



## **CRITICAL CARE ACTION PLAN**

## **SCOTTISH GOVERNMENT**

**INCREASING CRITICAL CARE CAPACITY IN SCOTLAND  
DURING THE FLU PANDEMIC**

## ***Introduction***

1. This document sets out the approach in Scotland to managing critical care during the A(H1N1) flu pandemic.
2. The A(H1N1) virus is currently resulting in mild clinical illness for the majority of those who become infected. In a small proportion of affected individuals however, it can produce severe disease.
3. To date, a small minority of people have required hospital care. This is particularly the case for people with underlying health conditions<sup>1</sup> that make them more susceptible to serious illness caused by swine flu. Pregnant women also seem to be more vulnerable.
4. The Scottish Government Health Directorates, in partnership with clinical experts, NHS Board leads, NHS Education for Scotland and NHS Quality Improvement Scotland have been working to develop a centrally facilitated, locally responsive, approach to prepare for increased demand for critical care as a result of pandemic flu. At a national level, existing tri-partite partnership arrangements have ensured appropriate communication mechanisms between stakeholders and NHS Boards have been working closely with local Trade Union and professional organisation representatives to ensure that the workforce is prepared appropriately to respond with maximum flexibility to the anticipated demand, whilst maintaining good staff and clinical governance.
5. Although the virus remains mild in the majority of cases, a surge in pandemic flu based on a reasonable worst case scenario is likely to result in more people requiring critical care treatment than there are facilities normally available to treat them. This paper outlines the steps which the Scottish Government is taking, along with the NHS in Scotland, to prepare to expand critical care capacity to mitigate against this eventuality.
6. Critical care capacity is not just an issue of available beds or cots. It also requires consideration of associated equipment and supplies as well as numbers of staff and their competence and capabilities. Boards have been asked to review potential capacity and ensure that, if required, they are able to achieve by the end of October 2009 an increase of at least 100% across Scotland in Level 3 Intensive Care Unit (ICU) capacity against a potential staff absence rate of 12%. Boards have been asked to ensure that they have measures in place to enable such an increase to be mobilised if required. This should not be viewed as a standing increase in critical care capacity.
7. Work on completing detailed local plans and robust mapping of actual and potential capacity across Boards in order to meet this increase has been taking

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<sup>1</sup> Relevant underlying health conditions include chronic (long-term) lung disease, including people who have had drug treatment for their asthma within the past three years, chronic heart disease, chronic kidney disease, chronic liver disease, chronic neurological disease (neurological disorders include motor neurone disease, Parkinson's disease and multiple sclerosis), suppressed immune systems (whether caused by disease or treatment) and diabetes.

place for some time. This planning has included the identification and delivery of the anticipated increase in the numbers of staff (especially nurses) required to service additional beds and cots. Boards submitted their final plans to the Scottish Government by 14 August.

8. In addition to planning at local level, the Scottish Government also commissioned an in-depth review on the state of preparedness of Boards to meet this target. This review was conducted in association with critical care leads.
9. These local planning and review processes have been conducted in close liaison with the leaders of the adult and paediatric Scottish critical care community, the Scottish Critical Care Delivery Group, the Scottish Intensive Care Society and the Scottish Intensive Care Society Audit Group.

### ***What Is Critical Care?***

10. Critical care services support seriously ill patients in hospital, usually because one or more organs are not functioning properly. There are two levels of adult critical care:
  - Level 3: Frequently called intensive care or ICU, this is the most complex care, involving the highest staff:patient ratios and the provision of advanced multi-organ and respiratory support.
  - Level 2: Sometimes called high-dependency care or HDU, this is less complex than Level 3, with lower staff:patient ratios than Level 3 care, but more so than that provided in general hospital wards. It is used for some post-operative patients, patients requiring single organ support and those being 'stepped-down' from Level 3 care before transfer to general wards.
11. It is considered that most patients who require critical care as a result of pandemic flu will need some degree of advanced respiratory support. For the specific purpose of this action plan, critical care refers to Level 3 ICU services.
12. The definitions of critical care are slightly different for children, with Level 2 care denoting a need for continuous nursing supervision and some organ support. Level 3 care involves advanced respiratory support, intensive nursing supervision and complex monitoring. It is a specialised service, requiring sophisticated equipment and highly trained staff. Scotland has two paediatric Level 3 centres: in Glasgow and in Edinburgh. These centres also provide an associated National Paediatric Intensive Care Transport and Retrieval Service and specialist advice to paediatric units outwith the centres.
13. There are currently 180 adult Level 3 beds and 24 Level 3 paediatric beds/cots in Scotland. More comprehensive definitions of levels of care are given in Appendix 1.

