WSNA

WHITE PAPER
Washington State Nurses Association

Mapping the Economic Value of Nursing

By David M. Keepnews, PhD, JD, RN, FAAN

Commissioned by the WSNA Professional Nursing & Health Care Council
Washington State Nurses Association

Approved by WSNA Executive Committee June 6, 2011

About the author

Dr. David Keepnews is an associate professor in the Hunter-Bellevue School of Nursing at Hunter College, City University of New York. He also serves as Editor of Policy, Politics & Nursing Practice, a journal focused on nursing and health policy. Dr. Keepnews has previously served as director of policy development for the New York Academy of Medicine, director of policy for the American Nurses Association, regulatory policy specialist for the California Nurses Association and assistant regional counsel for the U.S. Department of Health and Human Services, Region IX. He has practiced as a staff nurse in psychiatric emergency, inpatient, community mental health and substance abuse settings in San Francisco and New York. Dr. Keepnews has written and spoken widely on a range of topics related to nursing and health policy. He holds a PhD in Social Policy from the Heller Graduate School of Social Policy and Management at Brandeis University, a Jurisprudence Doctorate from the University of California, Hastings College of the Law and a Master of Public Health degree from the University of California, Berkeley. He received a Master of Science degree from Excelsior College School of Nursing and a Bachelor of Science in Nursing from the University of San Francisco. Dr. Keepnews is a Fellow of the American Academy of Nursing and the New York Academy of Medicine.

Suggested citation

Keepnews, David. (2011). Mapping the Economic Value of Nursing: A White Paper, Seattle: Washington State Nurses Association.

Contents

Executive Summary 1

- Nurse Staffing 1
- Value-Based Purchasing 1
- Reflecting Nursing Intensity in Hospital Payment 1
- Advanced Practice Registered Nurses (APRNs) 2
- Conclusion 2
- Recommendations 2

Introduction: Nursing's Social and Economic Value 3

- Why Address Nursing's Economic Value? 3
- The Purpose of this Paper 3

Historical Context 3

Hospital Payment and Nurse Staffing 4

- Medicare Prospective Payment System for Inpatient Hospital Care 4
- Managed Care and Workplace Restructuring 5
- Staffing, Outcomes and the "Business Case for Quality" 6
- Paying for Performance 7
- Non-payment for Preventable HACs 8

Accounting for Nursing Care in Hospital Payment 9

Advanced Practice Nursing 9

Discussion 10

- Importance of Continued Exploration of Nursing's Economic Value 10
- Distinguishing Who Benefits from Value of Nursing Services 10
- Value-based Purchasing and Realigning Financial Incentives in Health Care 10
- Accounting for Nursing Care in Hospital Payment 11
- The Economic Value of APRN Services 11
- Educating Nurses About the Value of Nursing 11

References 12

Executive Summary

This paper reviews current knowledge and understanding of the economic value of nursing. Cost and value are increasing considerations in health care and in decisions by policy-makers, payers and health system executives. Federal policy reflects an official commitment to controlling the growing cost of health care and, increasingly, to aligning cost and quality. Defining and quantifying the economic value that nursing represents can support informed, balanced decision-making with regard to the resources that government, employers and others are willing to commit to educating and utilizing nurses. While economic value should not be the sole factor, it can play a valuable role in advocating for decisions that best serve the goals of patient safety and quality health care.

The nursing profession in the U.S. has addressed issues of economic value since its early history. In 1916, Adelaide Nutting proposed developing new sources of financing for nursing schools. Later, nurses' registries were developed to address pay levels for private-duty nurses. In 1966, ANA established a salary goal of not less than $6,500 annually for entry-level RNs.

NURSE STAFFING

Over the past three decades, much of the focus on nursing's economic value has centered on issues of adequate staffing, particularly in hospitals. These issues came into focus in 1983, following the implementation of the Medicare inpatient Prospective Payment System (IPPS). Many hospitals initially responded by reducing their RN staffing. This situation reversed itself in fairly short order, however, as hospitals found that shorter hospital stays—the key to financial health under IPPS—required a greater intensity of RN services.

In the mid – to late 1990s, the growth of managed care payment models meant sharp changes in hospital reimbursement from private health plans. Workplace restructuring schemes adopted by many hospitals involved reductions in their use of RNs, and expanded utilization of unlicensed assistive personnel. The profession was challenged to produce evidence of the relationship between staffing levels and outcomes. The result has been a large and still-growing body of research pointing to a link between nurse staffing and improved patient outcomes. A substantial body of research literature now points to the link between nurse staffing and patient outcomes.

In 2003, Leatherman and colleagues explored the "Business Case for Quality" that exists when an organization that spends money on a given intervention realizes a financial return within a reasonable amount of time. Needleman, Buerhaus, Stewart, Zelevinsky & Mattke (2006) applied this approach in formulating the business case for nurse staffing. They identified cost savings resulting from reduced complications and shorter lengths of stay associated with higher nurse staffing levels.

More recently, Dall, Chen, Seifert, Maddox and Hogan (2009) estimated the impact of increased nurse staffing on medical costs, lives saved and national productivity. They suggested that adding 133,000 RNs to the hospital workforce would save 5900 lives per year, increasing national productivity by $1.3 billion, or about $9900 per year per additional RN. Decreases in length of stay resulting from this additional nurse staffing would translate into medical savings of $6.1 billion, an average of $46,000 per additional RN per year. Increased productivity attributable to decreased length of stay was estimated at $231 million per year.

VALUE-BASED PURCHASING (VBP)

Recent efforts to tie hospital performance to Medicare reimbursement levels have important implications for nursing and for demonstrating nursing's economic value. These initiatives seek to create or strengthen the business case for quality by creating a financial incentive for hospitals to achieve identified outcomes of care. The current Hospital Inpatient Quality Reporting (IQR) program focuses on reporting of quality measures. However, as a result of the Affordable Care Act, hospitals will receive additional payment based either on how well they perform on certain quality measures or how much their performance improves on certain quality measures.

A related development is Medicare's policy not to reimburse hospitals for the cost of treating identified hospital-acquired conditions (HACs). Non-payment for these HACs creates an incentive for hospitals to achieve or maintain good nurse staffing levels. Their return on investment for better staffing results in prevention of complications and conditions which, under current Medicare policy, are costly to the hospitals. On the other hand, some hospitals that lose money as a result of non-payment for treating preventable HACs may react shortsightedly by reducing nursing staff.

REFLECTING NURSING INTENSITY IN HOSPITAL PAYMENT

Since implementation of the Medicare IPPS, hospitals receive a bundled payment based on a diagnostic related groups (DRGs). This system does not reflect differences in intensity of nursing care within diagnoses. A model of adjusting hospital payment based on Nursing Intensity Weights (NIW) was adopted by the New York State Medicaid program (which uses DRGs to determine hospital

payment) from 1983 to 2009. Welton and colleagues have proposed removing nursing care from the Medicare IPPS payment to hospitals and instead having Medicare pay for nursing care based on the actual hours of nursing care provided to each patient. Some have recognized the potential benefits of reflecting nursing work within hospital Medicare payment but have questioned the practical and policy feasibility of separating payment for nursing care from the Medicare IPPS payment.

