The Community Hospital and its Healthcare Workforce: A Societal Case for Keeping the (Older, Night shift) Working Nurse Fit

Robert H. Ross, Ph.D., Scientific Director, Maine-Harvard Prevention Research Center
Research Associate Professor, College of Graduate Studies, University of New England
Email: bross1@une.edu, rross@hsph.harvard.edu

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The U.S. population is aging (He et al., 2005) and adding weight (Ogden et al., 2007).

So too working adults: 2-in-3 adults are now overweight or obese and thus at elevated risk for diseases/conditions including coronary heart disease, hypertension, dyslipidemia, and diabetes (NHLBI 1998, 2000; Malik et al., 2004) known in the workplace to decrease productivity, increase absenteeism, and raise premiums cost (Schulte et al., 2007; Schmier et al., 2006; Goetzel et al., 2005).

In no industrial sector is useful, disseminable knowledge on employee weight-related health risk factor reduction best practice more needed than in the hard-pressed Health Care and Social Assistance (NAICS-HCSA) sector where, in 2006, 3-of-14 industries with >100,000 nonfatal occupational injury and illness cases were found and general medical and surgical, i.e. community, hospitals led (264,300 cases) (NIOSH, 2008).
Background

- Concurrent aging of the population and health care labor force means that for the former to receive quality health care, the latter must remain physically and mentally fit for work (IOM, 2008).

- The hospital, and its functionally dominant component, the community hospital, anchors the HCSA.

- The American Hospital Association (AHA, 2008) defines community hospitals “as all nonfederal, short-term general, and other special hospitals, which include obstetrics and gynecology; eye, ear, nose, and throat; rehabilitation; orthopedic; and other individually described specialty services. Community hospitals include academic medical centers or other teaching hospitals if they are nonfederal short-term hospitals.”
Background

- Of total hospitals (n=5,708) that meet AHA registration criteria (without necessarily having registered), 86% (4,897) were community hospitals and, of these, 59% (2,900) were urban and 41% (1,997) rural and 59% (2,913) were non-government not-for-profit, 23% (1,111) state and local government operated, 18% (873) investor-owned (for-profit).

- Of total staffed hospital beds (n=945,199), 85% (800,892) were located at community hospitals.

- Of total hospital admissions (n=37,120,387), 95% (35,345,986) were to community hospitals.

- Of total hospital expenses ($641,123,636,000), 91% ($583,252,288,000) fell to community hospitals (AHA, 2008).

- Community hospitals, above all the not-for-profits, face mounting challenges including reduced operating margins, loss of well-compensated services and well-insured patients, workforce issues, and technology explosion (Choudhry et al., 2005; Zelenock, Zambricki, 2001; Hayden, 2005).
The graying of the U.S. workforce is just beginning. The labor force participation rate (LFPR) dipped from 67.1% in the late 1990s to 66.0% by 2004-05, declining for all major age-sex groups except age 55+ where a dramatic increase has been observed since 1995: in 60 months from March 2001, LFPR for these workers rose fully 4.7% (Mosisa, Hipple 2006).

Older workers are likewise more female: in 30 years from 1977, while the number of workers age 65+ rose 101% (compared to 59% for all workers age 16+), men rose 75%, women 147%. The increase does not reflect baby-boomer aging, however, since in 2007 the generation born 1946-64 had not yet reached age 65.

And the graying will continue: while the total workforce is projected to increase 8.5% in the period 2006-2016, the number age 16-24 is expected to decline, age 25-54 to rise only slightly, age 55-64 to climb by 36.5%, and age 65+ to soar by more than 80%.
HCSA Workforce

- The graying of the HCSA sector workforce is just beginning as well: in 2006 the average age of nurses, for example, was 45.2 years and climbing at more than twice the rate of all other U.S. occupations (BLS, 2008, 2009).

- The HCSA sector represents over 12% of all employment, 8% of all establishments. In 2006 the HCSA employed over 17.8 million workers, with most (82%) working in health care. HCSA growth through 2016 is projected at more than 25% (adding four million new jobs). In this ten-year period, HCSA occupations are projected to account for half of the 20 fastest growing.

- The HCSA includes three health care sub-sectors—ambulatory healthcare services (NAICS 621), hospitals (NAICS 622), nursing and residential care facilities (NAICS 623).

- Over 81% of HCSA establishments are in health care; of these, 77% are physician, dentist, and other health practitioner offices.

- While hospitals account for just one percent of health care establishments, they employ 35% of all health care workers.
Demand for HCSA, and particularly hospital, services increases exponentially with a hurricane, flood, tornado, or terrorist event.

Public financing (Medicare and Medicaid) is critical to the HCSA hospital sub-sector, as is the imperative to provide charity care to those without other means. Under-reimbursement results in cost shifting to other payers, but because this recovery mechanism is limited tight funding is the rule.

The HCSA is changing rapidly due to pressure to contain costs but also to keep up with rapid technological and clinical advances in disease and injury diagnostics and treatment.

