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Ethics of Triage in the Event of an Influenza Pandemic

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ABSTRACT

The prospect of a severe influenza pandemic poses a daunting public health threat to hospitals and the public they serve. The event of a severe influenza pandemic will put hospitals under extreme stress; only so many beds, ventilators, nurses, and physicians will be available, and it is likely that more patients will require medical attention than can be completely treated. Triage is the process of sorting patients in a time of crisis to determine who receives what level of medical attention. How will hospitals sort patients to determine priority for treatment? What criteria will be used? Who will develop these criteria? This article formulates an answer to these questions by constructing a conceptual framework for anticipating and responding to the ethical issues raised by triage in the event of a severe influenza pandemic. (*Disaster Med Public Health Preparedness.* 2008;2:114–118)

Key Words: direct multiplier effect, ethics, influenza pandemic, public health, triage, utility

The great influenza pandemic of 1918 infiltrated Pittsburgh, Pennsylvania on October 4. When the pandemic peaked in the city 2 weeks later, there was roughly 1 new flu-related case every 90 seconds and 1 flu-related death every 10 minutes.[1] The emergence of the A(H5N1) avian virus in 1997, its explosion out of southeast Asia in 2005, and its re-emergence in 2007 have renewed concern over the possibility of another severe influenza pandemic. Of particular concern is the strain that would be placed on modern hospitals if flu-related cases and deaths reached the rates that they did in 1918. In response to this apprehension, there have been a host of international, national, and state recommendations calling for preparatory measures.[2–4] How do we move from recommendations to reality at the local, institutional level, the level at which the pandemic will be most severely felt?

This article addresses this question with a focus on the ethical issues that will arise. Because a severe influenza pandemic will present a number of difficult puzzles to solve, we focus our attention on the process of triage.[5,6] "Triage" derives from the French verb *trier*, meaning "to sort." How will hospitals sort patients to determine priority for treatment? What criteria will be used? Who will develop these criteria? A number of commentators have considered the medical guidelines that may be used to answer such questions.[7–9] We focus on the ethical guidelines that must be considered.

LESSONS FROM THE PAST, PROSPECTS FOR THE FUTURE

There were a number of influenza pandemics in the 20th century. The "Hong Kong flu," A(H3N2), of 1968, was mild and killed approximately 1 million people worldwide. The "Asian flu," A(H2N2), of 1957, also was mild and killed approximately 2 million people worldwide. The great influenza pandemic, A(H1N1), of 1918, was severe, killing anywhere from 25 to 100 million people worldwide. The great pandemic's impact, however, is perhaps best appreciated at the local level. The pandemic at its peak in Pittsburgh—a city of approximately 550,000 people at the time—was responsible for more than 1000 new cases and 165 new flu-related deaths each day.[1] Half of the city's ambulances broke down in 1 day; bed space and medical resources were in short supply; physicians and nurses were underprepared and overextended.[10–12]

In light of the daunting challenges posed by the last severe influenza pandemic, it is not surprising that medical professionals, public health workers, infectious disease experts, emergency responders, and government officials have monitored the next candidate for an influenza pandemic: A(H5N1). Although no one knows when the next pandemic will occur or which virus will be responsible, the highly pathogenic avian influenza A(H5N1) is a likely candidate. Its outbreak, spread, and increasing case numbers in birds and exposed humans have many health officials concerned that the world may be on the verge of the next pandemic.[13,14]

If A(H5N1) or one of the other highly pathogenic avian influenza viruses becomes easily transmissible among humans, moderate to severe pandemic scenarios predicted by the Centers for Disease Control and Prevention's FluSurge 2.0 models envision overwhelming demand for hospital beds, critical care, and other scarce resources.[15] An effective vaccine most likely will be unavailable during the first wave of the pandemic, and the benefits of antiviral medications and proposed community mitigation strategies designed to halt the spread of the pandemic are uncertain. US hospitals have limited capacity to meet this anticipated surge in demand,

and government at all levels will be unable to provide substantial assistance.[16] Inevitably, individual hospitals will be forced to triage both influenza and other patients.

