours they work per year in their principal and secondary nursing positions. Almost all RNs (98%) reported they work 9-11 months per year, with a 9-month calendar equivalent to the full year for the academic. On average, RNs through age 60 work more than 2,000 hours per year while this average drops rapidly for RNs older than 65 years. In addition, some RNs are required to work overtime and on-call arrangement. With an on-call arrangement, an RN is not required to be physically present at an employer’s facility, but is available to be on-call to work during a prescheduled time.

The on-call hours usually are paid at a lower rate than for regular work. However, if the RN is called in to work, the RN is paid the normal hourly rate often with an added premium for working after normal scheduled hours. Typically, RNs paid on an hourly wage basis may be paid for overtime work beyond 40 hours a week and may be compensated at a premium rate. Salaried RNs normally do not receive additional payment for overtime work but may sometimes take paid extra time off later to compensate for working extra hours. In their principal nursing positions, 19.1% of RNs report that they worked on-call or were on standby in a typical work week. RNs who had any on-call activity indicated that they were called to work an average of 12.5 hours per week in addition to their work schedule (NSSRN, 2008). Hourly paid nurses might enjoy the overtime work; however, the long work hours from overtime and on-call arrangement are factors eventually leading to stress and nurse burnout. Job dissatisfaction stems from the increased work loads, longer hours and not having the resources to provide the highest quality care to patients.

The composition of an RN’s job is dependent on his/her job title and employment setting. Typically in patient care settings such as hospital, RNs spend the majority of their time performing direct patient care and recordkeeping related to patient care called ‘charting’. Nearly half of RNs (about 47%) spend at least 75 percent of their day in these activities (NSSRN, 2008). Other activities such as consultation with other professionals and agencies, teaching, and precepting occupy at least 25% of their time and vary by RNs job title. Generally, staff nurses spend an average of 75 percent of their time providing patient care and charting. Ofri (2013) stated that nurses are practically chained to their computers these days, especially during the expansion of the Electronic Medical Record, to document paper work. Nurses are frustrated when their time and energy are diverted from providing care to patients to keeping up with regulatory requirements by spending more time on paperwork.

Earnings of RNs vary across the setting and job title of their principal nursing position. And the total annual earnings from nursing work are closely associated with the total number of hours RNs work per year in both principal and secondary positions. In general, total earnings from all nursing positions increase with the number of hours worked in these positions, up to 3,500 hours per year. For example, nurse anesthetists on average earn about $150,000 a year while nurse educators’ income is about $60,000 a year (NSSRN, 2008). Typically RNs make more working in a hospital setting. Trend suggests that the growth in earnings of full-time RNs only slightly outpaced inflation between 2004 and 2008. Average annual earnings for full-time employed RNs were $66,973 in 2008, rising a 15.9% since the 2004 average of $57,785. Using the Consumer Price Index (CPI) to adjust for inflation, there was only a 1.7% increase from average real 2004 earnings of $26, 366 to 2008 earnings of $26,826 (NSSRN, 2008). As discussed earlier, RNs today are well-educated as evident by more RNs obtaining BSN’s or MSN’s yet their salaries remain stagnant. The lack in salary increase forces some RNs to leave bedside nursing and pursue other opportunities.

It is important to note that about 93% of all RN enrollments in 2008 were working full-time or part-time in nursing (NSSRN, 2008). The 7% who were not employed in nursing were pursuing a higher level of education. It seems that RNs who completed an advanced degree in nursing programs may have continued their employment while pursuing higher education. This statistic is significant since almost all nursing students are enrolled in school while working full-time. Interestingly, very little research focuses on how this affects nurse performance at work, stress level, and turnover.

**II Literature Review**

*2.1 Turnover definition*

 The definitions of turnover and its determinant factors are inconsistent among studies. Some define nursing turnover as the process where nursing staff leave or transfer within the hospital environment. Hayes et al. (2006) describes turnover as any transition between jobs while others define it as the proportion of the population leaving an organization or nursing profession in a given year (Flint & Webster 2007; Alamedine et al. 2006a, 2006b; Hasselhorn et al. 2005). Fortunately, most authors agree turnover is related to the number of people changing jobs within an organization or leaving an organization within a given year (La Bare 2007). People tend to think of turnover as external movements, but internal turnover can be an equal or greater challenge depending on the size of the organization. It is important to clarify the differences between the two types of turnover. External turnover is usually a numerical value attached to the number of people who leave an organization for various reasons (Baumann, 2010). For example, unpaid leave, maternity leave and educational leave, retiring from the workforce, or leaving for employment elsewhere. Internal turnover refers to job changes within an organization. Until there is an agreement on the definition and use of it in the literature, the inconsistencies in definitions are making it harder to compare findings.