A high proportion of health care workers is found among the 15 million Americans who work evening, night, rotating shifts, and other irregular schedules. Working hours in the U.S. exceed Japan and most of W. Europe. Both shift work and long work hours have been associated with health and safety risks (NIOSH, 2008).
HCSA Workforce issues include

- difficulties recruiting and retaining qualified worker;
- inadequate and chronic under-staffing, which exerts added mental and physical stress on providers;
- occupational health risks posed by increasing demand for services;
- shift work and long work hours (including mandatory overtime), which measurably impact the safety and health of workers and the quality of care for patients;
- reduction in hospital length of stay, which results in increased patient acuity and complexity of care and places increased demands on workers;
- and importation of health care providers, including nurses, which creates language and cultural differences and can impede training efforts and understanding of occupational safety and health requirements.
HCSA Health Care Workforce

- Demand for health care workers is **outstripping supply**, causing shortage.
- According to the IOM, “In 2011 the first baby boomers will turn 65 … The aging of the baby boom population, combined with an increase in life expectancy and a decrease in the relative number of younger persons, will create a situation where older adults make up a much larger percentage of the U.S. population than has ever before been the case. Between 2005 and 2030 the number of adults aged 65 and older will almost double, from 37 million to over 70 million, accounting for an increase from 12% of the U.S. population to almost 20% … little has been done to prepare the health care workforce for its arrival. Older Americans use considerably more health care services than younger Americans and their health care needs are often complex … The education and training of the entire health care workforce with respect to the range of needs of older adults remains woefully inadequate … *To address major shortages, steps need to be taken immediately to increase overall workforce numbers and to use every worker efficiently…*. …” (IOM 2008, p. 1, emphasis added).
Shortage cases in point include inadequate nurse, pharmacist, therapist, lab tech, imaging tech supply (AHA, 2007).

Table 1. Vacancy Rates for Selected Hospital Personnel, December 2006

<table>
<thead>
<tr>
<th>Profession</th>
<th>Vacancy Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Therapists (ST, OT, PT)</td>
<td>11.4%</td>
</tr>
<tr>
<td>Registered Nurses</td>
<td>8.1%</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>8.1%</td>
</tr>
<tr>
<td>Nursing Assistants</td>
<td>8.0%</td>
</tr>
<tr>
<td>LPNs</td>
<td>6.6%</td>
</tr>
<tr>
<td>Laboratory Technicians</td>
<td>5.9%</td>
</tr>
<tr>
<td>Imaging Technicians</td>
<td>5.9%</td>
</tr>
</tbody>
</table>

Source: 2007 AHA Survey of Hospital Leaders. Note: 116,000 vacancies is a national estimate created by extrapolating the vacancy rate to all 5,000 community hospitals in 2005. ST: Speech Therapist, OT: Occupational Therapist, PT: Physical Therapist.
The shortage of nurses results, supply side, from fewer people entering and staying in nursing, demand side, from increasing need for health services as the population ages, added to which, by 2010, 40% of nurses themselves will be over 50 years of age (USGAO, 2001; HRSA, 2005).

The figures are alarming (AANC, 2009):
- shortage of RNs could reach 500,000 by 2025 while demand is expected to grow by 2% to 3% each year (Buerhaus et al., 2008);
- to meet healthcare needs, 30,000 more nurses should be graduated annually, 30% over the current number of annual nurse graduates (CPNS, 2008);
- over one million new and replacement nurses will be needed by 2016 to cope with the 587,000 new nursing positions that will be created through 2016 (a 23.5% increase), making nursing the nation’s fastest growing profession (Dohm, Shniper, 2007);
The figures … (AANC, 2009) (cont.):

- hospitals currently need 116,000 RNs to fill vacant positions nationwide, which translates to a national vacancy rate of 8.1%, and 44% of hospital CEOs had more difficulty recruiting RNs in 2006 than in 2005 (AHA, 2007);

- from the “Aging Workforce Survey” of nurses, fully 55% of surveyed nurses, the majority of whom nurse managers, reported the intention to retire between 2011 and 2020 (Hader et al., 2006);

- the nation's nursing shortage is projected to grow to more than one million nurses by the year 2020 and all 50 states will experience a shortage of nurses to varying degrees by 2015 (HRSA, 2006);

- despite the increase in employment of nearly 185,000 hospital RNs since 2001, there is no evidence that the nursing shortage has ended: national surveys conducted in 2004 found that a clear majority of RNs (82%) and physicians (81%) perceived shortages where they worked (Buerhaus et al., 2004).
The costs of nurse scarcity and attrition are considerable and include (Hatcher et al., 2006) replacement cost and patient outcomes cost.

Replacement cost:
- In acute care facilities, where the year 2000 turnover rate was 21.3%, replacement cost for one nurse ($92,442) was twice the national average salary for a medical-surgical nurse ($46,832);
- replacing a specialty nurse increased it to $145,000 (HSM Group, 2002, Price 2001).
- Were a hospital with 100 nurses to face such turnover, annual replacement expenditure for medical-surgical nurses alone would reach $1,969,000 in expenses for advertising and interviewing, increased use of traveling nurses, overtime, temporary replacement costs for per diem nurses, lost productivity, training, and terminal payouts (Colosi, 2002).
Patient outcomes cost:

- Aiken et al. (2002) found that each additional patient in excess of a 4:1 patient/nurse ratio is associated with a 7% increase in the chance of failure to rescue and 7% increase likelihood of the patient dying within 30 days of admission;
- a 6:1 ratio increased the chance of death by 2.3 per 1,000 and 8:1 ratio increased it by an additional 8.7;
- for every patient over a 4:1 ratio, the odds of nurse burnout increased by 23% and job dissatisfaction increased by 15%.

