# NHS Emergency Planning Guidance 2005: underpinning materials

*Critical Care Contingency Planning in the event of an emergency where the numbers of patients substantially exceeds normal critical care capacity*

**Best Practice Guidance**

**Gateway reference: 8442**


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NHS

# NHS Emergency Planning Guidance 2005: underpinning materials

*Critical Care Contingency Planning in the event of an emergency where the numbers of patients substantially exceeds normal critical care capacity*

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Contents



This material should be read in conjunction with the NHS Emergency Planning Guidance 2005. All material forming the guidance is web based and prepared to be used primarily in that format. The web-based versions of the Guidance including underpinning materials have links to complementary material from other organisations and to examples of the practice of and approach to emergency planning in the NHS in England.

The web version of the guidance is available at:-

www.dh.gov.uk/emergencyplanning

# Introduction

1. This section gives best practice guidance to National Health Service (NHS) organisations in planning, preparing and responding to all types of emergencies arising from any accident, infectious epidemic, natural disaster, failure of utilities or systems or hostile act resulting in an abnormal casualty situation or posing any threat to the health of the community or in the provision of services that involve significant numbers of patients with requiring critical care. The guidance covers adults and children.

2. This Guidance has been prepared under the auspices of the Department of Health's Emergency Preparedness Division and with the full support of the UK Influenza Pandemic Contingency Planning Group. The proposals made in this Guidance are a strategic national framework intended to be applicable to pandemic influenza as well as to other major incident scenarios. Clearly, different planning responses will be required to respond to a short-term conventional major incident rather than for a long-term event such as a pandemic.

3. This section must be used in conjunction with the NHS Emergency Planning Guidance 2005 and the relevant underpinning sections including:

    - Strategic Health Authorities (SHAs)
    - Immediate medical care at the scene
    - Primary care organisations
    - Ambulance services
    - Acute and Foundation Trusts
    - Children – to be published Spring 2007
    - Burn Injured Patients –to be published in Spring 2007
    - Mass casualties

4. The NHS Emergency Planning Guidance 2005 and its underpinning documents provide general guidance, information and context for NHS organisations. This includes an overview of important related legislation including the Civil Contingencies Act 2004 (the CCA) and its categorisation of organisations as Category 1 or Category 2 responders. In brief, the responsibilities of each category of responder and the designation of NHS organisations is shown below.

    **Category 1**: those organisations at the core of the response to most emergencies and subject to the full set of civil protection duties.

    For the NHS these include NHS Acute and Foundation Trusts and Primary Care Trusts.

**Category 2**: co-operating bodies less likely to be involved in the heart of planning work but will be heavily involved in incidents that affects their sector.

For the NHS, Strategic Health Authorities are Category 2 responders.

5. It is essential that there is good communication between different health care services in order to ensure that responses are structured and cohesive; thus primary care practitioners must be aware of any restrictions / limitations of secondary care that arise as a result of a significant event to allow them to make appropriate decisions about the management and referral of patients.

6. The purpose of the NHS Emergency Planning Guidance 2005 is therefore to describe a set of general principles to guide all NHS organisations in developing their ability within the context of the requirements of the Civil Contingencies Act 2004 to:

    - respond to a major incident or incidents or emergency
    - manage recovery whether the incident or incidents or emergency has effects locally, regionally, or nationally.

7. Throughout this underpinning document, the term emergency is used as in the CCA, i.e. to describe an event or situation that threatens serious damage to human welfare in a place in the UK or to the environment of a place in the UK, or war or terrorism which threatens serious damage to the security of the UK. To constitute an emergency this event or situation must require the implementation of special arrangements by one or more Category 1 responders.

8. The responses outlined in this guidance should only be considered appropriate in the event of emergencies that comply with the definition above. Under no circumstances should any NHS organisation seek to initiate or adapt these in order to respond to a problem arising from staff shortages, waiting list pressures, management failures or other local institutional deficiency. The accompanying ethical and medico-legal endorsement that will support NHS organisations and staff in an appropriate escalation response will not be applicable in other circumstances.

9. Under the auspices of the Department of Health the Intensive Care Society, including representatives from England, Scotland and Wales, the British Association of Critical Care Nurses, The Royal College of Nursing, the Hospital Infection Society, the Paediatric Intensive Care Society, the Chartered Society of Physiotherapy and the Ambulance Services Association with representatives of the NHS created a working group to consider strategies for management of emergencies where the number of

patients substantially exceeds the normal critical care capacity. Ad hoc working groups were constituted to consider particular topics. Membership of all groups is shown at Annex 1.

10. This Guidance is built on best practice and shared knowledge, while also acknowledging that in certain circumstances restrictions or limitations of normal standards of care will be inevitable. It is intended to provide a platform for all NHS organisations to undertake major incident and emergency planning and to provide information on associated activities that may also be required. In the context of this Guidance, the terms NHS organisation and NHS Acute Trust includes NHS Foundation Trusts.

