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Chapter 6. Protection of patients and staff during a pandemic

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On behalf of the European Society of Intensive Care Medicine's Task Force for Intensive Care Unit Triage during an Influenza Epidemic or Mass Disaster.

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Abstract *Purpose:* To provide recommendations and standard operating procedures (SOPs) for intensive care unit (ICU) and hospital preparations for an influenza pandemic or mass disaster with a specific focus on protection of patients and staff.

Methods: Based on a literature review and expert opinion, a Delphi process was used to define the essential topics including protection of patients and staff. *Results:* Key recommendations include: (1) prepare infection control and occupational health policies for clinical risks relating to potential disease transmission; (2) decrease clinical risks and provide

adequate facilities through advanced planning to maximise capacity by increasing essential equipment, drugs, supplies and encouraging staff availability; (3) create robust systems to maintain staff confidence and safety by minimising non-clinical risks and maintaining or escalating essential services; (4) prepare formal reassurance plans for legal protection; (5) provide assistance to staff working outside their normal domains.

Conclusions: Judicious planning and adoption of protocols for protection of patients and staff are necessary to optimise outcomes during a pandemic.

Keywords Patient protection · Staff protection · Recommendations · Standard operating procedures · Intensive care unit · Hospital · H1N1 · Influenza epidemic · Pandemic · Infection control · Disaster

Introduction

In the absence of certainty about the potential duration and severity of an influenza pandemic, it is difficult to identify accurately the potential risks to the world population. It is however reasonable to predict the likely implications for patients and health care staff who will face the responsibility of caring for them and to incorporate these into the pandemic planning process in the hope that advanced preparation may reduce risks and maximise efficiency in what are likely to be very difficult circumstances. Plans to provide the best achievable care

for as many patients as possible will be predominantly dependent on staff availability, with information from major events suggesting that advanced preparation for maintaining staff confidence and morale helps to maintain response systems created for such circumstances [1, 2].

Purpose, scope, goals and objectives

The purpose of this standard operating procedure (SOP) is to identify the potential risks to patients and staff that may be encountered during an influenza pandemic. The

occurrence of these risks will be influenced by the severity of the pandemic and will vary throughout the cycle, but are likely to be greatest during the peak of the event. By identifying these in advance, the potential solutions or methods of limiting risks can be included in local and national planning processes.

Definitions

For the purpose of this assessment, patient and staff protection requirements can be broadly divided into two main areas, protection from:

- *Clinical risks* caused by the pandemic virus and its related secondary medical complications
- *Non-clinical risks* caused by limited resources or disputes over triaging and prioritisation. These could include threats or violence to staff or to patients, families and relatives, and although the primary cause may not be the pandemic virus or its secondary complications, may still produce clinical consequences. Health care workers may also face the possibility of professional criticism or retrospective litigation as a consequence of complications or deaths that may have been avoidable in normal working circumstances.

Basic assumptions

Despite significant work invested in the pandemic planning process, it is inevitable that during the peak of a pandemic the availability and delivery of normal standards of medical care will not be achievable. Advanced planning agreements will therefore have to be prepared for patient triaging (see Chap. 7, Critical care triage) and treatment limitations that will also be dependent on availability of essential resources and staff.

Lines of authority

It is highly likely that there will be variations in the lines of authority between different countries and health care organisations. It is therefore important that in the planning process there is clarity about who has the responsibilities for authorising relevant steps in the pandemic strategies and for ensuring that guidance on capacity expansion, staff training, patient admissions and triaging and that all other relevant agreed policies are adhered to.

Concepts of operations

For the greater benefit of the maximum number of patients that can be treated, it is important that patients, relatives and staff are protected from the potential clinical and non-clinical threats that may be encountered. The main areas of risks should therefore be identified and incorporated into advanced planning procedures.

Clinical risks

Disease transmission

Although many of the lessons learned from the severe acute respiratory syndrome (SARS) outbreak are relevant to the planning process for a pandemic [3, 4], there is one significant difference between the implications of these infectious events. In the SARS outbreak there was a realistic possibility of restricting and eventually preventing global disease transmission. In an influenza pandemic this is extremely unlikely to be achievable. There is a theoretical possibility that if the potential pandemic were to be detected very early, the combination of preventing all travel from the geographical area and widespread administration of effective antiviral agents to minimise the risks of disease transmission might just prevent its progression—but for logistical reasons this is unlikely to be successful. The production and distribution of a widely applicable generic influenza vaccine could also theoretically prevent a pandemic—but may take considerable time and cannot be guaranteed to be fully effective. It is therefore sensible to plan on the basis that a pandemic may still cause significant numbers of patients to become seriously ill.

