Contextualizing Ethics: Ventilators, H1N1 and Marginalized Populations

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Abstract
If the H1N1 pandemic worsens, there may not be enough ventilated beds to care for all persons with respiratory failure. To date, researchers who explicitly discuss the ethics of intensive care unit admission and the allocation of ventilators during an influenza pandemic have based criteria predominantly on the principles of utility and efficiency, that is, promoting actions that maximize the greatest good for the greatest number of people.

However, haphazardly applying utility and efficiency potentially disadvantages marginalized populations who might be at increased risk of severe reactions to H1N1. In Canada, Aboriginals represent 3% of Canadians, yet 11% of H1N1 cases requiring hospitalization involve Aboriginal persons. Aboriginal persons suffer from high rates of obesity due to socio-economic inequalities. Obesity is also a risk factor for severe H1N1 reactions. Yet, since obesity is found to increase the duration of stay in ventilated beds and a long stay is not considered an optimal use of ventilators, applying the principles of utility and efficiency may magnify existing social inequalities.

Although promoting utility and efficiency is important, other ethical principles, such as equity and need, require thoughtful consideration and implementation. Furthermore, since public resources are being used to address a public health hazard, the viewpoints of the public, and specifically stakeholders who will be disproportionately affected, should inform decision-makers. Finally, giving attention to the needs and rights of marginalized populations means that ventilators should not be allocated based on criteria that exacerbate the social injustices faced by these groups of people.
The current international experience of H1N1 indicates that patients requiring ventilation are relatively young and that the period of ventilatory support is considerably longer than envisioned in earlier pandemic planning. If rates of H1N1 continue to rise, there will not be enough ventilated beds for all individuals in need. To date, the literature on intensive care unit (ICU) admissions and how to allocate ventilated beds in a pandemic has been reliant on efficiency and utility as the foremost ethical principles to guide decision-makers. However, it is unclear that efficiency and utility alone can sufficiently guide allocation decisions. Many of the risk factors currently being identified for severe cases of H1N1 are commonly associated with persons of lower socio-economic status. If these risk factors lead to a greater need for scarce or unavailable healthcare resources – such as ventilators – then marginalized persons may be doubly disadvantaged: first, by having higher rates of severe H1N1 and, second, through the allocation process itself. In Canada, the increased risk for younger Aboriginal persons indicates that other ethical principles are required to ensure social justice during the H1N1 pandemic, including those of need and equity. Finally, given the public nature of the illness, that is, it is a community-acquired illness, input from the public – especially those persons most gravely affected by H1N1 – needs to be obtained and used to help guide decision-making.

Setting Priorities: Utility or Bust?

During an influenza pandemic, allocating ventilators and granting admission into the ICU on the basis of efficiency and utility means that “the goal is to do the most for the most with the limited resources available” and to “optimize the effectiveness of the triage protocol so that every patient who receives resources will survive” (Christian et al. 2006). Six papers suggest prioritizing patients on the basis of the Sequential Organ Failure Assessment (SOFA) score, among other considerations (Christian et al. 2006; Frolic et al. 2009; Hick et al. 2007; Lin et al. 2009; Powell et al. 2008; White et al. 2009). A SOFA score is used to track the prognosis of a patient in an ICU by applying a score dependant on the extent of that patient’s organ failure. The less organ failure patients experience, the lower their SOFA scores. Across all six articles, the authors promote the principles of utility and efficiency as the only ethical norms or as the ethical norms that should trump all other principles. One paper explicitly argues that any considerations that contradict the utilitarian principle of maximization should be discarded (Frolic et al. 2009). Thus, according to this rationale, if there are an insufficient number of beds and a patient’s SOFA score is high and is combined with other exclusion criteria – for example, being over 85 years old (Christian et al. 2006) or requiring a ventilator for a long duration due to a pre-existing chronic disease such as diabetes or obesity (Hick et al. 2007) – then the patient should not receive a ventilated bed because his or her chances of survival are lower and the patient would therefore be taking a scarce resource away from someone who might have a higher chance of survival.

Using only the principles of efficiency and utility may inadvertently perpetuate systemic social inequalities and may not reflect the beliefs of the public.