11. The NHS Emergency Planning Guidance 2005 gives the Chief Executive Officer of each NHS organisation responsibility for ensuring that their organisation has a Major Incident Plan in place that will be built on the principles of risk assessment, co-operation with partners, emergency planning, communicating with the public and information sharing. The plan will link into the organisation's arrangements for ensuring business continuity as required by the CCA. Planning for the needs of critically ill patients forms part of that responsibility for Chief Executives of Acute Trusts. Critical Care Networks are ideally placed to help plan and co-ordinate the critical care service response to major events and to support Chief Executives fulfil their responsibilities. Wherever possible, positive steps should be taken to engage critical care networks in this process. SHAs and Primary Care Organisations will need to ensure that arrangements made within their boundaries and with neighbours are adequate and appropriate to local circumstances.

12. A wide range of potential incidents may result in a sudden increase in the number of patients who require admission to critical care services for mechanical ventilatory support, treatment for multiple injuries, or multiple organ support. Incidents such as an infectious pandemic can be anticipated to have nationwide implications, while major chemical incidents such as an explosion within a production factory, or isolated terrorist bomb attacks are more likely to have effects on a local or regional basis. Considerable uncertainty exists about the potential consequences of a Chemical, Biological, Radiological and Nuclear (CBRN) or bio terrorism incident, which could have local, regional, or national implications. There is also the theoretical potential that climate change may result in a freak weather-related event (such as flooding or hurricane) that could cause serious damage to large areas of the population.

**Definitions of critical care**

13. Critical care is the care provided to patients who require intensive monitoring and / or the support of failing organs which may have arisen

as a result of trauma, disease, adverse events or surgery. These patients may be located throughout the hospital, including general ward areas, but with the sickest in dedicated clinical areas. Critical care is classified into three levels:

**Level 1**
Patients at risk of their condition deteriorating, or those recently relocated from higher levels of care whose needs can be met on an acute ward with additional advice and support from the critical care team.

**Level 2**
Patients requiring more detailed observation or intervention including support for a single failing organ system or postoperative care, and those stepping down from higher levels of care.

**Level 3**
Patients needing monitoring and support for two or more organ systems one of which may be basic or advanced respiratory support.

*Intensive Care Society - Levels of Care 2002*

14. On 16 January 2007, there were 3,359 critical care beds open in England. Critical care beds in the independent sector are not included in this total.

**Planning for an emergency or emergencies where the number of patients substantially exceeds normal critical care capacity**

15. In the event of demand for healthcare exceeding or overwhelming supply, the underlying principle is to achieve the best health outcomes based on the ability to achieve health benefits. Regard must be given to appropriate professional guidance including the General Medical Council's "Good Medical Practice".

16. To be able to respond to a major incident or emergency including a pandemic, each NHS Acute Trust with a critical care service will need to plan for an increase in capacity above the normal funded 100% capacity. The aim should be to try to identify up to double existing normally available capacity (i.e. plan for a 100% increase over normal) for use during an emergency including a pandemic. In planning for this expansion of capacity, it must be recognised that only a basic or limited level of critical care may be possible (see below). Local circumstances, including access to additional ventilators and the layout and proximity of facilities - such as the size of the normal elective workload or the location and size of facilities such as post recovery areas - will mean that some Trusts may not be able to identify as much potential additional capacity as others.

17. Modelling has been undertaken to examine the impact of a variety of scenarios involving pandemic influenza. It is clear that in the worst case

scenarios services, including critical care, will not be able to provide the usual standards of care. Therefore, in seeking to identify additional capacity, NHS Acute Trusts should take into account that it is assumed that all but the most urgent scheduled care will have been suspended and that it is anticipated that care in additional capacity will be at a basic level only with levels of staffing appropriate to an emergency. In these circumstances it is understood that ways of working and clinical practices may have to be adapted but should be sustainable for a period of up to three months.

18. To support this Guidance, Phased Responses has been developed by the Intensive Care Society with contributions from the expert working group and is helpful advice that can be applied during an emergency including pandemic influenza. Phased Responses provides a framework for considering the implementation of phased response patterns for the care of critically ill patients in the event of an emergency. This document will be available on the website of the Intensive Care Society.

19. Other work that might be useful in considering issues of triage protocols includes:

    *Development of a triage protocol for critical care during an influenza pandemic*
    Christian M et al
    CMAJ 2006: 175(11):1377-81

    http://www.cmaj.ca/cgi/content/full/175/11/1377

    Further guidance is being actively developed regarding phased responses and triage protocols by the Intensive Care Society. This will be published as soon as it is available.

20. To support this approach, NHS organisations will need to ensure that staff are well prepared and can be supported appropriately in the event of an emergency. This will require NHS organisations to:

    - Facilitate access to appropriate training for critical care staff and for other staff who may be called upon to expand critical care services, either directly or indirectly, in the event of an emergency. This must include both clinical and essential support staff including contracted staff. Training includes, wherever possible, facilitating arrangements that enable staff maintain skills that they do not usually use in their normal duties as well as take account of staff turnover and the recruitment of replacement staff.

    - Make plans to ensure the best use of existing resources including escalation of services as part of an organisational approach. This will need to take account of the extent to which critical care clinicians (such as staff providing an outreach service) can continue

be involved in the care of Level 1 critically ill patients depending on the scenario being responded to;

- Ensure that essential equipment and supplies are available to support the provision of existing and expanded critical care services. Critical Care Technologists - or other health care technologists with a specialist understanding of critical care equipment - have knowledge of equipment, equipment suppliers and associated stocks. They can support the planning process and can provide training and advice on the appropriate use of technology during an emergency event or incident.