The most obvious and universal threat to the whole population is the acquisition of influenza viral infection spread by standard virus transmission processes. Although these risks may be slightly reduced by a number of agreed local or national policies such as cancellation of major social events, etc., there is no real prospect that the national transmission of an influenza virus can be prevented by such restrictions. School closures may also be considered an appropriate strategy to reduce the risks to children and their role in virus transmission, but any benefits of this may be offset by the impact on parents being unable to attend work because of the necessity to provide home care, and any alternative structures for providing group child-care for children will almost certainly restore the same risks of virus transmission as school attendance.

Pragmatically, the best hope of reducing the risks of public transmission will be by encouraging people to adhere to the recommended principles of infection control and occupational health [5, 6]. This should include the

avoidance of unnecessary travel, remaining at home if any influenza-related symptoms develop, avoiding unrestricted coughing or sneezing, and the maintenance of hand hygiene as much as possible. Although there is limited scientific evidence to support their use, community wearing of protective facemasks may have some benefit in reducing aerosol particle spread in symptomatic individuals. The use of antiviral agents may also reduce the severity of influenza symptoms and hence the risks of disease transmission, but this cannot be guaranteed until the efficacy of the drugs against the virus has been assessed.

From a critical care perspective, the implications of a pandemic for patients fall into two main categories.

1. For those referred or admitted to intensive care units (ICUs) who have confirmed or probable influenza virus illness, the risks of multiple organ dysfunction caused by viral infection, secondary bacterial infection or the cumulative effect of these on pre-existing comorbidities, etc. [7, 8]
2. For patients already requiring critical care support for other reasons for whom there will be the prospect of influenza virus transmission from other patients, relatives or staff

For all patients there is a real probability that there will be additional risks to patient protection arising from the fact that critical care services will be under significant pressure with limited resources and staff availability. These implications will therefore have to be included in the advanced planning process in order to minimise patient risks and maximise the best use of expanded facilities.

There has been a relatively low incidence of nosocomial transmission among critically ill patients during the recent H1N1 flu outbreak [7, 8], which may be because of following the robust infection control recommendations (handwashing, wearing gloves and gowns, and the use of N95 respirators) which reduced the risks of transmission of respiratory virus in the SARS outbreak [9, 10]. For diseases with high rates of transmission, the risk to staff versus the benefit to patients should be weighed.

Infection control and occupational health measures

Pandemic influenza viral transmission is unlikely to be preventable, and as there will be potential transmission to staff or to other patients, there should be advanced preparation of adequate supplies of personal protection equipment (PPE) for health care staff. The necessity to encourage complete use of such equipment for full shift episodes will almost certainly be influenced by the adequacy of storage reserves, the risks (and severity) of disease transmission and the availability of appropriate

vaccine protection. Although there is some evidence that wearing of surgical masks may have a role in reducing the risks of viral transmission [11], there are still valid concerns that these may not be sufficiently protective for the number of aerosol-generating procedures in the ICU environment. It is therefore important to adhere to the basic principles of reducing the risk of disease transmission via aerosol-generating procedures (AGPs) by ensuring appropriate PPE staff training [12] (e.g., fit-testing for N95 respirators, avoiding contamination when placing/removing, environmental cleaning, etc.) and on maintaining standard measures for hand hygiene, surface cleaning, etc., which should be rigorously adhered to.

In order to provide adequate patient protection health care organisations therefore have an obligation to ensure advanced planning for the provision of staff training in high-quality infection control and occupational health measures for all staff members who are potentially at risk (including support technicians, health care support workers, secretarial and domestic assistants, etc.), as well as adequate availability of personal protection equipment, etc. These principles are available from recommendations published from the SARS outbreak [10] and are included in the Pandemic Influenza Infection Control and the Critical Care Infection Control documents developed for the UK pandemic planning process [5, 6]. Failure to perform these activities and to provide reassurance to staff are likely to significantly undermine confidence and hence reduce staff availability. Lack of confidence may influence not only attendance, but also willingness to undertake challenging additional responsibilities and hence impact on patient care and protection. Therefore, in the presence of uncertainty, staff protection should start at the highest level and then be gradually reduced. Institutions should prepare formal reassurance plans for legal protection and for the provision of assistance to staff working outside their normal domain. Debriefing and communication may reduce psychological stress for both patients and staff. Given the medical-legal implications of many decisions, comprehensive documentation is essential. Support of relevant professional organisations and medical/nursing authorities will also benefit members working outside their normal areas of expertise.