ADVANCED PRACTICE REGISTERED NURSES (APRNS)

The services of Advanced Practice Registered Nurses (APRNs) can be separately billed and paid for by most insurance and health plans that pay for professional services on a fee-for-service basis, including Medicare. However, Nurse Practitioners (NPs) and Clinical Nurse Specialists (CNSs) are paid by Medicare at 85% of the amount paid to physicians for the same service. Today, paying NPs and CNSs at a lower rate than physicians receive for the same services is a statement about how those services are valued—i.e., that NP and CNS services are assigned a lower value than physician services.

CONCLUSION

Improved understanding of nursing's economic value is a tool for explicating and asserting its broad value—both economic and social. That broader value includes functions that may have little quantifiable economic impact, but which are central to nursing's identity as a discipline focused on care and compassion and key to the profession's social contract.

RECOMMENDATIONS:

Nursing Organizations Should

- Continue efforts to identify and define the economic value of nursing. They should disseminate relevant research findings and conduct initiatives educate nurses about nursing's economic value. However, these initiatives should present the economic value of nursing within the broader context of nursing's social and economic value.
- Target messages on nursing's economic value based on distinctions in the economic, business, scientific and political cases for nursing care quality.
- Continue to carefully monitor the development, refinement and implementation of value-based purchasing and other policy initiatives to realign financial incentives related to health care quality;
- Advocate inclusion of nursing-sensitive measures in the Medicare VBP program and in VBP programs developed for use by state Medicaid programs and private health plans;
- Consider advocating inclusion of staffing levels and/or use of hospital-based staffing plans in VBP programs.
- Continue to advocate piloting models for adjusting Medicare hospital payment based on nursing intensity. Evaluation of such models should include any additional documentation burden posed by nurses' recording and reporting of time spent delivering patient care services.
- Encourage health services researchers to evaluate the contributions of APRN services to the quality and value of inpatient care as well as ambulatory and office-based services.
- Work toward consensus on advocating Medicare payment for NP and CNS services at 100% of the Physician Fee Schedule.
- Nursing organizations should provide information on health care financing and health policy on a regular basis, to encourage nurses to remain current in their knowledge of these areas.

Individual Nurses Should

Seek current information about of and knowledge of health financing and health policy, including initiatives relating to health care quality measurement and value-based purchasing.

Nurse Managers and Executives Should

Be familiar with health policy, financing and research evidence related to the economic value of nursing. They should facilitate an understanding of nursing's role in patient and organizational outcomes among other health care organization leaders, and advocate for appropriate allocation of resources to ensure quality patient care.

Nursing Education Programs Should

In programs preparing new nurses, include content on health policy, current evidence on health care quality, and at least basic concepts of economics, health care financing and budgeting. Graduate-level education in nursing should build on this content to ensure that nurses in advanced roles as clinicians, managers or executives, and educators, are competent in these areas and can help to educate other nurses.

Introduction: Nursing's Social and Economic Value

In its recent report, the Institute of Medicine (IOM) Committee on the Robert Wood Johnson Foundation Initiative on the Future of Nursing (2011) examined the roles of nursing in meeting the needs of a reformed health care system. The IOM Committee declared that "nursing brings to the future ... a steadfast commitment to patient care, improved safety and quality, and better outcomes ... [N]urses have key roles to play as team members and leaders for a reformed and better-integrated, patient-centered health care system" (p.xi). This report thus underscored nursing's social value—its value to society—while also outlining steps that must be taken to more fully realize that value.

The nursing profession has long emphasized its social value. Nursing's Social Policy Statement (American Nurses Association [ANA], 2010) and the Code of Ethics for Nurses (ANA, 2001) focus on nursing as part of a *social contract*—a set of obligations to society that arise from being granted the authority to practice our profession. Inherent in the idea of a social contract is that nursing provides necessary and valuable services to society.

In recent years, there has been increasing interest in quantifying nursing's value in economic terms. There are, as this paper describes, important reasons for identifying and demonstrating nursing's economic value. But the full value of nursing services is difficult to quantify in economic terms. Nursing cannot be reduced to economic terms, nor should it be. Nursing is a humanizing factor in a health care system increasingly focused on cost. Identifying nursing's economic value should not overshadow the human values—caring, compassion, respect, advocacy, social justice—that form part of nursing's core.

WHY ADDRESS NURSING'S ECONOMIC VALUE?

So why address nursing's economic value? It costs money to educate, employ and retain nurses. These costs are distributed among different groups—federal and state governments, who provide support for nursing education and research and pay for health care services provided through public health insurance programs; employers, who pay nurses' wages and pay for benefits; health care consumers, who bear some of costs of their own health care services and premiums; and so on. Nursing also provides services with economic value—nursing care generates payment to hospitals, home health agencies, nursing homes and other providers; nurses help to decrease hospital lengths of stay, prevent illness, errors and complications, all of which saves money for providers and health plans and adds to individuals' productivity.

THE PURPOSE OF THIS PAPER

Cost and value are increasing considerations in health care and in decisions by policy-makers, payers and health system executives. Health care costs have been a focus of national concern for some years, as these costs have continued to climb—from $253 billion in 1980 to $714 billion in 1990 and $2.3 trillion in 2008. (Centers for Medicare and Medicaid Services [CMS], 2010). Federal policy reflects an official commitment to controlling the growing cost of health care (Gruber, 2010) and, increasingly, to aligning cost and quality (CMS, 2011). Payers and health care systems continue to seek ways to lower their expenses.

Defining and, where possible, quantifying the economic value that nursing represents—the return on investment that it brings—can support informed, balanced decision-making with regard to the resources that government, employers and others are willing to commit to educating and utilizing nurses. While economic value should not be the sole factor, it can play a valuable role in advocating for decisions that best serve the goals of patient safety and quality health care.

This paper reviews current knowledge and understanding of the economic value of nursing and offers recommendations for consideration by nursing organizations and others to continue and refine efforts to identify and measure nursing's economic value within the broader context of nursing's value. In addition to the discussion presented in this paper, readers are encouraged to carefully examine the report recently produced by the Washington Center on Nursing (2010), *What Value Does Nursing Bring?* The WCN report provides invaluable discussion and analysis of nursing's value, much of it based on Washington State data.

Historical Context

Issues of economic value are not new to nursing. Early in the history of the profession, the growth of nursing schools was driven not only by a recognition of the need for greater numbers of "trained" caregivers, but also by the source of unpaid labor that the schools represented. Student nurses provided the bulk of nursing care in hospitals (along with much of the other work, such as laundry, cooking and housekeeping). While students' unpaid work was often described as the equivalent of tuition, in fact it represented a source of savings far beyond the value of tuition (Nutting, 1916).

