

Patient safety: This is public health

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Avoidable patient harm is a major public health concern, and may already have surpassed heart disease as the leading cause of death in the United States. While the public health community has contributed much to one aspect of patient harm prevention, infection control, the tools and techniques of public health have far more to offer to the emerging field of patient safety science. Patient safety practice has become increasingly professionalized in recent years, but specialist degree programs in the field remain scarce. Healthcare organizations should consider graduate training in public health as an avenue for investing in the professional development of patient safety practitioners, and schools and programs of public health should support further research and teaching to support patient safety improvement.

WHAT IS PUBLIC HEALTH?

Many definitions have been proposed for the discipline of public health. And though none has been universally adopted, the description put forth by E. L. Bishop in 1928 continues to be relevant to the most current consensus in the field:

Public health practice is the organized effort of society to eliminate disease, elevate the standard of health and well-being and increase the span of life. Its scope of activity deals, not only with the causes and conditions of disease, but with the causes and conditions of health as well. In dealing with the causes and conditions of disease, activity must be essentially preventive in character, whereas in dealing with the causes and conditions of health activity must be productive of such causes and conditions.^{1(p1018)}

This is a very broad definition, reflecting the field's very broad remit. Indeed, a recent awareness campaign focused on drawing attention to all the diverse ways public health impacts the population by declaring "This Is Public Health" (www.thisispublichealth.org). This message has been applied to everything from hand-washing signs to bike lanes, from fire extinguishers to flu shots. This broad scope raises the question: Could patient safety efforts be viewed through the lens of public health, and might this help to advance the science and practice of patient safety?

This article will make the case that (1) all healthcare-associated harm (not just healthcare-associated infections) is a population health issue, and (2) healthcare risk managers and other patient safety practitioners can become more effective by learning from the sciences of public health.

THE PANDEMIC OF PATIENT HARM

The burden of disease from healthcare-associated harm is immense. While evidence in this area is notoriously poor and controversial,²⁻⁵ a recent meta-analysis of studies using the Global Trigger Tool⁶ (a prospective case-finding technique) has produced a new evidence-based estimate: In hospitals alone, preventable adverse events may kill more than 400 000 people per year in the United States.⁷

But mortality does not tell the whole story. The study also looked at “serious harm” (harm that led to extended hospital stay, permanent harm, a requirement for life-sustaining intervention, or that contributed to patient death) and arrived at an estimate 10 to 20 times higher than that; preventable adverse events in US hospitals leads to severe harm for 4 to 8 million people per year in the United States. Overall, it appears that the rate of patient harm in hospital care is between 25% and 33%.⁸⁻¹¹

Data from other areas of the healthcare system (eg, outpatient care, long-term care, community pharmacies, etc) is even more sparse, but if paid malpractice claims are any indication, the burden of preventable harm from outpatient care may be just as high.¹² It is clear that harm resulting from hospital care is just the tip of a very large iceberg. If the hospital data are correct, and if all other areas of the healthcare system contribute to even half as many deaths, then preventable adverse events in healthcare has already eclipsed heart disease¹³ as the leading cause of death in the United States.

In terms of exposure, morbidity, and mortality, healthcare-associated harm has a tremendous impact on the health of the population. Clearly, *this is public health*.

HOW CAN PUBLIC HEALTH CONTRIBUTE TO A SOLUTION?

Historically, healthcare-acquired infections (HAIs) have been the main contribution of public health to the problem of patient harm. But, while HAIs are a very important component of the patient safety challenge,¹⁴ there is no logical justification for such a limited engagement with one of the most acute threats to population health. The tools and techniques of public health would seem applicable to all pathways to patient harm, from medication errors to falls, from pressure ulcers to suicide.

The modern patient safety movement is very young. Its genesis is generally traced to the Harvard Medical Practice Study, published in 1991,¹⁵ but the movement did not really take on steam until the publication of the Institute of Medicine Report *To Err Is Human* in 1999.¹⁶ The field is still just beginning to define itself and to build an arma-

mentarium of methods appropriate to its task. With more than a century and a half of experience leveraging diverse disciplines to prevent and reduce harm to populations, the public health community has much to contribute to this development.

My own research in patient safety draws on well-understood approaches that I learned while earning my master of public health degree (the hierarchy of risk control¹⁷⁻²³ and Lewin’s models of change^{17,19,24-28}) and demonstrates that introducing even the most basic insights from public health can improve patient safety practice. Public health is an interdisciplinary field, and many different concentration areas are available to students. The following examples, based on some of the core disciplines of public health, illustrate just a few of the other areas in which public health approaches have the potential to make important contributions.

