Nurse Resource Allocation in Ambulatory Cancer Centers

Guidelines for Clinicians and Executives

BY VIVIAN A. GAITS, RN, APRN-BC, AOCN, CHPN

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Community cancer centers across the United States are challenged by nurse resource allocation issues. Many programs are looking for staffing guidelines for their oncology nurses; not all of them are finding the answers.

A wide range of research suggests that lower nurse staffing levels have an adverse impact on patient quality of care and survival.[1,2] Studies further suggest that lower nurse staffing levels may have a ripple effect—increasing healthcare costs and negatively affecting nursing staff morale. The realities of today's healthcare environment also continue to affect nurse staffing levels. These issues include:

- A nationwide nursing shortage projected to continue for the next two decades
- An aging nurse workforce
- Cost-containment pressures from Medicare and private payers
- A migration of most cancer care to the ambulatory outpatient setting coupled with an increase in the number and complexity of treatment regimens.

Unfortunately, there is no easy "fix" to the nursing staffing ratio. Legislative attempts to address some of these nurse staffing issues include passage of the Nurse Reinvestment Act in 2002 and, in some states, introduction of legislation that mandates nurse-to-patient ratios. The practicality of legislatively mandated nurse ratios is hotly debated, as is the question of whether such legislation will actually produce the desired outcomes.

In 2004 the Association of Community Cancer Centers (ACCC) and then ACCC President Patti A. Jamieson-Baker, MSSW, MBA, commissioned a study on nursing staffing standards for outpatient oncology centers. Research specific to nurse staffing, acuity, and care outcomes in oncology settings—and in ambulatory oncology settings, in particular—is sparse. To date, attempts to assess or measure the acuity of patients, and

then determine adequate nurse-to-patient ratios based on these patient-acuity scores have tended to be site specific, controversial, and not necessarily applicable to ambulatory settings. Still, enough data are available to offer guidance for clinicians and executives involved in managing community cancer programs.

Oncology-Specific Nurse-Staffing Research

While evidence of the nurse staffing-quality connection is well-documented, little research has focused on oncology-specific ambulatory infusion nurse-staffing. Several factors confound the issue including the fact that oncology care is provided in a variety of settings. Much of the research that is available has been conducted by the Oncology Nursing Society (ONS).

In 2000, ONS commissioned a survey that was "designed to assess a variety of questions about the nursing shortage, its impact on quality of care, staffing levels, and what is being done to cope with short staffing."[3] The survey, which was sent to oncology nurses, nurse administrators, and oncologists, examined perceptions of the adequacy of RN staffing in oncology settings, including ambulatory care settings, as well as budgeted and actual staffing levels.

Of the outpatient RNs surveyed, most believed that the acuity of the patients they treated had increased, as had the amount of paperwork they performed. The nurses responding also reported that more tasks were being delegated to them by physicians. While fewer than

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Reasons for *Not* Establishing Oncology Nursing Staffing Standards

BY LUANA LAMKIN, RN, MPH

The Oncology Nursing Society (ONS) has attempted to address "state-of-the-art" staffing standards via three national surveys of its nurses. Unfortunately all three surveys returned practice variations so great that setting national standards seemed unrealistic.

For example, when measuring nurse-to-patient ratios, the latest ONS survey of outpatient chemotherapy infusion centers showed a variance of 3 to 20 patients per nurse per shift.[1] While no evidence currently exists to link quality outcomes with a particular ratio of nurses to patients, nurse-sensitive outcomes *are* being studied.

In addition, variations in staff skill and experience must also be taken into account when setting nursing standards. An experienced oncology nurse might be able to care for twice as many patients as a new graduate nurse with entry-level skills. The presence or absence of research clinical trials will also impact the number of patients a nurse can care for.

The make-up of the cancer treatment team will vary in size and configuration from cancer program to cancer program. An oncology nurse that is assisted by a treatment team of unlicensed assistive personnel (UAPs), nurse practitioners (NPs), social workers, discharge planners, and triage nurses, can devote most of his or her time to direct nursing care.

Variations in technology can also impact nursing standards. Electronic medical records (EMRs), cell phones, smart pumps, and other technology can increase a nurse's efficiency.