This practice created an arguably perverse relationship between nursing schools and hospitals—student nurses as a source of cheap labor justified the cost of operating a nursing school, but this perpetuated schools' dependence on hospitals and sharply limited the use of professional (i.e., graduate) nurses in hospital settings. Mary Adelaide Nutting, an early nursing leader, advocated the development of other sources of funding for nursing education, such as charitable donations and public funds, in order to change this relationship (Nutting, 1916).

The scarcity of hospital jobs for graduate nurses meant that most worked as private-duty nurses. This raised concerns about how to determine nursing's economic value in a very concrete way—how much should nurses be paid by the patient (or the patient's family)? Most nurses were not equipped to bargain on their own behalf. Moreover, competition between private-duty nurses could only drive their pay down. Nurses' registries were a solution to these problems. The registries functioned as kind of hiring hall for nursing care: nurses would sign up registries to seek employment, and family members would hire nurses through the registries (Porter, 1963, p.M-6). They provided a means to set a "fair" rate of pay for private-duty nurses (and to enforce it by virtually eliminating price competition).

A subsequent growth in hospital nursing brought a need to address nurses' wages and working conditions. How best to do this was the focus of some controversy within nursing. To some, addressing economic issues directly seemed to break with the profession's traditional emphasis on nursing as a caring, patient-centered service. Writing in 1963, former ANA President Elizabeth K. Porter noted:

> Many ... nurses—even though they are concerned about their economic plight—seem to be inarticulate or to feel apologetic when they venture into the subject of remuneration. They may discuss or compare salaries among themselves, but they hesitate to bring the subject up with their directors of nursing. "It's not proper," they say. In accepting a promotion or a new position, they sometimes don't even ask about the salary. "Money isn't that important," they explain (Porter, 1963, p.M-4).

Porter also suggested that the profession's religious and military roots had helped to originate "the tradition of nurses as unpaid or underpaid workers" (Porter, 1963). Some nurses also expressed concern that achieving higher wages for nurses would be viewed as contributing to higher health care costs (Ginzberg, 1963).

Although many considerations contribute to determining the wage that an employee (or group of employees) command, wages are one measure of how an employee's services are valued. Thus, comparisons to other workers' wages were used to demonstrate that nurses' pay was inequitable. In 1966, ANA identified that the average annual salary for a nurse was $4,700 while factory workers and secretaries were earning an average of $5,300 or more (Stewart & Austin, 1962). The 1966 ANA House of Delegates adopted a Resolution on National Salary Goal, declaring that "nurses' salaries ... should reflect the value of thir service to society" and establishing a salary goal of not less than $6,500 annually for entry-level registered nurses (The Profession Prepares for Its Future, 1966).

ANA and many of its state nurses associations, of course, recognized the importance of advocating for nurses' economic security as well as utilizing available tools for securing supportive working and practice conditions. This recognition led to the development of an ANA Economic Security Program (Schutt, 1958) and Economic and General Welfare programs among many state associations.

Hospital Payment and Nurse Staffing

MEDICARE PROSPECTIVE PAYMENT SYSTEM FOR INPATIENT HOSPITAL CARE

Over the past three decades, much of the focus on nursing's economic value has centered on issues of adequate staffing, particularly in hospitals. In 1983, Congress approved proposals to change inpatient hospital payment from a cost-based system, in which hospitals were paid based on actual costs incurred in treating their patients, to a prospective payment system (PPS) in which hospitals are paid based on patients' discharge diagnoses, categorized into diagnostic-related groups (DRGs).

The immediate concerns raised by this change in hospital payment were related to the ways in which it shifted hospitals' financial incentives. Under the inpatient PPS (IPPS)[1] , hospitals are paid based on discharge diagnosis and not on the costs actually incurred. Payment amounts were configured based on hospitals' historical charges—that is, they were based largely on hospitals' mean costs for treating patients with similar diagnoses in the past. But after implementation of IPPS, hospitals are paid the same regardless of their actual

1 Since the implementation of the PPS for inpatient hospital services, Medicare has implemented prospective payment systems for other services, including skilled nursing facility, home health agency and outpatient services. The PPS for inpatient hospital services is generally referred to as the inpatient prospective payment system (IPPS) to differentiate it from these other PPSs.

costs for treating a patient. A hospital is paid the same amount for a patient undergoing gallbladder surgery regardless of whether s/he remains in the hospital for two days or seven days, and regardless of whether the patient was one of four patients assigned to a nurse or one of ten patients. (Some differences in payment are reflected based on wage differences in different geographical areas, as well as for significant differences in patient care needs). Thus, a hospitals stands to lose money if patients stay in the hospital longer, or if the hospital incurs greater labor costs (e.g., for higher staffing levels).

One result of this change in Medicare hospital payment was that nursing became solely a cost center: since hospital payment no longer reflected nursing care actually provided to a given patient (nursing care is included in hospital payment based on the mean cost of providing care to patients in the same DRG), variations in nursing care have an impact on a hospital's costs but not its revenue.

Initially, many hospitals reacted by decreasing their utilization of registered nurses and substituting other nursing staff, including licensed practical nurses (LPNs). This situation reversed itself in fairly short order, however, as hospitals found that shorter hospital stays—the key to financial health under IPPS—required a greater intensity of services that was impossible to achieve without sufficient numbers of RNs. The period that followed saw a greatly increased demand for RN services—and a pronounced nursing shortage—as many hospitals moved to all-RN staffs and adopted primary nursing models (Aiken, 2008). (Some research has suggested that a factor in this trend was the small wage differential between RNs and LPNs (Buerhaus, 1993).

This experience provided an early demonstration of the fact that the expense of nurses' salaries need to be balanced against the savings that professional nursing services can provide. It continues to be instructive for current discussions of nursing's economic value.

MANAGED CARE AND WORKPLACE RESTRUCTURING

In the mid – to late 1990s, managed care payment models, which had previously taken root in a few regions of the U.S., became dominant throughout the country. Managed care plans employed a variety of payment methods. Regardless of the models used, for most hospitals the growth of managed care meant sharp changes in reimbursement from private health plans.

To address changes in their revenue, many hospitals sought to make rapid adjustments to their operating budgets, particularly in their labor budgets. Nursing care—which by some estimates represents 30% of hospital operating budgets and 44% of direct care costs (Siegrist & Kane, 2003, was an immediate target for these cost-cutting efforts. Workplace restructuring (also called reorganization or reengineering) schemes adopted by many hospitals involved reductions in their professional staff, particularly RNs, and expanded utilization of unlicensed assistive personnel, both in numbers and in the types of tasks and functions they performed.

Many nurses and nursing organizations cautioned that reduced use of RNs endangered patient safety and reduced quality of care. There had been little research linking nurse staffing with patient care outcomes, however. The profession was challenged to produce more evidence of the relationship between staffing levels and outcomes. This challenge was posed explicitly by the IOM in its 1996 report, *Nursing Staff in Hospitals and Nursing Homes: Is it Adequate?* (Wunderlich, Davis, and Sloane, 1996). The IOM committee that issued this report noted widespread reports from nurses about the impact of staffing changes on quality in hospitals, but found insufficient evidence of this link to reach a conclusion. The committee urged nursing organizations and researchers to more fully investigate the hospital nurse staffing-outcomes link.