The use of negative pressure isolation rooms with adequate ventilation facilities is recommended. ICUs that have such facilities should use them to reduce the risks of disease transmission. For the majority of ICUs and particularly in areas incorporated for expanding bed capacity, however, the realistic approach may be cohorting patients into 'pandemic' and 'non-pandemic' related groups and treatment areas. Reducing the risk of airborne pathogens by modifying ICU design [13] may also be of benefit, but will be dependent on resource availability and timescale implications (see Chap. 2, Surge capacity and infrastructure considerations, Chap. 5. Concepts of operations, C. Expansion of isolation capacity).

Non-clinical risks

There are a wide range of potential risks to patients, relatives and staff that may arise during a pandemic, some of which may have clinical implications separate from primary viral risks. Some of these potential risks and consequences are summarised in Table 1, but this list is not comprehensive, and other possibilities should be considered in local planning. Robust security systems are likely to be required to minimise some of these risks.

Although the consequent effects on other areas such as staff sickness, access to travel, child care, etc., are difficult to predict, there is a consensus that the maintenance of existing health services—and in necessary circumstances increasing capacity—will be heavily dependent on being able to maintain staff confidence. Failure to achieve this will affect the willingness and ability of staff to attend their workplace [14] with consequent implications for patients, relatives and other staff members.

Potential threats to staff confidence

A range of potential problems have been identified either by previous experience in events such as the SARS outbreak [15], the London bombings [16] or as a consequence of feedback received on consultation documents released in pandemic and disaster planning work [17].

These can be broadly classified as follows.

Infection-related

1. Risks of work-acquired infection or contamination as a result of caring for patients.

The situation can differ considerably dependent on the type of transmissible infection or if a human-to-human form of avian influenza with a high mortality rate were to develop. In such circumstances even greater vigilance on staff safety and protection will be required

2. Concerns about transmission of infection to family members

Despite the differences between an influenza pandemic and the SARS outbreak, it is understandable why staff may have significant concerns about the risk to their family, partners or relatives—particularly if they are known to be significantly vulnerable as a consequence of their age or pre-existing co-morbidities. Many staff members have indicated their willingness to continue working during an infective crisis if there is a means of providing alternative workplace-related accommodations. Although the cost implications of developing such an infrastructure may be significant, it is a principle that should be considered and explored in consultation with staff representatives in order to maximise staff availability.

3. Risks of community-acquired infection in potentially crowded public transport.

Those with experience of travel in crowded trains or buses will be aware of how many episodes of coughing and sneezing are encountered. Although planning processes have made strong public recommendations for use of tissues, etc., to minimise the risks of droplet spread and hence disease transmission, the response rates are likely to be variable. It is therefore understandable that staff may have significant concerns not only about their own risks, but also on the implications for patient care if staff availability is significantly reduced.

Therefore, health care institutions should discuss and agree with staff representatives concerning the best means of minimising these risks. Possibilities include access to isolation facilities, sharing transport with colleagues who live in proximity or even providing a specific staff transport system during the event in order to maintain staffing levels. If sharing transport systems are developed, any staff members developing signs of potential infection should avoid participation. The recent evidence suggesting that wearing of surgical masks may have some efficacy in reducing the risks of disease transmission [11]

Table 1 Potential risks and consequences

Potential risks	Consequences
Limited fuel or transport facilities	Staff shortages
School closures	Staff shortages
Insufficient equipment	Inability to provide full care to all patients
Insufficient drugs or disposables	Inability to provide full care to all patients
Staff fatigue from excessive workload	Compromised care, drug errors, etc.
Threats or actual violence to staff arising from triage, treatment limitation or withdrawal decision	Staff anxiety or injuries with impact on staff availability
Confrontation or violence with families of patients given different treatment decisions	Injuries to family members
Professional criticism or litigation for adverse patient outcomes or deaths	Impact on staff availability and willingness to work outside of normal domains

may justify their use in travelling circumstances and may have the additional benefit of raising awareness of those present of the importance of standard hygiene measures.