A final issue complicating nursing standards is the range of settings in which cancer care can be provided—from a solo practice to a large academic medical center. As stated above, an oncology nurse that is supported by a multidisciplinary staff can spend more time on direct patient care. An oncology nurse who works in a small practice may not have that luxury. In addition to direct patient care, this staff member may also be mixing chemotherapy drugs, providing patient education, and, in some instances, providing information on financial assistance.

Taking all of these variations into account, it is easy to conclude that individualized cancer care may *not* lend itself to nursing staffing standards. Instead, care should be based on patient acuity, the care setting, the skill of the oncology nurse, the presence of other team members, and the available technology. Oncology nurses are not "average" nurses, and we do not care for "average" patients.

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References

[1]Ireland A, DePalma J, Arneson L, et al. The Oncology Nursing Society ambulatory nurse survey. *Oncology Nursing Forum*. 2004;31:E147-167.

A Model Approach to Nurse Staffing

Magnuson Clinical Center at NIH

In 2004, a three-article series examined the issue of determining staffing needs in an ambulatory oncology research center.[11-13] The article focused on staffing issues at the Magnuson Clinical Center. Located at the National Institutes of Health (NIH), the Magnuson Clinical Center is an ambulatory oncology research center that includes a radiation oncology unit.

The three-part series documented the development of a unique acuity assessment tool at the Magnuson Clinical Center, and the process of implementing resource allocation (or a nurse staffing system), using that acuity system.[11] At the outset, the authors noted that using only patient census data (i.e., counting patient visits) had resulted in an inadequate nurse-patient ratio in which staffing was based on the time-honored, but inexact, traditions of intuition and work experience.

The acuity system at the Magnuson Clinical Center used "patient intensity," a measurement of both the degree of illness and the complexity of care needed to provide care to the patient. Patient encounters were clustered into five levels ranging from "port access" and "simple patient teaching" at the low end, to "complex chemotherapy administration" and "packed red blood cells" at the high end. Each level was associated with a time frame that varied from less than 30 minutes to more than four hours. This ambulatory intensity system (AIS) was piloted and subsequently revised to include six levels.

The AIS was then integrated with a computerized appointment schedule, as well as quality improvement activities. Based on AIS use, the authors developed a table (see Table 1) that allows the user to calculate the number of RN FTEs based on the number of patients at each level that is expected on any given day.[12]

Although the tool developed by this team contains many facets that are unique to the Magnuson Clinical Center (e.g., the care setting is much larger than that in most communities, and the scope of duties performed by the nurses is quite broad), a similar system could be developed for use at a community cancer center.

Table 1: Intensity Tool Staffing Requirements*: Based on Number of Patient Encounters

Intensity Levels**	Average Time***	1 Patient	2 Patients	3 Patients	4 Patients	5 Patients	6 Patients	7 Patients	8 Patients	9 Patients	10 Patients
I 0-15	7.5 min	0.01	0.03	0.04	0.06	0.07	0.09	0.1	0.12	0.13	0.15
II 16-30	22 min	0.05	0.09	0.14	0.18	0.23	0.28	0.32	0.37	0.41	0.46
III 31-60	45 min	0.09	0.19	0.28	0.38	0.47	0.56	0.66	0.75	0.84	0.94
IV 61-20	90 min	0.19	0.38	0.56	0.75	0.94	1.13	1.31	1.50	1.69	1.88
V 121-240	180 min	0.38	0.75	1.13	1.50	1.88	2.25	2.63	3.00	3.38	3.75
VI >240	360 min	0.75	1.5	2.25	3.00	3.75	4.50	5.25	6.00	6.75	7.50

*Staff Requirements: RN time required to see a patient at a given intensity level, reflected as a fraction of 480 (minutes in an 8 hour shift)

**Intensity Level: Time (minutes) required to deliver nursing care

***Average Time: Average nursing time for each intensity level

Example: If seven Level III patients (0.66) and six Level II patients (0.28) are treated, nursing hours needed equals (0.66 + 0.28), or 0.94 (approximately one RN FTE)

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BOTTOM LINE:
inadequate staffing levels place heavy burdens on the nursing staff.

