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COMMENTARY

BROADENING ACCESS TO MEDICAL CARE DURING A SEVERE INFLUENZA PANDEMIC: THE CDC NURSE TRIAGE LINE PROJECT

Lisa M. Koonin and Dan Hanfling

The impact of a severe influenza pandemic could be overwhelming to hospital emergency departments, clinics, and medical offices if large numbers of ill people were to simultaneously seek care. While current planning guidance to reduce surge on hospitals and other medical facilities during a pandemic largely focuses on improving the “supply” of medical care services, attention on reducing “demand” for such services is needed by better matching patient needs with alternative types and sites of care. Based on lessons learned during the 2009 H1N1 pandemic, the Centers for Disease Control and Prevention and its partners are currently exploring the acceptability and feasibility of using a coordinated network of nurse triage telephone lines during a pandemic to assess the health status of callers, help callers determine the most appropriate site for care (eg, hospital ED, outpatient center, home), disseminate information, provide clinical advice, and provide access to antiviral medications for ill people, if appropriate. As part of this effort, the integration and coordination of poison control centers, existing nurse advice lines, 2-1-1 information lines, and other hotlines are being investigated.

ALTHOUGH THE 2009 H1N1 INFLUENZA PANDEMIC was mostly mild to moderate in its impact, in some areas of the United States, hospital emergency departments and clinics (particularly pediatric facilities) experienced a large influx of patients and long wait times, and some had to institute new measures as they struggled to manage the volume of patients.¹⁻⁵ Several hospitals chose to set up tents in their parking lots to triage patients as large numbers of patients (and their families) sought care.^{6,7} Despite this

surge at some facilities, the 2009 H1N1 Retrospective Summary produced by the US Department of Health and Human Services (HHS) concluded that the “2009 H1N1 pandemic did not fully test the health care system’s ability to meet a surge in demand for care.”^{8(p vi)} Although the effects on medical care systems during the 2009 H1N1 pandemic were infrequent and short-lived, one could imagine the impact that a severe pandemic might have on hospitals, medical offices, and clinics.

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RESPONDING TO A SURGE IN DEMAND FOR CARE

Planning guidance to reduce surge during a pandemic largely focuses on improving the “supply” of medical care services, including identification of additional personnel and alternative care sites and reconfiguring hospitals to be able to accommodate a large influx of patients.⁹ The HHS Improvement Plan defines surge capacity as including “not only the ability of any one healthcare facility to significantly increase service capacity but also the ability to increase response capacity in an entire community.”^{10(p12)} Significant planning has been undertaken to bolster hospital readiness for an influenza pandemic.^{11,12} However, there are finite limits to the elasticity of medical care facilities and staff. A complementary strategy to mitigating surge might be to reduce “demand” for such services by better matching patient needs with alternative types and sites of care.^{13,14}

Any influences that increase or decrease demand for patient care services, particularly during an emergency incident, will have a major impact on the ability to match patient needs with available resources. In the absence of a clear, consistent messaging campaign that promotes the availability of a range of healthcare services, the patient demand for care will typically focus on traditional healthcare delivery venues. This is exemplified by patients seeking care at emergency departments (EDs) during incidents of all types. When effective messaging and reputable alternative interventions are offered, it is likely that many patients will adapt their approach to seeking medical care. Patients who are offered credible medical advice regarding the need to seek treatment or the recommendation to await further changes in symptoms before seeking medical assessment would likely do so without adding to the surge demand in hospital and outpatient medical facilities.

Over the past few years, surge planning has evolved to include the notion that a surge response is not an “all or none” phenomenon. This includes the recognition that a surge response will occur over a continuum of response methods and settings.¹⁵ Conventional surge response will be those efforts that provide care that is rendered within the parameters that govern usual delivery of health care. Contingency surge response suggests that operations are *not* consistent with daily practices, but the care that is provided is *functionally equivalent* to usual practices. In the most extreme circumstances, contingency response gives way to a crisis surge response in which healthcare operations are adapted to provide care in the setting of significantly limited resources. The implementation of alternative care strategies, such as the use of nurse triage lines and web-based information sites, aims to reduce the demand on patient care services and is intended to limit the shift of care across the spectrum toward a crisis response.^{16,17}