ETHICAL CONSIDERATIONS: A CONCEPTUAL FRAMEWORK

The prospect of a severe influenza pandemic poses a daunting public health threat. Understood as such, the preparation for and response to an influenza pandemic sets goals that seek to protect the public health—to minimize morbidity and mortality during the pandemic. This requires a switch from standard medical ethics with the primary focus on the individual autonomy of patients to an ethics of public health with a primary focus on the health of the community. This switch, however, may pose a conflict between the health of the community and the health of the individuals who make up that community. One approach to this dilemma involves weighing this conflict between community and individual and determining which plan of action maximizes the public health while minimizing the burdens placed on the individuals in the community.[5,17,18] Another approach treats the task not so much as a mediation of the conflict between the individual and the community, but rather as a balancing of the interests of all of the individuals in the community.[19,20] We examine elements of both models below.

In the event of a severe influenza pandemic, how would we efficiently distribute the suddenly rare resources to treat patients well and fairly? Answering this question is an exercise in distributive justice. Triage is not new to medicine and medical ethics,[21–24] but an influenza pandemic would frame the discussion in a unique way. The exercise of distributive justice is embedded within the reality of the pandemic, and so the goal of fair allocation is embedded within the goal of minimizing morbidity and mortality during the pandemic.

JUDGING UTILITY: MEDICAL VERSUS SOCIAL, NARROW VERSUS BROAD

"Utility" refers to the balance of benefits and burdens to maximize the best overall results.[25] A distinction is in order: Judging medical utility involves focusing on maximizing the health-related welfare of patients; judging social utility involves focusing on maximizing the welfare of the society.[26] Criteria for evaluating medical utility generally include considering likelihood of benefit, duration of benefit, and urgency of need.[27] However, more specific criteria will need to be developed for a pandemic, considering the biology of the influenza virus. Christian et al[7] recommend employing the relatively easy to use Sequential Organ Failure Assessment (SOFA) criteria for the initial and ongoing assessment of patients during a pandemic; they developed a triage protocol that incorporates reasonable inclusion criteria, exclusion criteria, minimum predictors of survival, and the SOFA prioritization tool. Additional models designed to evaluate medical utility also have been offered by Hick and O'Laughlin[9] and Hick et al.[8] Determinations of medical utility will necessarily depend on the clinical epidemiology of the pandemic virus.

Criteria for evaluating social utility include considering what the treatment of a particular individual will contribute to the welfare of the community. Although there is little controversy over considering medical utility, considerations of social utility are subject to much debate.[25] What makes one person more useful to society than another? What factors guide such an evaluation? Answering such questions in the event of an influenza pandemic necessitates another distinction. The need to distinguish between narrow and broad social utility arises from raising the question of utility within the unique circumstances of a crisis situation.[28] Let us apply this distinction to the case of an influenza pandemic: The end or goal identified when considering broad social utility has nothing to do with the pandemic, whereas the end or goal identified when considering narrow social utility has everything to do with the pandemic. Considerations of broad social utility involve ignoring the pandemic and simply evaluating an individual's general social worth, whatever that may be. Such an evaluation is obviously problematic. In contrast, considerations of narrow social utility focus solely on the pandemic and evaluate social worth based on the extent to which an individual can contribute to the immediate, public health goals raised by the pandemic. Identifying priorities and recognizing skills that support those priorities in a severe influenza pandemic embrace what is called the direct multiplier effect. The idea is that prioritizing the early (possibly preventive) treatment of individuals with the ability to minimize morbidity and mortality (or maintain social norms) during a pandemic crisis will have a positive, downstream effect on the number of people whom this individual can help survive the pandemic. Prioritizing the critical care treatment of individuals (eg, with mechanical ventilation) would be justified with narrow social utility if the individuals can recover from the disease/treatment in time to return to fighting the pandemic. We recommend that hospitals first consider medical utility and second narrow social utility in making triage decisions during a severe influenza pandemic.[29] That said, determining precisely who is entitled to narrow social utility in any given community will admittedly be a difficult task. A general list of professionals who may contribute to minimizing morbidity and mortality during the pandemic simply will not do the job because this list must be tailored to the unique geography, demog-

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raphy, organization, and limited resources of a particular community.