- Ensure that processes for planning and responding to a major incident or incidents of emergency and pandemic influenza where the number of patients substantially exceeds normal critical care capacity are compatible with local, regional and national command, coordination and control and decision making arrangements and form an integral part of local major incident plans.

21. Although this document focuses on planning, preparing and responding in the NHS in England, the need for a high level of networking with services provided in Scotland, Wales and Northern Ireland must also be recognised in order to support mutual aid arrangements.

**Capacity and organisation**

22. *"Quality Critical Care: Beyond 'Comprehensive Critical Care"* (DH 2005), is a report by the Critical Care Stakeholder Forum that provides examples of good practice in the delivery and organisation of adult critical care services. It provides an overview of the organisation of critical care services within and between hospitals including critical care delivery groups and critical care networks. It also describes features of a high quality, patient-focussed service and cites examples of how this can be achieved. www.dh.gov.uk/publicationsandstatistics.

23. Since the publication of Framework for the Future (DH 1997) paediatric intensive care (PIC) in the UK has become largely centralised, with the establishment of Lead Centre Paediatric Intensive Care Units (PICUs) on a predominantly regional basis, and the development of PICU retrieval teams to facilitate the transfer of critically ill children from referring hospitals. Although this has resulted in an increased number of PICU beds, most units have consistently high levels of bed occupancy, and capacity for expansion in a national or regional emergency may be limited.

24. The Paediatric Intensive Care Society (PICS) and Intensive Care Society have worked together to develop a framework for managing PICU and Critical Care resources in the event of an emergency. This document will be available on the website of the Intensive Care Society.

25. Neonatal intensive care is provided in many District General Hospitals (DGHs) with maternity units, and although in many units out-of-hours medical cover continues to be provided by the same general paediatric teams, there has been an increasing trend for neonatology medical responsibilities to be separated from general paediatric care. A number of regions have established neonatal transfer networks in conjunction with pre-natal maternal transfers to compensate for limited bed availability.

26. SHAs, NHS Acute Trusts and Primary Care Organisations will need detailed understanding of the locations of existing critical care capacity within their boundaries.

27. In planning a local response, NHS organisations should identify potential areas outside those formally designated for care of the critically ill where such care - albeit at a more basic level than normal (see paragraph 17) - could be provided for increased numbers of patients in the event of an emergency. Within Acute Hospitals this might include operating theatre recovery areas, high dependency units, or upgraded general ward facilities. Consideration should also be given to accessing critical care beds in specialist NHS hospitals, and / or upgrading facilities in non-specialist hospitals, including those in the independent sector.

28. Depending on the nature of the emergency for which escalation responses may be required, it should be recognised that other acute services (e.g. services for burn injured patients, children's services etc.) may have also developed plans that are dependent on access to the same clinical areas. NHS organisations must therefore facilitate good communication and coordination to ensure best use of local resources.

**Enhancing capacity**

29. Constraints on the expansion of critical care bed services at any one stage will include:

- the nature of the threat or emergency being faced
- availability of critical care clinical staff - particularly nursing and medical staff
- availability of appropriately trained support staff
- availability of necessary equipment and supplies
- the possible need to sustain the enhanced critical care capacity for a prolonged period - possibly of several months duration

30. NHS organisations must consider how to address these potential constraints. Approaches might include the creation of local stockpiles, understanding the impact on available critical care capacity if some or most elective surgery is discontinued, and ensuring that local areas anticipated for expansion are suitably supplied with resources such as piped medical gases, piped air, etc.

31. In an escalation event which leads to a significant increase in the number of infants or children affected existing Paediatric Intensive Care Unit (PICU) facilities may be unable to accommodate all referrals despite increasing their capacity. In such circumstances, it may be inevitable that children have to be receiving mechanical ventilatory support in District General Hospitals (DGHs) or other specialist centres. This framework for approaching this circumstance will be available on the website of the Intensive Care Society.

**Equipment and supplies**

32. Acute Trusts supported by Critical Care Networks should prepare an inventory and record the location of equipment that may be accessed in circumstances where normal critically care capacity is likely to be exceeded or where the nature of the emergency poses special problems in the care of critically ill patients. Critical Care Technologists - where they are available - or other health care technologists with knowledge of critical care equipment and supplies can assist with this process. Such technical staff can support the maintenance of inventories of specialist equipment including capabilities of various equipment makes and models, set-up and calibration arrangements, consumables, storage requirements etc.

33. A detailed understanding of the capabilities of equipment will facilitate prioritising use during incidents involving other services particularly PICU, Special Care Baby Units (SCBU), and services for burn injured patients.

34. Acute Trusts and Critical Care Networks should give consideration to what additional equipment and supplies including masks, gowns, other Personal Protective Equipment (PPE), breathing filters and other essential respiratory support apparatus, and core pharmaceuticals / disposables might be needed to sustain a response.

35. Additional guidance on the levels of PPE that might be used by critical care staff has been developed as an integral part of the work being undertaken on control of infection issues. This will be published under the auspices of the UK Pandemic Influenza Plan during 2007 but will be applicable to all emergencies.

