

International network for the study of rationalised nursing care-an overview

Terry Jones, PhD, RN
Nursing, University of Texas
Austin, USA
tjones0222@aol.com

Patti Hamilton, RN, PhD
Nursing, Texas Woman's University
Denton, USA
phamilton@twu.edu

Jenny Carryer, PhD, RN
Nursing, College of Health, Massey University
Palmerton North, New Zealand
j.b.carryer@massey.ac.nz

Susan Sportsman PhD, RN, ANEF, FAAN
Academic Consulting Group, Elsevier Publishing Co.
St. Louis, USA
s.sportsman@elsevier.com

Gretchen Gemeinhardt, PhD, MBA
Public Health, University of Texas
Houston, USA
profgretchen@

Abstract— Rationalised economic cultures are characterized by a preoccupation with production efficiency and control of business practices through scientific management techniques. Nursing practice is profoundly affected by these techniques and rationalised nurse work environments threaten the well-being of nurses and patients. Healthcare managers pursue cost reduction by increasing productivity while employing the fewest nurses possible. As a result, nurses experience situations throughout their work day in which they lack sufficient time resources to meet all work demands. During these situations, decisions must be made regarding which activities will be completed and which will be left undone. In economic terms this decision making process is called ‘implicit rationing of nursing care’. In quality and safety terms the end result of these decisions is called “missed care”. Evidence suggests that implicit rationing may play an important role linking inadequate nurse staffing to adverse nurse and patient outcomes. What follows is a description of a network of researchers who have come together to pool ideas and resources to examine relationships between rationalized management practices, nursing care processes (staffing and implicit rationing), nurse sensitive outcomes, and a nations’ ability to address the health of their citizens.

Keywords- error; missed nursing care; quality; rationalisation; safety

I. INTRODUCTION

Nursing, wherever practiced, is embedded within an external socio-political system. As with other social transactions, the practice of nursing is shaped by the many cultural paradigms evolving within that system. For example, as a practice discipline nursing is situated within the scientific

community and is shaped by both scientific (e.g. quantitative and qualitative) and ethical paradigms. As an occupation nursing also is situated within the business community and is shaped by economic paradigms. Incongruity between the philosophies that drive the discipline and occupation of nursing can be a source of intrapersonal and professional tension. This tension is particularly evident in industrialized socio-political systems with strong economic cultures.

Industrialized nurse work environments in public and private systems around the globe threaten the well-being of nurses and patients [1-2]. Consequently, transformation of the nurse work environment to support improved nurse and patient outcomes has become an international priority among nurse leaders. Shared problems facilitate shared learning. Thus the climate is ripe for international collaboration around nurse work environment issues related to economic influences. Consequently, a collaborative network of scholars with a mutual interest in investigating the influence of socio-political systems on nursing care was formalized in 2013. The purposes of this paper are as follows: 1) to describe the evolution of the industrialized economic culture and rationalization of nursing care as the contextual backdrop for the collaborative network; 2) to introduce the network to the international research community; and 3) to report on the progress of network-related projects.

II. THE INDUSTRIALIZED ECONOMIC CULTURE

Economic culture is defined as, “the beliefs, attitudes, and values that bear on economic activities of individuals, organizations, and other institutions” [3]. Neoclassic economics is the prevailing paradigm in industrialized countries. Within this paradigm an economy is viewed as set of scarce resources that must be allocated with maximum efficiency to yield a profit from the sale of the goods and services produced [4]. Business decisions related to allocation of resources and production targets are the primary economic

activities of interest. Moreover, the predominant values that drive such decisions include production efficiency and profit. Management practices within the neoclassic economic paradigm are founded on the principles of scientific management propagated by noted sons of the industrial revolution: Taylor, Fayol, and Ford [5-6].

Scientific management evolved as a mechanism to increase production and efficiency of factory workers during the industrial revolution. The goals of scientific management reflect neoclassic economic values and the techniques promoted reflect a philosophy of reductionism. Goal attainment is primarily facilitated by work analysis: task isolation, task standardization, task specialization, task measurement, and adherence to production targets. The division of work processes into isolated tasks is foundational to the other activities. Once isolated, the most efficient way to complete a task is determined through task measurement. The time to complete each task is measured and the number of tasks each worker can complete in a work shift determined. Standardized procedures are written based on the “one right way” to achieve efficiency and workers are trained accordingly. Efficiency is further enhanced through task specialization achieved through the Fordist assembly line approach to work assignments. Production targets are established, communicated to workers, and used to evaluate worker and organizational performance. Time-consciousness is a by-product of scientific management and functions to drive production efficiency.