*2.2 Determinant Factors of Turnover*

There are many factors associated with nursing turnover such as job satisfaction, job stress and intentions to leave, control over decisions and organizational commitment (Hayes et al. (2006). Job dissatisfaction is often identified as the reason for nursing turnover across studies. A consistently heavy workload increases job tension and decreases job satisfaction, which in turn, increases the likelihood of turnover (Hunt, 2008; Strachota et al., 2003). According to Hunt (2009), the primary issue is “feeling overworked,” largely a result of low staffing levels which is caused by nursing turnover. In 1999, California passed legislation mandating patient-to-nurse ratios for its hospitals, which went into effect in July 2003. This was motivated by an increasing hospital nursing shortage and the perception that lower nurse retention in hospital practice was related to burdensome workloads and high levels of job-related burnout and job dissatisfaction. California requires that hospitals must have at least 1 licensed nurse for every 6 medical and surgical patients by July 2003 (Aiken et al. 2002). Job dissatisfaction could stem from other issues such as long shifts, overtime, weekend, night, and holidays shifts (Shader et al., 2001, Strachota et al., 2003). To support these studies, Aiken et al. found that each additional general, orthopedic, and vascular surgery patient a nurse receives will increase the odds of burnout and job dissatisfaction by 23% and 15%, respectively (2002). Other studies cite the relevance of stress from work by focusing on a specific nursing unit. Barrett and Yates (2002) sampled the oncology nurses and found nearly 40% of RNs were dealing with excessive workloads, 48% were dissatisfied regarding pay, 70% experienced emotional exhaustion and 48% of the sample RNs would not commit to remain in the specialty for an additional 12 months. Other studies found work-related stress to be a major contributor to nurse turnover in critical care units and in psychiatric settings (Evers et al., 2002).This vicious cycle continues and has domino effects on nursing staff and organizational performance. A study of 601 registered nurses found 43% of them would prefer increased staffing levels compared to increased wages or scheduling (Hart, 2003).

 It is often said that “employees don’t quit companies, they quit managers,” and this is applicable for nursing as well. Studies have found that longer tenured nurse managers tend to have lower levels of turnover than inexperienced managers. More experienced nursing managers would be expected to be more effective at creating work environments to support the unique needs of nurses. These managers are more likely to have developed effective methods for clearly defining job expectations, managing employees’ workloads, and recognizing and rewarding nurses for their accomplishments (Hoolahan et al, 2012). Or even more, an experienced nursing manager may be skilled in helping nurses to cope with the highly stressful and emotionally exhausting aspects of their work (Ashforth, 2007; Hunt, 2009).

 The importance of nursing leadership to job satisfaction has been demonstrated in research. Leadership that values staff contribution promotes retention as evidenced by consistent themes in the literature relating to good working relationships and management styles that facilitate, or empower rather than direct employees (Bratt et al., 2000; Kramer & Schmalenberg, 2003). Larrabee et al. (2003) demonstrated the relationship between empowerment and its association with job satisfaction. Laschinger et al. (2004) defined psychological empowerment as the employees’ psychological interpretation or reaction to these conditions. Another study by Anderson et al. (2004) further supports the relationship between reward-based climates, high levels of communication, openness, and lower turnover in nursing homes. Variables such as career development and life-long learning activities in nursing promote job satisfaction that in turn increases retention (Collins et al., 2000; Donner & Wheeler, 2001). Shilds & Ward (2001) further explained dissatisfaction with promotion and training opportunities has a stronger impact on turnover than workload and pay. If nurses feel their career development and their hard work are valued, they are more likely to stay as suggested in recent studies. Kramer and Schmalenberg (2008) stated healthy work environments have been shown to affect staff’s satisfaction and retention, reduced turnover, increased attraction, job satisfaction, and provide a lower degree of job stress and burnout amongst nurses. The work environment has been found to be an important component of retention. Work environments that lack respect for nurses, collaboration, encouragement of professional growth, and recognition were not considered favorable practice environments for retention (Ritter, 2011).