## ***Assessing the Potential Demand on Critical Care***

14. The common agreed basis for planning for the pandemic is the UK planning assumptions, which have been developed by the Scientific Advisory Group on Emergencies, an independent expert scientific group which advises Ministers. These assumptions are based on analysis and modelling of data from the UK and abroad. Their aim is to provide a 'reasonable worst case' scenario, to facilitate preparedness planning. They are not a prediction of what will happen.

### ***Summary of planning assumptions***

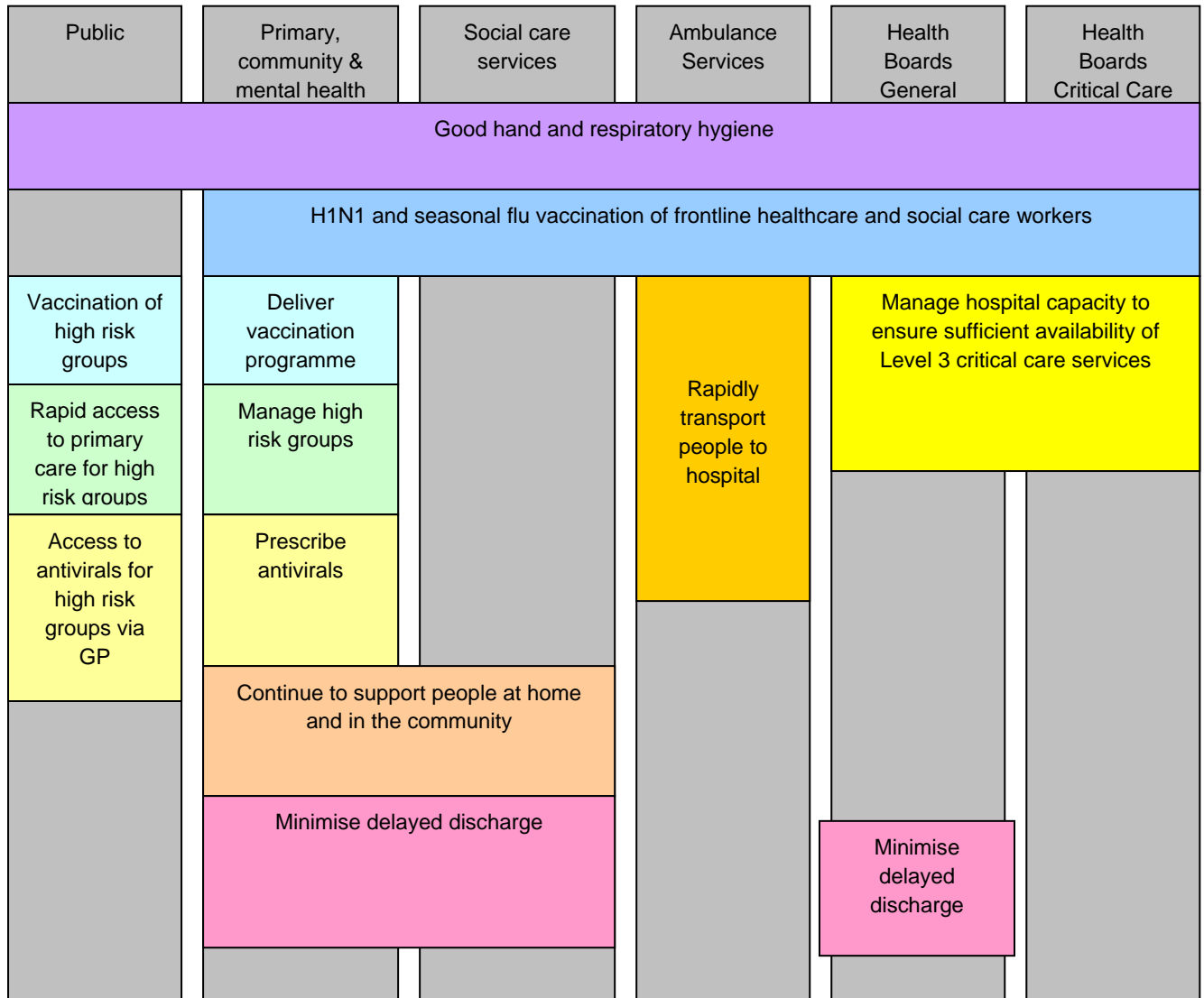
Clinical attack rate		Up to 30%
Peak attack rate	National	Up to 6.5%
	Local	4.5-8%
Case complication rate		Up to 15%
Case hospitalisation rate		Up to 1%
	Level 3 critical care	Up to 25% of those hospitalised
Case Fatality Rate		Up to 0.1%
Peak sickness absence		Up to 12%