The nature of work has changed significantly since the principles of scientific management were first described; however, scientific management practices remain prevalent in the post-industrial knowledge economy. Business Process Reengineering (BPR), though touted as a revolutionary business strategy in the late 20th century, actually represents a modern repackaging of scientific management and performance improvement principles [7]. As with scientific management, primary goals of BPR include increased productivity and efficiency. The focus of BPR is work *process* rather than work *task*; however the overall approach to goal attainment is essentially the same: process isolation, process standardization, and process measurement. Efficiency is enhanced through simplification and streamlining of processes, application of technology, and elimination of waste [8]. The by-product of BPR is a type of “intellectual assembly line” [9] characterized by routinization of work.

This kind of preoccupation with production efficiency and control of business processes through scientific management techniques is synonymous with what Weber described as “rationalization” [10]. The process of rationalization contributes to the evolution of rational organizational cultures. Rational cultures are defined by the following value patterns: 1) higher value placed on organizational well-being (external focus) compared to staff well-being (internal focus); 2) higher value placed on structures producing stability and control compared to those enabling flexibility and growth; and 3) higher value placed on ends (efficiency) over means [11]. In other words it is a culture that rewards efficiency above all else and endorses structural controls and surveillance activities as mechanisms

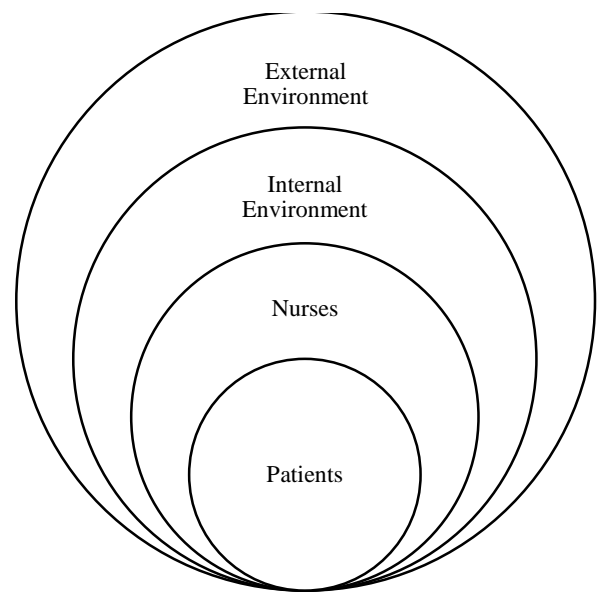


Figure 1. Nursing Care System

to achieve that end. Moreover, surveillance activities are typically focused on objective measures of productivity while related subjective measures are marginalized.

III. RATIONALISATION OF NURSING

A four-level system model has been used to describe the modern healthcare delivery system [12-13]. Within this framework patients receive nursing care by nurses practicing in an organization that exists within the external socio-political environment previously described (Figure 1). Nursing is undeniably a scarce resource within this system. Ensuring the availability of sufficient qualified nurses to care for patients is a global problem [14]. The World Health Organization (WHO), the International Council of Nurses (ICN), the Organisation for Economic Co-operation and Development (OECD), and the International Labour Organization (ILO) are among the numerous organizations that recognize this problem as a significant threat to achieving healthy populations [15]. Moreover, the influence of scientific management on nurse staffing and work design practices in industrialized countries is profound. Nurse managers in public and private healthcare organizations attempt to trim health care budgets, increase productivity, and employ the fewest nurses possible on a given shift [16]. Time-and-motion studies based on compartmentalization of nursing work (care) into constituent tasks or processes are the foundation for determining nurse staffing needs and efforts to standardize workflows are commonplace. Objective production targets (e.g. patient ratios and/or hours of care per patient day) are used to monitor productivity and evaluate efficiency while little attention is given to the qualitative aspects of care [2]. Moreover, delivery models of primary nursing and total patient care are increasingly being replaced by functional hybrids. In functional models, nursing care is provided by multiple staff members, each responsible for isolated tasks