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50 percent of responding nurses believed that staffing in their practice setting was less than adequate, they also reported that they frequently cared for more patients than they believed was appropriate. Even more interesting, the study findings indicated a significant discrepancy between the numbers of patients assigned each nurse as reported by nurse executives versus staff nurses. Study authors report that this result may have been related to the wording of survey questions.[3]

The ONS survey examined budgeted versus actual staffing. In outpatient areas, nurse executives reported a mean budgeted amount of 3.61 hours of care per patient day (HPPD) for each patient expected to require care. This time is calculated to include treatment and medication administration time, as well as monitoring and education activities, documentation, supervision of other staff, ordering of supplies, and so on. Surprisingly, the budgeted time allotted compared favorably with a mean actual HPPD of 3.52. Responses to survey questions about staffing mix in outpatient areas indicated that more than 80 percent of the care, both budgeted and actual, was provided by RNs.

The survey also asked about techniques used to manage short staffing, including overtime, use of internal float pools, or temporary and travel RNs. Overall, responding oncology nurses were more likely to report effects on quality of care than were nurse executives. However, neither staff nurses nor nurse executives believed that quality of care was improved by using RNs supplied by alternative staffing mechanisms. Interestingly, outpatient RNs were more likely than inpatient RNs to report that working overtime was mandatory.

Authors of the survey report that many factors hamper the ability to use data such as these to develop staffing standards or impose minimum staffing regulations. For instance, the survey did not gather data on actual measures of quality of care, relying instead on *perceptions* of quality of care. The authors also acknowledge that comparisons between oncology care settings, oncology patients, and even oncology nurses are difficult due to the unique characteristics of each. Thus, what works for one setting, one nurse, and one patient may not be appropriate for others.[4]

More recently, in a 2004 ONS ambulatory office nurse survey, the majority (80 percent) of oncology nurse respondents reported that they did *not* use any kind of staffing tool.[5] Of the 20 percent who reported using a tool, few (6 percent) found the tool to be very useful. More than 50 percent found the tool they were using to be only useful, somewhat useful, or not useful at all. Most survey respondents reported using patient volume and types of treatment provided to allocate staff—techniques that are *not* recommended by experts. Despite all of these findings, a majority of respondents reported that the nurse-patient ratio was satisfactory in their worksite.

Nurse Staffing Budget Implications

Nursing personnel comprise up to 40 percent of a hospital's full-time equivalents (FTEs) personnel and about 30 percent of its budget.[6] Understandably some cancer program administrators and other managers may be concerned by suggestions to increase nurse staffing levels. Surprisingly, a 2003 study demonstrated that a one percent increase in RN FTEs, although increasing operating expenses by a very small percent, had no statistically significant effect on profit margins.[6] In fact, this study showed that higher levels of *non-nurse* staffing resulted in higher operating expenses and lower profits.[6]

Providing marginal staffing has its costs—e.g., the potential to adversely impact the quality of the work environment, impairing nurse retention, hampering nurse recruitment, and increasing overall costs related to the need for staffing alternatives, hiring, and orientation. Oncology nurses who work in understaffed units are less likely to recommend nursing as a career choice, a problem that will only enhance the predicted shortage of qualified oncology nurses in the coming years.[7] Bottom line: inadequate staffing levels place heavy burdens on the nursing staff.[2]

Adequate nurse staffing, on the other hand, is associated with numerous benefits, including the potential for easing workloads, reducing overtime and extra shifts, and decreasing need for supplemental staffing.[7] Cancer centers that put policies in place to provide appropriate resources, staffing, and workloads can help avoid or reduce nurse stress and burnout in those caring for patients experiencing life-threatening illness.[8]

Guidelines for Clinicians and Executives

According to the American Nurses Association (ANA) staffing ratios should be based on three actions:[9]

- Achieving quality of patient care indices
- Meeting organizational outcomes
- Ensuring that the quality of the nurse's work life is appropriate.

With these in mind, ANA developed a unique matrix to aid in staffing decision-making (see box on page 40). Unfortunately, similar tools to support decision-making in nurse staffing remain in their infancy.[10] Barriers to developing efficient, practical tools that have wide applicability include: difficulties in defining nursing workloads in various settings; variability in determining patient severity and needs; and a lack of appropriate databases to link nursing care, outcomes, and other quality measures.