15. These figures are an average for all ages in the population. Although evidence is still accumulating, the current best estimates indicate that the overall proportions of each age group who develop complications will be comparable.
16. In all cases, these figures represent the upper estimates, and may in fact be lower. It should also be noted that these planning assumptions do not take account of the potential impact of the vaccination programme.

### ***Preventing people becoming seriously ill as a result of swine flu***

17. Critical care services operate integrally as part of our whole health and social care system, and cannot be viewed in isolation. This approach recognises these inter-dependencies. It seeks to maximise the contributions that all parts of the system can make in order to relieve pressure on critical care and ensure that patients most likely to benefit from this specialist care can access it when needed.
18. This means trying to prevent as many patients as possible becoming infected with flu. This will be achieved by providing appropriate primary care interventions to try to prevent serious illness developing and ensuring that patients who need hospital care are rapidly and appropriately admitted with those most likely to benefit from critical care accessing it when needed.
19. The diagram below summarises the strategy for ensuring that critical care services are able to cope with the anticipated demand.

## Taking a whole-systems approach to critical care in swine flu pandemic



20. Using resources most effectively is particularly relevant during the peak weeks when significant numbers of people are likely to require hospitalisation. Clearly, any steps taken to focus resources more towards patients with flu should only be taken as, and when, the situation requires them, although detailed planning will need to have taken place in advance. As part of their comprehensive planning processes, Boards will include strategies to maximise the benefit of existing resources, staff and equipment.

### ***Preventing infection***

21. Everyone, from members of the public through to frontline health and social care staff, can reduce the spread of infection by following hand washing and respiratory hygiene advice. Taking extra precautions to protect others from infection (particularly those who are most vulnerable to swine flu) could have a significant impact on the number of people who become seriously ill. A public campaign to raise awareness is ongoing.
22. Vaccination is the most important way by which we can prevent people catching swine flu and developing serious illness as a result. Subject to the licensing process and supply, vaccinations against H1N1 will be offered to high-priority groups from mid-October. Vaccinations against seasonal flu will be offered to high-priority groups from the beginning of October. People who are known to be vulnerable to infection are urged to ensure they are vaccinated to protect themselves and help support the NHS and social care services. A national communications campaign is being developed for the vaccination programme which will inform the general public.
23. Frontline health and social care staff are prioritised for both H1N1 and seasonal flu vaccinations because their job places them at greater risk of infection. NHS staff have a responsibility to themselves, their families and their patients to ensure they are protected from flu this Winter. NHS Boards and their Chief Executives, Medical and Nursing Directors are accountable for ensuring that the benefits of vaccination are fully explained to their frontline staff, and that vaccine take-up is maximised.