Work activity

1. Inability to deliver normal standards of care because of limited resources or excess demand.

Many staff members will find it very difficult to accept the necessity to restrict patient care or to limit admissions because of insufficient resources to meet the demand. This is, however, an inevitable consequence of a pandemic or other major disaster event. Health care institutions have a responsibility to provide advance training and information to staff to raise awareness of these potential issues and minimise the risk. Staff training should include information relating to the likely duration of the event and reassurance (if appropriate) about when a return to normal working practice may be anticipated. Although this may have limited benefit for the care of acutely ill patients whose risks of recovery may be influenced by lack of resources, for patients with more prolonged conditions (e.g., awaiting transplantation or elective surgery), it is likely to be beneficial if reassurance about future care can be given. Advance contingency planning in accordance with local or national guidance for expanding capacity will also potentially improve the ability to cope with excess demand, and the engagement of staff in this process may help to reduce the discomfort caused. Failure to maximise the use of the resources available is likely to cause demoralisation, particularly if colleagues, relatives or friends suffer as a result.

2. Necessity to decrease patient admissions or limit escalation of care.

Similar principles apply relating to reduced ability to admit patients who might be expected to benefit from specific therapies in normal working circumstances. Nationally agreed upon criteria for helping with these challenging decisions may partially reduce the sense of guilt or discomfort about them. The sharing of decisions with trusted and appropriately trained colleagues will also be important. Explanation to patients and next of kin will be particularly challenging. It will be particularly helpful if the required changes in the provision of resources and practice standards are decided through a process that is transparent and discussed publicly leading to a national consensus about the implications of the event and the reasons why normal expectations may not be achievable. Detailed documentation for the reasons for limiting care will be essential. Staff who take the responsibility for limiting admissions or treatment escalation will also need formal confirmation that they will not be vulnerable to

professional criticism or litigation after acting within accepted local and national standards.

3. Limitation of care interventions that would be continued in normal circumstances.

This is one of the most controversial decisions that staff may have to implement and is likely to cause significant discomfort to all involved. In addition, staff members are also likely to encounter a full range of patient and relative responses that will include severe distress, anger and even violence.

Shared decision-making in accordance with national and/or local guidelines will be essential for both personal and medico-legal reasons, with full documentation of the reasons for the decisions taken. Some may take the view that such decisions, despite being recommended by national or local entities, are inappropriate and may refuse to implement them. As there will be resultant implications for other patients (who may have a greater chance to benefit but who may be denied access to escalated treatment), detailed documentation of the reasons for the chosen route will be essential.

4. Excessive workload and prolonged working hours.

Recommendations for coping with increased demand may include transition to longer working shifts. These changes may be further exacerbated by the increased numbers of patients requiring care, the increased severity of their conditions and the increased complexity of handovers, etc. In order to minimise the cumulative effect on staff morale, it may be reasonable to re-organise staffing rotations so that cumulative periods of prolonged shifts are followed by equivalent respite periods, allowing an appropriate period of rest and isolation to decrease the likelihood of disease acquisition prior to returning to the home environment. It is also important that plans are incorporated to ensure that staff who have been subjected to abnormal strain during a pandemic or other disaster event be given reasonable recovery time and, if required, access to support once the crisis has passed.

5. Potential disagreements with colleagues over treatment restriction decisions.

The controversial implications of restricting treatment are likely to generate staff disagreements despite decisions being in accordance with local or national strategies for surge management.

Although the responsibility for these decisions will ultimately fall on the hospital administration and/or senior staff members, it is nevertheless important that the views of all involved are respected and that any reservations raised are considered in detail and discussed openly. If, despite these efforts there is lack of consensus or accepted

agreement, it may be helpful for an independent assessment by the institution's medical director (or his/her designee) or the ethics committee to assess the situation and assist in a resolution of the disagreement. No health care professional should be forced to participate in an action that is contrary to his/her ethical standards. As the potential professional and medico-legal implications of such disagreements will be considerable, it is essential that documentation is comprehensive. It is also important that there should be advanced planning into how to minimise the risks of litigation when decisions are made in accordance with agreed local or national policies.