The high patient/nurse ratios produced by nursing workforce shortage worsen that very shortage by increasing nurse burnout and job dissatisfaction.

The loss of older, expert nurses could disproportionately impact patient safety and quality of care, resulting in an increase in poorer patient outcomes and more adverse events. (Aiken et al., 2002; see also Needleman et al., 2002)
The “older nurse” literature focuses on retention. Titles are suggestive: “keeping the wisdom at work” (Simons, 2007), “the older nurse … does age matter?” (Norman et al., 2005), “retaining the older nurse” (Litvak 2002, 2003, 2005).

Older nurses now comprise a third or more of the health care workforce (HRSA, 2005; Minnick, 2000; Buerhaus, 2000).

In all 49% of nurses are now boomers who, in 2002, began to reach age 55, historically the onset of reduced hours and retirement (Minnick, 2000).

Calls abound, e.g. from the American Nursing Association and state hospital associations, for measures to retain nurses past the age of retirement (Thrall, 2005).
A recent Robert Wood Johnson Foundation report (Hatcher et al., 2006) ties retention directly to employee wellness-related policy and programs:

- **Benefits**: Not only fundamental benefits such as health insurance, paid vacation, and retirement programs (Spetz, Adams, 2006) but also supplemental wellness benefits such as on-site fitness facilities and wellness and prevention programs (health screenings, immunization clinics) and prevention and wellness education and information (Russell et al., 2005) impact nurse recruitment and retention.

- **Satisfaction**: For the nursing no less than the non-nursing sectors of the hospital workforce, ”the most effective solution to recruitment and retention” is for the hospital “to become a good place to work” (Thrall, 2005).
Correspondingly, nurse satisfaction is influenced not only by nurse managers’ leadership style and by nurses’ mobility chances (Boyle et al., 1999; Leveck, Jones 1996; Taunton et al., 1997; Peterson, 2001) but also by workplace organizational and environmental characteristics, including strategies that enhance nurses’ autonomy and policies that create esprit de corps (Tang, 2003) each of which are bolstered by wellness program opportunities.

Thus a variety of nurse workforce studies collectively suggest that job satisfaction is enhanced by wellness-related policy and programs: offering on- and off-the-job opportunities for renewal; promoting managerial respect for workers and shared decision-making; honoring the spiritual aspects of health care work and workers; promoting staff development in all its dimensions (Neuhauser, 2002; Laschinger, Finegan, 2005; Veninga, 2003; McGuire et al., 2003).
Conclusion

- Medline Key Word search “shift work” “metabolic syndrome” 10January2011 yielded 35 citations, 25 of which 2008 ff. Pathways include Light at night, Circadian rhythm disruption, Eating on shift. Adding “healthcare” yielded:
Conclusion

- Medline Key Word search “night work” “metabolic syndrome” 10January2011 yielded 3 citations, same Pathways:


Conclusion

Incidence of metabolic syndrome among night-shift healthcare workers.

OBJECTIVE: Night-shift work is associated with ischaemic cardiovascular disorders. It is not currently known whether it may be causally linked to metabolic syndrome (MS), a risk condition for ischaemic cardiovascular disorders. The syndrome presents with visceral obesity associated with mild alterations in glucidic and lipidic homeostasis, and in blood pressure. The aim of this study was to assess whether a causal relationship exists between night-shift work and the development of MS.

METHODS: Male and female nurses performing night shifts, free from any component of MS at baseline, were evaluated annually for the development of the disorder during a 4-year follow-up. Male and female nurses performing daytime work only, visited during the same time period, represented the control group.
RESULTS: The cumulative incidence of MS was 9.0% (36/402) among night-shift workers, and 1.8% (6/336) among daytime workers (relative risk (RR) 5.0, 95% CI -2.1 to 14.6). The annual rate of incidence of MS was 2.9% in night-shift workers and 0.5% in daytime workers. Kaplan-Meier survival curves of the two groups were significantly different (log-rank test; p<0.001). Multiple Cox regression analysis (forward selection method based on likelihood ratio) showed that among selected variables (age, gender, smoking, alcohol intake, familiar history, physical activity, and work schedule) the only predictors of occurrence of MS were sedentariness (hazard ratio (HR) 2.92; 95% CI 1.64 to 5.18; p = 0.017), and night-shift work (HR 5.10; 95% CI 2.15 to 12.11; p<0.001).

CONCLUSIONS: The risk of developing MS is strongly associated with night-shift work in nurses. Medical counselling should be promptly instituted in night-shift workers with the syndrome, and in case of persistence or progression, a change in work schedule should be considered.
References

References

References