In this context, the ability to deliver care in many practice settings will be very important. It is not enough to

simply focus on delivering surge capacity to hospitalized patients. Leveraging outpatient resources is critical for an effective surge strategy.¹⁸ Developing an alternative care system, in which patients can be managed across the spectrum of surge response at the most appropriate location for patient care delivery, is an important goal for emergency planning. The HHS 2009 H1N1 Influenza Pandemic Improvement Plan lists as a priority item the need to “explore the acceptability and feasibility of developing nurse phone triage lines that can be used during a pandemic to provide an alternative to face-to-face provider encounters.”^{10(p15)} Additionally, as envisioned in a white paper drafted for the Institute of Medicine, efforts focused on developing such an alternative care system, in which care is stratified among a number of levels of care beyond that delivered in the hospital—home health care, community-based care including the means for virtual (telephone or Web based) or real-time triage, and out-of-hospital care in designated alternative care sites—will be critically important to a successful community response.¹⁹

The intent of a stratified approach to patient care delivery is to ensure that patients interact with the system commensurate with the level of care that they require. The ways such care can be delivered to the community are wide ranging and require specific planning steps taken by the outpatient healthcare sector in coordination with public health authorities.

EXAMPLE FROM THE 2009 H1N1 PANDEMIC

During the 2009 H1N1 pandemic, the Minnesota Department of Health (MDH) created an innovative solution to serve all people living in the state by collaborating with large health plans and hospital systems to build a coordinated network of nurse triage telephone lines (NTLs) for telephonic triage (MN FluLine).¹⁷ The MDH also created a new NTL entity to provide services to those who were not affiliated with existing NTLs or who were uninsured. All participating nurse triage lines used a single, collaboratively developed protocol. From October 29, 2009, to March 31, 2010, the MN FluLine operated 24 hours a day, 7 days a week, using a state-wide toll-free number; it fielded more than 27,000 calls. Registered nurses who staffed these telephone lines triaged callers using the protocol, provided advice to callers about when and where they needed to seek face-to-face care, and provided information about how to care for ill people at home. They also provided access to prescriptions for antiviral medications for callers who met certain criteria.

The MDH estimated that this coordinated network of nurse triage lines in Minnesota may have prevented up to 11,000 in-person healthcare visits to EDs, clinics, and doctors’ offices during the pandemic.¹⁷ Several other entities in the United States used telephone triage hotlines

staffed by nurses during the 2009 H1N1 pandemic to safely and effectively provide telephonic care to selected populations and to reduce surge on their services and facilities.^{20,21} These efforts show promise to inform ongoing emergency response planning.

DEVELOPING A COORDINATED NETWORK OF NTLs

In 2011, the Centers for Disease Control and Prevention (CDC), in collaboration with the Association of State and Territorial Health Officials (ASTHO), the National Association of County and City Health Officials (NACCHO), and many other partners, launched the Nurse Triage Line (NTL) project to explore whether the Minnesota FluLine experience could be adapted for a national network of nurse triage lines.²² The aims of this effort are to improve access to antiviral medications for ill people during an influenza pandemic and, at the same time, to lessen the burden on healthcare resources. To achieve this goal, the NTL project is exploring the acceptability and feasibility of using a coordinated network of nurse triage telephone lines to assess the health status of callers, disseminate information, provide clinical advice, help the caller determine the most appropriate site for care (eg, hospital ED, outpatient center, home), and provide access to antiviral medications for ill people, if appropriate. As part of this effort, the integration and coordination of poison control centers, existing nurse advice lines, 2-1-1 information lines, and other hotlines are being explored.

Nurse telephone triage is defined as “the safe, effective, and appropriate disposition of health-related problems by RNs” using physician-approved guidelines or protocols.^{23(p xv)} Nurse triage lines are used every day in the United States for after-hours patient care and to serve as an adjunct to face-to-face care for a variety of populations. In 2006, the state of New Mexico launched a public-private effort for a 24-hour nurse advice line available to all state residents to increase access to health care and improve use of medical resources.²⁴ The New Mexico Advice Line has shown that it can successfully shift medically unnecessary ED visits to primary care settings.²⁵ It is estimated that more than 100 million people in the United States have access to nurse triage/advice lines through health insurers, managed care organizations, the Veteran’s Health Administration, hospitals, and clinicians’ practices (particularly pediatric practices).²⁶ Overall, nurse triage lines have been shown to be safe, to appropriately reduce the use of emergency services, to have high levels of patient satisfaction and compliance, to lower healthcare costs, to correctly direct callers to the appropriate level of care, and, in many cases, to significantly reduce delays in the receipt of care.^{25,27-31}