In extreme circumstances, it may prove necessary to remove staff who are profoundly against such decisions from patient care because of their ethical and cultural perspective. This, however, should be a last resort and should only be considered after all other attempts to address their concerns and reach agreement have been fully explored. Staff members unable to accept treatment limitation decisions and unable to continue working in their usual domain should be offered the option of working in other clinical areas. It is important that there be no adverse impact on their careers as a result of their having been unwilling to accept decisions likely to result in potentially avoidable patient deaths.

6. Pressure to work or provide interventions outside of the employee's normal working domain.

In extreme circumstances there is a high probability that staff may be forced to provide care or interventions outside of their normal areas of skills and expertise. This pressure may be generated either by their employer or as a result of their conscious awareness that without their help patients may be at risk of suffering or dying, both of which could be preventable. The most challenging of these responsibilities is likely to be the necessity to care for sick children because of limited resources in specialist paediatric centres.

Other examples may include:

- Staff from other clinical areas who are recruited to help expand critical care facilities and who may have to care for seriously ill ventilated patients.
- Requests for assistance from consultant and trainee anaesthetists who are not normally involved in intensive care (but who are likely to be the most appropriate to provide the core skills required).
- Engagement of clinicians from other specialist areas (e.g., surgeons, rheumatologists, dermatologists) whose normal work responsibilities may be reduced because of limited resources and cancellation of elective care, but who may be willing to help in the management of acutely ill patients.
- In order to make the most efficient use of human resources, institutions should prepare formalised

reassurance plans in advance. These should include an agreed policy on how staff working outside their normal domain will be protected, can receive advice or assistance from appropriately trained colleagues wherever possible, and understand that despite the difficulties that may be encountered there is still a responsibility to try to minimise risks and avoid serious errors of judgment or decision-making.

Personal or psychological

1. Anxiety about personal or family risks

It is inevitable that the staff will have concerns about the risks to family members (particularly if they have young children), relatives who are vulnerable because of existing co-morbidities or if family members or close friends are becoming ill. While there are no simple methods to reduce such anxiety, it is important that employers and clinical leaders are sympathetic to these concerns and that there is advance preparation for provision of supportive infrastructures, including the provision of quiet and isolated accommodations, transport assistance, availability of indicated antiviral medications (for staff and family members) and permission for compassionate special leave if required.

2. Distress relating to patient treatment restrictions:

- treatment limitation decisions
- avoidable deaths

The cumulative effect of these restrictions will have a profound effect on many staff members, given that the vast majority of those who are responsible for the care of sick patients have made their career decisions based on the desire to help patients recover from serious illness and prevent avoidable deaths. Experience gained from the SARS outbreaks and from other major disaster incidents strongly suggests that the best way to minimise the negative effect on staff morale is by creating frequent teamwork dialogue, enabling concerns to be raised openly and without risk of criticism and by reassuring staff that their levels of distress or sadness are entirely understandable and appropriate.

3. Death of family members, friends or colleagues

The implications of these deaths will be considerable, particularly if lack of resources or treatment limitations contributed to deaths that may have been avoidable in normal circumstances. The impact on staff members may be even greater if the individual concerned received care in their own hospital or clinical area. It must be anticipated that families and friends of the affected staff

members may also be devastated by such an outcome. It is important that affected staff are given as much support as possible and (if appropriate) reassured that all reasonable efforts were made. As with all patient deaths, full respect and support must be provided for the religious preferences of the deceased individual and their family and friends. Compassionate leave allowances and appropriate infrastructures for ensuring support and bereavement counselling should be arranged.

4. Potential errors and failings from working outside areas of normal expertise

The fact that staff will be caring for patients outside of their normal areas of expertise means that some errors are inevitable even if all reasonable attempts are made to minimise risks. Therefore, it is important that staff involved in such events are able to report them without facing liability, intimidation or additional distress. Under these difficult circumstances, suspension or sanctions against staff should be avoided unless there are good grounds to believe that there were significant failings in professional responsibilities. Counselling facilities should be available to support the staff and, if appropriate, facilitate their continued work in a suitable clinical area within a reasonable timeframe.