### ***Preventing unnecessary hospital admissions***

24. Although good hygiene measures and vaccination might prevent significant numbers of infections, many people may nevertheless become infected with influenza A(H1N1). Clinical support provided by primary care should help to reduce the number of patients who need hospitalisation, with GPs helping to manage their illness at home or in the community wherever possible. It is particularly important that pregnant women and infants see their GP urgently.
25. The support of community, mental health and social care services will be critical to ensure that patients can be effectively looked after out of hospital. All relevant organisations, i.e. NHS, local authority, private and third sector providers of health and social care, are expected to have robust and tested plans in place to alleviate pressure on their services and to avoid people requiring hospital admission where possible.
26. Mental health services, for example, should have considered how they can best meet the needs of their service users to reduce the need for them to be admitted to acute hospitals because of influenza A(H1N1). Equally, primary and community services should have arrangements in place to enable more people to be cared for in community settings.

27. Local authorities have also taken steps to ensure the business continuity of their services and it is essential that children and adult social care services are able to continue to care for people during this outbreak of pandemic flu. It is particularly important to ensure that the providers of nursing, residential and domiciliary care continue to operate effectively, and that carers are supported to continue to look after vulnerable people. Vaccination of frontline social care staff should help ensure the resilience of these organisations.

### ***Current Capacity***

28. Details of current adult and paediatric ICU and HDU bed provision across Scotland and the maximum Level 3 capacity which can be achieved are set out in the table below. The facilities to provide Level 3 upscaling will in most circumstances be drawn from Level 2 (HDU) theatre and recovery areas. This in turn will naturally impact upon the provision of elective surgical activity and will also require some Level 2 care to be provided in acute general wards.

Category	Current Number of Level 3 (ICU) Beds	Current Number of Level 2 (HDU) Beds	Maximum Level 3 (ICU) capacity
Adult	180	196	378
Paediatric	24	14	48

### ***Arrangements for Increasing Capacity***

29. In addition to detailed planning at local NHS Board level, a National Education and Training Co-ordinating Group, under the chairmanship of the Chief Executive of NHS Education for Scotland has been set up to develop and deliver a plan which will support Boards in building and maintaining their critical care workforce capacity and capability by the end of October 2009. Educational initiatives are focussed upon the upskilling of staff competencies, and/or expanding the scope of existing skills, for example in supporting staff who normally care for adults to safely look after children. The Group has already provided initial advice to NHS Boards and made available appropriate training programmes and online training resources. It will continue to liaise with NHS Boards and respond to education and training needs throughout the duration of the pandemic.

30. Alongside this work detailed planning is underway, in collaboration with the Critical Care Management Group, to address medical staff requirements. This involves assessing existing staff skills and capabilities and mapping:

- ITU and HDU existing, and potential, bed capacity (for adult, paediatric and neonatal services);
- Existing staff and skill mix levels;
- Numbers and level/experience of additional staff required;
- Planning assumptions and impact on other service provision;
- Number of staff at each competence level and the education/training required to elevate to the next level;
- Governance systems in place; and
- An Action Plan describing how the staffing requirements will be achieved.

31. This scoping work is on-going and will be amended to take account of future developments. Each Board has its timetabled escalation plan in place outlining the training/education needed to ensure that the additional staff trained in August, September and October meet the requirements and are in place to support an increase in critical care capacity of at least 100% by end October 2009 - as set out at paragraph 6.
32. A governance framework to support nurses, midwives and allied health professionals working within the context of altered circumstances in relation to pandemic flu is being developed. This document will support and augment existing governance systems in place, and will mitigate risks associated with altered circumstances during periods of surge. It is anticipated that it will be applicable to current and future scenarios where there is a rise in demand for healthcare as a result of an adverse health situation.
33. This document specifically sets out a high level governance framework, at national, NHS Board (executive and operational) and individual levels, to assist in the identification and management of professional and clinical issues for Nurses, Midwives and Allied Health Professionals (NMAHPs) within the context of altered circumstances brought about by pandemic flu. The document has been developed by NMAHP leaders to provide an agreed structure to support local arrangements. However the principles reflected in this document could equally apply to any healthcare professional group.
34. This will include ensuring that staff are competent before any duties are delegated to them. Boards, working with critical care networks, are therefore taking steps now to refresh the training for staff who have worked in critical care in the past. They are also taking steps to provide appropriate training for other staff to enable them to work flexibly during the peak of the pandemic as well as developing plans to ensure that staff who are working outside of their normal areas of expertise are appropriately supported and supervised.

