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What Can We Learn From the Existing Evidence of the Business Case for Investments in Nursing Care: Importance of Content, Context, and Policy Environment

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What Can We Learn From the Existing Evidence of the Business Case for Investments in Nursing Care

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Abstract: Decisions of health care institutions to invest in nursing care are often guided by mixed and conflicting evidence of effects of the investments on organizational function and sustainability. This paper uses new evidence generated through Interdisciplinary Nursing Quality Research Initiative (INQRI)-funded research and published in peer-reviewed journals, to illustrate where the business case for nursing investments stands and to discuss factors that may limit the existing evidence and its transferability into clinical practice. We conclude that there are 3 limiting factors: (1) the existing business case for nursing investments is likely understated due to the inability of most studies to capture spillover and long-run dynamic effects, thus causing organizations to forfeit potentially viable nursing investments that may improve long-term financial stability; (2) studies rarely

devote sufficient attention to describing the content and the organization-specific contextual factors, thus limiting generalizability; and (3) fragmentation of the current health care delivery and payment systems often leads to the financial benefits of investments in nursing care accruing outside of the organization incurring the costs, thus making potentially quality-improving and cost-saving interventions financially unattractive from the organization's perspective. The payment reform, with its emphasis on high-quality affordable patient-centered care, is likely to strengthen the business case for investments in nursing care. Methodologically rigorous approaches that focus on broader societal implications of investments in nursing care, combined with a thorough understanding of potential barriers and facilitators of nursing change, should be an integral part of future research and policy efforts.

Key Words: business case, nursing

Nursing has always played an important role in health care, and health care reform will continue to advance opportunities available to nurses. New and novel methods of organizing health care such as chronic care teams, advanced primary care, case management, and telehealth are increasingly being adopted. As medical care becomes more complex and transitions in care settings become more common, the increased need for effective management will continue to elevate the role of nursing in care coordination and delivery. Underlying this structural evolution of organizing and providing care are the day-to-day private decisions of individual health care organizations to implement evidence-based changes in nursing care to improve quality of patient care—decisions that are often guided by mixed and conflicting evidence of financial returns on investments in nursing care or their effects on organizational function and sustainability.

The limited understanding of the contribution of nursing to the organizational bottom line is evident in the 2009 Survey of Hospital Chief Executive Officers (CEO) where only 40% of the CEOs thought nurses were important revenue drivers, as compared with the 94% who considered physicians to be important.¹ One of every 10 CEOs felt that nurses were not important as revenue drivers for their facility. In the absence of strong evidence, decisions of health care administrators seem to often be guided by the simplistic notion of cost containment through nurse staffing management. Nearly 1 of every 4 surveyed CEOs said their facility coped with the economic downturn partly by reducing nurse recruitment.

Our paper addresses the following questions:

How did the Interdisciplinary Nursing Quality Research Initiative (INQRI) contribute to the existing evidence of the business case for investments in nursing care?

Why is business case for investments in nursing care often difficult to establish?

What effect does the content and context of investments in nursing care have on the business case?

How might the changing policy environment affect the business case?

We will discuss each of these in turn and then provide a brief discussion of future directions in policy and research efforts.

METHODS

The study was conducted in 3 steps: evidence review, evaluation and analysis, and external feedback. During the evidence review step, we reviewed all INQRI-funded studies published between 2006 and 2012 in peer-reviewed journals for evidence of an economic evaluation. We accessed the INQRI web resources and reviewed INQRI research briefs and PubMed abstracts in the category "Journal Articles." The search was focused on a broad set of key terms (business case, cost, cost-saving, resources, cost-benefit analysis, economic evaluation, return on investment, cost effectiveness, and financial return) and was conducted independently by each member of our team. Studies that met the criteria were selected as the case studies for the analysis.

During the evaluation and analysis step, each member of the team read the selected INQRI studies and participated in 2 teleconferenced group meetings where we conducted a critical evaluation of the selected studies focusing on 2 questions: How did the INQRI projects contribute to the existing business case evidence? and What were the challenges and how can these challenges be addressed? The key issues that emerged during the group meetings were compiled and divided among the team members based on their respective expertise. Each team member prepared an expert analysis of the

issues drawing upon their specific expertise and knowledge of the relevant literatures. The team members also purposively selected additional supporting studies (INQRI-funded and others) related to the business case arguments to guide, support, and illustrate the analysis. Each of the analyses were independently reviewed by the other team members and compiled in a draft manuscript.