5. Antisocial or antagonistic family members' interactions

It is highly likely that staff will face difficult circumstances with patients and relatives as a consequence of the lack of resources or limited treatment options. Although good communication and honest explanations are a priority, even in normal working circumstances responses from angry relatives can lead to verbal and even physical abuse of staff members. It is therefore important that responsive security systems are available to provide staff support and protection. When such responses may be anticipated, advance preparation should be considered for having security staff present prior to discussions and even the possibility of denying potentially aggressive relatives access to clinical areas. Police support may also be required, particularly if there is a perceived risk of physical violence or the use of weapons to influence decision-making.

6. Fatigue-related anxiety

It is likely that staff members after numerous and prolonged shifts, with inadequate rest and difficulties at home or at work, will experience increased anxiety or distress-related problems. Therefore, managers and employers should be vigilant about ensuring that staff members are not allowed to become excessively fatigued and that those who are at risk are provided with appropriate counselling and support.

7. Lack of confidence in management infrastructures or support

The responses of staff during a pandemic or other major disaster are likely to be influenced by the management's effectiveness under normal circumstances.

Personal or professional criticism and litigation relating to:

1. Treatment limitation decisions

The potential implications of professional criticisms or litigation on staff availability will be significant. This will vary from country to country. It is essential that the staff be reassured that all reasonable decisions based on local or national recommendations will be supported and fully defended by their employer. For medico-legal protection, national or local policies co-signed or authorised by senior management or executives in controversial circumstances may be necessary. The formal declaration that crisis standards of care are in operation enables regulatory powers and protections for health care providers in the necessary tasks of allocating and using scarce medical resources [18].

2. Standards for patient outcomes and increased complication rates as a consequence of care being provided by staff outside of their normal expertise

Staff support will be required to maximise patient care and to encourage staff to undertake such difficult responsibilities (Appendices 1, 2, 3). In addition to health care facilities providing full moral and physical support for staff willing to undertake such responsibilities, it is also important that professional organisations produce consensus guidelines for their members and be prepared to provide them full support when working outside of their normal area of expertise knowing that they acted entirely in the best interests of patients.

3. Death or serious complications occurring as a result of excessive workload or inability to supervise normally

Despite all recommended strategies to expand critical care capacity and provide reasonable levels of care for as many patients as possible, it is still likely that deaths or serious complications may occur as a consequence of either restricted resources (staffing or equipment) or complications that are not promptly identified. Although there will be reluctance to provide inter-hospital transfers and repatriations because of the risks of spreading infection, restrictions are more likely to be because of lack of beds. This may also have an impact on patient transfers for conditions unrelated to the event such as neurological or cardiac complications. Limitations of

ambulance transport and the availability of appropriately trained personnel to supervise patient transfers will also be likely.

Professional criticism or litigation may then be faced in retrospect, with either individuals or health organisations being held accountable. It is therefore important that prior preparation occurs for such circumstances and that staff are given appropriate reassurance that they will not be held personally responsible for them.

Functional roles and responsibilities of the internal personnel and interface agencies or sectors

It is important that those with managerial responsibilities for critical care staff and for ICU referrals are fully aware of the potential safety implications to staff and are involved in advanced planning to minimise these. These responsibilities should include coordinated discussions and agreements with other agencies and sectors from which expanded services will inevitably be needed, such as the suppliers of disposables and drugs, liquid oxygen supplies, personal protection equipment and also security services.

Logistics support and requirements necessary for the effective implementation of the SOP

To ensure implementation and preservation of the agreed SOPs, printed and online documentation should be provided to summarise the local protocols. These should be supported by specific training sessions to ensure that all relevant staff are fully informed about the recommendations. There should be well-established communication links with those responsible for managing these services and an understanding that there will be a mechanism for providing important feedback to enable changes in the SOP for the safety of patients and staff.

Maintenance of standard operation procedure

Adherence to agreed upon SOPs should be seen as a priority. Maintaining management consistency will benefit the staff with the knowledge of working in (relative) comfort zones. Consistency of management will also provide a more reliable process for identifying potential advantages or disadvantages arising from existing systems or treatments, as there should be reasonable confidence that these are not attributable to random and unpredictable processes. Any points learned may then contribute to subsequent amendments to benefit patients and staff.

Recommended training and exercise activities

The probable risks to patients, relatives and staff are likely to be reduced by coordinated training and simulated exercise activities. These will help ensure that the staff are aware of the problems and difficulties to be encountered. They may also identify other problems not previously considered and even stimulate thoughts on novel solutions.