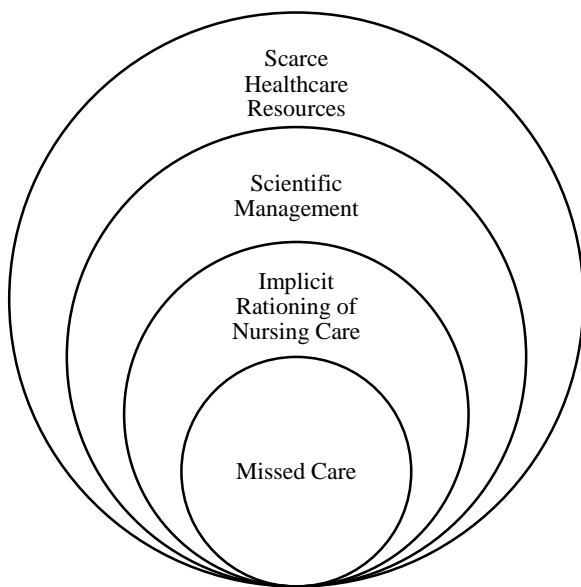


Figure 2. Rationalisation of Nursing Care

(e.g. intravenous therapy, medication administration, and discharge teaching).

Although scientific management is credited with increasing the productivity of manual workers 50-fold over the 20th century [5] a comparable outcome for nurses has not been realized. Unlike the work of manufacturing, the holistic work of nursing is not easily reduced to constituent parts. Moreover, patient-related variability (presentation, therapeutic needs, preferences, and responses) creates a degree of uncertainty that is unparalleled in other industries [17]. This magnitude of variability significantly limits the precision and reliability of time estimates related to the work of nursing [18]. Therefore, structures of scientific management for nursing are arguably being built on a shaky foundation. In this context, organizational structures designed to achieve efficiency through prediction and controls seem destined to fail. However, failure to deliver intended results is not the real tragedy associated with the rationalization of nursing care. Rather, the real tragedy lies in what rationalization of nursing care has delivered – an unhealthy nurse work environment (Figure 2).

An unbalanced pursuit of organizational efficiency is accompanied by multiple secondary effects. For example, implementation of efficiency driven care delivery models (also known as the “*McDonaldisation of healthcare*”) [10,19] can result in a type of patient care assembly line characterized by fragmented and depersonalized care. Moreover, efficiency driven nurse staffing practices lead to work intensification characterized by heavy nurse workloads and significant time pressure among bedside nurses. Further, lean staffing plans based on aggregated historical trends in work demand provide no time buffers to absorb demand fluctuations in real time. As

a result, nurses experience situations throughout their work day in which they lack sufficient time resources to meet all work demands. During these situations, decisions must be made regarding which activities will be completed and which will be left undone. In economic terms this decision making process is called ‘*implicit rationing of nursing care*’ [20-22]. In quality and safety terms the end result of these decisions is called “*missed care*” [23].

A growing body of evidence links rationalized nurse staffing and work organization practices with adverse outcomes to include: increased occupational stress, illness, and injury among nurses; decreased patient satisfaction; increased errors and accidents among nurses; and increased patient morbidity and mortality [24-28]. This evidence has been met with calls for transformation of the work environment to achieve a preoccupation with quality and safety [1,12]. Notable responses to this call include the introduction of nurse-sensitive quality outcome metrics and healthcare policies related to nurse staffing and value-based purchasing. Interestingly, in industrialized countries the concept of efficiency has been woven into the very definition of quality [12]. Therefore, despite the increased attention to quality and safety, the preoccupation with efficiency will not likely diminish. The result is a work environment plagued by increasing competition between the rational and safety sub-cultures within industrialized healthcare organizations.

IV. THE INTERNATIONAL CONSORTIUM

In 2013, a group of academicians from Australia, New Zealand, and the U.S. came together in Adelaide, South Australia, to explore opportunities for collaboration on research concerning the secondary effects of rationalized nursing care. Scholars were invited to participate based on an expressed interest in and/or prior research experience related to the rationalization of nursing care. Multiple disciplines were represented to include nurses, sociologists, and other health-related social scientists. The expressed motivations for joining a collaborative network included: 1) to learn from one another’s previous experiences and results; 2) to form an allied international team to address overlapping research questions; and 3) to identify and address meta-analytic problems arising from differences in context, conceptualization, measurement, and analysis of previous related research.