During the external feedback step, the draft was presented at the INQRI National Conference, where we sought feedback and ideas from the audience comprised of other INQRI researchers, national health leaders and policy makers, and stakeholders. After the conference, the team members participated in a concluding teleconference group meeting where we decided on a set of revisions, which were subsequently implemented in a collaborative iterative revision process. Business Case for Investments in Nursing Care and Existing Evidence

The contribution of nursing to the quality of patient care is usually conceptualized within Donabedian's structure-process-outcome conceptual framework² and measured using the National Quality Forum-endorsed nursing care performance measures, including system-centered measures (eg, skill mix, nurse practice environment scale, etc.), nursing-centered measures (eg, smoking cessation counseling for acute myocardial infarction, pneumonia, etc.), and patient centered measures (eg, failure to rescue, pressure ulcers, etc.). In our paper, an investment in nursing care refers to an organizational commitment of financial resources to any type of a change in structure or process of care related to nursing, made with the expectation of improving the quality of patient care or reducing the cost.

To say that there is a business case for an investment in nursing care generally means that the investment is associated with a positive financial return or a positive effect on organizational function and sustainability.³ Therefore, a business case is supported if the cost of the intervention itself (eg, additional staff or training/implementation costs) is offset by its positive financial outcomes, or benefits, that accrue to the organization as a result of the intervention. The business case is to be distinguished from the favorable social economic case, in

which benefits to society, whether captured by the organization or not, exceed costs.^{4,5}

Among 50 INQRI-funded studies we reviewed, a limited number (n=2, 1%) examined financial or business case-related aspects of investments in nursing. First, a study of nurse presenteeism (ie, the practice of attending work despite feeling ill and experiencing less than full productivity) estimated potential savings from reduced nurse presenteeism to be as much as \$9000 per registered nurse (RN) annually in avoided patient falls, medication errors, and low quality-of-care scores.⁶ However, the study did not measure the costs of any measures to reduce presenteeism.

The second study examined the impact of nurse staffing on unplanned 30-day readmissions and emergency department (ED) use in a large integrated health care system.⁷ The study estimated that higher nurse staffing was associated with lower 30-day readmission and ED use rates, and that increasing nurse staffing could be cost-beneficial if the financial interests of patients and payers are taken into account. However, the study also showed that increasing nurse staffing may not be cost-saving from the perspective of the health care system. An additional 45-minute increase in nursing hours per patient day, the study estimated, could create a financial loss of \$197.92 per hospitalized patient (sum of increased RN staffing costs, \$145.74, and loss of revenue from reduced readmissions, \$52.18, per hospitalized patient), thus potentially causing a loss over \$5.5 million annually, for the 16 hospital units in the study.

The existing literature on a business case for investment in nursing is also rather limited. The INQRI projects built on only a handful of earlier business case studies, including a study that demonstrated a potential for substantial returns on investments in increasing the proportion of RNs,⁵ and a study of investments in nursing staff to meet the requirements of the American Nursing Credentialing Center's standards for a magnet hospital.⁸ A recent literature review concluded that "evidence on the cost-effectiveness, efficiency, and impact on the work of other health professionals (eg, volume and nature of workload) of (nurse) roles is inconclusive, and

well-designed studies are urgently needed to better inform future policy directions.”⁹

We argue that among the reasons for the insufficient amount of evidence in support of the business case are 3 important factors. The first challenge is a tendency toward understatement, as it relates to inability of most studies to fully capture the full range of financial impacts of a nursing investment and its dynamic long-run effects, which often makes it difficult to support a business case for investments in nursing care. The second challenge is that, with the exception of very few large-scale multihospital studies, findings supporting a business case for investments in nursing care are specific to the content of the particular intervention and to the context of the organization where the intervention was implemented, and may not be easily replicated in other settings. This content and context specificity, along with a lack of a clear description of these elements, may limit the generalizability of the existing evidence and its applicability across different organizational contexts. Finally, the fragmentation of the existing care delivery and payment models may create disincentives for health care organizations to undertake investments in nursing care with significant benefits accruing outside of the organization; however, this fragmentation is likely to diminish as the new payment and reimbursement provisions of the health care reform are gradually rolled out over the coming several years. We discuss each of the factors below.

Why is the Business Case for Investments in Nursing Care Difficult to Establish?

