Tracking serious injury

Surveillance of work-related trauma

By Andrea Todd, M.S., Christina Larson, M.P.H. and Margee Brown, M.P.H.

A MACHINE MALFUNCTION. A momentary lapse in concentration. A misjudgment of the weight of the box. Every day, about 450 Minnesotans are hurt at work or become ill from an occupational-related cause, according to recent Minnesota Department of Labor and Industry (MNDLI) figures.

Workplace injuries are expensive. Compensation amounted to an estimated $1 billion for the approximately 165,000 cases in Minnesota in 1998. However, experts consider that estimate conservative because it ignores costs associated with delayed production, hiring and training replacement workers, underreporting of work-related injury, and the economic losses due to pain, suffering and home care provided by families.

Even more disturbing, Minnesota's occupational injury rates have been above the national average since 1993. According to the MNDLI 1998 Workplace Safety Report, the incidence rate of occupational injury in the United States is 6.7 injured workers per 100 full-time equivalent (FTE) workers, while Minnesota's occupational injury rate is 7.7 injured workers per 100 FTE. Similarly, the number of "lost work days" (LWD) due to occupational injury in Minnesota is slightly higher than the national average — 3.4 lost workdays per 100 FTE workers versus a national rate of 3.1 lost workdays per 100.

A unique grant to the Minnesota Department of Health (MDH) aims to make it easier to identify and, ultimately, prevent serious occupational injuries in the state.

A need for comprehensive data

In response to continuing concerns about reporting of occupational injuries, the National Institute for Occupational Safety and Health (NIOSH) of the Centers for Disease Control has emphasized a need for timely and more comprehensive data on work-related traumatic injuries. In spring 1999, NIOSH requested proposals for developing and evaluating methods to describe workplace hazards, exposures and risk factors, in order to promote the early recognition and prevention of workplace illness and injury. In October 1999, the MDH Center for Occupational Health and Safety was awarded a NIOSH grant for a project, "Surveillance of Serious Work-Related Trauma," focusing on implementing a surveillance system to investigate issues surrounding occupational injuries.

Surveillance — essentially, keeping track of where, when and why workplace injuries occur — helps target prevention activities to the industries and occupations that have the greatest needs. By observing trends in the work-related injury data collected, it also expands our knowledge about which prevention programs are effective. Unfortunately, while our ability to survey and assess that status of occupational health and safety has improved over time, surveillance data have remained fragmented — collected for different purposes by different organizations using different definitions for work-related injuries. For example, current case-based surveillance systems and worker's compensation data not only lack information on the nature and outcome of serious traumatic injuries, but also may be missing any case information for those industries and occupations not covered under the worker's compensation system, such as farming and self-employed workers.

These gaps in data make it difficult to quantify the incidence of work-related injury, as well as to characterize the overall health of working Americans. The NIOSH grant awarded to the MDH is intended to help fill those gaps and create a more systematic way to record data related to serious work-related trauma in Minnesota.

Clarifying definitions, establishing a system

In the past, efforts to investigate work-related fatalities have been hampered by a dearth of information on the nature, cause and incidence of traumatic injuries. The data that do exist are impaired by a lack of adequate, consistent definitions. For example, although there are definitions for brain and spinal trauma, there are no definitions for other types of serious trauma, such as burns.

The specific aims of the NIOSH

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grant are:

- to develop and test a definition of serious work-related trauma;
- to determine the magnitude, distributions, etiology, and outcome of serious work-related injuries; and
- to establish a surveillance system for those types of injuries.

Data collection and analysis

To establish a statewide incidence rate of serious work-related trauma, as well as look at disability as an outcome of the injury, data on traumatic occupational injuries from the year 2000 are currently being collected from approximately 20 hospitals and trauma centers across the state. After data collection is complete and interviews have been conducted, the data from hospitals and trauma centers will be compared to see whether the trauma center data alone are representative of serious work-related injuries occurring in Minnesota each year.

Looking at both the cases admitted to the hospitals and those admitted to the trauma centers, we can see that there is an overlap in cases admitted, but we do not know just how many overlapping cases there are. If the trauma center data compare well with the hospital data, it is probable that the trauma center data are indeed representative of serious work-related injuries. If that is found to be true, workers who have experienced serious work-related trauma ultimately will be admitted to a trauma center, even if they were initially admitted to the hospital.

Injury cases to be screened will be selected on the basis of criteria determined by a serious trauma advisory committee composed of health professionals from the MDH, MNDLI, the University of Minnesota and local hospitals. The committee includes physicians, epidemiologists, a trauma nurse and a trauma registrar. The case selection criteria include specific ICD-9 and ICD-9 E-codes, use of anesthesia, length of hospital stay and age of worker.

It is expected that 6,000 cases will be screened for work-relatedness. Based on existing data collected, it is estimated that approximately 10 percent of those injuries will be work-related. Some subjects who will be screened will likely turn out not to have sustained a work-related injury — for example, a person who suffered internal injuries or multiple fractures falling from a ladder at his home, or someone who sustained a concussion or vascular injuries as a result of a car accident. Of the cases screened, about 600 will be deemed to be work-related. Those individuals will be eligible to be interviewed for more detailed information pertaining to their injury. Those subjects will be asked to participate in an interview inquiring about their occupation, injury event, return to work, disability, and any social and financial impacts of their injury.

Preventing occupational injuries depends on our ability to quantify and track them.

Data collection for the "Surveillance of Serious Work-Related Trauma" will be coupled with data collection for another NIOSH grant, "Midwest Information System for Trauma Evaluation and Assessment" (MISTEA), awarded July 1, 2001. MISTEA will specifically look at traumatic brain injuries (TBI), spinal cord injuries (SCI) and burns, drawing data from both Minnesota and North Dakota trauma registries and burn centers. Because the aims of MISTEA and the serious trauma grant are similar, these grants will operate very closely in the data collection phase, but independently during analysis and reporting of data.