TRIAGE MODELS: UTILITARIAN VERSUS EGALITARIAN

In the event of triage, it is commonly thought that a utilitarian framework automatically and absolutely takes hold. However, the process of triage can take a variety of forms. The utilitarian model of triage opts for providing the most good to the most people; the egalitarian model opts for assisting those in greatest need.[30] Again, we apply this distinction to the case of a severe influenza pandemic.

The utilitarian model seeks to provide the most good for the most people. In military situations, this model has obvious attractions. The utilitarian model also is the predominant framework adopted by health care professionals. For instance, the University of Pittsburgh's Working Group on Emergency Mass Critical Care recommends that "triage decisions regarding the provision of critical care should be guided by the principle of seeking to help the greatest number of people survive the crisis."[31] This is an explicitly utilitarian model of triage.

There also is an egalitarian model of triage, which seeks to provide care to those who are salvageable, but in greatest need. Here, as in the utilitarian model, the hopelessly ill and dying are allowed to die; however, once this group is set aside, ranking is based on vulnerability and severity of illness, with the most vulnerable and severe receiving the medical attention. The ultimate goal is deprioritized to preserve the egalitarian treatment of patients throughout the crisis.[30,32]

The TRB should determine precisely when and how the changeover (or "switch") from a traditional ethics of individual autonomy gives way to an ethics of public health in the hospital.

For our purposes, the utilitarian and egalitarian models of triage must be evaluated within the context of a severe influenza pandemic. A public health crisis like a pandemic does introduce an overarching goal regarding public health—to minimize morbidity and mortality during the pandemic. Making triage decisions with this goal in mind embraces the utilitarian model of triage. The advantage of such a model is apparent: Within the potentially chaotic environment of an influenza pandemic, a clear, community-recognized goal is identified as the ultimate objective, and decisions can be made with this objective in mind.

However, the utilitarian model in an influenza pandemic will be neither absolute nor nonproblematic. First, situations may arise when a utilitarian model offers no guidance on a triage decision. Consider a case of 200 otherwise healthy, young patients, who are experiencing acute respiratory distress syndrome and only 5 ventilators are available. If evaluating their medical condition places them all in the same triage group, and none of them are healthcare workers or emergency workers, then neither medical utility nor narrow social utility can serve as guidance. The egalitarian model, however, offers 2 options. A first-come, first-served guideline would be fair if it approximates random selection. Or some form of a lottery would be in order, with each patient having an equal opportunity to receive the medical resource.

Beyond this initial deficiency, the utilitarian model also lends itself to potential, unintended discrimination. Of course, all triage decisions are discriminatory by nature in that patients are sorted between who will be treated and who will not be treated (or receive lesser treatment). The point, however, is that the medical notion of discrimination may lend itself to an insidious form of discrimination, be it ageist, sexist, or racist. That is, the virus itself may discriminate in how severely it affects different ages, sexes, or races. Also, something like socioeconomic status may appear to be a predictive characteristic in the evaluation of survival rate from infection. If these situations emerged during an influenza pandemic, the utilitarian model of triage would suggest taking the virus's discriminatory nature or the value of socioeconomic prediction into consideration during triage, even though taking either feature into consideration lends itself to insidious discrimination. Such deficiencies have understandably led some bioethicists to caution against a utilitarian model of triage during an influenza pandemic.[33]

Ultimately, an exclusively utilitarian or an exclusively egalitarian model of triage will not suffice. As a result, we recommend hospitals use triage criteria that sort patients with an eye toward both utilitarian and egalitarian guidance, embracing a hybrid model. Following the utilitarian model, initial sorting will be based first on medical utility and second on narrow social utility; then, following the egalitarian model, distribution will be based on a fair process, such as a lottery. Moreover, once the epidemiological data are available, if it turns out that the evaluations of medical utility or narrow social utility lend themselves to insidious discrimination, then the application of these utilitarian criteria will be tempered with egalitarian considerations.[34]

TRIAGE REVIEW BOARD

Implementing the suggestions recommended above will require significant oversight. The switch during a pandemic from a traditional ethics of individual autonomy to an ethics of public health will be a foreign concept to most healthcare workers, with unavoidably unpleasant implications.[35] Hospital staff may be inclined to deviate from the triage process out

of sympathy, love, or greed. In addition to the inherent unfairness of these deviations, rumor of such deviation will spread rapidly and quickly compromise the structure and justification of the triage process from the perspective of public acceptance and participation. Also, in contrast to staff who deviate from the triage process, there is a danger posed by staff members who will not stop working in spite of exhaustion. Thus, some form of oversight must be formulated to guide the triage process.