Initial efforts to support research on this link had begun in 1994, when the American Nurses Association launched its Quality and Safety Initiative, with the goal of identifying nursing-sensitive quality indicators (ANA, 1995). Several health services researchers also began working in earnest to study the relationship between nurse staffing and patient outcomes. The result has been a large and still-growing body of research pointing to a link between nurse staffing and improved patient outcomes. Starting with a handful of studies in the late 1990s (Kovner & Gergen, 1998; Blegen & Vaughn, 1998; Bond, Raehl, Pittrle & Franke, 1999; Lichtig, Knauf & Milholland, 1999), the body of research pointing to the impact of RN staffing levels on outcomes of care has grown exponentially. In 2002, studies published in the *Journal of the American Medical Association* (Aiken, et al., 2002) and the *New England Journal of Medicine* (Needleman, et al., 2002) brought widespread attention to the role of nurse staffing levels in reducing a range of adverse outcomes. Research has continued since then, producing a substantial body of literature pointing to the link between nurse staffing and patient outcomes. Systematic reviews of the literature in 2004 (Lang, Hodge, Olson, Romano & Kravitz, 2004) and 2007 (Kane, Shamliyan, Mueller, Duval, & Wilt, 2007) also point to a close relationship between staffing and patient outcomes.

While research points clearly to the positive impact of nurse staffing levels on patent outcomes, none has identified "optimal" or ideal RN staffing levels. In part, this is because a range of other factors (nurses' experience levels, patient acuity, patient population, physical layout of the unit, etc.) are presumed to play a role in patient outcomes

(Burnes Bolton, Aydin, Donaldson, Brown, Sandhu., Friedman, et al., 2007; Mitchell & Mount, 2009).

Outside of hospital inpatient settings, a large body of research addresses the relationships between nurse staffing and resident health status/outcomes in nursing homes (Horn,2008; Bostick, Rantz, Flesner & Riggs, 2006). IOM reports on nurse staffing (Wunderlich, Davis & Sloane, 1996) and nurses' work environment (Page, 2004) have called for federal nurse staffing requirements in nursing homes based on the availability of research demonstrating linkages between staffing and outcomes in those settings. (A majority of states have adopted their own requirements for staffing ratios or other minimum staffing requirements in nursing homes). Little research focuses specifically on RN staffing in nursing homes, in part because nursing homes often use larger numbers of LPNs and comparatively fewer RNs. There is little current research addressing the impact of RN staffing outside of institutional settings—e.g., in home health agencies, clinics and other community and ambulatory settings.

STAFFING, OUTCOMES AND THE "BUSINESS CASE FOR QUALITY"

Improved patient outcomes are desirable from many perspectives, but how are they connected to economic value? How do they help to make a case for nursing's economic value?

In 2003, Leatherman and colleagues explored the "Business Case for Quality" (Leatherman, Berwick, Iles, Lewin, Davidoff, Nolan, & Bisognano, 2003). A "business case," they explained, exists when an organization that spends money on a given intervention realizes a financial return – in the form of profit, reduced losses or avoided costs—within a reasonable amount of time. The authors argued: "Without a business case for quality, we think it unlikely that the private sector will move quickly and reliably to widely adopt proven quality improvements."

Leatherman, et al. distinguished this *business case* from an *economic case* and a *social case*. Some interventions may have an economic benefit, but that benefit may not accrue to the organization that bears the cost for it. Or the benefit might be realized at some distant point in the future.

For example, a hospital might offer nutritional counseling to patients at risk for diabetes. If effective, such counseling might lower diabetes prevalence rates in the community, leading to lower health care costs and greater productivity. It might even decrease future hospitalizations. This service has economic value, but the hospital does not benefit economically from providing it. (Much of the cost-savings would more likely accrue to health insurers). Thus, there may an economic case for providing nutritional counseling, but not (in this instance) a business case.

In addition, many services or interventions in health care have significant social value in the form of improved quality of life and decreased suffering. But there may be no clear economic benefit that results from them. Thus, there may be a strong social case, but not an economic or business case[2].

Needleman, Buerhaus, Stewart, Zelevinsky & Mattke (2006) applied this approach in formulating the business case for nurse staffing. Comparing hospitals with higher nurse staffing levels (those in the upper 25%) with hospitals with lower staffing levels (those in the bottom 75%), they identified cost savings resulting from reduced complications and shorter lengths of stay associated with higher nurse staffing levels. Increasing the proportion of nursing hours provided by RNs without increasing total licensed nursing hours was associated with a net reduction in costs for hospitals with lower staffing levels. Increasing overall licensed nursing hours in those hospitals reduced length of stay, complications and patient mortality, but modestly increased hospital costs by 1.5%.

Arguably, much of the research linking nurse staffing and patient outcomes can be interpreted as illustrating the economic value of nurse staffing. Kurtzman (2010) synthesized available literature on staffing and outcomes, expanding on previous efforts by exploring nurses' contributions to high-value care and also including research on APRN services. Among her conclusions:

- While many studies have addressed associations between nursing and patient outcomes, there are sizable limitations in the data and methodologies on which these studies are based, effectively limiting the ability to draw meaningful conclusions.
- Results demonstrate a nurse staffing-quality effect in some subpopulations for failure to rescue, inpatient mortality, and length of stay, particularly in surgical inpatients. Less consistent associations exist between staffing and bloodstream infections, ventilator-associated pneumonias, and urinary tract infections.
- Despite finding links between nursing hours per patient day and staffing mix and improved outcomes, research has not established specific staffing standards per se.

2 In her analysis of literature on nursing and high-value inpatient care, Kurtzman (2010) also identifies a scientific case, based on the availability of sound evidence and a political case, based on the feasibility of proposed interventions.

- Few studies have addressed nurse staffing and cost or efficiency, but those that have done so have suggested that better nurse staffing was associated with lower costs.
- Some evidence links nursing work environments with nursing outcomes such as burnout and nurse satisfaction), but research linking nursing work environments and patient outcomes is less robust.
- There is little evidence associating processes of nursing care with patient outcomes or health care costs.
- While there is research literature pointing to the value of APRNs in primary care, there is little research addressing their contributions to inpatient care

(Kurtzman, 2010, p.39).

Dall, Chen, Seifert, Maddox and Hogan (2009) utilized data from the 2005 National Inpatient Survey and 28 studies on nurse staffing and reduced hospital-based mortality, hospital-acquired pneumonia, unplanned extubation, failure to rescue, nosocomial bloodstream infections, and length of stay. They estimated the impact of increased nurse staffing on medical costs, lives saved and national productivity. The authors suggested that adding 133,000 RNs to the hospital workforce would save 5900 lives per year, increasing national productivity by $1.3 billion, or about $9900 per year per additional RN. Decreases in length of stay resulting from this additional nurse staffing would translate into medical savings (before labor costs) of $6.1 billion, an average of $46,000 per additional RN per year. Increased productivity attributable to decreased length of stay was estimated at $231 million per year.