36. Consideration should be given to plans for the storage of equipment and supplies that would be essential to expand critical care capacity. Planning should include:-

- How such equipment will be accessed:
- The maintenance of supply using delivery chains that may be vulnerable to disruption perhaps due to prolonged staff absence;
- The familiarisation of the use of equipment by staff who may need to use the equipment during the emergency; and
- The rotation of supplies with limited shelf lives.

37. Advance planning could enable critical care services to make the most efficient use of limited resources in an escalation setting. This could include collaborative agreements with neighbouring units on the use of limited sedation drugs, etc. and combined storage / stockpiling of agreed resources. Calculations of quantity could be made based on the average daily usage of the agreed drugs, the predicted number of escalated beds, and the anticipated duration of the escalation event. Illustrative guidance is being developed on the types and quantities of drugs that might be required to support a response. Similar calculations could be undertaken relating to disposable equipment and PPE. Where available, critical care networks should be closely involved in such planning and in maximising the use of limited skills and resources.

38. It is recognised that without additional funding, it is difficult for NHS organisations to make anything but the most basic contingency arrangements for procuring and storing additional equipment and supplies locally. When prioritising local resources, it is recommended that account should be taken of the need to support local emergency contingency planning and training.

39. Currently across the UK there are strategically placed 'PODs' which contain extra kit and equipment which can be deployed to a wide range of catastrophic incidents. These PODs are arranged to cover CBRN exposure, equipment (e.g. ventilators, dressings) and drugs. In addition, extra kit and equipment is also stored at some rail and transport hubs. It is the responsibility of nominated regional ambulance services to maintain this kit and equipment at a high state of readiness and be in a position to deploy these PODs when requested. All requests from health professionals for these PODs to be dispatched should be made via the regional ambulance service control rooms.

40. Whilst the PODs are held within regions, it must be remembered that each POD is part of a national resource and as such can be called upon to be used anywhere in the UK. Mobilisation and transport plans should reflect this requirement.

41. NHS Supply Chain, the principle supplier of consumables and equipment to the NHS, has contingency plans in place to increase re-supply to trusts during a major incident. All trusts should ensure that suitable arrangements are in place to contact their suppliers on a 24/7 basis to ensure that supply chains to trust can be maintained during an incident.

**Workforce**

42. Acute Trusts supported by Critical Care Networks should develop contingency plans for expanding the workforce available to support additional critical care capacity.

These preparations should include:

- Identification of existing staff with requisite skills to care for critically ill patients. These staff may be
  - working in existing critical care units
  - working in other hospital areas
  - recently left - e.g. retired, re-allocated or seconded
  - working off-site

- Identifying staff who have responsibilities as carers (for children, relatives etc.) which may impact on availability and affect rota planning

- Consideration of the circumstances under which staff may be asked to undertake responsibilities which exceed their normal capacity and skill levels, and identifying what additional resources may be required e.g., training, indemnity, debriefing, psychological support for staff and their families etc

- Consideration of changes that might be made to shift patterns (e.g. introduction of 12 hour shifts) and the period of time over which such changes might be sustained

- Assessment of the impact of the closure of schools, nurseries, day hospitals etc. on contingency arrangements for staffing

- Identification of other barriers to staff attendance and remaining on site for prolonged periods, and exploring potential solutions e.g. care for relatives, children, meeting personal requirements etc.

- Planning for the necessity to treat known local individuals / hospital staff / colleagues staff who have been affected by the incident (including, where appropriate, psychological support).

- Consideration of distances travelled and methods of travel used by staff

- Establishing mutual aid arrangements with neighbouring NHS organisations etc. including arrangements for staff unable to travel to work who may be more easily able to attend facilities nearer to their homes. Again, critical care networks (where available) may have a role in facilitating and mobilising mutual support arrangements.

- Re-assessing / restructuring staff rotas – to understand what agreements there are for particular levels of staffing and what might constitute acceptable identification of minimum staffing establishments (and agreed indemnity) for staff

- Arrangements for residential accommodation for those staff unable to travel home

- Procedures, protocols and residential facilities for isolation and quarantining of staff whilst working and for those who might be reluctant to attend work unless facilities are available to prevent the need to return home (because of concerns about disease transmission to their family)

- As critical care relies on input from a wide range of other services including physiotherapy, pathology, pharmacy, catering, housekeeping and cleaning services, portering, messengers, IT support etc., there should be consideration given to how these support facilities will be maintained / escalated to match expanded capacity

- Strategies should be developed for de-escalation as the emergency subsides. These should include the progressive, planned release and support of staff who may have been working under stress, and possibly continuously, on site, for a prolonged period.

43. NHS organisations are encouraged to place strong emphasis on the importance of maintaining staff safety, confidence and morale. Experience from previous events suggests that these are crucial issues in preserving workforce commitment and availability, and that staff absence is likely to increase if there are valid concerns about their safety or the safety of their families.

44. Providing psycho-social support to staff during the course of an emergency and in the follow on period is an important element of staff support. Guidance is benign actively developed for the NHS regarding psycho-social support and will be published as soon as it is available.

