Bioethics and self-isolation: What about low-resource settings?

Healthcare workers have both an obligation to their individual patients and a long-recognised public health responsibility. In the context of infectious disease, such as the coronavirus disease 2019 (COVID-19) pandemic, this duty may include the use of quarantine and isolation to reduce the transmission of disease to protect the health of the public. Furthermore, doctors have a responsibility to protect their own health to ensure that they are able to provide necessary care. These responsibilities may lead to conflict between patients' rights of self-determination and doctors' duty to advocate for the best interests of individual patients and to provide care in emergencies.[1,2]

Does quarantine work?

The use of isolation and quarantine has a history of success. Isolating the sick from the healthy seems an obvious choice, and many people do this of their own volition when they are ill. Quarantine of individuals exposed to a deadly disease is a method of escalating separation in order to prevent further disease spread. However, quarantine imposes isolation from friends, family and activity. Forcefully limiting people's freedom for the greater good is always a moral quagmire, and embarking on this policy is a tricky business.

Quarantine is one component of communicable disease control, and is unlikely to be effective in isolation. Quarantine stops the chain of transmission because the possibility of infecting others is reduced if the sick person is not in social circulation, and it allows individuals under surveillance to be identified and directed towards appropriate care if they are symptomatic.[4-5] Quarantine is particularly important for diseases associated with presymptomatic viral shedding, like COVID-19.

Quarantine and isolation may achieve outcomes comparable to vaccination programmes, if implemented timeously following the onset of an outbreak. In epidemics where asymptomatic transmission occurs, it has been shown that isolation is more effective for a disease with a small basic reproduction number and transmission coefficient of asymptomatically infected individuals. If asymptomatic individuals transmit at a rate that is at least 20% that of symptomatic individuals, quarantine is always more effective.[6]

Ethical dimensions of quarantine and isolation

Biomedical ethics is based on four major principles: autonomy, beneficence, non-maleficence and distributive justice.[5]

A person who is quarantined for a communicable disease is entitled to ethical care, and he/she has the right to make choices about treatment (autonomy). It may be argued that quarantine constitutes an unwarranted diminution of personal liberty. However, it may also be argued that it is an integral aspect of communicable disease control (distributive justice).

Society benefits a great deal from quarantining a person who may be carrying a deadly disease, at a relatively low cost to society and a moderate cost to the person quarantined. This consequentialist view is that the individual exposed to a potentially deadly disease has a moral duty to quarantine themselves. This duty, referred to as the duty of 'easy' rescue benefit to society, is justifiable. It should be reinforced that quarantine should only be implemented when it is rational and strongly justified.

It has to be acknowledged that at some point the freedom of a person to do what they like would be infringed for the sake of the public health. The question remains: when does an individual pose a threat that is sufficient to cause harm to persons around him/her to justify the practice of quarantine?[1-4]

Quarantine v. self-isolation[1,3]

- **Isolation** separates sick people with a communicable disease from the general population.
- **Quarantine** separates and restricts the movement of people who were exposed to a contagious disease but are not yet symptomatic for a period of time, to see if they become sick.

Care for the person being quarantined should be more beneficial than consequential and should not cause harm (beneficence v. non-maleficence). In addition, the principles of harm, proportionality, reciprocity and transparency apply to quarantine. The harm principle and the reciprocity principle fall under the *prima facie* principle of beneficence and non-maleficence.[3,4]

- The harm principle states that there should be clear and measurable harm to others should a disease or exposure go unchecked. For quarantine, this infection should be spread from person to person.
- The proportionality, or 'least-restrictive means', principle should be observed. It holds that public health authorities should use the least restrictive measures proportional to the goal of achieving disease control. The proportionality principle would indicate that quarantine be made voluntary before more restrictive means and sanctions such as mandatory orders or surveillance devices, home cameras, bracelets or incarceration are contemplated.
- The reciprocity principle states that individuals subjected to quarantine procedures should receive some benefit in exchange for the loss of their liberties, which include society's assistance by providing food, shelter, care and services needed. However, these conditions are not always met, even though they are important to medical and public health officials, who have an ethical obligation to provide these most basic considerations for the ill. Neglect of these principles may result in infected persons being less likely to seek medical treatment if they believe that they have been exposed to a communicable disease. Their not doing so would put the entire population at a much greater risk.
- The transparency principle supports that public health authorities have an obligation to clearly communicate the justification for their actions and allow for a process of appeal. If the above conditions can be met, there is *prima facie* justification for the use of quarantine.

Due process for quarantine still needs to be followed. This includes answering three questions:[4]

- Do public health and medical analyses warrant the imposition of large-scale quarantine?
- Are the implementation and maintenance of large-scale quarantine feasible?
- Do the potential benefits of large-scale quarantine outweigh the possible adverse consequences? Unfortunately, there may be very little information to work with.

Ideal support during pandemics

During pandemics, disease spread may be due to a combination of inadequate public health infrastructure and lack of acceptance of public health messaging. Individuals need reassurance that their needs are being addressed by government. The quarantine of

suspected cases and isolation of individuals with symptoms are two of the primary public health control measures for combating the spread of a communicable emerging or re-emerging disease. Implementing these measures, however, can inflict significant socioeconomic and psychological costs.[4,7]

Paid-leave entitlements are an important buffer against 'shocks' to childcare arrangements. Parents with access to paid leave are more likely to stay home to care for sick children than parents without such entitlements. Employees in insecure jobs that lack leave entitlements are less likely to comply with social distancing measures.