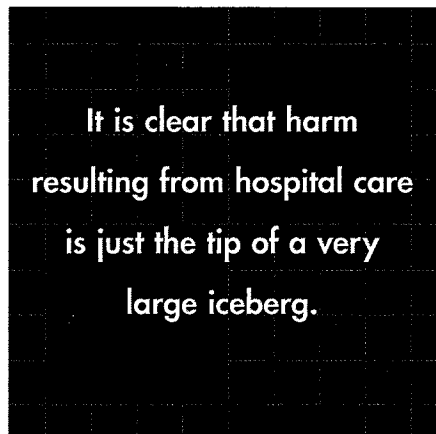
Epidemiology and biostatistics

In order to know what to improve and whether our efforts are working, we need a much stronger understanding of the distribution and determinants of patient harm. Existing data on the problem tend to be scattered across multiple sources (even within a single healthcare organization), poorly harmonized, and underutilized.^{3-6,29-33} There is a pressing need for people with the capability to turn complex data sets into useful information about the risks of patient harm, and for rigorous observational and experimental studies to help build the science of patient safety.

As a matter of patient safety practice, healthcare organizations would almost certainly benefit from the expanded involvement of hospital epidemiologists (whose work typically focuses only on the problem of infection control) as well as others trained in applied epidemiology³⁴/field epidemiology.³⁵ Training risk managers/patient safety practitioners in these fields would lead to an influx of new tools and new perspectives grounded in what is often called the basic science of public health.³⁶ It would enable a more robust approach to the investigation of patient safety incidents, as well as the development of more sophisticated surveillance and monitoring systems for patient harm.

Environmental and occupational health and safety

Improving the design of sociotechnical systems to enable workers to perform their tasks safely is a key goal of both occupational health and safety (OHS) and patient safety. The only difference is one of focus: preventing worker harm versus patient harm. There is also some overlap, in that healthcare workers can become the “second victims”



of patient safety incidents, suffering significant psychological harm as a result of their involvement with an adverse patient outcome.³⁷ Reducing harm to patients is thus an important way of reducing harm to healthcare workers.

Recently, the patient safety movement has made significant progress based on learning from OHS. Prospective risk assessment techniques³⁸⁻⁴² and safety checklists,⁴³⁻⁴⁶ 2 approaches long used in OHS, have just begun to be adapted and adopted by the patient safety community. Both the literature and practice of healthcare risk management would benefit from an infusion of expertise from the OHS community. Patient safety practitioners with graduate training in OHS could help design and run unified safety management systems in healthcare organizations, ensuring that patients, workers, and visitors are protected from harm.

While patient safety, as such, has not traditionally been a major research theme within the discipline of environmental health, the definition of the field (below) clearly encompasses efforts to prevent harm that stems from exposure to hazards in the healthcare environment:

Environmental health and protection refers to protection against environmental factors that may adversely impact human health or the ecological balances essential to long term human health and environmental quality, whether in the natural or man-made environment. These factors include but are not limited to air, food and water contaminants, radiation, toxic chemicals, wastes, disease vectors, safety hazards and habitat alterations.^{47(p1)}

Many of the environmental health factors mentioned in the preceding definition exist in the healthcare environment, including air,⁴⁸⁻⁵¹ food,⁵² and water⁵³ contamination; radiation,⁵⁴⁻⁵⁷ toxic chemicals,⁵⁸⁻⁶¹ fomites;⁶²⁻⁶⁴ and other safety hazards.

Social and behavioral science applied to health

Similarly, many patient safety interventions rely on behavior change (eg, hand washing, checklists, or double checking), and behavior change is a problem the public health community has been grappling with since its inception. The difference, again, is a matter of who the behavior change is intended to protect; rather than helping people modify their actions to reduce risk to themselves, social and behavioral scientists working in patient safety would promote behavior changes to protect others.

Public health-trained researchers and practitioners could make a particularly important contribution by building on this discipline's long-standing engagement with participatory action research/community-based action research. Because of the complexity of healthcare systems and processes, it is very difficult to design and manage safe, effective interventions without the active involvement of frontline staff. But even limited frontline involvement is rare, despite evidence that consulting frontline staff can improve the implementation and success rates of safety interventions.^{61,65}

Truly participatory change approaches remain the exception, not the norm, in patient safety,⁶⁶ and the interventions that result from current practice may often be perceived as lacking legitimacy among frontline staff.⁶⁷

Health disparities is one area where the public health community has begun to take note of the patient safety problem,^{68,69} but much more could be done,⁷⁰⁻⁷⁴ especially by those already situated in healthcare organizations.