We limit our discussion to 2 challenges rarely mentioned in the measurement literature that are crucial for the business case. The first challenge is accounting for the spillover effects of nursing investments. To illustrate this concept, recall the study of the link between nurse presenteeism and patient outcomes (falls, medication errors, satisfaction).⁶ The study did not consider that reduced nurse presenteeism and subsequently increased nurse productivity may have spillover effects by allowing other health care professionals on the team (eg, pharmacists, physicians) to spend more useful time on

activities central to their work without detracting these resources to avoidable adverse events. Although the need for extra data collection and analysis makes accurate attribution of all of these spillover effects prohibitively expensive in a typical study, not accounting for them implies that the study may have significantly understated the overall productivity effects and the business case for nursing.¹⁰ Because many nursing changes involve reorganization of team-based work, these external gains are likely to be a salient but important component of the business case.

A second important consideration that is often overlooked is the relationship between nursing investments and quality/cost improvement over the long run. As most nursing investments are evaluated shortly after their implementation, the analysis fails to capture 2 important types of cost-saving and quality-improving adjustments that take time—input substitution and learning-by-doing.¹¹ The idea of input substitution relates to the notion that, as more time passes after the implementation of a novel intervention, the mix of different types of labor inputs involved in the intervention can be continuously adjusted to promote more efficient use of resources over time.¹¹ For example, the findings of the INQRI-funded study of RN hours of patient care and 30-day readmissions did not support the business case for increased hours of patient care provided by full-time RNs; however, an organization implementing a similar intervention may find cost-savings over time as the staffing mix is adjusted and the optimal ratio of temporary to full-time RNs is achieved.

The concept of learning-by-doing, in contrast, refers to the capability of a worker to increase his or her productivity over time by repeatedly performing the same task, through practice, self-perfection, and improved problem solving.^{11–13} For example, the effectiveness of interventions to reduce nurse presenteeism⁶ could increase over time, as nurse managers, in addition to engaging in problem-solving related to presenteeism so that the immediate tasks can be completed (first-order problem solving), also learn to take action to address the underlying causes (second-order problem solving). Second-order problem solving increases an organization's ability to improve their practices in general and, overtime, improves capability to learn from new innovations and developments in evidence-based practice.^{13–16}

Although these future gains from active improvement are difficult to quantify for a business case analysis of a particular intervention, they should be thoroughly evaluated in the context of each individual organization as they provide potential dynamic for long-run improvement.

The fact that studies commonly fail to account for spillover effects and long-term benefits suggests that many of the existing studies that attempt to establish a business case for investing in nursing care (those that fail to make the case, and those that succeed alike) potentially significantly understate the true contribution of nursing. The existence of this tendency toward not being able to establish a business case for investments in nursing care highlights the crucial challenges that nurse researchers and policy makers face in demonstrating the potential benefit from an increased role of nursing in patient care.

Content and Context of Investments in Nursing Care

Even when there exists evidence in support of a business case for a specific change in nursing structure or process, implementing the change is likely to lead to considerable variation in realized, or actual, return on investment across organizations.⁵ Aspects of the nurse practice environment— such as the willingness of physicians and other providers to work as a team, clinical leadership, specification of roles, and team design—can influence effective implementation.¹² For example, 1 INQRI study examined deaths and failure to rescue and demonstrated that decreasing nurse workloads by 1 patient per nurse had no measurable effect in hospitals with poor work environments, while reducing the odds of death by 9%–10% in hospitals with the best work environments.¹⁷ Therefore, a business case for lower nurse workloads is more likely to be supported in hospitals with favorable work environments than it would be in other hospitals.

Aspects of the nurse practice environment are only some of the wide range of factors that have been found to moderate the effects of changes in structure or process related to nursing care. For example,

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authors of an INQRI funded study of a new program, reconciliation of medications at admission and discharge, concluded that implementation of the program might vary based on the information system being used at the hospital, the population being targeted by the intervention, and the training of the staff implementing the intervention.¹⁸ This variation in clinical contexts can lead to meta-analyses of interventions showing mixed results with no clear conclusion.¹⁹

Applicability of research findings regarding the business case for investments in nursing care across organizational and clinical care contexts is an important factor in evidence-based decision making. Although the issue of mixed results can occur in any type of research study, it is more likely to occur in studies involving significant organizational changes because of the many ways that infrastructure, leadership, and organizational climate influence intervention implementation.¹⁹ Because investments in nursing care often involve significant organizational changes, the business case analysis is likely to be sensitive to contextual differences, and the effects of variation in clinical contexts on generalizability of business case findings can be even more pronounced.