 Job dissatisfaction and expressed intent to leave are frequently reported as factors associated with turnover. Job dissatisfaction and turnover intention appear to be influenced by organizational characteristics associated with workload, management style, empowerment, promotional opportunities and work schedules. In addition, these factors can be influenced by intrinsic factors such as professional commitment and personal disposition as well. The limitations of current findings include the lack of evidence to conclude how these intrinsic factors, such as achievement and recognition impact the nurse’s decision about leaving a unit or an organization. Even if job dissatisfaction stems from organizational characteristics, we do not know how these determinant factors are associated with the different types of turnover. Until researchers clearly define turnover and resolve the issues discussed above, our ability to generalize the determinant factors of turnover is limited.

The impact of pay on turnover is inconsistent across findings. Some suggest pay is not a high priority; other contends that pay may be associated with turnover. A study by Shields and Ward (2001) concluded improved pay would only have limited impact unless accompanied by improved opportunities. Several other studies suggest pay can have both direct and indirect effects on turnover intent, and pay satisfaction correlates strongly with reduced turnover intent, but also has a weaker correlation with job satisfaction.

*2.3 Costs*

Various studies have examined the organizational costs of nursing turnover, and correlated turnover rates and the effects on care. However, it has been a challenge to generalize the financial impact of nurse turnover because of the inconsistent definitions and measurements as the variability in costs reported through different studies. Nursing turnover costs are estimated at 1.3 times the salary of a departing nurse ([Jones](http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Volume122007/No3Sept07/NurseRetention.aspx#Jones05), 2005). A study at the Robert Wood Johnson Foundation (2009) showed the average RN turnover costs in 2007 for hospital systems with fewer than 1,000 FTEs was $24,861 while the average almost doubled at $43,667 for hospitals with staffing levels greater than 1,000 FTE. The participating hospitals with larger RN staffs are more focused on complex tertiary care services, such as intensive care units, and replacing these skilled RNs is more costly. Antenco et al. (2007) estimated turnover costs to be twice a nurse’s annual salary. Blake (2006) estimated turnover can cost an organization 30-50% of an annual salary of entry-level employees, 150% of mid level employees, and up to 400% for specialized, high level employees. The costs of per nurse turnover have been estimated to range from about $22,000 to over $64,000 (Advisory Board, 1999; Jones, 2007; O’Brien-Pallas et al., 2006; Stone et al., 2003; Waldman et al., 2004; Bland Jones & Gates 2007). These figures include the costs of recruitment, orientation, and lost productivity. While it has been recognized that the cost associated with lower productivity of new hires is a component of turnover, this cost has not been quantified before. Waldman et al. (2004) calculated the cost associated with a newly hired nurse to average $15,825 and the cost of reduced productivity to range from $5,000 to $16,000.

Variables such as an RN’s education and experience, demographic differences, and tenure contribute to this huge variability. In addition, the lack of consistent definitions poses challenges when quantifying the economic impact of nursing turnover (O’Brien Pallas et al. 2006). The inconsistency in turnover cost classifications can be especially problematic: direct vs. indirect and pre-hire vs. post-hire. While direct costs are more tangible, for example, advertising and recruiting, indirect costs cannot be readily assigned to a specific activity or may be difficult to quantify such as productivity losses during the learning curve period. Many employers have difficulty estimating the true cost of nursing turnover because the necessary data is neither comprehensive nor readily available. In the United States, the estimated cost of nurse turnover is nearly $ 9.4 million nationwide, but this estimate is “conservative and does not include lost productivity” (Enrado 2009). On the other hand, the New York State Education Department calculated the statewide cost of RN turnover per year to be over $1 billion when the annual turnover rate is 15% (Weber, 2005). Nationally, the total cost of turnover, at a nurse turnover rate of 20% in U.S. hospitals, is estimated to be $12.3 billion (Voluntary Hospitals of America, 2002).

Jones (2004, 2005 & 2008) has made a valuable contribution to turnover cost and the relationship to human capital. Her recent work provides estimated costs in acute care hospitals. Jones used the economic theory of human capital to describe and calculate turnover costs. Human capital consists of the knowledge, skill, and abilities nurses possess though investments in education, training, and job experience. Organizations acquire human capital when they invest in their employees or nurses through training and salaries. This theory treated turnover costs in the following categories.

