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average number of hours nurses worked was just over 40 hours per week. Information about the actual hours of work and the mix of clinical and non-clinical expectations during a nurse shift is a virtual unknown. Both IOM and AHRQ admit that there is scarce evidence on the number of hours nurses work and the duration of that work.

Even without clarity on the extent of the safety problem and with even more limited information on settings other than hospitals, the IOM report recommends blanket regulatory mandates that nurses in direct patient care be allowed to work no more than 12 hours per day and no more than 60 hours in any week.

Given what is known, the profession should debate the evidence of what types of limits should be placed on nursing work hours. Nurses new to the profession identify the opportunity to sculpt their own careers and determine their own work schedules as something that gives nursing a strong appeal as a profession. It could be that rather than strictly place mandates on the number of hours a nurse can work as suggested by the IOM report, improvement upon regulation that allows nurses to control their work hours makes more sense. Statutory elimination of mandatory overtime and the regulations that give the nurse the undisputed right to refuse an assignment are mandates the profession has requested for years. Moreover, there may be "bundle" strategies that could be considered to decrease fatigue and improve the safety of patient care such as redesign of workflow and organizational factors to provide for periods of rest within a work team structure, redesigning workflow so that napping and rotation within a shift that varies the nurse's activities between clinical and non-clinical are strategies that could improve safety and should be explored.

The nursing profession has history of policing its own practice based on evidence considered commendable by the public and among professionals; so much so that nursing is consistently counted by consumers as one of the most trusted of professions. TNA suggests that nursing must consider the IOM recommendations being put forward and respond proactively to what has been presented, all the while realizing that proposals to limit work schedules may be a disincentive to nurses and the recruitment of new nurses who want to work longer hours in order to have longer periods of time off for personal activities.

The issue of fatigue and patient safety is not going to disappear. It is one that the profession will be called upon to address. In report after report, patient safety is an accountability that the public is demanding of the health care profession. If nursing does not consider the current knowledge in the nurse working environment and its effects on patient safety, the public may regulate workplace practices without nursing's input.

### Express your opinion

If you have opinions on the subject of fatigue and nursing work hours, CAN invites you to express your opinion via e-mail to [info@centerforamericannurses.org](mailto:info@centerforamericannurses.org). CAN would like to have the input of its members to develop policy on this critical issue.

### References

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## Data Suggest Nurse Fatigue Threatens Patient Safety

*Is Prescribing the Nurse's Work Hours the Only Answer?*

By **Stephanie Tabone, MSN, RN**

**Director of Practice, Texas Nurses Association**

Aside from adequacy of nurse staffing, working long hours and being placed on mandatory call are issues of greatest concern to registered nurses. Nurses report in survey after survey that fatigue brought on caring for too many patients for too many hours is a threat to patient safety, and that mandatory overtime is the number one dissatisfier of working in direct care. Issues related to staffing, workload and fatigue are many, and sorting through them can be perplexing.

Consider the following:

- The recent Institute of Medicine of the National Academies (IOM) report, *Keeping Patients Safe - Transforming the Work Environment of Nurses*, identifies that research findings on overtime practices in other safety-sensitive industries, and more recently, nursing research, indicate that long work hours without adequate and quality rest time is associated with impaired performance and human errors.
- The nursing profession is being challenged to consider limiting the number of hours a nurse can work and to mirror the hour restrictions placed on other safety-sensitive industries such as air transportation and trucking.
- No one knows what the depth of the nursing shortage in Texas might be today if nurses currently working additional shifts-PRN, on call, and overtime - were limited by regulatory constraints.
- Many nurses who take on additional shifts and work on call are concerned that highly prescriptive regulations could limit the flexible work schedules they prefer, and which they do not believe to be dangerous.

Given the considerations, nurses might benefit from examining a bit closer the issues that surround the concerns so that they can respond rationally to weighing the issues of patient safety with their own ability to control their work schedules and balance their lives.

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# Nursing that Works

## The State of our Knowledge on Nurse Fatigue and Patient Safety

There is little doubt that fatigue has an impact on worker performance. Shift-work and sustained operations - both of which apply to nursing service have been proven in other industries to have an effect on safety outcomes. The *Keeping Patients Safe* IOM report cites a significant number of studies that link fatigue to slowed reaction times, lapses of attention, errors of omission and compromise problem-solving ability. Moreover, tired workers are found to have decreased motivation and vigor, as well as poor productivity overall. When these factors are coupled with fact that circadian rhythms are also associated with work performance, it is clear that the research findings related to performance and fatigue all appear in the realm of the nurse work environment.

While there is much documentation in other industries of the effects of fatigue on the performance of specific activities, there IS a limited number of studies specific to nurses that focus on the effects of fatigue in the delivery of patient care. What we do know is that human fatigue studies, and the studies of nurses we have to date, show consistently that trying to engage in activities that require coordination and critical thinking beyond a threshold of 12 hours results in increased errors of judgment.