Once home quarantine of schoolchildren is implemented, both the public and private sectors should work to alleviate any financial burden that may arise from loss of income and financial hardship resulting from the need for affected parents to take time off work.

Quarantine is associated with negative psychological effects, including post-traumatic stress symptoms, confusion and anger. Stressors included longer quarantine duration, infection fears, frustration, boredom, inadequate supplies, inadequate information, financial loss and stigma.[8]

Marginalising the marginalised

Low-income jobs can often not be performed remotely, and the majority of low-income jobs do not offer paid sick days. Persons performing low-income jobs are disproportionately more likely to be unable to afford medical care, or even to stock up the pantry. These individuals are at increased risk of contracting, and spreading, the COVID-19 virus. Also, if blue-collar workers become ill, many will not be able to afford to stay home from work, because, unlike many developed nations, South Africa does not guarantee paid sick leave.[7]

As the country scrambles to address the COVID-19 outbreak, schools have been shut down, containment zones have been created, and quarantines will be enforced. These measures have unintended effects on poorer persons. Many children from low-income families rely on free meals at schools for their daily nutrition, for example, and low-income parents cannot always afford child care when their school-age children are suddenly home all day, leading to concerns about supervision and care. As schools across the nation float virtual learning in lieu of traditional classroom instruction, the millions of households that lack access to high-speed internet are likely to be out in the dark.

Many low-income families, who are more likely to live in smaller quarters and share bathrooms and kitchens with many other people, simply cannot self-quarantine as effectively as a couple living in a four-bedroom, two-bathroom home.

The COVID-19 outbreak hasn't *caused* these underlying problems, but it has highlighted the deficits in our fragile, imbalanced society.[9,10]

Elderly persons are also in the front line, as they are among the poorest and the most vulnerable to dying from COVID-19. They are therefore among the least able to heed the advice of the National Institute for Communicable Diseases, as they are unlikely to have the means to stock up on household items and groceries should self-isolation become necessary. Many elderly are also dependent on care from largely low-income health aides, who may themselves be disproportionately exposed to contracting the disease.[3,4,7]

The homeless are even worse equipped to deal with a deadly viral outbreak. These individuals may live in large group quarters, or share other facilities such as bathrooms or places like cafeterias where they eat. If they are unsheltered, they are in encampments, living in close quarters with little access to personal hygiene facilities. There are certainly a variety of reasons why this population is at increased risk and likely to be disproportionately affected by coronavirus.

The doctor's responsibilities[2,3,5]

- Implement scientifically and ethically sound quarantine and isolation measures in keeping with the duty to provide care in epidemics.
- Educate patients and the public about the nature of the public health threat, potential harm to others, and benefits of quarantine and isolation.
- Encourage patients to adhere voluntarily to quarantine and isolation.
- Support mandatory quarantine and isolation when a patient fails to adhere voluntarily.
- Inform patients about and comply with mandatory public health reporting requirements.
- Take appropriate protective and preventive measures to minimise transmission of infectious disease from physician to patient, including accepting immunisation for vaccine-preventable disease, in keeping with ethics guidance.
- Seek medical evaluation and treatment if they suspect themselves to be infected, including adhering to mandated public health measures.
- Use the least restrictive means available to control disease in the community while protecting individual rights, without bias.
- Advocate for the highest possible level of confidentiality when personal health information is transmitted in the context of public health reporting.
- Advocate for access to public health services to ensure timely detection of risks and implementation of public health interventions, including quarantine and isolation.
- Advocate for protective and preventive measures for doctors and others caring for patients with communicable disease.
- Develop educational materials and programmes about quarantine and isolation as public health interventions for patients and the public.

In overcrowded prisons, people live in close proximity to one another, posing an additional challenge. Incarcerated individuals also tend to be more medically fragile than the general population.[3,4]

Falling through the net

Overcrowding in hospitals, which mixes some presumably sick persons with those who are healthy, increases the risks of transmission. Some may try to escape the stricken cities for less infected areas. Others may hide symptoms and signs from public health workers, e.g. taking fever-reducing drugs to bring their temperature down, as has been reported from China. An integral failing of most quarantines is that invariably some people, seeing the restrictions as overly strict and an imposition on their rights, will try to bypass them. Their evasion, in turn, can endanger public health.[9,10]

Conclusions

So, do quarantines contain a disease, or may they actually contribute to spreading it?

Quarantine is a blunt instrument used in the control of infectious diseases. However, in some circumstances it is one of the only possible means of responding to an infectious disease threat, particularly when the disease shows rapid transmission, or when the causative organism, duration of communicability, mode of transmission and incubation period are unknown. In uncertain times, a precautionary approach and the use of quarantine are likely to be justified. However, public health professionals must continually update information in

order to refine the exposure criteria, so that persons are not needlessly quarantined. Communication between public health professionals and clinicians is therefore crucial. Doctors have a strong obligation to support public health in the control of communicable disease. Their actions in support of public health mandates are crucial in securing public credibility. Although many of these actions may be controversial, particularly when they begin to affect the livelihood of individuals, this is not an excuse for deviating from a control strategy. Transparency and communication are crucial in this regard.

Some of the issues that may arise are legal implications, public resistance and loss of trust by the public, which are all dangerous outcomes best avoided. If these conditions are left unchecked, the standard of care and legitimacy of the treatment of patients in quarantine would be at risk. The basic point of having these principles in place is to protect patients and be able to provide fair, ethical and appropriate treatment for the sick. If the overall goal is not to do more damage than good, these standards must be upheld.

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