Health policy and management

The health policy and management community has the potential to make a significant impact. In the policy realm, for instance, recent policy changes aimed at improving patient safety have led to unintended consequences, with high-quality healthcare organizations being penalized for their good performance as a result of surveillance bias.⁷⁵ Policy researchers trained in public health might help avert such unintended consequences.

The problems of managing public health programs, just as with patient safety improvement, are focused on population health outcomes, and situated in a complex, multi-stakeholder environment, operating under financial and regulatory stress. One area in which public health-trained practitioners might make a major difference is in managing change. A lack of existing change management expertise has been identified as a key problem in patient safety practice,⁶⁶ and this is reflected in the poor quality of organizational support for managing patient safety risks.⁷⁶ Another contribution might be combining this formal management training with the basic understanding of epidemiology that is common to all public health graduates to improve performance management of patient safety programs.

PROFESSIONALIZATION OF PATIENT SAFETY PRACTICE

Patient safety is a critical function for everyone working in healthcare organizations, regardless of title or training. But in recent years, a role has begun to emerge for specialist patient safety practitioners,⁷⁷ and the professionalization of this role has proceeded rapidly. This process has been supported by a number of certification programs. Some of these are directly focused on patient safety (eg, the Certified Professional in Patient Safety designation associated with the National Patient Safety Foundation,⁷⁸ the Certified Patient Safety Officer designation from the International Board for Certification of Safety Managers).

Others are broader, but include patient safety as a key component. The field of healthcare risk management, for instance, has evolved from its historical roots in financial risk to take on a more proactive approach in which patient safety improvement is the "number one goal."⁷⁹ The Certified Professional in Healthcare Risk Management designation associated with the American Society for Healthcare Risk Management,⁸⁰ and the Certified Professional in Healthcare Quality designation

associated with the National Association for Healthcare Quality⁸¹ fall under this category, and both are widely held among patient safety practitioners.

As this professionalization of the field has progressed, graduate-level training has become an increasingly important part of the career development processes for patient safety specialists.⁷⁷ In keeping with the broader movement across all healthcare professions, this trend is likely to accelerate. To date, however, degree programs specifically focused on patient safety remain scarce, and not all of those who work in the field have access. Other programs may be able to provide the type of training that patient safety practitioners need to be successful. Degrees in human factors engineering, quality management, and health administration, for instance, have much to offer.

As this article has illustrated, graduate training in public health should also be considered among these professional development pathways for patient safety practitioners. Graduate-level public health programs accredited by the Council on Education for Public Health (www.ceph.org) provide training in all the core disciplines of public health, ensuring that graduates have a broad base of expertise to draw on. The inclusion of epidemiology and biostatistics among these core courses is especially important, because these are competencies that will be required to meet the increasing demand for evidence-based practice in patient safety and related disciplines.^{82–84}

RECOMMENDATIONS

Patient safety is public health, and most patient safety practitioners are not trained in public health. In fact, many risk managers, patient safety officers, and quality improvement personnel are experts in other fields (eg, nursing, medicine, law), with little if any specific academic preparation for their safety-focused role. A small number of specialist degree programs have emerged in the field of patient safety, but where these are not accessible, patient safety workers and the healthcare organizations that employ them should consider graduate training in public health as a key route for professional development.

In turn, schools and programs of public health should devote more attention to the pressing population health issue of patient harm. They should encourage faculty research in the field and develop degree and certificate programs to support the growing number of professionals who could benefit from such training. By framing patient harm as a public health issue, schools and programs of public health are in a position to make significant contributions to the literature and practice of patient safety that will have a real impact on the health of the population.

CONCLUSION

Avoidable harm from health care may be the leading cause of death in the United States, and the morbidity caused

by such harm appears to be equally staggering. Regardless of its exact toll, harm to patients is inarguably among the most pressing public health issues of our time, and it must be treated as such. The public health community is prepared with the methods and mind-set to tackle this complex threat to population health. Graduate training in public health should be strongly considered as a professional development option for patient safety professionals, and schools and programs of public health should begin developing research and teaching programs to support this.

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