Both Needleman, et al. (2006) and Dall, et al. (2009) found that reduced length of stay accounted for much greater cost savings than did increased salary costs. Their findings overall should not be simplified to stating that increased nurse staffing always saves money for hospitals. Needleman, et al., found that increasing the *proportion* of RNs (i.e., skill mix) in lower-staffed hospitals without increasing overall staffing would result in savings, while increasing overall nurse staffing would result in a modest increase in costs. Both Needleman and Dall also emphasize the benefits of increased RN staffing that may not be measurable in economic terms or which may result in economic benefit to entities other than the employer (who, of course, bears the immediate costs of RN staffing), For example, increased productivity benefits the national economy in general. The medical savings resulting from increased RN staffing, as Dall, et al. (2009) observe, are "greater for payers than for individual healthcare facilities." (p.103)

PAYING FOR PERFORMANCE

Recent efforts to tie hospital performance to Medicare reimbursement levels have important implications for nursing and for demonstrating nursing's economic value. These initiatives seek to create or strengthen the business case for quality by creating a financial incentive for hospitals to achieve identified outcomes of care.

Value-based purchasing initiatives (VBP, also known as pay for performance) seek to realign providers' financial incentives by rewarding for higher quality care. In 2004, Medicare initiated its Reporting Hospital Quality Data for Annual Payment Update (RHQDAPU) program, now known as the Hospital Inpatient Quality Reporting (IQR) program. The program currently focuses on reporting of a wide range of identified quality measures. Hospitals that comply receive a 2% increase in Medicare payment for the following fiscal year. Current nursing sensitive measures included in IQR include *Death Among Surgical Patients with Serious Treatable Complications* and *Participation in a Systematic Clinical Database Registry for Nursing Sensitive Care.*

The current IQR program focuses on reporting of quality measures. However, as a result of the Affordable Care Act, Medicare will soon "reward the hospital based on its actual performance, rather than simply its reporting of data for those measures" (CMS, 2011).

Hospitals will receive additional payment based either on how well the they perform on certain quality measures or how much their performance improves on certain quality measures from their performance during a baseline period. CMS has issued a proposed federal rule on implementation of this new policy (CMS, 2011), which will likely be finalized later in 2011. The program will apply to payments for discharges occurring on or after October 1, 2012. CMS has proposed 25 initial measures—17 process of care measures and 8 measures from the Hospital Consumer Assessment of Healthcare Providers and Systems survey—to be used beginning October 1, 2012. (These measures are listed in Table 1).

VBP may strengthen the business case for quality by paying more for better outcomes and thus realigning health care organizations' incentives. In their article, Leatherman and colleagues (including second author Donald Berwick, who is currently CMS Administrator) noted that "health care organizations may be reluctant to implement improvements if better quality is not accompanied by better payment or improved margins, or at least equal compensation ... Without a business case for quality, we think it unlikely that the private sector will move quickly and reliably to widely adopt proven quality improvements" (2003, p.18).

Table 1 **Proposed Initial Measures for Fiscal Year 2013 Hospital Value-based Purchasing Program**

Acute myocardial Infarction

- Aspirin Prescribed at Discharge
- Fibrinolytic Therapy Received Within 30 Minutes of Hospital Arrival
- Primary PCI Received Within 90 Minutes of Hospital Arrival

Heart Failure

- Discharge Instructions
- Evaluation of LVS Function
- ACEI or ARB for LVSD

Pneumonia

- Pneumococcal Vaccination
- Blood Cultures Performed in the Emergency Department Prior to Initial Antibiotic Received in Hospital
- Initial Antibiotic Selection for CAP in Immunocompetent Patient
- Influenza Vaccination

Healthcare-associated Infections

- Prophylactic Antibiotic Received Within One Hour Prior to Surgical Incision
- Prophylactic Antibiotic Selection for Surgical Patients
- Prophylactic Antibiotics Discontinued Within 24 Hours After Surgery End Time
- Cardiac Surgery Patients with Controlled 6AM Postoperative Serum Glucose

Surgeries

- Surgery Patients on a Beta Blocker Prior to Arrival That Received a Beta Blocker During the Perioperative Period
- Surgery Patients with Recommended Venous Thromboembolism Prophylaxis Ordered
- Surgery Patients Who Received Appropriate Venous Thromboembolism Prophylaxis Within 24 Hours Prior to Surgery to 24 Hours After Surgery

Survey Measures

From Hospital Consumer Assessment of Healthcare Providers and Systems Survey:

- Communication with Nurses
- Communication with Doctors
- Responsiveness of Hospital Staff
- Pain Management
- Communication about Medicines
- Cleanliness and Quietness of Hospital Environment
- Discharge Information
- Overall Rating of Hospital

NON-PAYMENT FOR PREVENTABLE HACS

A related development is Medicare's policy not to reimburse hospitals for the cost of treating identified hospital-acquired conditions (HACs). In 2007, Medicare implemented a policy of not paying hospitals for the cost of treating identified hospital-acquired conditions[3]. Generally, if a patient experiences a complication or other condition that requires additional treatment, these will be reflected in the patient's discharge diagnoses and the hospital reimbursement will reflect those diagnoses—meaning that the hospital will be paid more as a result. Under this new payment policy, however, a preventable HAC will not be reflected in the hospital's Medicare payment—i.e., the hospital will not receive additional payment as a result of such complication.

Some of the identified preventable HACs (such as falls and nosocomial infections) have been tied by previous research to nurse staffing, at least in part. As a result, non-payment for these HACs creates an incentive for hospitals to achieve or maintain good nurse staffing levels. Their return on this investment into better staffing results from prevention of complications and conditions which, under current Medicare policy, are costly to the hospitals. On the other hand, some hospitals that lose money as a result of non-payment for treating preventable HACs may react shortsightedly—as some hospitals have done in the past when faced with decreased revenue—by reducing nursing staff. Kurtzman, O'Leary, Sheingold, Devers, Dawson, & Johnson (2011) interviewed 77 hospital leaders and unit nurses regarding the impact of performance-based incentive policies. Although interviewees believed that these policies will have a positive effect on quality and safety, many expressed concerns about their potential impact on nursing, including the possibility that they will increase burden on nurses and blame for failing to meet quality goals, without improvements in staffing levels, work environment, salaries, or turnover. The authors recommended a greater focus on implementation support, redesigning hospital incentives to reward teamwork, and involving nursing leaders in the design of incentive policies.