Written operating guidelines were developed to clarify expectations for participation in the network. The operating guidelines addressed expectations in the following areas: network purpose and priorities, membership benefits and responsibilities, project development and endorsement, data sharing, authorship of publications, contributions to operating expenses, adherence to ethical guidelines for human subjects’ research, and conflict resolution. A steering committee with representation from each country was appointed to oversee network activities and facilitate future communication and decision making. Consensus was reached regarding the operating principles and the International Network for the Study of Rationalized Nursing Care (INSRNC) was formally established. Priority research areas identified by INSRNC members include: 1) understanding the frequency and patterns

of implicit rationing among nursing staff in healthcare organizations; 2) identification of key antecedents of implicit rationing within nurse work environments; 3) understanding the effects of implicit rationing on nurses and patients; and 4) understanding the effects of macro-level nurse staffing policies on the processes and outcomes of implicit rationing. There are currently 17 members of the INSRNC. Inquiries regarding application for membership should be directed to the authors.

V. MISSED CARE & IMPLICIT RATIONING

The science of implicit rationing of nursing care is still in its infancy. The two most influential pioneers in the field include Maria Schubert of Switzerland and Beatrice Kalisch of the Midwestern United States. In a recent systematic review, one or the other of these investigators served as principal investigator in 53% of the 17 quantitative studies reviewed [29]. Moreover, the approach to measurement of implicit rationing was linked to instruments developed by these scholars in 71% of the studies. Finally, each of these investigators has situated their research in a conceptual framework specifically developed around the phenomenon of implicit rationing [20,22]. Following is a summary of the body of work amassed by these noted pioneers.

Kalisch's work evolved from a study involving 25 focus groups consisting of nurses and nurse assistants from two acute care hospitals in the Midwestern US [30]. Participants were queried about which nursing tasks were routinely omitted and what factors contributed to the omissions. Through qualitative analysis, a range of routinely omitted core nursing tasks were identified to include: discharge planning and patient education, emotional support, hygiene and mouth care, documentation of fluid intake and output, ambulation, feeding, and patient surveillance. Moreover, participants identified the following factors as underlying reasons for omissions of care: staffing levels, unexpected heavy work increase, too few resources and lack of supplies, inappropriate nursing skill mix, poor handover, poor orientation, and inadequate team work. These findings served as the foundation for concept analysis and model development [23], as well as instrument development [31].

Kalisch and her team describe the phenomenon of implicit rationing using the term "missed care" and the middle-range explanatory theory, "The Missed Care Model" [23]. They define missed care as "any aspect of required patient care that is omitted (either in part or in whole) or delayed" [23]. Within the Missed Care Model, external and internal contributory factors are identified. External antecedent factors include: 1) care demands; 2) labour resource allocation; 3) material resource allocation; and 4) relationships and communications. These antecedents are said to create the need for omissions. Specifically, the need to omit care exists when the demand for care exceeds the resources needed to provide that care. Once the need to omit care is created, decisions about which element of care to omit is said to be determined by four processes internal to the nursing staff. These internal processes include: 1) normative team behaviors; 2) prioritization processes; 3) personal values and beliefs; and 4) habitual behaviors. Missed care is thus the

result of nurse decision making in response to conditions of scarcity created by external forces.

The quantitative measure of missed care introduced by the Kalisch team is known as The Missed Care Survey (MISSCARE Survey) [31]. In addition to general demographic information, The MISSCARE Survey captures two aspects of missed care: the elements of care missed (Part A) and the reasons for missed care (Part B). Part A consists of 24 elements of nursing care common in the acute care hospital environment [31-33]. Respondents are prompted to indicate the amount of time each element is missed on their unit by all staff using a five-point Likert-type scale. Response options include: nonapplicable, rarely, occasionally, frequently, and always. The 24 items on Part A constitute a single factor that reflects the volume and frequency of missed care. Test-retest reliability for Part A was acceptable (.87) as was internal consistency (Cronbach alpha =.94). Volume and frequency of missed care are assessed at the item and composite level using mean scores and/or percentages based on a dichotomized scale. The 5-point scale is dichotomized by collapsing the options of occasionally, frequently, and always into a single category. The percentage of responses in this category are said to reflect the frequency of missed care while all other response options reflect no missed care.