1. Pre-hire costs during recruitment and hiring to fill turnover vacancy include:
	1. Advertising and recruiting media ads, job fairs, etc.
	2. Vacancy cost associated with temporary use of agency RNs.
	3. Hiring, interviewing and reviewing of applications
2. Post-hire costs incurred after employment include:
	1. Orientation and training – with policies and procedures
	2. Decreased new RN productivity – time necessary to climb up the learning curve
	3. Decrease per-turnover productivity- lost upon an experienced RN’s leaving
	4. Termination

Jones (2004) used the Nursing Turnover Cost Calculation Methodology (NTCCM) “to calculate the costs of nurse turnover by identifying the major cost components of replacing nurses who leave to estimate total and per RN turnover costs.” In a following year, Jones studied a 600-bed hospital and estimated turnover costs to be 1.2 to 1.3 times the average annual salary of registered nurses in the hospital and commented that other factors such as organizational productivity and performance were not included in this estimate (2005). Thus, it is possible to cost out individual items in order to calculate the overall cost to an organization. In some cases, it may be obvious due to “brain drain” (Baumann & Blythe 2003). In other cases, the costs are more subtle but still have an impact on the continuity of care and existing team structures.

A standard method is required to compare the turnover costs to allow for greater understanding of the implications. Various approaches have been developed to quantify the financial implications of turnover for recruitment, orientation, training, and other additional costs. For example, the Nursing Turnover Calculator Smart Tools was developed by QHR (2006) to help organizations “quantify the cost of nursing turnover/shortages [and] . . . evaluate the impact of lost revenue.” In addition, Blake (2006) provided an extensive checklist of items that need to be considered when estimating the costs associated with a turnover.

In summary, costs of per nurse turnover can range anywhere from $22,000 to $64,000, or greater for specialized nurses and institutions. The wide range in estimated costs results from differing methodologies and variations in labor costs across the settings. Conservative estimates should account for hidden, indirect costs associated with turnover. With external turnover, hidden costs mean financial loss – the loss of patients from RNs leaving the organization. Understanding the nature, size and cost of turnover leads to insight for the development and planning of retention strategies that can be compared across institutions. Before we get there, more research is needed to understand turnover costs and compare costs across geographic settings.

*2.4 Effects on quality of care*

 The consequences of turnover are not only financial. Turnover can negatively impact employee satisfaction among nurses and other hospital staff, and ultimately the quality of care (Bae et al., 2009; Grant & Swanson, 2006; Jones, 2004). Research suggests that the incidence of medication errors, wound infections, increased mortality and turnover are directly related to nursing staff to patient ratios (Aiken et al. 2002 & 2010; McGillis Hall et al. 2004).

The objective of this section is to synthesize much of the research done on nurse staffing and patient outcomes and the impact of the nursing experience on patient outcomes. Nursing turnover has shown significant effects on team morale and team satisfaction. The inadequate staffing levels and work overload have negative effects on nurses’ well-being due to illness (Baumann et al., 2001; O’Brien-Pallas et al, 2001; Shamian and O’Brien-Pallas, 2001). O’Brien-Pallas et al (2001) reported that they found a decrease in the number of nurses working in hospitals due to increased patient acuity and demand for care. Their study showed that the incidence of missed shifts due to reported illnesses increased when nurses were asked to work overtime. Research by Clarke’s group (2002) further stated that high workloads affect nurses’ performance.

 In addition to decreased clinician satisfaction and retention, higher nursing turnover rates also resulted in client disengagement, illness exacerbation, and added burdens of care giving for families ([Minore et al., 2005](http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Volume122007/No3Sept07/NurseRetention.aspx%22%20%5Cl%20%22Minore); Jones, 2004). Bae et al. (2009) reported that nursing units with moderate levels of turnover were likely to have lower levels of workgroup learning compared to those with no turnover. Nursing units with low levels of turnover were likely to have fewer patient falls than nursing units with high turnover. Additionally, workgroup cohesion and relational coordination had a positive impact on patient satisfaction, and increased workgroup learning led to fewer occurrences of severe medication errors.

In a study among 292 responding hospitals, the Texas Center for Nursing Workforce Studies (2006) reported that hospital employers rated the nursing shortage as “severe” for 2005 when they were unable to fill RN positions in more than 60 days. Hospital employers reported the following impacts of the registered nurse (RN) shortage:

* Overcrowding in emergency rooms
* Decreased physician satisfaction
* Reduced number of available beds (closing or reducing size of units or departments)
* Increased patient complaints
* Decreased patient satisfaction

Regarding patient outcomes, Texas Center for Nursing Workforce Studies stated that high vacancy and turnover rates can adversely affect patient outcomes due to the loss of experienced staff and increased stress on the remaining staff whose already heavy workload increases to overcome the effect of vacancies, perpetuating a vicious cycle resulting in continued turnover.