The Information/Resources section at the end of this guidance shows links to:

***NICE guidelines on post traumatic stress disorder***

http://www.nice.org.uk/guidance/CG26

***Humanitarian Assistance in Emergencies: this is the result of the work the DCMS Humanitarian Assistance Unit has led across government to assist planning for the humanitarian aspects of emergencies.***

http://www.culture.gov.uk/Reference_library/Press_notices/archive_2006/DCMS133_06.htm?contextId={58ACD7AE-3D58-4838-B282-635D04D1FC8D}

**Training and support**

44. Additional training and support will be required for existing critical care staff to enable them to respond appropriately when there is a requirement to expand critical care capacity as a result of a major local or national incident. In additions to incident-specific programmes, this should include education on the generic plans for opening additional beds, expanding into other clinical areas, departures from normal patient / staffing ratios, the inclusion / supervision of nursing assistants, working with relatively inexperience medical / nursing / technical / Allied Health Professional (AHP) staff, phased responses and triaging strategies, and restrictions of visiting facilities.

45. Support and training programmes must be developed for other members of staff who do not usually work in critical care units (but who may be re-allocated to such care in appropriate circumstances) to enable them to function appropriately in the event of an emergency where the number of patients substantially exceeds normal critical care capacity. Training programmes should recognise that in certain circumstances ancillary workers (cleaners, porters, technical staff etc.) who interface with critical care units may be at risk.

46. A core training programme for nursing assistance has being developed for the purposes of critical care escalation. The web link is given below. This competency-based programme provides flexibility to accommodate staff from differing backgrounds and with differing levels of pre-existing knowledge / experience in critical care. The training proposed for nursing assistance is based on the use of simpler technology that would be normal, than would be used under the supervision of critical care staff and provide a basic understanding of the necessary physiology.

47. Details of a basic internet-based critical care course for medical staff will be able to be accessed via the website of the Intensive Care Society; in addition, there are plans in process to develop a UK-based training programme that will be suitable for training from novice level, or for updating doctors with previous critical care experience.

48. Ideally staff should be seconded to such courses on a rolling, regular-update basis in order to produce and maintain a high level of preparedness. However, it is also recognised that it may also be essential to provide ‘off the shelf’ training at short notice.

49. Training in infection control measures cannot be left until ‘last minute’, particularly in the use of PPE equipment where time-consuming ‘fit-testing’ is essential. Without such training the risks to staff will be increased, and hence confidence (and attendance) are likely to be undermined.

50. It is recognised that without additional resources, it is difficult for NHS organisations to provide the training proposed. However, the implementation of such training is likely to enhance the knowledge and

skills needed to care for the acutely ill in clinical areas outside critical care units. This will help Trusts meet some of the recommendations likely to be included in guidance from the National Institute for Health and Clinical Excellence on the care of the unexpectedly acutely ill patient in hospital that is expected about July 2007.

**Control of infection in critical care units in the event of an emergency**

51. Guidance has been developed regarding control of infection issues in critical care units in the event of an emergency. This will be published during 2007 at a date to be agreed. The principles included in this control of infection guidance are generally applicable to all scenarios and are commended to critical care services.

www.dh.gov.uk/pandemicflu

**Access, Admission and Discharge**

52. With critical care units in England routinely operating at high levels of occupancy it is inevitable that there will be limited capacity to scale up facilities in the case of a major local or national incident that creates additional critical care demand.

53. Consequently in the event of demand for healthcare exceeding or overwhelming supply, the underlying principle is to achieve the best health outcomes based on the ability to achieve health benefits. Regard must be given to appropriate professional guidance including the General Medical Council's "Good Medical Practice".

54. It is essential that NHS organisations formulate and agree explicit plans to maximise efficient use of these limited resources. These plans should include;

- Agreed criteria in the appropriate circumstances for the scaling back or the cancellation of elective surgery including elective specialist surgery e.g. cardiac surgery, neurosurgery).

- Methods for identifying the severity of injury or illness of affected patients.

These should include established and agreed principles that will empower clinicians to restrict critical care referrals according to the incident severity, geographical distribution, and level of disaster escalation. The majority of decisions relating to withholding critical care referral should be made by clinicians other than intensivists. It is recognised that guidance

to clinicians regarding triage and phased response will be helpful. Phased responses a document to be published on the Intensive Care Society Website will support this approach. Other strategies for maximising the use of critical care resources include:

- Cohorting patients into segregated critical care areas, where possible separating patients with the affected condition from critically ill patients with 'normal' conditions. This may include the planned transfer or non-incident-affected patients to critical care units in other uncontaminated hospitals in accordance with local contingency plans or other arrangements appropriate to the internal layout of units and hospitals and the relative geography of neighbouring hospitals..

- Provision for variation in admission thresholds according to local and national pressures, with concomitant mechanisms to communicate revisions to local clinicians (especially primary care services).

- Collaboration with other critical care services to facilitate parallel clinical practices, sharing of essential resources and co-ordinated transfer / transport where appropriate. Critical care clinical networks may play an important role in developing local standards, admission criteria, transport arrangements, and resource sharing. Advanced planning through local networks may encourage the development of shared guidelines, and agreements on standard equipment / drugs / disposables etc. that will allow local stockpiling of core critical care supplies.