Part B of the MISSCARE Survey consists of 16 items related to the antecedents of missed care. Respondents are asked to rate the degree to which each item was a reason for missed care using a 4-point scale. Response options include: significant factor, moderate factor, minor factor, and not a reason. The 16 items in Part B constitute three antecedent factors with good test-retest reliability (.87): communication; material resources; and labour resources. Moreover, the three subscales demonstrated acceptable internal consistency (Cronbach alpha) for new instruments: communication (9 items, $\alpha=.85$); material resources (3 items, $\alpha=.70$); and labour resources (4 items, $\alpha=.69$). Similar to analysis of Part A, the reasons for missed care can be assessed at the item or factor level using mean scores and/or percentages based on a dichotomized scale (i.e. % of responses in the "significant factor" option). The MISSCARE Survey has subsequently been translated and adapted for use in Turkey and Lebanon [34-35].

Research findings across multiple studies using the MISSCARE Survey suggest that missed care is a common occurrence in acute care hospitals in the US [31-43]. For example, in two studies, 16 elements of care were reported as being missed by over 50% of the respondents [31-32]. Activities related to patient assessment are missed least often compared to activities related to intervention and planning activities. Insufficient labour resources are consistently identified as the most significant underlying reasons for missed care by over 90% of respondents. Insufficient material resources are the second most significant underlying reason for missed care (identified by 56-90% of respondents) followed by ineffective communication (identified by 38-82% of respondents).

In addition to documenting the prevalence of missed care, Kalisch and her team have used the MISSCARE Survey for the following purposes: to explore differences in missed care across various groups; to explore the effects of missed care on nurse and patient outcomes; and to identify predictors of missed care. The following group differences in missed care have been identified: 1) nurses report more missed care than nurse assistants and are more likely to associate missed care with resource scarcity [33]; 2) more missed care is reported on non-oncology units compared to oncology units [36]; 3) more missed care is reported in non-Magnet hospitals compared to Magnet hospitals [39]; and 4) nurse managers report more missed care than staff nurses [40]. Though statistically significant, the clinical significance of these differences is debatable. The Kalisch team has assessed associations between missed care and the following nurse outcomes: turnover [40]; intent to leave [40]; job satisfaction [41]; and occupational satisfaction [40]. With the exception of job satisfaction, statistically significant associations were identified with all nurse outcomes. Patient falls is the only patient outcome evaluated in relation to missed care by the Kalisch team [42]. In this study, missed care was identified as a significant mediator between staffing and patient falls. Finally, the Kalisch team has evaluated predictors of missed care in regression models. Significant predictors in one model include: registered nurse job title; day shift assignment; history of absenteeism; lower perceived adequacy of staffing; and higher workload (as measured by patient ratio) [36]. However, these predictors explain little variance in missed care (16%). In a second model comprised of different variables (nurse staffing, case mix index, history of absenteeism, and nursing experience), approximately 29% of the variance in missed care was explained [43]. The only significant predictor of missed care in this model was nurse staffing which was measured as hours per patient day (HPPD).

The Schubert team describes the phenomenon of implicit rationing within the conceptual framework, "Implicit Rationing of Nursing Care". Within this framework implicit rationing of nursing care is defined as, "the withholding of or failure to carry out necessary nursing measures for patients due to a lack of nursing resources (staffing, skill mix, time)" [20]. Implicit rationing is viewed as a process of clinical decision making and problem solving during care delivery when available resources are insufficient to meet all care demands. The process of implicit rationing is said to be influenced by multiple factors to include: organizational variables (e.g. budget, management structure, and culture), nurse work environment (e.g. skill mix, collaboration, and adequacy of resources), philosophy of care, nurse variables (e.g. experience, education, and skills), and patient variables (e.g. type & severity of illness). In response to these interacting factors, nurses use their clinical judgment to prioritize care and determine which elements of care to withhold. The resulting level of rationed care is presumed to affect nurse and patient outcomes.

Similar to Kalisch, the Schubert approach to measurement of implicit rationing involves provider estimates of the frequency with which selected elements of care are withheld

due to a scarcity of nurse resources [34,44]. Development of the Schubert instrument, Basel Extent of Rationing of Nursing Care (BERNCA) Instrument, was based on the scope and responsibilities for nurses in Switzerland, published nursing literature, and expert opinion. The original BERNCA consisted of a list of 20 nursing care activities considered most likely to be omitted during resource scarcity. Respondents are prompted to rate the frequency with which they were unable to complete each of the activities when needed within the previous seven working shifts. Responses are based on a four-point Likert-type scale (never, rarely, sometimes, and often) [20]. Subsequent revisions to the BERNCA include the addition of 12 new nursing care activities and a response option of "not required" [44]. As in the MISSCARE Survey, the BERNCA supports quantification of implicit rationing at the item and composite level using mean scores based on the full scale and/or percentages based on a dichotomized scale (i.e. never versus greater than never). Both versions of the instrument have demonstrated a stable internal structure with a single factor (Cronbach α =.93-.94).