We recommend that hospitals organize, convene, and empower an institutional triage review board (TRB) much like Hick and O'Laughlin's[9] recommended statewide guideline review group and the central triage committee of Christian et al.[7] These authors have considered the medical, legal, and organizational aspects of such bodies, should it become necessary to alter standards of care and allocate scarce resources after a disaster. We focus here on the ethical considerations that must be incorporated. A TRB should be organized before a pandemic and then meet regularly before, during, and after a pandemic to supervise the triage process, making systematic changes based on experience, assessing complaints, redressing errors, and providing an intelligent and informed source of community feedback. We recommend that the TRB have wide community as well as hospital representation because the community will be most directly affected by the board's decisions; an ideal TRB may include a chief medical officer or vice president for medical affairs, a critical care physician, an emergency medical physician, an ethicist, a family care physician, an infectious control nurse, an infectious disease physician, a legal representative, public representatives (eg, clergy, business leaders, representatives of underserved or vulnerable populations), a nurse administrator, a palliative care physician, and a pediatrician. The TRB cannot oversee each triage decision made during a pandemic, but it should operate as an integral part of a hospital's incident command system serving to facilitate communication between staff on the front lines and administration tracking the levels of limiting resources.

Meeting in advance of a pandemic, the TRB should determine which triage tools will be used and should work through controversial ethical dilemmas, such as determining who precisely is entitled to narrow social utility during an influenza pandemic in the community. The TRB, at this early time, also can identify vulnerable populations in the community that are particularly susceptible to experiencing an influenza pandemic and prepare for measures that can be taken to support those populations. The TRB also should construct statements to patients and families explaining and justifying triage decisions.

Meeting at the onset of a pandemic, the TRB should determine precisely when and how the changeover (or "switch") from a traditional ethics of individual autonomy gives way to an ethics of public health in the hospital. For example, will the hospital switch once human-to-human transmission is identified anywhere in the world or will it perhaps wait until cases are identified within the city? Likewise, will the switch be absolute and immediate, resulting in the abrupt cancellation of all elective surgeries and the discharge of all nonflu patients who can be sent home? Or will the switch be gradual, resulting in an ongoing judgment of which surgeries are elective and which patients are healthy enough to be sent home on a continuous basis? To make an analogy: Will the "switch" be a straightforward on-off switch, or will it have a dimmer?

Meeting throughout the pandemic, select staff should report to the TRB on a regular basis, providing it with updated information about the medical epidemiology, the number of patients, and the state of limited resources. The TRB can then compile this information and relay to the staff when downgrades or upgrades in treatment are necessary or possible. Of course, this general feedback mechanism will need to be tailored to the particular hospital as well as the epidemiology of the pandemic.

Finally, even with the establishment of a TRB, no hospital or health care system will want to be perceived as acting alone. In Pittsburgh in 1918, the hospitals and local government authorities organized a supreme pandemic council to coordinate the city's response. We recommend that hospitals follow this example and engage all of the applicable local, regional, and state governments; civil authorities; public health departments; hospital associations; and health professional associations to encourage the creation of regional standards.[9] That is, a hospital (or hospital system) should have its own TRB, but it should also be in close communication with the TRBs from other regional hospitals. (The size and composition of the TRB will be based in part on how many staff a given hospital can afford to turn over to this administrative body during the pandemic. For instance, larger hospitals may be able to turn over more than 1 nurse to the TRB, whereas smaller hospitals may not be able to turn over any nurses.) Ideally, this will ensure a unified regional approach, as it did in Pittsburgh in 1918, and will minimize individual hospital variation in standards of care. Variation in triage standards/processes within a region could prove disastrous during a severe influenza pandemic because patients would likely distribute themselves unevenly based upon where they thought they had the best chance of receiving treatment. However, if the hospitals in the region coordinate their TRBs, then the patient population more likely will distribute itself evenly.

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