 A number of articles related to nurse staffing and patient outcomes demonstrate the nurse’s impact on patient outcomes in acute care hospitals, but the correlations are weak or absent. Furthermore, some studies suggest a relationship between nursing turnover and factors that are related to quality of care, yet there are very few reported studies that have examined the specific relationship between nursing turnover and quality of care, or that have attempted to quantify the quality of care and patient safety costs related to nursing turnover. Although it is logical to expect that turnover would adversely affect patient care, in reality, we know very little about nurse turnover and retention as they affect quality of care and patient safety (Jones and Gates, 2007).

 A few studies have linked nurse staffing levels with the length of stay (Needleman et al., 2002), complication rates (Dimick et al., 2001; Whitman et al., 2002; Unruh, 2003), patient mortality and failure to rescue (Tourangeau et al., 2002) and patient incidents (Whitman et al., 2002). One commonly cited study reported that organizations with low turnover rates (ranging between 4% and 12%) had lower risk-adjusted mortality and lower patient lengths of stay than did organizations with moderate (12% to 22%) or high (22% to 44%) turnover rates ([VHA, 2002](http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Volume122007/No3Sept07/NurseRetention.aspx#VHA)). A Canadian study reported that higher nursing turnover rates negatively impacted communication, medications management, and follow-up ([Minore et al., 2005](http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Volume122007/No3Sept07/NurseRetention.aspx%22%20%5Cl%20%22Minore)). Several studies noted incidence of the association of medication errors, wound infections, and increased mortality with high nursing turnover (Aiken et al. 2002; Aiken et all 2010, McGillis Hall et al. 2004).

 Needleman et.al (2002), conducted a study of 799 acute care general hospitals in 11 states, found that increases in nurse staffing are associated with fewer adverse outcomes for patients. Aiken et al. (2002) found that each patient added to a nurse’s workload was associated with a 7% increase in mortality following common surgeries. Also, nurse burnout and job dissatisfaction, considered precursors of voluntary turnover, showed a significant increase as nurses’ workloads increased. Other studies within the US support this finding (Aiken, Clarke, and Sloane 2002; Needleman et al. 2002; Estabrooks et al. 2005; Rafferty et al. 2007; Tourangeau et al. 2007; van den Heede et al. 2009). A meta-analysis of 90 studies commissioned by the Agency for Healthcare Research and Quality (AHRQ) subsequently concluded that there is an evident association between nurse staffing and patient outcomes (Kane et al. 2007). Additional studies are needed to investigate these relationships more closely and to document the causal mechanisms through which turnover may affect quality of care and patient safety. Also, further investigation is also needed to assess the relationship between nursing turnover to patient outcomes, as well as the mediating effect of workgroup processes on this relationship.

 Until recently, the AACN points to the connection between adequate levels of RN Staffing and safe patient care through several studies (AACN, 2013). Needleman et al., (2011) indicated that insufficient nurse staffing was related to higher patient mortality rates. This is consistent with Aiken’s finding that low nurse-patient ratios on medical and surgical units were associated with significantly lower patient mortality rates, (2010). According to a 2002 report by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), inadequate nurse staffing has been a factor in 24% of the 1609 cases involving patient death, or injury (STTI, 2013). Understanding the impact of nursing turnover on patient care can help to better design, fund, and implement appropriate alternative intervention strategies when an RN is leaving the organization and the profession.

**III Discussion**

Many employers have difficulty estimating the true cost of nurse turnover because the necessary data is neither comprehensive nor readily available. Turnover represents a major problem for nursing and health care in terms of cost, the ability to care for patients and the quality of care given. As a result, turnover has been the subject of a large number of studies. However, many of the articles published report inconsistent findings in terms of costs, the result of different approaches and methodologies selected.

The variety of methodologies for gathering data and the data sources researchers have used present complications. The approaches for calculating turnover costs and the resulting nursing staff turnover costs that were estimated lead to inconsistency in findings. Inconsistent definitions and measures of turnover have impeded a clear understanding of turnover and its associated financial costs. Much of the work on turnover to date has been conducted in the United Kingdom, the United States and Canada and focuses on the acute care sector. Because of the huge variability in specific turnover cost estimates, a meaningful comparison may be questionable.