- Consideration should be given to developing effective step-down facilities from critical care in order that bed availability is maintained for new admissions.

- Outreach services are likely to play an important role in supporting step-down facilities and preventing the need for re-admission to critical care.

- In circumstances where demand for critical care exceeds even expanded capacity there will be increased numbers of patients dying from respiratory failure without receiving mechanical ventilation. These patients, and their families, are likely to benefit from support by Palliative Care teams.

- Mortuary arrangements should be fully integrated with emergency - including critical care - planning with particular consideration being given to circumstances where large numbers of deceased may be infectious but will still need to be removed sensitively from critical care areas.

55. The current British Thoracic Society, Health Protection Agency and Hospital Infection Society recommendations for which patients should be referred for mechanical ventilation in an influenza pandemic will need to

be revised to take into account the limitation of critical care bed availability.

56. The referral criteria for mechanical ventilatory support will need to include a means of adjustment that takes into account national and local levels of escalation, resource availability, and predicted mortality. In 'worst case' settings (e.g. excessively high mortality rates for affected patients who develop multiple organ failure) critical care interventions may not be appropriate.

57. Intensivists are likely to be under significant pressure caring for the existing critical care unit patients, and consequently are unlikely to be available to make decisions about which patients should receive mechanical ventilation. Consequently the triaging process will need to be undertaken by other clinicians dealing with hospitalised patients. In addition, triaging decisions that limit patients to care in the community setting may have to be undertaken by primary care, Emergency Department and other practitioners. These decision-making processes will need to be agreed in advance and disseminated to all relevant staff.

58. In all circumstances where referral / triaging decisions have to differ from normal expectations, there must be clear locally agreed methods in place, taking account of any national advice, to support staff charged with the responsibility for such decisions. These might include reassurance that staff will not be liable to threats of litigation or allegations of substandard practice for undertaking such responsibilities, for practicing outside of their normal area of expertise, or for doing the best that they can under difficult and challenging circumstances. The extent to which such support may be required should be anticipated to vary with the severity of the incident and the clinical pressures that arise from it.

59. NHS organisations will need to give advance consideration to the care and management of anxious / distressed relatives. In particular, plans should take into account;

- Coping with grief / anger if their loved one has died / is dying
- Risks vs. benefits to family members of being present at the bedside
- Whether relatives should be involved in 'hands on' care if staffing levels are insufficient
- How to restrict visiting and in what circumstances this should occur
- Alternatives to visiting such as video links

**Transport of critically ill patients in the event of an emergency**

60. Guidance is being actively developed regarding the transport of critically ill patients in the event of an emergency. This will be published as soon as it is finalised. Using this work the UK Pandemic Influenza Planning Team, the Ambulance Services Association, the Emergency Preparedness

Division and NHS partners has developed strategic national guidance for ambulance services that will be available during 2007.

www.dh.gov.uk/pandemicflu

## Clinical guidelines

61. NHS organisations should recognise that it will be necessary to adjust clinical guidelines according to the scale, distribution and duration of increased critical care demand. Phased critical care responses may be appropriate with provision of normal critical care interventions possible being progressively limited as pressure levels escalate, ranging from those of everyday current practice to (in worst case scenarios) the acceptance that any level of critical care service may be unsustainable. It is recognised that guidance to clinicians regarding triage and phased response will be helpful. Work is in progress to develop guidance for clinicians regarding triaging and managing phased responses to emergencies. Discussions with interested parties will be continuing during the consultation period.

62. Critical care may also be inappropriate in circumstances where accumulated evidence suggests that there is little or no chance of survival and infectivity risks to staff cannot be justified. In circumstances short of this 'worst case' scenario it is likely that the most sustainable level of critical care will be the provision of mechanical ventilation, circulatory support (possibly with the use of inotropes or vasopressors), intravenous sedation / paralysis, enteral nutrition, and antibiotics; the use of insulin therapy and H2 receptor antagonist therapy may also be feasible. Local adjustments to these guidelines may be appropriate depending on circumstances such as the event severity and progression and staff / resource availability.

63. It is essential that existing critical care staff and others who may be called on to provide assistance receive training in these clinical guidelines and that they understand the reasons that care limitations may have to be applied.

64. Critical care networks have a key role in identifying and coordinating the provision of mutual aid and in supporting resilience, consistency of policies/guidelines/preparations with neighbouring Trusts and Critical Care Services. Where networks are less well developed, neighbouring Trusts and hospitals (including those in the independent sector) should be involved collectively in the development of guidelines and contingency plans for critical care services.

## Communications

65. Arrangements should be made to ensure that all staff members are fully informed about planning and preparation for an emergency where normal critical care capacity is likely to be significantly exceeded. This should include;

- Informing staff within critical care services
- Communication with staff in other areas such as operating theatres, recovery rooms, day surgical units, coronary care units which may be included in expansion plans or by limitation of elective services
- Communication with primary care services in order that GPs and front-line practitioners are aware of likely restrictions on hospital care, and hence may encourage care of patients in the home environment
- Raising awareness of problems and directing people towards information, training courses, etc, through ICS, other professional bodies, road shows, DH and other websites, press etc.