However, there are portions of the population who do not have access to a nurse triage line because their health

plan or provider does not offer this service or they are currently uninsured or unaffiliated with a healthcare system. Although more people will be covered under some form of health insurance in the near future through the implementation of the Affordable Care Act, not all health plans offer a nurse triage line service. Therefore, to serve the public during an emergency, a coordinated network of new nurse triage lines needs to be developed. Poison control centers are likely partners in providing such capability because they engage in the delivery of life-saving medical information over the telephone to the public on a daily basis. Recently, poison control centers were among the first entities to receive reports of fungal meningitis infections related to contamination of injectable steroid produced in a compounding pharmacy. In partnership with local and state public health authorities, poison control center staff provided information to the concerned public and triaged patients who may have been exposed to these contaminated pharmaceuticals.³²

There are 57 poison centers in the United States that operate 24 hours a day, 7 days a week, to provide free services to residents of all states and territories. Poison centers are usually staffed by nurses and pharmacists who provide assessment, triage, and management advice about a wide range of exposures.³³ In a recently published white paper, researchers estimated that “the poison center system saves over \$1.8 billion per year in medical costs and productivity and that the return on investment (ROI) is \$13.39 for every dollar invested in the poison center system.”^{34(p ii)} Poison centers have successfully interacted with public health agencies and have experience triaging callers during public health emergencies. Poison center staff have demonstrated effective use of evidence-based triage guidelines to safely reduce unnecessary ED visits after unintentional overdoses and other exposures.³⁵

The experience with the Minnesota FluLine showed that a large proportion of callers contacted the line for information rather than for guidance with a flulike illness.¹⁷ A related capability that could be used to manage information-related calls may include 2-1-1 telephone services, which are free hotlines that provide information about community services and are often used in emergencies to provide local information to the public.³⁶ These 2-1-1 telephone lines could serve as an “entry” to this system of nurse triage lines during a pandemic, providing locally relevant information and routing callers to appropriate triage services. Currently, 2-1-1 services are available in all 50 states, Washington, DC, and Puerto Rico and cover about 90% of the population.³⁷

CDC, along with ASTHO and NACCHO, the American Association of Poison Control Centers, United Way Worldwide/2-1-1, the Veteran’s Health Administration, and others are assessing the viability of these concepts (eg, establishing a coordinated network of nurse triage lines including poison control centers and 2-1-1 lines) for a future pandemic response. A number of key issues are under

active exploration. These include identifying outstanding policy, legal, medical, and nursing practice issues and possible resolution of these issues. CDC, in collaboration with several legal experts, has explored an array of legal and regulatory issues that affect delivery of telephonic care by nurses. Currently, CDC, in collaboration with the National Nursing Centers Consortium and the Public Health Management Corporation, are examining state nurse practice act regulations that might affect nurse triage line operations. CDC is also partnering with the American Pharmacists Association and others to assess the feasibility of using collaborative practice agreements (also known as collaborative drug therapy agreements) between physicians and pharmacists during a future pandemic to provide another alternative to face-to-face clinical encounters and to augment nurse triage lines.^{38,39}

Extensive work has been done to assess the acceptability of nurse triage lines with the public.⁴⁰ Overall, the public has been reported to have a favorable reaction to this concept, but further research in this area is needed. Moving from the theoretical to the practical, CDC and its partners are planning a series of simulations and facilitated discussions to test the capacity and connectivity of poison control centers and 2-1-1 lines during a mock pandemic. A cost analysis will be conducted to ascertain the resources needed to implement a coordinated network of nurse triage lines during a future pandemic.

CONCLUSION

A number of outstanding questions about the feasibility of using this alternative care system remain. Can nurse triage lines play a prominent role in a pandemic response to meet patients' needs and reduce surge on healthcare facilities? Can poison centers serve as a part of a coordinated network of nurse triage lines? What is the best way to create a coordinated network of existing nurse triage lines incorporating poison centers? How can 2-1-1 lines serve as an "entry" to this system? How will this system align with existing services without creating disruption or interference? What role do hospitals play in establishing and interacting with nurse triage lines? What is the best way to communicate the availability of these nurse triage lines to the public? How can we ensure that nurse triage lines can be accessed by vulnerable and hard-to-reach populations?

A future influenza pandemic, if severe, may challenge the usual ways of providing timely health care to all who may need it. Federal, state, and local public health preparedness planners, along with healthcare providers, should consider the requirements and costs of implementing a coordinated national nurse triage line network. Development of such a network may create the opportunity to deliver unified messages and provide consistent standards and protocols for call screening, routing, and nurse triage. By leveraging the inherent

strengths of such an approach, it may also be possible to enhance access to care, reduce surge on healthcare facilities, and improve outcomes. The use of a coordinated network of nurse triage lines may be one way to assure that patients can be managed during a pandemic while using the most appropriate location for patient care delivery. Continued exploration and testing of these concepts is warranted as it will inform planners about how a coordinated nurse triage line network may be used during a future pandemic or other public health emergency.

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