Table 2: ANA Nursing-Sensitive Evaluation Measures

1. Work-related staff illness and injury rates
2. Turnover/vacancy rates
3. Overtime rates
4. Rate of use of supplemental staffing
5. Evidence of compliance with federal, state, and local regulations
6. Levels of nurse staff satisfaction

In addition patient classification schema that have been evaluated and used in inpatient settings to allocate nurse resources may not be appropriate for use in ambulatory settings. Unique issues such as the number of patient encounters in one shift and the variability inherent in ambulatory care may not be captured by tools developed for use in inpatient settings. Capturing triage activities, unplanned patient arrivals, telephone consultations, and care coordination activities may not be feasible or accurate using systems developed for use in traditional inpatient settings.

In the ambulatory oncology setting, any decision regarding nurse resource allocation must be accompanied by pre-determined methods of evaluation and quality improvement. Review of all available tools or methods for allocating nurse resources should be performed at regular and, ideally, pre-determined intervals. Examination of patient outcomes such as chemotherapy extravasations, patient falls, and other adverse events that are pertinent to an ambulatory oncology setting should also be performed on an ongoing basis. Then attempts should be made to relate these outcomes to allocation of resources. Other quality measures, such as patient and family satisfaction, should be evaluated in relation to these and other measures.

In addition, ANA supports the "collection and analysis of nursing-sensitive indicators and their correlation with other patient care trends."[9] (See Table 2, above.) Including representatives of all levels of staff in such quality improvement activities ensures group buy-in and builds consensus, as well as validating and supporting unit and institution goals. Including patients, patient advocates, physicians, unlicensed assistive personnel (UAPs), and others in the ongoing evaluation enhances the likelihood of continued success.

In the absence of a valid and reliable tool with widespread applicability for nurse resource allocation, clinicians and executives may choose to use a synthesis of current tools, available information, and clinical expertise to develop a rational and sustainable system that provides for both a quality work environment and quality patient care. The matrix suggested by ANA (see this page) can provide a conceptual basis for addressing the unique needs of your clinical setting. Modifying or developing a schema such as the one developed at the National Institutes of Health's Magnuson Clinical Center (see box on page 38) can also be useful in developing nurse staffing ratios.[11-13]

Ultimately, staff allocation must be based on assessment of the skill set of clinical staff and other resources that are available to support nursing activities, measured against the mix and number of patients in each facility on any given day. Sample questions that may help guide nurse allocation decision-making are included in Table 3.

Identification of specific oncology patient outcomes that are sensitive to nursing in ambulatory care settings is a critical first step in developing resource allocation tools for such sites. Developing searchable databases that can provide such information easily (in the absence of data such as discharge diagnoses) can help in this effort. Modification and application of existing patient classification systems, such as the ambulatory intensity system (AIS) developed at NIH's Magnuson Clinical Center, in a variety of oncology ambulatory care settings will provide needed information on the usefulness, validity, and reliability of the tools developed. The final step: sharing and evaluation—across clinical settings—of examples of quality measures that have been adopted and related quality-assessment activities. Once the oncology community has reached that step, perhaps we can begin to develop validated staffing allocation tools.

A Matrix Approach to Nurse Staffing

The American Nursing Association (ANA) has developed a matrix for nurse staffing decision-making that includes four components:

1. Patients (characteristics and numbers)
2. Intensity of the unit and care (including variability of care, volume, and patient movement into and out of the unit)
3. Context (architecture, technological resources)
4. Expertise (experience and learning needs of staff, professional expectations).

ANA principles suggest that simple averages (e.g., number of patient encounters, hours per encounter) should *not* be used in developing a nurse allocation system. Instead, "outliers" that would significantly alter decisions should be included in the process. Decision-makers at community cancer centers may find ANA's matrix a useful way of conceptualizing the multifaceted approach that should be used in determining the allocation of nurse resources. Keep in mind, however, this approach also emphasizes the variability that may exist between sites and even within a site at different points in time.

Mandated Nurse-Patient Ratios: The Answer? Or More Questions?