Schubert and her team conducted a series of studies using the BERNCA to establish proof of concept for implicit rationing as an intermediate step in the mechanism linking the nurse work environment (to include nurse staffing) to patient outcomes. An association between implicit rationing and nurse-reported frequency of adverse events was established in the Rationing of Nursing Care in Switzerland study (RICH study) [45]. However, no association was supported between patient ratios and any of the adverse outcomes in this study. The mean composite score of implicit rationing (0.82) was low (less frequently than rarely); however, almost all participants (96%) reported rationing at least one activity [46]. Even at low levels, implicit rationing was a significant predictor of five patient outcomes: medication errors, patient falls, nosocomial infections, pressure ulcers, and critical incidents. In a follow-up study involving RICH and matched comparison hospitals, implicit rationing also was identified as a significant predictor of inpatient mortality (odds ratio: 1.51; $p < .001$) [47].

Nine predictors of implicit rationing were evaluated in the Registered Nurse Forecasting Study (RN4CAST Study) involving 35 Swiss hospitals. Potential predictors evaluated include: staffing and resource adequacy, nurse manager ability, collegial nurse physician relationships, patient ratios, number of patients needing support with activities of daily living, number of patients needing frequent monitoring, safety climate, nurse experience, and nurse education [48-49]. Patient safety climate and staffing adequacy were the only significant predictors supported in regression models. The frequency of implicit rationing in the RN4CAST study was similar to that documented in the RICH study: 98% of participants reported rationing at least one activity yet the mean composite score was low (i.e. rarely).

Item-level analysis revealed significant variability in rationing across nursing care activities (range = 18-80%). The majority of nursing care activities (18 of 32) were rationed by over 50% of the participants. Activities most frequently

rationed (by > 70% of participants) include: emotional and psychological support, assessment of newly admitted patients, initiating care plans, mobilization, documentation and evaluation of care, and having necessary conversations. Activities rationed least often (by < 30% of participants) include: changing bed linens and continence training by inserting catheters. Based on item-level analysis, the Schubert team concluded that nurses ration care based on an informal system of prioritization that favors elements of care with a direct and immediate effect on patient outcomes and elements of care that require predictable time consumption [49].

Evidence from research teams led by Kalisch and Schubert support implicit rationing as a bridge linking nurse staffing and patient outcomes. Specifically, their findings suggest the following: 1) implicit rationing is routinely practiced among hospital nurses; 2) implicit rationing occurs across all categories of nursing care (e.g. physical care, coordination of care, documentation of care, and emotional care); 3) implicit rationing is associated with multiple negative outcomes for patients and nurses; 4) implicit rationing is a stronger predictor of patient outcomes than nurse staffing indices; and 5) perceived adequacy of staffing resources is the strongest predictor of implicit rationing [50].

Based on the body of evidence from these research teams, the INSRNC supports continued exploration of the phenomenon of implicit rationing in industrialized countries. Thus far, INSRNC members have examined the frequency and patterns of implicit rationing in three different industrialized countries (Australia, New Zealand, and the US). Implicit rationing was assessed using the MISSCARE Survey in the Australian and New Zealand studies. In the US study, implicit rationing was assessed using an instrument adapted from the BERNCA, the Perceived Implicit Rationing of Nursing Care (PIRNCA) survey [21]. Shared findings and lessons learned from these independent projects led to the identification of challenges to and opportunities for future collaboration within the INSRNC. For example, although the instruments have much in common, key differences become problematic when attempting to compare findings or pool data across studies. Key differences in the instruments include: 1) recall period (previous 7 shifts versus unspecified); 2) referent for implicit rationing frequency estimates (respondent versus everyone on the unit); 3) size and granularity of activity inventory (24 versus 31); and 4) response scale descriptors. Consequently, mean frequency scores, and, to a lesser extent, dichotomized frequency percentages, are not directly comparable. INSRNC members are engaged in a study designed to compare performance of the MISSCARE Survey and the PIRNCA in a single US hospital sample. The findings from this study will be used to guide future instrumentation decisions for collaborative projects.