3 Categories of HACs include: Foreign object retained after surgery; Air embolism; Blood incompatibility; Stage III and IV pressure ulcers; Falls and trauma; Manifestations of poor glycemic control; Catheter-associated urinary tract infection; Vascular catheter-associated infection; Surgical site infection following coronary artery bypass graft, laparoscopic gastric bypass, gastroenterostomy, laparoscopic gastric restrictive surgery and spine, neck, shoulder and elbow procedures; and Deep vein thrombosis/pulmonary embolism following total knee replacement or hip replacement.

Accounting for Nursing Care in Hospital Payment

Billing and payment for inpatient hospital care rarely identifies nursing as a separate charge; nursing is reflected in overall hospital charges, generally as part of room charges. In the 1970s and 1980s, there was interest by many nurses in costing out nursing services—i.e., separately identifying nursing care in hospital billing. Costing out was viewed as a way of making nursing care more visible and highlighting nursing's central role in patient care. It also was argued to provide a means of paying higher rates for more intensive nursing care services.

Since implementation of the Medicare IPPS, hospitals receive a bundled payment based on a diagnostic related groups (DRGs). This system does not reflect differences in intensity of nursing care within diagnoses—i.e., it presumes that nursing needs are identical for patients with similar diagnoses, or that differences are randomly distributed. During the development, piloting and early implementation of the DRG system, several approaches developed for reflecting nursing intensity in DRG payment (Shaffer, 1984; also see Shaffer, 1985).

A model of adjusting hospital payment based on Nursing Intensity Weights (NIW) was adopted by the New York State Medicaid program (which uses DRGs to determine hospital payment) from 1983 to 2009 (Knauf, Ballard, Mossman and Lichtig, 2006). NIWs are based on nursing experts' estimates of average nursing intensity for each DRG. Thus, while it provides a means of reflecting nursing care in hospital payment, the NIW model has been criticized for not reflecting variation of nursing intensity within each DRG (Welton, Fischer, Degrace, & Zone-Smith, 2006).

Effective Fiscal Year 2008, Medicare adopted a system of Medicare Severity DRGs (MS-DRGs), which reflects more variation in severity than the prior DRG system did by distinguishing between severity of comorbidities and complications. It remains to be seen whether, or how effectively, this system may also reflect variations in nursing care intensity.

Welton and colleagues have proposed removing nursing care from the Medicare IPPS payment to hospitals and instead having Medicare pay for nursing care based on the actual hours of nursing care provided to each patient (Welton & Dismuke, 2008). In the model Welton developed, nurses track and report their hours of patient care in real time through the use of handheld devices, generating a Nursing Intensity Database (NID) that can then be used to adjust hospital payment based on the intensity of nursing care each patient receives. . The American Organization of Nurse Executives has been supportive of Welton's work. Others have recognized the potential benefits of reflecting nursing work within hospital Medicare payment but have questioned the practical and policy feasibility of separating payment for nursing care from the Medicare IPPS payment (Ginsburg, 2008; Finkler, 2008; Keepnews, 2006). Since the implementation of the Medicare IPPS, payment policy has moved more toward bundled payments for health care services and away from fee-for-service. Breaking out nursing care from the rest of hospital payment and paying based on the actual amount of nursing care provided both appear to run counter to these trends.

Nonetheless, interest has continued in finding ways to reflect nursing intensity within hospital payment. Welton has piloted his model (Welton and Dismuke, 2008) and will most likely continue to refine his proposals.

Advanced Practice Nursing

The services of Advanced Practice Registered Nurses (APRNs) can be separately billed and paid for by most insurance and health plans that pay for professional services on a fee-for-service basis, including Medicare. Medicare Part B pays for services provided by physicians, APRNs and other professional providers according to a Physician Fee Schedule (PFS) updated yearly by CMS. The Physician Fee Schedule is based on a Resource-Based Relative Value Scale (RBRVS).

The RBRVS was designed, in part, to provide an objective basis for determining the value of professional services and to provide for more equitable payment for services across medical specialties (Sullivan-Marx, 2008). An estimation of the physician (practitioner) work value involved in providing a service or procedure (based on time and intensity) accounts for 52% of its relative value. Practice expense (based on the costs associated with delivering a service, such as office rent and salaries) accounts for 44%, and the cost of professional liability insurance accounts for the remaining 4% (American Medical Association, 2011). CMS multiplies the relative value of each service or procedure by a monetary value (a conversion factor), along with an adjustment based on geographical variation in costs, to determine the amount that Medicare will pay under the PFS.

NPs and CNSs are paid by Medicare based on the PFS. However, they are paid 85% of the amount paid to physicians for the same service. This was set by Medicare law when NPs and CNSs were first added as Medicare providers in 1990. Until recently, CNM services were paid at 65% of the amount paid to physicians. Section 3114 of the

Affordable Care Act, however, increased CNM payment to 100% of the physician amount, effective January 1, 2011.

Under current Medicare law and policy, many services provided by NPs and CNSs employed by physicians or outpatient clinics may be billed to Medicare under a physician's name and provider number. (These are referred to as "incident to" services). When services are billed in this manner, they are paid at 100% of the physician rate.

When payment rates for NPs and CNSs were first set at 85%, nursing organizations had placed a priority on establishing them as Medicare providers. Many policy-makers were not yet fully familiar with the type and quality of services provided by APRNs, and securing equal payment did not appear to be politically feasible. Today, paying NPs and CNSs at a lower rate than physicians receive for the same services is a statement about how those services are valued—i.e., that NP and CNS services are assigned a lower value than physician services.

While paying a lower rate for the same services provides some cost savings, that savings accrues to the Medicare program (and to private health plans, to the extent that many of these payers follow Medicare policy by paying at a lower rate), not to hospitals, clinics or other employers of NPs and CNSs, since these providers generate less revenue than physicians. Furthermore, in settings in which "incident to" billing is permitted, this differential in payment provides an incentive to bill NP and CNS services under a physician's name. This keeps many of these services invisible; Medicare data cannot reflect the full range and volume of NP and CNS services. This is a considerable barrier to identifying the extent of APRNs' contributions to Medicare beneficiaries and to the health care system.

Discussion

IMPORTANCE OF CONTINUED EXPLORATION OF NURSING'S ECONOMIC VALUE

Efforts to identify and quantify the economic value of nursing have made an important contribution to promoting utilization of nurses in health care services, particularly in the context of increased focus on controlling or reducing costs. The value of nursing cannot be completely reduced to economic value however; furthermore, aspects of its economic value may not be quantifiable. Improved understanding of nursing's economic value is a tool for explicating and asserting its broad value—both economic and social. That broader value includes functions that may have little quantifiable economic impact, but which are central to nursing's identity as a discipline focused on care and compassion and key to the profession's social contract.

Recommendation

- Nursing organizations should continue efforts to identify and define the economic value of nursing. They should disseminate relevant research findings and conduct initiatives educate nurses about nursing's economic value. However, these initiatives should present the economic value of nursing within the broader context of nursing's social and economic value.