There are 2 broad strategies for dealing with these challenges. First, studies should include information about the implementation context—such as infrastructure, union, leadership, culture, and climate—that may influence implementation or moderate the effect of nursing change. For example, the study of nurse presenteeism⁶ could be extended by describing the nurse practice environment and discussing how deviations from this context might change the frequency of presenteeism or moderate its effects. How restrictive are the study organization's sick day and other benefits policies? How supportive is the existing culture of organizational citizenship of behaviors like helping each other with job related tasks? Knowing this could help hospital administrators assess the extent to which presenteeism may be a problem in their organization, and to develop well-informed approaches to addressing the issue.

Ideally, a formal analysis and testing of moderating effects of contextual variables on the implementation of an intervention and its

business case is best. The challenge of this approach, however, lies in the fact that it is often difficult to know which elements of the context are likely to be important and should be tested for moderating effects, as this requires well-developed theories of the effect of the context on the causal mechanism linking the intervention to desired outcomes.¹⁹ When developing and conducting these analyses is not feasible within the scope of a study, even the practice of providing information about the study context is important.

The second approach is a clear description of the design of the intervention and assessment of the fidelity of the implementation to the design. This means that not only the design, but also the content of the intervention itself has to be defined with enough detail and clarity for an independent evaluator to assess its fidelity to the design.^{20,21} Because nurse interventions are typically rather complex and involve changing organizational practices, the practice of providing information about the intervention's design and implementation fidelity is particularly important for evaluating business cases for nursing investments.¹⁹ For example, the definition of care teams should include a clear specification of who is on the team, their professional skills, roles, and interdependence with other team members, as well as their relationship to other parts of the organization.²² Clear design description and fidelity measurement can be immensely helpful to hospital administrators who are considering an evidence-based cost-saving or quality-improving intervention, but who may be deterred by ambiguity regarding the required scope of changes to clinical practice and regarding contextual barriers or facilitators of the business case.

A good example of the clear design description and fidelity assessment approach is the INQRI-funded study that examined a nurse intervention to reduce falls among hospitalized patients.^{23–26} The intervention was developed in 3 phases. In phase 1, the research team used qualitative research to understand the issues in fall risk communication that were associated with falls. In phase 2, the research team developed and tested a communication strategy, including icons and customized patient alerts, using a user-centered design approach. In phase 3, the intervention was tested in hospital settings. And demonstrating the intervention efficacy for reducing falls, the team described the intervention in enough detail so that it could be

implemented with high fidelity in other settings. Another INQRI team examined an evidence-based bundle of clinical care management in the intensive care unit and their study is a great example that not only summarizes clinical findings, but also carefully explains the individual components of the intervention and describes the experiences with implementing the intervention into clinical practice.²⁷ Other examples of INQRI-funded research that specify high-fidelity interventions include a study of a team-based quality improvement intervention to reduce blood-stream infections²⁸ and a study describing approaches for preventing pressure ulcers.²⁹ Although none of these INQRI-funded studies examined the business case, they provide great examples of clear design description and fidelity assessment and their approaches may be used as the standard for future business case studies to ensure their generalizability across clinical and organizational settings.

Finally, the time it takes to implement a change is an important aspect that may lead to considerable variation in financial impacts of the intervention across organizational and clinical contexts. Often, insufficient time devoted to implementation limits the success of nursing interventions.³⁰ Implementing a novel intervention before it has been refined and a fidelity description has been developed risks rejecting interventions with a significant long-term potential because of short-term failures and temporary set-backs. A supportive context and time are necessary to refine a novel intervention.³¹

Business Case Versus Societal Economic Case in a Changing Policy Environment

Our discussion so far has focused on analyses most directly relevant to decision makers considering the initiation or financial sustainability of an intervention at the level of the individual health care organization. However, a broader and more general argument can be made to policy makers for the economic efficiency of changes in nursing care that reach far beyond the scope of an individual organization, such as the indirect impact of nursing on patients' families or employers, on the insurance companies, or on US taxpayers. Societal economic case for nursing refers to the inclusion of

these societal considerations that go beyond the organizational impact of a change in structure or process related to nursing care to capture the perspectives of all stakeholders involved (directly or indirectly).