VI. MACROSYSTEM STAFFING POLICIES

One opportunity for collaboration that was quickly recognized emerged from the notable differences in nurse staffing policies across the geographic regions represented within the INSRNC. Each of the three industrialized countries was challenged by the mounting evidence linking nurse staffing to patient and nurse outcomes. One common response

to such evidence has been the introduction of macrosystem nurse staffing policies intended to counterbalance the process of rationalization and mitigate adverse effects on nurses and patients [51]. Although macrosystem staffing policies reflect a common philosophical approach (i.e. regulation), execution varies significantly. For example, staffing policies may incorporate one or more of the following alternative strategies: 1) mandated ratios of patients/nurse; 2) mandated electronic expert systems which calculate the staffing level appropriate for the number and acuity of patients to be cared for; 3) mandated collection and analysis of patient and nurse outcomes at fixed staffing levels; 4) mandated processes by which direct care nurses have input into staffing on their units; and 5) mandated public reporting of staffing levels and outcomes at hospital and/or unit levels. The staffing policies executed in the countries represented within the INSRNC reflect different combinations of these specific strategies as described below.

Conflicting preferences regarding alternative staffing policy strategies persist among key stakeholders in the US. The American Nurses' Association (ANA) supports state and national policy which holds hospitals accountable for safe staffing [52-53]. The ANA opposes mandated ratios of patients per nurse as a mechanism to achieve this accountability. Instead, the ANA endorses involvement of direct care nurses in creating and evaluating nurse staffing plans. In contrast, labor unions, such as the National Nurses' Organizing Committee (NNOC), favour legislatively mandated minimum nurse staffing levels and monitoring of selected nurse-sensitive outcome variables [54].

A national-level nurse staffing policy has yet to be adopted in the US; however macrosystem nurse staffing policies have been adopted at the state level. Texas and California are examples of US states that have adopted nurse staffing policies based on very different strategies. The California policy is based on the strategy of mandated ratios and the Texas policy is based on mandated direct care nurse involvement in developing and evaluating staffing plans. The California approach has been well documented and has been formally evaluated [55]; however, the Texas approach has received comparatively less attention in the literature and has not yet been systematically evaluated. Therefore, the Texas policy has been targeted for examination by the INSRNC.

Texas legislation specifically aimed at putting direct care nurses in leadership roles with regard to staffing was passed in 2009. This legislation (Texas SB 476) was based on the ANA preferred approach to nurse staffing and was unsuccessfully opposed by the NNOC. Texas SB 476 specifically states that, "The governing body of a hospital shall adopt, implement, and enforce a written nurse staffing policy to ensure an adequate number and skill mix of nurses are available to meet the level of patient care needed. The policy shall include a process for: 1) requiring the hospital to give significant consideration to the nurse staffing plan recommended by the hospital's nurse staffing committee and to that committee's evaluation of any existing plan..." [55].

The intent of the Texas approach is to enable direct care nurses to lead change from within the unique context of each

hospital. The policy stipulates that direct care nurses hold the majority membership on the staffing committee. In theory this approach empowers direct care nurses to help create flexible staffing plans based on their experience and professional judgment as opposed to sole reliance on efficiency driven metrics. Moreover, this approach encourages hospitals to monitor the staffing plan's effect on nurse-sensitive outcomes.

A major criticism of the Texas legislation is the absence of a mechanism for effective compliance monitoring. Currently, an annual remote survey by the Texas Department of State Health Services is the only mechanism in place. This mail survey requires hospital administrators to indicate the following: whether they have a nurse staffing committee; if implemented whether the staffing committee has met; and, if implemented, what outcomes are used by the staffing committee to evaluate the nurse staffing plan. The mechanisms for critical analysis of this survey data and subsequent application of sanctions for noncompliance remain unclear. Therefore, Texas SB 476 can be characterized as an unenforced staffing policy.

In New Zealand, nursing and midwifery labor issues are represented by the New Zealand Nurses' Organization (NZNO). Consequently, the New Zealand approach to regulation of nurse staffing is the product of a cooperative arrangement between the NZNO and the District Health Boards. This arrangement has been formalized as the Care Capacity Demand Management (CCDM) program. The program aims to match the demand for health care (what patients need) with capacity to provide that care (staff resources). Seven strategies designed to minimize capacity-demand variance are integrated into the CCDM [57-59]. These strategies require adoption of organizational structures and processes to support forecasting and planning for staffing needs as well as adoption of outcome metrics sensitive to changes in staffing effectiveness.