In recent years, the concept of mandated, minimum nurse-patient ratios has received a fair amount of attention in both the lay and professional literature. Driven primarily by news

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A Snapshot of Oncology Nursing Staffing *by Jan Collingwood, RN, BSN*

The Mountain States Tumor Institute is an integral part of St. Luke's Regional Medical Center, a three-hospital, private, non-profit system centered in Boise, Idaho. The Mountain States Tumor Institute is comprised of five cancer centers across 200 miles, serving Idaho, and parts of Utah, Nevada, and Oregon. Together these five cancer centers have about 400 outpatient visits each day. An average of 140 patients are seen each day in the chemotherapy infusion centers at the five cancer centers—ranging from about 10 to 85 patients per day depending on the site.

The nursing staffing standard for each chemotherapy infusion center is one RN for every 8 to 10 patients. Generally each RN sees one new patient each day. Additional patients may include those receiving IV infusion or injection chemotherapy, as well as research protocol patients. For every three RNs (or 25 patients) there is one unlicensed assistive staff member and one clerical staff member. At the minimum, each cancer center also has an oncology pharmacist, separate triage nurses, and a social worker.

The five sites are open from 7:00 am to 6:00 pm, Monday through Friday, with patient appointments scheduled from 8:00 am to 5:00 pm. Only chemotherapy is delivered; these centers do no blood transfusion and no antibiotics or hydration except for cancer patients.

Individualized pre-chemotherapy classes are encouraged for all new chemotherapy patients, and about 60 percent of patients comply. These classes are team taught by an oncology nurse, a social worker, and a pharmacist. Approximately 85 percent of patients are pre-scheduled, with about 15 percent canceling on the day of the appointment (due to blood work, co-morbidity, transportation problems, etc.). Each day, about the same number of patients (15 percent) are added to the schedule (due to new critical patients, new growth stimulating factor orders, dehydration, etc.).

So are these nursing staffing standards satisfactory? Keeping in mind that they are not a "standard" for oncology nurse staffing but only the experience of five centers, our quality of care measures seem to support them:

- Medication errors: 0.2/1000 doses
- Patient satisfaction: 94 percentile
- Physician satisfaction surveys rate nurses 97 on 100 point scale
- Staff turnover averages 2.6 percent over 6 years
- Net margin for five sites is about $1.8 million annually. (We do participate in the Federal 340B pharmaceutical discount program.)

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Table 3: Questions to Guide Resource Allocation Decisions

Patients and Intensity

- Who are the patients seen in your setting?
- How many patients are seen or will be seen in a typical day?
- What is the maximum number of patients your program can accommodate?
- Is there likely to be daily variability in the number of patients seen (e.g., clinic days, more MDs in the center on certain days?)? If so, on which days?
- Are there both oncology (higher needs) and non-oncology (lower needs) patients? What is the ratio of oncology to non-oncology patients?
- What services other than infusions will you be providing to the patients (e.g., BM aspiration/biopsy, lumbar puncture, Omaya reservoir taps/infusion of chemotherapy)?

Staff

- How many professional staff are available? What is the size of the pool from which you can draw? How easily can you access additional staff if needed, and who are they?

Expertise:

- What are the staff qualifications/expertise? How autonomous is each staff member?
- What are the learning needs of the staff? Who will meet them and when?
- What are your job expectations of the staff? What are the specific responsibilities of each staff member? Are there responsibilities that can be assumed by non-professional staff? If so, what exactly are they?
- Which responsibilities are daily (e.g., treats patients) and which are episodic (e.g., performs QA activities, participates in committee work)?

Architecture:

- Where is your unit? In relation to other resources (e.g., people, emergency care, physician coverage)? In relation to back-up nursing staff (across town, across the hall?)
- What resources are available for your staff? Do you have documentation systems that are efficient? Are patient records easily accessible? Do you have access to technical expertise to help maintain patient flow and unit efficiency?

PHOTOGRAPH/BRAND X PICTURES

Many nurse advocates believe that mandated ratios are *not* the answer...

of the actual and predicted nurse shortages, in combination with data regarding the link between nurse staffing and patient morbidity and mortality, many nursing and patient advocates have supported the development of standards and legislation that define absolute, unit-specific nurse-patient ratios.