In an ideal world, the case for investments in nursing care should be made from the societal perspective. The reason is that as long as there is a societal economic case for an investment in nursing care, that is its societal benefits (to patients, payers, etc.) exceed the costs, there must exist, at least in theory, a mechanism to collect and redistribute, or reinvest, these benefits back to the organization incurring the costs.^{3–5} In practice, however, these reinvestment mechanisms rarely exist, and as a result the returns on investments are more often than not evaluated without accounting for potentially significant positive effects outside of the organization.

An example of a business case with positive effects accruing to an outside party instead of the organization incurring the costs is the discussed above INQIRI-funded economic analysis of nursing hours of patient care and post discharge readmissions.⁷ The study estimated that increasing RN hours of patient care and reducing RN overtime could have a substantial impact in preventing readmissions and ED use and lead to substantial societal cost savings, \$11.64 million and \$544,000 annually, net of additional staffing costs incurred by the organization. However, under the existing payment and reimbursement system, the cost savings were being retained by the payer, whereas the hospitals were left with a higher wage bill and revenue loss from reduced readmissions. This fragmentation of the payment and care delivery systems, and the resulting unequal distribution of costs and benefits, translate into misaligned incentives and into discordance between what is financially attractive for the health care organization and what is beneficial for the entire set of relevant stakeholders.

This, however, may soon start changing as the health care reform is shifting the focus toward less fragmented, high-quality, affordable care. The Patient Protection and Affordable Care Act (PPACA 2010) is bringing about new payment methods that move away from the “a la carte” Medicare fee-for-service system toward providing greater accountability for the costs and quality of care, thus blurring

the line that currently divides the business case and the societal economics case.³² The payment reforms have important implications for the ways that stakeholders should interpret the findings of many existing business case studies in guiding their decisions.

The changing policy environment will increase the relevance of economic analyses that go beyond the hospital's own bottom line and include a broader set of societal stakeholders such as patients and payers.³² For example, the hospitals in the INQRI-funded study of readmissions⁷ may gain a direct financial interest in increasing RN staffing, in the form of a new "readmission penalty" that was introduced in October 2012 under the PPACA's Hospital Readmissions Reduction Program (Sections 3025, 10309 of PPACA). Under the provisions of the Program, hospitals with excess risk-adjusted readmissions for certain medical conditions face penalties of 1% of Medicare DRG rates for certain conditions, and the penalty is scheduled to increase to 3% by 2015.³³ The financial penalty for readmissions creates a much needed incentive for health care providers in general to invest in evidence-based practices that reduce readmissions, including those that involve nursing-related interventions.

As the provisions of the PPACA are gradually rolled out over the next several years, the changes focusing on nurse-sensitive quality measures will play the largest role in strengthening the support for the business case for nursing. For example, the PPACA's provisions pertaining to hospital acquired infections (HAIs) (Section 3008 of PPACA) that are scheduled to come in effect in 2015 stipulate financial penalties for hospitals in the top quartile of national risk adjusted HAI rates and require mandatory public reporting of HAI rates for all hospitals.³³ Combined with the new Medicaid rule that prohibits payments to hospitals for specific HAIs stated in the Medicaid policy, these payment reforms will strengthen the link between investing in nursing care and organizational function and financial sustainability.

With the potential formation of more Accountable Care Organizations (Sections 3022, 10307 of PPACA), and adoption of Voluntary Pilot Bundling (Sections 3023, 10308

of PPACA), more organizations will have internal incentives to move away from the current fee-for-service-based care provision models toward an episode-of-care-based care delivery models.³³ This shift will reinforce the need for the kind of high-quality low-cost patient-centered care delivery that is the cornerstone of nursing care.

CONCLUSIONS

As our health care system is undergoing fundamental evolutionary changes, the role of nursing will likely continue to expand, and the business case for investment in nursing care will continue to strengthen. Increased need for primary care delivery and care coordination requires that nurses undertake a growing volume and range of responsibilities. Although making a business case for an investment in nursing care that is generalizable across multiple providers' perspectives is often challenging, continued research efforts in this area are a crucial vehicle to facilitating this process. Broad-scope analyses involving multiple stakeholders, combined with a thorough discussion of the content and context of nursing change, should be an integral part of future research and policy efforts, especially during the times of rapid policy transformations as our health care system continues to evolve.

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