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Do No Harm?

The epidemic of fatal medical errors in the US and Canada

WILLIAM CHARNEY | May 10th 2012

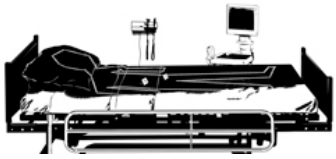

Illustration by Ben Clarkson

"Do no harm," an ancient injunction in the field of medicine, is at risk of being forgotten in the delivery of health care in North America today. In fact, medical errors, pharmaceutical errors and hospital acquired infections (HAIs) combined are a scandalously significant annual cause of death for Americans and Canadians. According to Joe and Teresa Graedon in their new book *Top Screwups Doctors Make And How to Avoid Them*, medical mistakes constitute the leading cause of death when all categories are taken into account, including medical error, hospital-acquired infections, drug error, misdiagnosis, post-operative infections, fatal drug reactions in nursing homes, unnecessary surgeries, and preventable lethal blood clots in veins. Combined, they result in over 788,000 deaths per year: a mortality rate higher than heart disease (616,000) and cancer (562,000). According to the Centers for Disease Control, 2.4 million Americans died in 2007 from all causes, making health-care associated causes accountable for approximately one third of all deaths in one year.

According to the Canadian Adverse Events Study (Baker Study), the most quoted study in Canada regarding medical error, of the 2,406,700 patients admitted to hospital in 2009-10, 7.5 percent or 180,503 patients had an adverse event, and of these 16 percent or 28,880 patients died as a result. The Public Health Agency of Canada statistics on infection show that 10.5 percent of Canadian patients (252,704) will acquire a hospital infection, with 3.6-5.6 percent resulting in death. If we combine the Baker Study data and PHAC data, we can extrapolate that between 37,977 and 43,031 deaths occurred in connection with health-care delivery, making these two categories combined the third leading cause of death in Canada. Given the high rates of non-reporting, the real numbers are undoubtedly much greater than the reported numbers. And then there are the hundreds of thousands of patients who are harmed but not killed (morbidity versus mortality). Although these figures must be looked at in the context of the billion or so procedures performed annually, they nevertheless represent an epidemic of harm.

Systematic factors in medical error

What accounts for this epidemic of medical error?

There is no single cause, but rather a series of contributing factors. Let's look briefly at some of these.

1. The profit motive: This is a key factor contributing to medical error in the US. *The Journal of General Internal Medicine* published a study in March 2000 entitled "Hospital Ownership and Preventable Events" showing that patients in for-profit hospitals are two to four times more likely than patients in not for-profit hospitals to suffer adverse events such as post-surgical complications, delays in diagnosis and treatment of an ailment.

2. Staffing: Inadequate staffing obviously increases the potential for medical error and has been linked directly to medical error and infection in the scientific literature. For each additional patient over-assigned to an RN , the risk of death increases by 7 percent for all patients. Patients in a hospital with a 1:8 nurse-patient ratio have a 31 percent greater risk of dying than patients in hospitals with a 1:4 nurse-patient ratio1.

3. Shiftwork affects patient safety in many ways. Longer shifts translate into a higher rate of medical error. Physicians-in-training who are scheduled to work long hours make 36 percent more serious medical errors with five times as many serious diagnostic errors. Fatigue-related error data is plentiful in the scientific literature. Fatigue-related preventable adverse events associated with death of a patient increased by +/- 300 percent in interns working more than five extended-duration shifts per month. This is often compounded by on-the-job injury to health care workers: in the US, 10 percent of health care workers apply for workers' compensation every year with tens of thousands of lost days. Often an injured health care worker is not replaced, or replaced with a per-diem who is not as familiar with procedures and this too can contribute to medical error.

4. Hospital working conditions: It has been argued for quite some time that adverse working conditions (related to ergonomics, patient developmental flows, staffing, workload, scheduling, autonomy) have a negative effect on staff, leading to an increase in medical errors. With 62 percent of nurses leaving the profession because of the physical demands of the job, working conditions are contributing to both negative patient outcomes and nursing shortages.

5. Intimidation has a direct and indirect effect on medical error and negative patient outcomes. It applies especially to nurses who are often reluctant to speak up when they witness a physician making an error. A study of 1,700 nurses, physicians, clinical care staff and

administrators found fewer than 10 percent address behavior by colleagues that routinely includes trouble following directions, poor clinical judgment, or taking dangerous shortcuts.Specifically, 84 percent of MDs and 62 percent of RNs and other clinical care providers had seen coworkers taking shortcuts that could be dangerous to patients. Fewer than 10 percent said they directly confront their colleagues about their concerns, and one in five MDs said they have seen harm come as a result. In one study verbal abuse from physicians was noted by over 90 percent of participants, and 76 percent witnessed negative nurse-to-nurse behaviours. Nurses reported that 71 percent of those behaviours resulted in medical error, of which 29 percent resulted in death.

6. Non- and under-reporting of error: Lack of real numbers hampers the research. The rates of under and non-reporting are extremely high, running any-where from 60 percent to 90 percent depending on the study cited. There are 27 states in the US with reporting regulations and none in Canada.

7. Legal rules/accountability: The legal system may be contributing to the overall problem of medical error. By not admitting error and maintaining silence due to fear of liability and litigation, doing professional root-cause analysis is compromised, which in turn compromises care.Accountability issues are constantly arising and being tested. Studies have shown that even getting health care workers to wash their hands between patients or after leaving bathrooms is not enforced, and there are low compliance rates.

8. Technology: Smart technologies in health care, such as Computerized Physician Order Entry, are being designed and implemented at great cost to intervene in administration errors, including smart infusion pumps and bar-code verification systems. But according to a recent US study, 98,000 people (mostly elderly) end up in emergency rooms every year due to medication error. And though new technology has been shown to reduce the rate of error, especially in the administration of pharmaceuticals, we must be careful not to rely solely on technology to tackle the problem of medical error.

9. Cost-benefit analysis: Attaching cost-per-facility to medical error is a challenge, especially when health care facilities do not understand the true science of cost-benefit of medical error and many reject the premise of "indirect cost." This can lead to miscalculations and bad decisions. In the US, although the Society of Actuaries has stated that medical errors are costing the country $20 billion a year, the system is geared to treat preventive measures as a costly expenditure to be avoided instead of seeing prevention as contributing to profitability.

Admitting there is a problem

If medical error ranks as the first, second, or third leading killer in the US and Canada, then wide-scale action is warranted. At present, 27 states in the US have reporting regulations, but the compliance rates are abysmally low. No regulations currently exist in Canada, either federally or provincially, requiring hospitals to report medical error or infection apart from internal policies which vary from one institution to another.

Investing in systemic solutions

If we are right in assuming that the real causes of the epidemic of medical error are systemic, then changing the system will be expensive. But "expensive" is a relative concept. If, for example, increasing staffing would prevent a significant number of medical errors and/or infections, the dollar costs would be offset by decreasing costs of errors and infections. In the US, a bed sore can cost as much as $14,000 per case. Preventing three bed sores could pay for an extra full-time employee who would theoretically prevent the sores by turning the patient more frequently.

The statistical data on medical error make the case for systemic change. What is required is a broadbased social movement with health care workers of all types working with public health officials, legislatures, trade unionists, government agencies and funding agencies to write a plan of action to challenge and change the status quo of medical error. The plan would include addressing the problems of staff ratios, shiftwork, bullying, overbooking and overcrowding.

Some of the solutions are obvious: hiring more people, introducing substantive regulations on reporting medical error, creating accountability, and

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