Past studies show a wide range of variability and weak association between turnover and patient care. Recently, Waldman et al. (2004) challenged that “the 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 to retain nurses.” Recently, Jones and Gates (2007) focused on benefits of turnover, such as the generation of ideas by new employees, salary savings and elimination of staff that may have performance problems. Hasselhorn et al. (2005) postulated that “departure from the [nursing] profession might . . . be advantageous for certain individuals, e.g. for those with severe health complaints or for those who wish to further their careers in other directions.” Recent findings have challenged other studies in the past that link the impact of turnover on patient care and financial loss of organizations. However, there is a general consensus there is a need to examine all aspects of turnover including nursing movement within (internal turnover) and outside (external) organization. We still need to determine with more confidence the actual costs and benefits of nurse turnover and retention, and distinguish costs by cost drivers.

**IV Recommendation**

*4.1 Promoting Nursing Retention*

The costs of retention are clearly related to the specific organizational strategies implemented. These strategies might include improvement of nurse work environment, re-design of the nurse work space, and/or an increase of nurse wages and benefits. Because organizations generally choose a combination of strategies that meet their unique needs and budget constraints, the retention costs incurred will vary from organization to organization. The costs of various strategies may be relatively easy to quantify, such as specific program costs associated with a new graduate residency program or limiting nurses work hours. Kramer and Schmalenberg (2008) and Ritter (2010) both presented the importance of nurses in determining the health of a work environment and the effectiveness of strategies implemented for workplace environmental change. The more systematic approaches, such as improving nurses work environment, involving nurses in organizational decision making, establishing a culture of safety, or providing strong, top-level nursing leadership and supportive nursing supervision throughout the organization are important as well. To address nursing turnover an organization should incorporate effective methods of recruitment and retention. Hospitals are recommended to invest in the education of new nurses, improve staff satisfaction by developing appropriate staff-to-patient ratios, flexible scheduling, and creating opportunities for career development.

*4.2 Developing Staff/Patient Ratios*

California was the first state to establish mandatory nurse/patient ratios. Its hospital nurses cared for one less patient on average than nurses in the other states, and two fewer patients on medical and surgical units. When nurses’ workloads were in line with the California-mandated ratios, nurse burnout and job dissatisfaction were lower, and nurses reported consistently better quality of care. Hospital nurse staffing ratios mandated in California were associated with lower mortality. California’s success with nurse/patient ratios has encouraged other states to consider nurse ratio legislation, as is the case with Minnesota (Ostberg 2008).

*4.3 Becoming Magnet-like Environments*

Recognizing nursing dissatisfaction stemmed from unhealthy work environments, magnet hospitals nationwide have successfully avoided high turnover by improving working conditions. As consistent with the IOM/RWJF recommendation of nurses should practice to the full extent of their education and training, STTI recommends the creation of patient care models that encourage professional nurse autonomy and clinical decision-making. Specific strategies include constructing practice environments that are interdisciplinary and build on relationships among nurses and other health care professionals, establishing additional mechanisms for collaboration, and developing career enhancement incentives for nurse to pursue professional practice (STTI, 2013).

*4.4 The Public Health Significance*

 It is vital to recognize that solving this puzzle cannot be done in isolation of research funded privately. Needless to say, this is a complex issue and requires collaboration, planning, and alliance from key stakeholders such as the supportive organizations locally and nationally. Equally important are professional bodies such as nursing administrators that represent health care personnel. These administrators can facilitate research on the factors that influence nurse turnover, the impact of turnover, and the development of relevant strategies for retention. It might be helpful to develop a centralized infrastructure and team dedicated to the investigations of nursing turnover, its impact on the organization’s economics and quality of care. A centralized agency could define turnover rates and standardize a consistent method of studying turnover impacts and its mechanism so that findings can be compared and generalized across institutions and geographic settings. Given the vital need for nursing workforce stability, the relationship between nursing research, policies, the existence of professional associations and the retention of nurses should be acknowledged and strengthened. Registered nurses are fundamental to the success of emerging patient-centered care delivery models as recognized in the Patient Protection and Affordable Care Act of 2010 (PPACA). Nurses can work within their profession and collaborate with other professions to provide significant organizational leadership within the ACO model, particularly in providing care in underserved areas and for an aging population.

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