A comprehensive description of these detailed strategies is beyond the scope of this paper. However, the seven strategies can be summarized as follows: 1) establishing and sustaining a holistic systematic approach to staffing across the organization (i.e. nurse staffing is not viewed in isolation); 2) create infrastructures that establish and sustain collaborative interprofessional relationships across the organization; 3) map the organization to support rapid identification of problems; 4) establish a comprehensive, reliable, and valid shared data set that supports demands-capacity forecasting and variance sensitive evaluation; 5) develop a data platform to support real time sharing of the established dataset among key stakeholders; 6) establish baseline staffing plans based on data-driven forecasting and desired outcome metrics, and 7) establish an effective mechanism for real time variance response management. Finally, the CCDM initiative is overseen by the Safe Staffing Healthy Workplaces Unit.

The Australian Fair Work Act 2009 (the federal legislation) provides the legislative framework that governs employment conditions; awards and agreements are based on the provisions of this Act [60]. The object of the Act is to provide a balanced framework for cooperative and productive workplace relations and provide laws that are fair to

employees and flexible for employers to ensure productivity and economic growth. In Southern Australia (SA), nurses are represented by the Australian Nursing and Midwifery Federation-South Australian Branch (ANMF-SA) [61]. Because the Australian healthcare system has a public and private component, employers of nurses in SA are likewise divided. The Health Authorities of South Australia is the employer of nurses in the public healthcare sector and owners of private healthcare organizations the employers of nurses within the private sector. Consequently, nurse staffing policy in SA is a product of the Enterprise Bargaining Agreement (EBA) process between the ANMF-SA and these employers. Moreover, in Australia, these EBAs carry the force of law.

In 2013, a new staffing policy was negotiated for the public healthcare sector. The Health Authorities of South Australia and the ANMF-SA negotiated an EBA concerning working conditions of nurses and midwives in metropolitan and country (rural) hospitals. The agreement included stipulations for agreed-upon skill mix and staffing levels; however, specific patient to nurse ratios were not mandated. Moreover, the EBA stipulated that, although a computerized system of acuity calculation could be used for clinical purposes, it could not be the sole basis for determining staffing resources. Rather, adjustments to the agreed upon baseline staffing levels could be initiated by nursing staff at the ward level based on professional judgment. The intent of this approach was to ensure that extra staffing resources could be deployed for special/abnormal events. The EBA also included a compliance monitoring component that involved routine auditing of nurse staffing plans and variances (to include HPPD) by the ANMF-SA.

Implicit rationing has been identified as a common occurrence in each of the industrialized countries represented in the INSRNC. Likewise, each country has responded to the adverse effects of rationalization with some form of regulation around nurse staffing. However, the effect of these alternative strategies on the frequency and patterns of implicit rationing have not been systematically examined. Moreover, the comparative effects on patient and nurse outcomes are not known. INSRNC members share an interest in this area and also have access to clinical practice sites regulated by different staffing policies. Therefore, the INSRNC is ideally situated to examine relationships between nurse staffing regulations, implicit rationing, and nurse-sensitive outcomes. Successful pursuit of this unique opportunity hinges on substantial grant funding. INSRNC members are currently pursuing grant funds from all three countries to support specific components of this multinational project.

VII. CONCLUSIONS

The current socio-political environment in industrialized countries places high value on efficiency, productivity, and cost reduction. Moreover, these values undeniably fuel the rationalization of nursing care. Although rationalization has not achieved the desired level of efficiency and cost savings in healthcare, it has been associated with deleterious effects on nurses and patients. Inadequate nurse staffing has been implicated as a likely contributing factor in this process. The association between nurse staffing and adverse outcomes has

been consistently demonstrated through empirical studies in multiple countries. However, the precise mechanism through which inadequate staffing leads to poor outcomes has not been established. An impressive body of evidence amassed by research teams led by Kalisch and Schubert suggests that implicit rationing of nursing care may play a key role.

Regulation of nurse staffing is a common response to the deleterious effects of rationalization. However, insufficient empirical evidence exists to guide policy makers toward the most effective means to ensure adequate nurse staffing and reduce implicit rationing. The INSRNC seeks to advance the science in this area. Moreover, the INSRNC holds the potential for maximizing the effect of research dollars and researchers' time. This is achieved by pooling data, discovering ways to combine research findings from numerous countries, and involving a variety of disciplines in the research enterprise.

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