DISTINGUISHING WHO BENEFITS FROM VALUE OF NURSING SERVICES

Making good use of information on the economic value of nursing requires consideration of where the economic benefits of nursing services (including the cost-savings that nursing may generate) accrue. Cost-savings that flow primarily to health insurers, for example, are not likely to be helpful in seeking to persuade a hospital executive to authorize hiring larger numbers of nurses. The distinction offered by Leatherman, et al. (2003), between the business, economic and social cases for quality are helpful in this regard, although the interaction between these "cases" may ultimately be more nuanced than this. (As Needleman (2006), for one, suggests in citing economic aspects of social value).

Recommendation

Nurses and nursing organizations should target their messages on nursing's economic value based on distinctions in the economic, business, scientific and political cases for nursing care quality.

VALUE-BASED PURCHASING AND REALIGNING FINANCIAL INCENTIVES IN HEALTH CARE

Current efforts to realign financial incentives in health care—to create a stronger business case for quality through value-based purchasing and related efforts—bear careful scrutiny. Forward-thinking hospital leaders should recognize the long-term cost savings that good nurse staffing can offer by avoiding complications that have been made more expensive as a result of changes in Medicare payment. However, experience shows that health care organizations do not always take the long view, particularly when threats to reimbursement are concerned. As Kurtzman and colleagues (2011) recently pointed out, value-based purchasing policies may instead lead, in many organizations, to increased burden and blame. Hospitals that incur loss as a result of poor quality performance or the occurrence of preventable complications may do what many hospitals have done in the past when faced with reduced revenue: decrease their use of RNs.

Linking nurse staffing with decreased length of stay and lower rates of complications or other adverse effects may not be sufficient in and of themselves to convince many health care organizations of the need to increase (or maintain) nurse staffing levels. Whether VBP will be helpful in this regard is not yet clear. It may be worth considering how to make VBP a more valuable tool in achieving and maintaining adequate nurse staffing levels. Whether this means incentivizing other quality outcomes, specifically incentivizing nurse staffing levels or advocating other refinements to VBP is a topic for future consideration. On the other hand, the implementation of VBP initiatives may strengthen arguments for other regulatory approaches to ensuring adequate nurse staffing (e.g., mandatory hospital staffing plans and/or minimum staffing levels) by linking them to greater potential cost savings for hospitals.

Recommendations

Nursing organizations should:

- Continue to carefully monitor the development, refinement and implementation of value-based purchasing and other policy initiatives to realign financial incentives related to health care quality;
- Advocate inclusion of nursing-sensitive measures in the Medicare VBP program and in VBP programs developed for use by state Medicaid programs and private health plans;
- Consider advocating inclusion of staffing levels and/or use of hospital-based staffing plans in VBP programs.

ACCOUNTING FOR NURSING CARE IN HOSPITAL PAYMENT

The invisibility of nursing services in hospital payment has been a concern for many nurses and nursing organizations for decades. The recent refinement of the Medicare IPPS provided an opportunity to explore alternative proposals for reflecting nursing intensity in Medicare hospital payment. The two major models for doing so—the use of Nursing Intensity Weights and the use of a Nursing Intensity Database—each offer certain strengths and weaknesses. It remains to be seen whether recent changes in the IPPS (i.e., the move to MS-DRGs) will better reflect the variability of nursing service intensity.

Recommendation

- Nursing organizations should continue to advocate piloting models for adjusting Medicare hospital payment based on nursing intensity. Evaluation of such models should include any additional documentation burden posed by nurses' recording and reporting of time spent delivering patient care services.

THE ECONOMIC VALUE OF APRN SERVICES

The economic value of APRN services needs to be considered in light of NPs' and CNSs' lower payment levels under Medicare (and many private health plans). There currently is not a consensus among nursing organizations for seeking equal Medicare payment levels. Certainly, potential cost to the Medicare program is a political consideration. However, the impact of lower payment on utilization of NPs and CNSs within health care systems, and the current financial incentives that keep many of their services invisible, are significant barriers to identifying and realizing the economic value of their services.

Recommendations

- Encourage health services researchers to evaluate the contributions of APRN services to the quality and value of inpatient care as well as ambulatory and office-based services.
- Nursing organizations should work toward consensus on advocating Medicare payment for NP and CNS services at 100% of the Physician Fee Schedule.

EDUCATING NURSES ABOUT THE VALUE OF NURSING

Nurses should be knowledgeable about the economic and policy issues that drive decisions relating to their practice. As health care organizations continue to adjust to changes in the health care system, including the financing of health care services, nurses should possess the requisite knowledge to understand those changes, respond to them and to advocate on behalf of themselves and their patients. This means that nurses should have at least a basic understanding of health policy and financing as well as current knowledge regarding the link between nursing and outcomes of care. At the same time, nurses need to remain grounded in the human values on which the profession is based.

Recommendations

- Nurses should seek current information about of and knowledge of health financing and health policy, including initiatives relating to health care quality measurement and value-based purchasing.
- Nursing organizations should provide information on health care financing and health policy on a regular basis, to encourage nurses to remain current in their knowledge of these areas.

- Nurse managers and executives should be familiar with health policy, financing and research evidence related to the economic value of nursing. They should facilitate an understanding of nursing's role in patient and organizational outcomes among other health care organization leaders, and advocate for appropriate allocation of resources to ensure quality patient care.
- Nursing education programs preparing new nurses should include content on health policy, current evidence on health care quality, and at least basic concepts of economics, health care financing and budgeting. Graduate-level education in nursing should build on this content to ensure that nurses in advanced roles as clinicians, managers or executives, and educators, are competent in these areas and can help to educate other nurses.

References

Aiken, L. (2008). Economics of nursing. *Policy, Politics and Nursing Practice*, 9(2): 73-79.

Aiken, L. H., Clarke, S. P., Sloane, D. M., Sochalski, J. & Silber, J. H. (2002). Hospital nurse staffing and patient mortality, nurse burnout, and job dissatisfaction. *JAMA*, 288(16): 1987-1993.

American Medical Association (2011). *RVS Update Process*. http://www.ama-assn.org/resources/doc/rbrvs/ruc-update-booklet.pdf

American Nurses Association. (1995). *Nursing Care Report Card for Acute Care.* Washington, DC: American Nurses Publishing.

American Nurses Association. (2001). *Code of Ethics for Nurses with Interpretive Statements*. Washington, DC: ANA.

American Nurses Association. (2011). *Nursing's Social Policy Statement*. Silver Spring, MD: American Nurses Publishers.

Buerhaus, P. I. (1993). Effects of RN wages and non-wage income on the performance of the hospital RN labor market. *Nursing Economics*, 11(3): 129-135.

Blegen, M. A. & Vaughn, T. (1998). A multisite study of nurse staffing and patient occurrences. *Nursing Economics*, 16(4): 196-203.

Bostick JE, Rantz MJ, Flesner MK, & Riggs CJ. (2006). Systematic review of studies of staffing and quality in nursing homes. *Journal of the American Medical Directors Association*, 7(6):366-76.

Bond, C., Raehl, C., Petterle, M. & Franke, T. (1999). Health care professional staffing, hospital characteristics, and hospital mortality rates. *Pharmacotherapy* 19:130-138.