Engaging the public (all of whom are potential patients or relatives) in training or exercise activities is unlikely to be a practical option, but encouraging the media to raise awareness of the implications of a pandemic and the realistic likelihood of care limitations should be supported. The challenge for many institutions, however, may be to encourage that this information be provided in a balanced and proportional manner, rather than the more common 'shock horror' approach.

Lay members should be included in planning activities and in the organisation of training and simulated exercise activities. This will help ensure that public questions or concerns are addressed and also provide confirmation of openness and transparency in all aspects of the planning process.

Conflict of interest None.

Appendix 1: Staff support confirmation from hospital

The purpose of this document is to provide formal confirmation of support for staff members involved in patient care during an influenza pandemic or other major disaster scenario. It is an important principle that staff should not be vulnerable to retrospective blame or criticisms for having done the best that they could in very challenging circumstances.

It is acknowledged in advance that staff members may have to make difficult decisions about patient treatments or be involved in resulting care pathways that may differ from normal working circumstances. It is important that any decisions that may result in restricting or withdrawal of treatments should be in accordance with agreed national/local guidance, and wherever possible shared and agreed with all staff involved with full documentation of the reasons for decisions made.

It is also recognised that in order to act in the best interests of patients staff may have to provide care or interventions that are outside of their normal areas of expertise and in which they may have little or no formal training. Such responsibilities should only be undertaken if no better options are available, and all reasonable efforts should be made to seek advice/assistance from other staff members who may have more experience or former training in the relevant areas. However, if no better alternative exists, the essential requirement is that

staff who are prepared to take such responsibilities use all of their existing skills and expertise to provide the best care that they can for the patients involved. Access to additional advice from distant specialist centres and/or Internet-based facilities, such as Up-to-date.com, should also be considered.

Providing that these standards are met and can be confirmed/supported by appropriate documentation (and ideally the witness observations of colleagues), it is important that staff members are reassured that they will be fully supported in any subsequent developments—whether these relate to personal distress, loss of confidence, professional criticisms or even retrospective litigation.

Chief Executive Officer
Medical Director

Appendix 2: Staff support confirmation from colleges and specialist societies

It is an important principle that staff members involved in patient care during an influenza pandemic or other major disaster scenario should not be vulnerable to retrospective blame or criticisms for having done the best that they could in very challenging circumstances.

It is acknowledged in advance that staff members may have to make difficult decisions about patient treatments or be involved in resulting care pathways that may differ from normal working circumstances. Any decisions that may result in restricting or withdrawal of treatments should be in accordance with agreed national/local guidance, and wherever possible shared and agreed with all staff involved with full documentation of the reasons for decisions made.

It is also recognised that in order to act in the best interests of patients, staff may have to provide care or interventions that are outside of their normal areas of expertise and in which they may have little or no formal training. Such responsibilities should only be undertaken if no better options are available, and all reasonable efforts should be made to seek advice/assistance from other staff members who may have more experience or former training in the relevant areas. However, if no better alternative exists the essential requirement is that staff who are prepared to take such responsibilities use all of their existing skills and expertise to provide the best care that they can for the patients involved. Access to additional advice from distant specialist centres and/or Internet based facilities, such as Up-to-date.com, should also be considered.

Providing that these standards are met and can be confirmed/supported by appropriate documentation (and ideally the witness observations of colleagues), it is

important that staff members are reassured that they will have the support of this organisation in any subsequent developments—whether these relate to personal distress, loss of confidence, professional criticisms or even retrospective litigation.

President
Vice-Presidents

Appendix 3: Confirmation of extraordinary circumstances for staff members

The purpose of this document is to confirm that recent exceptional circumstances created a necessity for staff to undertake unusual responsibilities and make difficult decisions in order to provide the best achievable care for as many patients as possible.

Having discussed the situation with the staff members involved and inspected the relevant documentation, the following important points can be officially confirmed (confirm/delete/amend points as appropriate).

1. All potential options were explored and the necessary decisions were shared and approved by colleagues/appropriate managers.