66. It is important that local communication structures are linked to formal NHS communications processes. This will help ensure that local responses are integrated with the regional or national progression / regression of the incident, and hence allow them to be refined or adjusted appropriately (e.g. evidence obtained during a disease epidemic which provides information on its likely peak, duration, infectivity and mortality rates)

**Research**

67. The pressures that critical care services may be under during a local or national incident that significantly increases demand will reduce or eliminate the opportunity of individuals with research abilities to plan or develop useful scientific research into the event or its effects. Furthermore, the increasingly complex restrictions created by Research and Ethics Committee requirements will prevent any projects being developed within a feasible timescale. It is however crucially important that information-gathering takes place during the early stages of any incident where national progression is likely to occur in a time-staged manner, since lessons learned from clinical practice in the areas first hit may contribute to saving lives and reducing risks to staff in areas that are subsequently affected. NHS organizations should therefore support or encourage researchers to consider plans for data collection or research studies in advance of such an event, and provide all reasonable support for projects that may be beneficial for other patients and staff.

68. An event that places critical care resources under significant extra pressure is likely to produce similar problems for many other clinical hospital specialties, and to reduce opportunities for communication between practitioners. This may result in missed opportunities for collaborative research / learning about the event and its effects on

patients, staff, and resource consumption.  Consequently there may be added value in establishing a local coordinating committee to pull together important information and support learning processes during the course of the response.

**Information/resources**

Further information on critical care can be found at:

***Department of Health: Emergency Preparedness Division***

http://www.dh.gov.uk/PublicationsAndStatistics/Publications/PublicationsPolicyAndGuidance/PublicationsPolicyAndGuidanceArticle/fs/en?CONTENT_ID=4121049&chk=C2CJv3

***The Intensive Care Society***

http://www.ics.ac.uk/

***Department of Health: Pandemic Flu Policy***

http://www.dh.gov.uk/PolicyAndGuidance/EmergencyPlanning/PandemicFlu/fs/en

***The Health Protection Agency***

http://www.hpa.org.uk/

***The British Thoracic Society***

http://www.brit-thoracic.org.uk/guidelines_since_1997.html

***The Hospital Infection Society***

http://www.his.org.uk/

***Civil Contingencies Act 2004***

http://www.ukresilience.info/ccact/index.shtm

***Development of a triage protocol for critical care during an influenza pandemic***
Christian M et al
CMAJ 2006: 175(11):1377-81

http://www.cmaj.ca/cgi/content/full/175/11/1377

***NICE guidelines on post traumatic stress disorder***

http://www.nice.org.uk/guidance/CG26

***Humanitarian Assistance in Emergencies is the result of the work the DCMS Humanitarian Assistance Unit has led across government to assist planning for the humanitarian aspects of emergencies.***

http://www.culture.gov.uk/Reference_library/Press_notices/archive_2006/DCMS133_06.htm?contextId={58ACD7AE-3D58-4838-B282-635D04D1FC8D}

**Annex 1**

**Critical Care Contingency Planning**
**Membership of the group developing the core guidance**

| NAME | JOB TITLE | ORGANISATION | REPRESENTING |
|---|---|---|---|
| Bruce Taylor | **Chair of the Review Group**<br>Consultant in Critical Care Medicine and Anaesthesia | Portsmouth Hospitals NHS Trust | Intensive Care Society<br>Royal College of Anaesthetists |
| Peter Acheson | Specialist Registrar in Public Health | Health Protection Agency Centre for Infections | Health Protection Agency |
| Gillian Bradbury | Matron, Intensive Care Unit | Barts and the London Hospital NHS Trust | British Association of Critical Care Nurses |
| Caroline Cawkill | Matron, Critical Care Unit | Portsmouth Hospitals NHS Trust | British Association of Critical Care Nurses |
| David Goldhill | Consultant Intensivist | Royal National Orthopaedic Hospital NHS Trust | Intensive Care Society<br>Royal College of Anesthetists |
| Ian Greenway | Intensive Care Medicine | Gwent Healthcare NHS Trust | Welsh Intensive Care Society |
| Marie Healy | Consultant in Anaesthesia and Intensive Care | Barts and the London Hospital NHS Trust | Intensive Care Society |
| Verity Kemp | Project Manager for the Review of NHS Emergency Planning Guidance | Emergency Preparedness Division | Department of Health |
| Leigh Mansfield | Principal Physiotherapist Critical Care | Newcastle Hospitals NHS Foundation Trust | Chartered Society of Physiotherapists |
| Michael Marsh | Consultant Paediatrician | Southampton Hospitals NHS Trust | Paediatric Intensive Care Society |
| Quen Mok | Consultant Intensivist | Great Ormond Street Hospital for Children NHS Trust | Royal College of Paediatrics and Child Health |
| Hugh Montgomery | Director, Institute for Human Health and Performance | University College London NHS Foundation Trust | Intensive Care Society |
| Beryl Oppenheim | Consultant Microbiologist | Heart of England NHS Foundation Trust | The Hospital Infection Society |
| Sarah Ramsay | Consultant in Anaesthesia and Intensive Care | Western Infirmary, Glasgow | Scottish Intensive Care Society |
| Mark Tomlin | Critical Care Pharmacy Adviser | Portsmouth Hospitals NHS Trust | |
| Jonathan Van Tam | Consultant Epidemiologist | Health Protection Agency<br>Centre of Infections | Health Protection Agency |
| Carl Waldmann | Consultant in Intensive Care and Anaesthesia | Royal Berkshire NHS Foundation Trust | Intensive Care Society |
| Angela Walsh | Network Director North West London Critical Care Network | North West London Critical Care Network | The National Critical Care Network Managers Forum |
| Darren Walter | Consultant in Emergency Medicine | University Hospital of South Manchester NHS Foundation Trust | British Association for Emergency Medicine, College of Emergency Medicine, Faculty of Pre-hospital Care |
| Andrew Webb | Medical Director (Acute Hospital) | University College London NHS Foundation Trust | Chair of Transport Group |
| Keith Young | Emergency Care Team | Department of Health | Department of Health |