Burnes Bolton, L., Aydin, C. E., Donaldson, N., Brown, D. S., Nelson, M. S. & Harms, D. (2003). Nurse staffing and patient perceptions of nursing care. *Journal of Nursing Administration*, 33(11): 607-614.

Centers for Medicare and Medicaid Services. (2011). Proposed Rule: Medicare Program; Hospital Inpatient Value-Based Purchasing Program. *Federal Register,* 76(9): 2454.

Centers for Medicare and Medicaid Services (2010). *National Health Expenditure Data.* Table 1: https://www.cms.gov/NationalHealthExpendData/downloads/tables.pdf..

Dall, T. M., Chen, Y. J., Seifert, R. F., Maddox, P. J., & Hogan, P. F. (2009). The economic value of professional nursing. *Medical Care,* 47(1): 97-104.

Finkler, S. (2008). Measuring and accounting for the intensity of nursing care: is it worthwhile? *Policy, Politics & Nursing Practice*, 9(2): 112-117.

Ginsburg, P. B. (2008). Paying hospitals on the basis of nursing intensity: policy and political considerations. *Policy, Politics & Nursing Practice,* 9(2): 118-120.

Ginzberg, E. (1963). The Hospital and the Nurse. *American Journal of Nursing,* 63(11): M16-M20.

Gruber, J. (2010). The cost implications of health care reform. *New England Journal of Medicine*, 362(22): 2050-2051.

Horn, S.D. (2008). The business case for nursing in long-term care. *Policy, Politics & Nursing Practice,* 9(2):88-93.

Institute of Medicine IOM Committee on the Robert Wood Johnson Foundation Initiative on the Future of Nursing (2011). *The Future of Nursing.* Washington, DC: National Academies Press.

Kane, R. L., Shamliyan, T. A., Mueller, C., Duval, S. & Wilt, T. J. (2007). The association of registered nurse staffing levels and patient outcomes: systematic review and meta-analysis. *Medical Care,* 45(12): 1195-1204.

Keepnews, D. M. (2006). Nursing intensity and hospital payment. *Policy, Politics & Nursing Practice*, 7(4): 237-239.

Knauf, R. A., Ballard, K., Mossman, P. N., & Lichtig, L. K. (2006). Nursing cost by DRG: nursing intensity weights. *Policy, Politics & Nursing Practice*, 7(4): 281-289.

Kovner, C. & Gergen, P.J. (1998). Nurse staffing levels and adverse events following surgery in U.S. hospitals. *Image: Journal of Nursing Scholarship,* 30(4): 315-321.

Kurtzman, E. T. (2010). The contribution of nursing to high-value inpatient care. *Policy, Politics and Nursing Practice*, 11(1): 36-61.

Kurtzman, E. T., O'Leary, D., Sheingold, B. H., Devers, K. J., Dawson, E. M. & Johnson, J. E. (2011). Performance-based payment incentives increase burden and blame for hospital nurses. *Health Affairs* 30(2): 211-218.

Lang, T. A., Hodge, M., Olson, V., Romano, P. S. & Kravitz, R. L. (2004). Nurse-patient ratios: A systematic review on the effects of nurse staffing on patient, nurse employee, and hospital outcomes. *Journal of Nursing Administration,* 34(7-8): 326-337.

Leatherman S, Berwick D, Iles D, Lewin LS, Davidoff F, Nolan T, & Bisognano M. (2003). The business case for quality: case studies and an analysis. *Health Affairs,* 22(2):17-30.

Lichtig, L.K., Knauf, R.A. & Milholland, D.K. (1999). Some impacts of nursing on acute care hospital outcomes. *Journal of Nursing Administration* 29 (2): 25-33.

Mitchell , P.H. & Mount, J.K. (2009). *Nurse Staffing – A Summary of Current Research, Opinion and Policy*. Pullman, WA: William D. Ruckleshaus Center.

Needleman, J., Buerhaus, P., Mattke, S., Stewart, M. & Zelevinsky, K. (2002). Nurse- staffing levels and the quality of care in hospitals. *New England Journal of Medicine*, 346(22): 1715-1722.

Needleman, J., Buerhaus, P.I., Stewart, M., Zelevinsky, K. & Mattke, S. (2006). Nurse staffing in hospitals: Is there a business case for quality? *Health Affairs*, 25 (1): 204-11.

Nutting, M. (1916). A Sounder Economic Basis for Training Schools for Nurses. *American Journal of Nursing,* 16(4): 310-318.

Page, A. (Editor). (2004). *Keeping Patients Safe: Transforming the Work Environment of Nurses*. Washington, DC: National Academies Press.

Porter, E. K. (1963). Traditions and Realities. *American Journal of Nursing,* 63(11): M3-M7.

The Profession Prepares for its Future (1966). *American Journal of Nursing,* 66(7): 1548-1567; 1553.

Schutt, B. G. (1958). The ANA economic security program; what it is and why. *American Journal of Nursing,* 58(4): 520-524.

Shaffer, F.A., editor (1984). *DRGs: Changes and Challenges.* New York: National League for Nursing.

Shaffer, F.A., editor (1985). *Costing Out Nursing: Pricing Our Product.* New York: National League for Nursing.

Siegrist, R. B., & Kane, N. M. (2003). Exploring the relationship between inpatient hospital costs and quality of care. *Am J Manag Care*, 9 Spec No 1, SP43-49.

Stewart, I.M. & Austin, A.L. (1962). A history of nursing, from ancient to modern times. New York: Putnam.

Sullivan-Marx, E. (2008). Lessons learned from advanced practice nursing payment. *Policy, Politics and Nursing Practice*, 9(2): 121-126.

Washington Center for Nursing (2010). *What Value Does Nursing Bring?* http://www.wacenterfornursing.org/uploads/file/news-articles/economic-value-of-nursing-09-30-10.pdf.

Welton, J. M., & Dismuke, C. E. (2008). Testing an inpatient nursing intensity billing model. *Policy, Politics & Nursing Practice*, 9(2): 103-111.

Welton, J. M., Fischer, M. H., Degrace, S. & Zone-Smith, L. (2006). Nursing intensity billing. *Journal of Nursing Administration*, 36(4): 181-188.

Welton, J. M., Zone-Smith, L. & Bandyopadhyay, D. (2009). Estimating nursing intensity and direct cost using the nurse-patient assignment. *Journal of Nursing Administration*, 39(6): 276-284.

Welton, J., Zone-Smith, L. & Fischer, M. (2006). Adjustment of inpatient care reimbursement for nursing intensity. *Policy, Politics & Nursing Practice,* 7(4): 270-280.

Wunderlich, G., Davis, C. & Sloane, F. (1996). *Nursing Staff in Hospitals and Nursing Homes: Is It Adequate?* Washington, DC: National Academies Press.



Washington State Nurses Association
575 Andover Park West, Suite 101
Seattle, WA 98188