2. Full documentation was provided of the circumstances and of the decisions that had to be made.

3. Where appropriate and achievable, full explanations were given to patients and/or next of kin/family members.

4. Staff who undertook responsibilities for care outside of their normal area of expertise did so as there were no better options available to provide care for the patients involved. All reasonable attempts were made to obtain advice/support from more experienced colleagues.

5. Where decisions were made on either treatment limitation or withdrawal, these were in accordance with either national or locally agreed policies and were shared with appropriately experienced colleagues.

6. Normal treatment pathways or specialist referrals could not be followed because of lack of resources. All reasonable alternative options were explored.

It is therefore confirmed that the staff did the best that they could for the benefits of patients in these very difficult circumstances and consequently should be fully supported for doing all that they could to maintain services for patients most likely to benefit. Further details will be provided if necessary.

Signatures
Clinical Director
Divisional Manager
Medical Director
Chief Executive

References

1. Devereaux A, Christian MD, Dichter JR, Geiling JA, Rubinson L (2008) Summary of suggestions from the Task Force for Mass Critical Care summit, January 26–27, 2007. *Chest* 133:1S–7S
2. Peng PWH, Wong DT, Bevan D, Gardam M (2003) Infection control and anesthesia: lessons learned from the Toronto SARS outbreak. *Can J Anesth* 50(10):989–997
3. Hsu C, Chen T, Chang M, Chang Y (2006) Confidence in controlling a SARS outbreak: experiences of public health nurses in managing home quarantine measures in Taiwan. *Am J Infect Control* 34(4):176–181
4. Joynt GM, Yap HY (2004) SARS in the intensive care unit. *Curr Infect Dis Rep* 6:228–233
5. NHS. Department of Health (2007) Pandemic influenza. Guidance for infection control in hospitals and primary care settings. November 2007. http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_080772.pdf
6. NHS. Department of Health (2008) Pandemic influenza. Guidance for infection control in critical care. April 2008. http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_084179.pdf
7. Dominguez-Cherit G, Lapinsky SE, Macias AE et al (2009) Critically ill patients with 2009 influenza A(H1N1) in Mexico. *JAMA* 302(17):1880–1887
8. Kumar A, Zarychanski R, Pinto R et al (2009) Canadian Critical Care Trials Group H1N1 Collaborative. Critically ill patients with 2009 influenza A(H1N1) infection in Canada. *JAMA* 302(17):1872–1879
9. Jefferson T, Del Mar C, Dooley L et al (2009) Physical interventions to interrupt or reduce the spread of respiratory viruses: systematic review. *BMJ* 339:b3675
10. Gomersall CD, Joynt GM, Ho OM, Ip M, Yap F, Derrick JL, Leung P (2006) Transmission of SARS to healthcare workers. The experience of a Hong Kong ICU. *Intensive Care Med* 32:564–569
11. Loeb M, Dafoe N, Mahony J et al (2009) Surgical mask vs N95 respirator for preventing influenza among health care workers: a randomized trial. *JAMA*. Published online 1 Oct 2009. doi:10.1001/jama.2009.1466
12. Yap FH, Gomersall CD, Fung KS et al (2004) Increase in methicillin-resistant *Staphylococcus aureus* acquisition rate and change in pathogen pattern associated with an outbreak of severe acute respiratory syndrome. *Clin Infect Dis* 39:511–516
13. Tang JW, Li Y, Eames I, Chan PKS, Ridgway GL (2006) Factors involved in the aerosol transmission of infection and control of ventilation in healthcare premises. *J Hosp Infect* 64:100–114
14. Ives J, Greenfield S, Parry J et al (2009) *BMC Public Health* 9:5. doi:10.1186/1471-2458-9-56
15. Qureshi K, Gershon RR, Sherman MF et al (2005) Health care workers' ability and willingness to report to duty during catastrophic disasters. *J Urban Health* 82(3):378–388
16. Shirley P, Thavasothy M, McAuley D et al (2006) Reflections on the clinical learning points from the Royal London Hospital Intensive Care Unit following July 7th 2005 terrorist attacks. *JICS* 7(2):32–34. http://journal.ics.ac.uk/pdf/06_02.pdf
17. Department of Health (2007) Pandemic flu: A national framework for responding to an influenza pandemic. November 2007. http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_080745.pdf
18. Institute of Medicine (2009) Guidance for establishing crisis standards of care for use in disaster situations: a letter report. The National Academies Press, Washington, DC