The IOM report-citing the actions of other safety-sensitive industries to limit hours of work when faced with evidence that fatigue produced negative outcomes- challenges the health care professions to place some restrictions on hours worked. Furthermore, the report states that, given the research, "the burden of proof is in the hands of those who believe that such work practices (long and aberrant work hours) are safe." The evidence provided was so convincing to the IOM committee that it made Report Recommendation 6-1 that nurses providing direct patient care in any combination of scheduled shifts be limited to 12 hours of work in a 24-hour period and to 60 hours per 7-day period.

## Health Care Safety Studies

Based on concerns identified in *To Err is Human*, the IOM study published in 2000 that brought to light the breadth of health care error problems, the public and professionals called for safety studies in the health care industry. The Agency for Healthcare Research and Quality (AHRQ) conducted a technology assessment of the effect of healthcare working conditions on patient safety. Its literature review process resulted in the review of 730 relevant health care studies with 115 of those studies relevant to the key questions raises about the work environment and patient safety. The studies provided sufficient evidence to conclude that some working conditions are associated with and affect the rates of medical errors. Moreover, the reviews made by AHRQ indicate that studies conducted in other industries are relevant to health care. AHRQ found that:

- Strategies to increase staffing levels of licensed and unlicensed nurses in both acute care hospitals and nursing homes will likely lead to improved patient outcomes.
- Preventable complications are lower when complex technical procedures are preformed by physicians who frequently conduct them.
- Duration and experience of the health professional is associated with better patient outcomes for some types of clinical care.
- Systems to reduce interruptions and distractions will likely reduce medical errors.
- Systems to improve information exchange transfer of responsibility and continuity of care between hospital and non-hospital setting decrease medical errors and hospital readmissions.
- Levels of ambient noise in health care setting do not adversely affect patient safety.

## A Publication of the Center for American Nurses

AHRQ concluded that for other areas of patient safety, there is evidence of working condition effects but that since the evidence comes from an insufficient number of studies, clear conclusions can't be drawn. AHRQ identifies the need for research in specific areas where gaps in understanding exist about the working conditions in health care settings that impact safety. Gaps identified by AHRQ are:

- The need for an evidence-based understanding of the impact of specific improvements in the health care workplace on the quality of care.
- The effect of staffing levels and organization of work on patient outcomes and health personnel, including those in outpatient settings.
- The effect of incentives and alternative work organization strategies to promote health care worker retention and adoption of new care methods to deliver high quality care.

In terms of health care working conditions, AHRQ has classified working conditions into five categories. **Workforce staffing** includes job assignments and job duties such as volume of work assigned to individuals, professional skills, duration of experience, and work schedules. **Workflow design** is focused on the activities of workers, including interaction between workers, and the nature and scope of their work and its effect on interactions. **Personal/social factors** look at stress, job satisfaction, and professionalism. **Physical environment** includes aspects of the workplace such as lights, sound and aesthetics. **Organizational factors** look at the structure of work within the organization such as use of teams, division of labor, and shared beliefs.

Clearly, concerns about workforce staffing and the effects of fatigue are at the top of the list with three of the 26 most recently funded studies focused exclusively on fatigue, and six of the 26 AHRQ studies addressing the issues of nursing workload and fatigue on patient safety within the context of cared delivery. Clearly, AHRQ believes the jury is still out on nurse fatigue but believes based on the few available studies that duration of work and fatigue are important aspects of the work environment to explore in the area of safety.

As a result of the AHRQ focus on the safety of nursing care, a 2002 study of nurses conducted by Ann E. Rogers, PhD, RN, FAAN, University of Pennsylvania School of Nursing (unpublished study data), has found that there is an increase in error rates and near miss rates among registered nurses who work beyond 12 consecutive hours. Interestingly, the error results were less pronounced when the extra work required of nurses was voluntary rather than mandatory. Other studies evaluating the number of hours a nurse works and work design are yet to be completed.

## Redesigning Work Flow

Both the IOM and AHRQ agree that remediation of factors in the nurse work environment that would increase patient safety are unlikely to be achieved by any single action. Rather, it will be an understanding of interrelationship of factors and implementing "bundles" of mutually reinforcing practices in work environments that will impact patient safety in the long run.

It is anticipated that nurse fatigue will be identified as a patient safety factor in upcoming studies. What is not yet clear is the extent of the problem or what bundles of mutually reinforcing practices might be employed to mitigate fatigue and increase patient safety. Moreover, the extent of the problem of nurses who work fatigued is unknown. The most recent Health Resources and Services Administration (HRSA) Division of Nursing sample survey found that the

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