In 1999, California Governor Gray Davis signed a law sponsored by the California Nurses Association that specified minimum ratios for all California hospitals. The law, which was enacted as of January 2004, enumerates the maximum number of patients that may be assigned to an RN during one shift. The law further requires that additional RNs be assigned based on an unspecified patient classification system that must measure patient needs and nursing care, including severity of illness and complexity of clinical judgment. Currently, the ANA reports that legislation containing mandated nurse staffing ratios has either been enacted or introduced in 22 states.[14]

The healthcare community is awaiting data to evaluate the efficacy, strengths, and weaknesses of these legislative efforts. However, many nurse advocates believe that mandated ratios are *not* the answer, and that arbitrary imposition of a static answer to a complex and variable problem is short-sighted and counter-productive. Buerhaus argues that staffing regulations "...force employers to ignore the dynamic interactions of economic, technology, capital and labor supply variables, and...needlessly impose the effect of increased labor costs on hospitals, taxpayers and nurses themselves."[15] In contrast, Curtin states that "Ratios are important..." but adds that they "must be modified by the nurses' level of experience, the patients' characteristics (e.g., acuity level or debility), and the quality of clinical interaction between and among physicians, nurses and administrators."[16] ONS declines to take a specific position on nurse-patient ratios.

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References

[1]Needleman J, Buerhaus P, Mattke S, et al. Nurse-staffing levels and patient outcomes in hospitals. Final report for Health Resources and Services Administration. Contract No. 230-99-0021. 2001. Harvard School of Public Health, Boston, MA.

[2]Stanton MW, Rutherford MK. Hospital nurse staffing and quality of care. Rockville (MD): Agency for Healthcare Research and Quality; 2004. Research in Action Issue 14. AHRQ Pub. No. 04-0029.

[3]Lamkin L, Rosiak J, Buerhaus P, et al. ONS Report. Oncology nursing society workforce survey part 1: perceptions of the nursing workforce environment and adequacy of nurse staffing in outpatient and inpatient oncology settings. *Oncology Nursing Forum.* 2001;28(10).

[4]Lamkin L, Rosiak J, Buerhaus P, et al. ONS report. Oncology nursing society workforce survey part II: Perceptions of the nursing workforce environment and adequacy of nurse staffing in outpatient and inpatient oncology settings. *Oncology Nursing Forum.* 2002;29(1).

[5] Ireland A, DePalma J, Arneson L, et al. The oncology nursing society ambulatory office nurse survey. *Oncology Nursing Forum.* 2004;31(6).

[6]McCue M, Mark B, Harless D. Nurse staffing, quality and financial performance. *J Health Care Finance.* 2003;29(4),54-76.

[7]Buerhaus P, Donelan K, DesRoches C, et al. State of the oncology nursing workforce: problems and implications for strengthening the future. *Nursing Economics.* 2001;19(5)198-208.

[8]Sherman D. Nurses' stress and burnout. *AJN.* 2004;104(5),48-57.

[9] Principles for Nurse Staffing (1999). American Nurses Association. Website: *http://nursingworld.org/readroom/stffprnc.htm* Accessed March 6, 2005.

[10]Shullanberger G. Nurse staffing decisions: an integrative review of the literature. *Nurs Econ.* 2000;18(3)124-148.

[11]Cusack G, Jones-Wells A, Chisholm L. Patient intensity in an ambulatory oncology research center: a step forward for the field of ambulatory care. *Nurs Econ.* 2004;22(2)58-63.

[12]Jones A, Cusack G, Chisholm L. Patient intensity in an ambulatory oncology research center: a step forward for the field of ambulatory care—part II. *Nurs Econ.* 2004;22(3)120-123.

[13]Cusack G, Jones-Wells A, Chisholm L. Patient intensity in an ambulatory oncology research center: a step forward for the field of ambulatory care—part III. *Nurs Econ.* 2004;22(4)193-195.

[14]American Nurses Association. Nationwide State Legislative Trends Report. 2004. Website: *http://nursingworld.org/gova/state/2004/staffing.htm* Accessed March 6, 2005.

[15]Buerhaus P. What is the harm in imposing mandatory hospital nurse staffing regulations? *Nurs Econ.* 1997;15(2):66-72.

[16]Curtin L: An integrated analysis of nurse staffing and related variables: Effects on patient outcomes. *Online Journal of Issues in Nursing.* Available online: *http://nursingworld.org/ojin/topic22/tpc22_5.htm* Accessed March 6, 2005.