The authors of these papers should be commended for their efforts to explicitly use ethics to allocate ventilators during an influenza pandemic; however, using only efficiency and utility may inadvertently perpetuate systemic social inequalities and may not reflect the beliefs of the public. Other ethical principles beyond utility and efficiency need to be weighed when allocating resources such as ventilators during a pandemic influenza (Melnychuck and Kenny 2006). Moreover, the principle of utility is rich, complex and nuanced, and it cannot be applied in a simple and straightforward manner during the H1N1 pandemic. For example, even if one were to promote utility above all other ethical principles, it is unclear whether utility should be evaluated on the basis of the individual’s social importance – that is, social utility – or the resources being used – that is, resource utility (Tabery et al. 2008).

Real Threats and Real Ethics: Aboriginal Persons in Canada

The group of persons most often referred to as being at high risk for severe illness is pregnant women. Although it is important to protect pregnant women, other risk factors for severe cases of H1N1 are commonly associated with persons of lower socio-economic status, including chronic lung disease, cardiovascular disease, diabetes and obesity (World Health Organization 2009).

The effect of H1N1 in Aboriginal persons in Canada is an example of how a marginalized population can become disproportionately affected by pandemic influenza. Globally, Aboriginal persons are subject to poor health due to poverty, inadequate access to nutritious foods and environmental contamination (Gracey and King 2009). Aboriginal persons also have a higher prevalence of infectious disease than is found in non-Aboriginal persons, including higher rates of respiratory infections. In Canada, Aboriginal populations, which include First Nations, Metis and Inuit persons, have higher rates of cardiovascular disease, diabetes and obesity than do non-Aboriginal Canadians due to socio-economic factors (Gracey and King 2009).

It has been well-documented in Canada that June 2009 saw an outbreak of H1N1 in a Northern First Nations community in Manitoba, leading many First Nations persons to require
ventilation and thereby practically overwhelming ICUs in Winnipeg. More than half of the patients on ventilators because of H1N1 were First Nations persons. Although First Nations persons account for approximately 8% of Manitoba’s population (Statistics Canada 2001), they accounted for approximately 17% of H1N1 cases requiring hospitalization in the province (Public Health Agency of Canada 2009).

In Canada, Aboriginals represent 3% of Canadians (Statistics Canada 2001), yet 11% of H1N1 cases requiring hospitalization are Aboriginal persons (Public Health Agency of Canada 2009). In a recent pan-Canadian study, 25.6% of ICU patients admitted with confirmed or suspected cases of H1N1 were Aboriginals (Kumar et al. 2009). While no firm conclusions can be drawn, correlations appear between First Nations persons, the risk factors that may be associated with H1N1 and the disproportionate incidence of H1N1 in First Nations communities, particularly in the province of Manitoba.

The ethical challenge is as follows: if ICU admission and inclusion and exclusion criteria for access to ventilators, founded on efficiency and utility, are indirectly linked to risk factors associated with marginalized persons, then applying efficiency and utility might exacerbate these inequalities. For example, since a long stay in an ICU using a ventilator is not considered an optimal use of resources, then allocating on the basis of efficiency and utility means that priority should be given to those individuals who will use ventilators for the least amount of time. Obesity is commonly associated with persons of low socio-economic status (McLaren 2007). As stated previously, Aboriginal persons suffer from high rates of obesity due to socio-economic inequalities. Obesity is also a possible risk factor for severe H1N1 reactions. There is some evidence to suggest that obesity increases the duration of stay in ventilated beds (Akinnusi et al. 2008; Centers for Disease Control and Prevention 2009). Not being obese means that there is a higher probability of an individual using a ventilator for less time than someone who is obese. Therefore, using the principles of utility and efficiency, if there is only one ventilator remaining, the non-obese person, who is more likely to use the ventilator more efficiently than an obese person, should receive the precious resource, thereby perpetuating socially discriminating acts (albeit often unknowingly and unwittingly) towards marginalized persons, like many Aboriginal persons in Canada.

However, basing allocation criteria for ventilators on utility and efficiency principles alone may negatively and disproportionately affect certain populations more than others – that is, those with a higher prevalence of those risk factors associated with H1N1 that are linked to lower socio-economic status and deemed resource inefficient – thereby magnify existing social inequalities. Although this has not been a problem to date, since all persons requiring ICU admission and ventilators have obtained the necessary support, if utility and efficiency are the only values considered, then it is unclear what safeguards are currently in place to support those persons who have higher risks of serious morbidity or mortality due to factors commonly associated with groups of persons in lower socio-economic levels if the pandemic influenza situation worsens. The emerging disproportionate effect of H1N1 toward some marginalized groups of persons suggests that other ethical notions should be considered when allocating ventilators.