**Critical Care Contingency Planning**
**Membership of the group developing the infection control input to the Guidance**

| NAME | JOB TITLE | ORGANISATION |
|---|---|---|
| Peter Acheson | SpR in Public Health | HPA Centre for Infections |
| Kevin Bernie | Ambulance Adviser, Emergency Preparedness Division | Department of Health |
| Gillian Bradbury | Matron, Intensive Care Unit | Barts and the London NHS Trust |
| Caroline Cawkilll | Matron, Critical Care | Portsmouth Hospitals NHS Trust |
| David Goldhill | Consultant Intensivist | Royal National Orthopaedic Hospital NHS Trust |
| Peter Hoffman | Clinical Scientist | Health Protection Agency Centre for Infections |
| Verity Kemp | Project Manager for the review of the NHS Emergency Planning Guidance | Emergency Preparedness Division, Department of Health |
| Ian Macartney | Consultant Intensivist | Pennine Acute Hospitals NHS Trust |
| Quen Mok | Consultant Intensivist | Great Ormond Street Hospital for Children NHS Trust |
| Beryl Oppenheim | Consultant Microbiologist | Heart of England NHS Foundation Trust |
| Bruce Taylor | Chair of the Review Group<br>Consultant in Critical Care Medicine and Anaesthesia | Portsmouth Hospitals NHS Trust |
| Jonathan Van Tam | Consultant Epidemiologist | Health Protection Agency Centre for Infections |
| Carl Waldmann | Consultant in Intensive Care and Anaesthesia | Royal Berkshire NHS Foundation Trust |

**Critical Care Contingency Planning**
**Membership of the group developing the transport input to the Guidance**

| NAME | POST | ORGANISATION |
|---|---|---|
| Gareth Davies | Consultant in Emergency Medicine and Prehospital Care | Barts and The London NHS Trust Clinical Director of the London Helicopter Emergency Medical Service |
| Sundeep Dhillon | General Practitioner and Pre-Hospital Care Practitioner | Mercia Accident and Rescue Service |
| Verity Kemp | Project Manager for the review of the NHS Emergency Planning Guidance | Emergency Preparedness Division, Department of Health |
| Mick Lindley | Operations Manger | Yorkshire Air Ambulance |
| Hugh Montgomery | Director, Institute for Human Health and Performance | University College London NHS Foundation Trust |
| Hayden Newton | National Ambulance Performance Implementation Lead | Department of Health (to end of 2007) |
| Andrew Petros | Consultant in Paediatric Intensive Care | Great Ormond Street Hospital for Children NHS Trust |
| Malcolm Russell | Senior Lecturer in Pre-hospital Emergency Medicine | Mercia Accident Rescue Service |
| Lyn Sugg | Senior Operations Officer | London Ambulance Service NHS Trust |
| Darren Walter | Consultant in Emergency Medicine | University Hospital of South Manchester NHS Foundation Trust |
| Steve Waspe | Chemical. Biological, Radiological and Nuclear Coordinator | London Ambulance Service NHS Trust |
| Andrew Webb | Chair of the Transport Sub Group Medical Director, Clinical Services | University College London NHS Foundation Trust |
| Keith Young | Emergency Care Team | Department of Health |

**Critical Care Contingency Planning**
**Membership of the group developing the input to the Guidance on children**

| | | |
|---|---|---|
| Bruce Taylor | Chair of the Review Group<br>Consultant in Critical Care Medicine and Anaesthesia | Portsmouth Hospitals NHS Trust |
| Caroline Cawkill | Matron, Critical Care Unit | Portsmouth Hospitals NHS Trust |
| David Goldhill | Consultant Intensivist | Royal National Orthopaedic Hospital NHS Trust |
| Verity Kemp | Project Manager for the Review of NHS Emergency Planning Guidance | Emergency Preparedness Division, Department of Health |
| Michael Marsh | Consultant Paediatrician<br>Paediatric Intensive Care Society | Southampton Hospitals NHS Trust |
| Quen Mok | Consultant Intensivist | Great Ormond Street Hospital for Children NHS Trust |
| Carl Waldmann | Consultant in Intensive Care and Anaesthesia | Royal Berkshire NHS Foundation Trust |
| Angela Walsh | Network Director<br>North West London Critical Care Network | The National Critical Care Network Managers Forum |