Developing prevention strategies

It is hoped that the results of these studies will used to develop a base of knowledge and experience for future funding of programs dealing with serious traumatic occupational injuries in Minnesota. Preventing occupational injuries depends on our ability to quantify and track them.

The surveillance system developed under the NIOSH grants will capture injury data for both the agricultural and non-agricultural sectors of Minnesota's economy. It will dramatically increase our knowledge of the magnitude, distribution, etiology and trends in serious work-related trauma in Minnesota. In addition, the knowledge gained from interviews and analysis of the data collected will help us better understand how to prevent such events from occurring in the future. ■

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Solutions for the ED

"Decompressing" emergency medicine

By Donald R. Morath, M.D., F.A.C.E.P.

FROM 1995 TO 2000, THE "hydraulics" of emergency services in the United States have undergone a palpable change. In that period, according to the American Hospital Association (AHA), the number of hospitals providing emergency care declined from 4,362 to 4,103. Yet emergency patient visits increased from 96 million to more than 103 million during the same period, while average patient visits per hospital increased 14 percent, from 22,000 to 25,100 annually.

In the last quarter of 2000, emergency departments (EDs) in the Twin Cities went on ambulance divert 341 times. In the first quarter of 2001, there were 365 episodes of ambulance diversion. During the last quarter of 2000, EMS receiving hospitals in the Twin Cities were forced to accept ambulance patients 23 times despite being on ambulance divert. Consequently, emergency departments in Minnesota are experiencing a phenomenon we refer to as "compression." More and more activity is being compressed into fewer and fewer spaces, most of which are already overutilized, resulting in unsustainable increases in the pressure placed on the emergency care delivery system in many communities.

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Caregivers and patients alike feel this pressure. The result is lower patient satisfaction, increased concern over patient safety and burnout for those in the professions that serve these populations.

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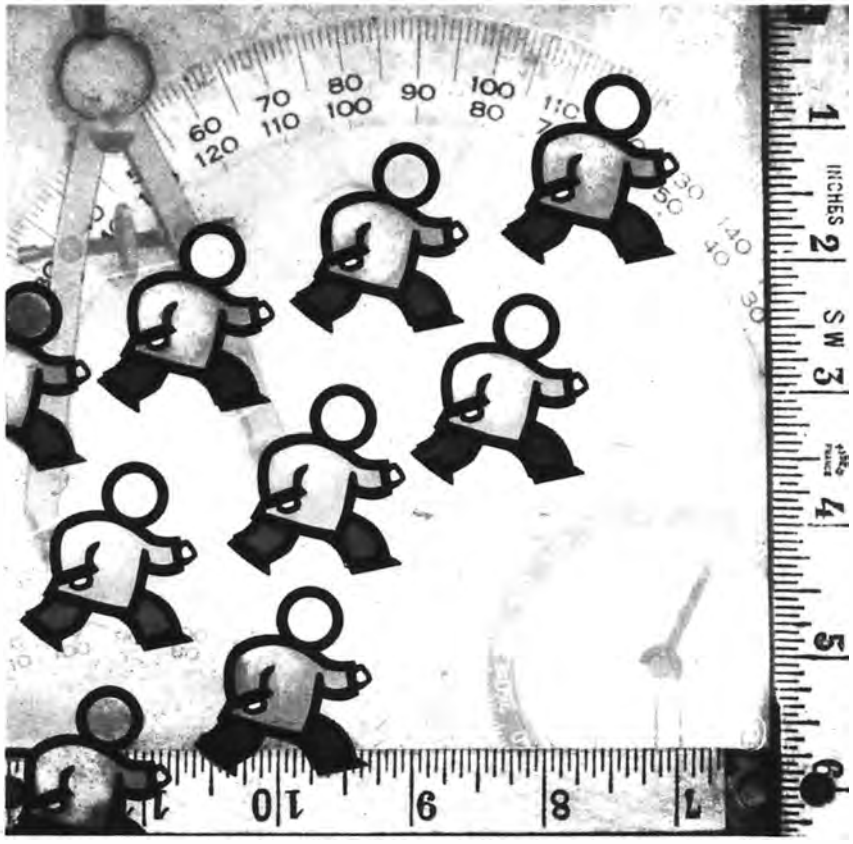

BECOMING EXCELLENCE-DRIVEN

By Bruce Adams, M.D.

SINCE TOTAL QUALITY MANAGEMENT reached health care in the 1980s, the concept of performance improvement has continued to evolve. Historically, performance improvement efforts tended to be the function of specialized quality departments. As organizations have grasped the importance of performance improvement and how it relates to long-term success, many have transferred ownership of quality management to operational and medical leadership and have included quality as a key measure of overall organizational performance.

Where improvement projects were once selected by individual departments and primarily focused on problem-solving, service line directors and quality professionals now focus on performance improvement projects that have a substantial cause-and-effect relationship with measured organizational priorities. Thus, corporate strategic objectives are translated into actionable, measurable, department-specific strategic performance initiatives that are balanced with other key strategic areas such as customer satisfaction, staff satisfaction and financial performance.

Today's performance improvement initiatives go beyond the classic scientific method of Plan-Do-Check-Act. They are supplemented with deliberate and rigorous methodologies to validate the extent and importance of the problem before chartering a project. Similarly, after the project is completed, additional rigor is applied to assure "holding the gain."

Emphasis on medical staff leadership

As quality improvement has become more leadership driven, it has been increasingly important to deliberately involve medical leadership in directing and supporting quality improvement. In the best case, physicians should be actively involved in the selection and ongoing evaluation of

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