Ventilator allocation may have to balance utility and efficiency with need – that is, prioritizing those persons who are in the worst conditions – and equity – that is, distributing resources on the basis of trying to rectify social inequalities. For example, if the H1N1 situation worsens and there are an insufficient number of ventilators to treat all patients, since Aboriginals account for a disproportionately higher percentage of hospitalized persons, need and equity might dictate that Aboriginals should receive a disproportionately higher percentage of ventilators, even if doing so is inefficient. This is referred to by some as “population-based mortality risk” (Frolic et al. 2009).

**Giving attention to** the needs and rights of the disadvantaged means ventilators should not be allocated based on criteria that exacerbate the social injustices faced by certain groups of people.

Historically, researchers in medical and public health ethics often promote duty-based principles as well as principles that rely on the notions of human virtue or dignity. For example, participants at the Bellagio Meeting on Social Justice and Influenza concluded that “pandemic influenza planning and response should therefore not only be based on sound science and public health principles, but should also respect and give particular attention to the needs and rights of the disadvantaged” (Johns Hopkins Medicine 2006). Giving attention to the needs and rights of the disadvantaged means ventilators should not be allocated based on criteria that exacerbate the social injustices faced by certain groups of people.

**The Public’s Health Requires the Public’s Input**

Finally, it is important to understand the public’s perspective on priority setting since public resources are being used to fight the H1N1 pandemic, a community-acquired disease. It is especially important for there to be dialogue between the general public, government and healthcare decision-makers since having the public abide by recommendations requires trust among all interested parties. And in the case of pandemic influenza, everyone is an interested party. In particular, the values of those persons...
who are identified to be at highest risk for severe H1N1 need to be included in discussions and deliberations, and their views weighed at least equally with the vantage points of healthcare workers and government officials.

The preliminary findings of the authors’ research team – the Canadian Program of Research on Ethics in a Pandemic (CanPREP) at the University of Toronto Joint Centre for Bioethics – based on a national telephone survey and town hall meetings show that utility is not necessarily the first or sole ethics principle to consider when allocating resources such as ventilators in a pandemic influenza (CanPREP 2009). Furthermore, our results indicate that the general public has a nuanced appreciation of resource allocation challenges. For example, 40% of the survey respondents believed that healthcare workers should have first access to healthcare resources. Yet the town hall focus groups justified this prioritization by arguing not only that society needs healthy workers – the social utility argument – but also that they deserve primary access to healthcare resources for choosing to work on the front line during a pandemic – the argument for promoting reciprocity. Similar broad-scope and nuanced findings arose in public deliberation about pandemic influenza in other countries (US Department of Health and Human Services 2005).

**Having the public** abide by recommendations requires trust among all interested parties. And in the case of pandemic influenza, everyone is an interested party.

**Conclusion**
The allocation of ventilators, as well as other scare resources, during the H1N1 pandemic requires basing decisions on contextual factors and modifying decisions as these factors change. The ethical principles of efficiency and utility need to be balanced with some notion of need and equity; merely using efficiency and utility as the primary values guiding allocation decisions might perpetuate social inequalities by disadvantaging persons who have risk factors for severe H1N1 whose treatment is considered inefficient. Finally, since H1N1 is a public health

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**Providing evidence to help move births closer to home**

Reporting fewer than 400 births a year, Winchester District Memorial Hospital’s obstetrics program faced an uncertain future. However, when data from CIHI showed 600 to 800 low-risk maternity cases were going to nearby urban hospitals, WDMH concluded that repatriating just 50% of those births would result in viable obstetrics care in the community hospital. With both the region’s and ministry’s support, WDMH opened its newly expanded program to expectant mothers in March 2009.

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“The data—turned into information—were critical. They drove decisions.”

—Trudy Reid
CEO, Winchester District Memorial Hospital
emergency that requires a coordinated response using public resources, the decisions must reflect and take seriously the views of the public, especially those persons who are at greatest risk for morbidity and mortality.

References


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