### ***Delivering increased capacity***

35. The NHS in Scotland is planning a phased approach to achieving the outcomes in this plan, aimed at matching the level of response to the pressure being felt by local services. The priority is to enable as many people as possible to benefit from critical care, and in doing so save lives.
36. The following table sets out a summary of the actions that could be taken by local organisations, recognising the differences between hospitals with regard to critical care capacity and how these services are provided.
37. The actions set out in phase one are comparable to those which many hospitals may take during the winter. Often this response involves increasing the capacity of critical care by opening additional critical care beds. To help reduce demand from non-emergencies there may be some corresponding reduction in elective activity.

38. Should a surge in swine flu cases occur, it is expected that critical care services will experience a significantly greater increase in demand this winter. Board services will then enter phase 2, doubling their bed capacity.

39. The implementation of the measures described in the table will depend on the scale of demand facing hospitals due to patients hospitalised with H1N1. Not all of these actions will be taken by all hospitals but they are appropriate responses to large increases in demand and would be implemented after consideration of the options open to each hospital.

Phase	Actions	Implications	Effect on critical care capacity
Current Position	Test and refine plans to increase capacity	None.	No increase
One	<ul style="list-style-type: none"> <li>• Cancellation of elective surgical procedures that require post-operative critical care admission</li> <li>• Opening of 'closed' critical care beds</li> <li>• Expansion of nursing capacity by increasing agency or bank staff support</li> <li>• Where necessary, secondment of additional medical staff from elective duties e.g. anaesthesia</li> <li>• Discharge of suitable patients to other ward areas (with appropriate upgrade in medical/nursing support for these areas)</li> <li>• Non-clinical transfer (if appropriate and capacity exists) to other critical care units</li> </ul>	<ul style="list-style-type: none"> <li>• Paediatric critical care referrals still to tertiary centres</li> <li>• Reduced occupancy of Level 2 to assist patient flow</li> </ul>	~20% increase in Level 3 beds (with potential reduction in Level 2 beds)
Two	<p>As for Phase 1 plus:</p> <ul style="list-style-type: none"> <li>• Conversion of Level 2 (HDU), Theatre and recovery areas into Level 3 facilities</li> <li>• Creation of Level 2 facilities in other clinical areas (if required)</li> <li>• Review / cancellation of staff leave</li> <li>• Cancellation of all non-urgent surgery</li> <li>• Deployment of reserve-trained critical care nursing/medical staff</li> <li>• Review of critical care trained nurse:patient ratios</li> </ul>	<ul style="list-style-type: none"> <li>• All elective surgery postponed</li> <li>• Outpatient appointments postponed</li> <li>• Selected paediatric patients may be managed in adult ICU with paediatric medical and nursing support</li> </ul>	Doubled

40. This doubling of capacity will enable patients who might appropriately benefit from critical care to be cared for in the peak of the pandemic in numbers greater than would normally be possible. This expansion will necessarily have an impact on the intensivist support that can be provided to each patient, as well as an impact on services elsewhere in the hospital. It will be underpinned by education and training of staff to support upskilling of competencies to maximise flexibility. This will ensure good governance, appropriate supervision and patient safety.
41. For most Boards, the extra capacity created will come from upgrading of level 2 (HDU) beds theatre/recovery areas and post-operative surgical beds. In some cases, this means that Level 2 care will need to be provided by staff with appropriate skills and competencies on general acute wards to patients who are recovering and are able to be 'stepped-down' from Level 3 beds. This is necessary to maintain the flow of patients through the hospital, and free-up Level 3 facilities for other, sicker, patients.
42. In routine circumstances, adult critical care units seek to avoid patient transfers as far as possible, unless there are cogent clinical reasons for doing so. However, if demand exceeds supply in one unit and a transfer is therefore necessary there are well-established arrangements involving the Scottish Ambulance Service and the adult and paediatric critical care networks in Scotland to achieve this.
43. Information on critical care bed availability is co-ordinated between the Adult Centres through Wardwatcher, (an on-line bed availability monitoring system) and by close liaison between the 2 paediatric Level 3 centres in Glasgow and Edinburgh.
44. In order to create capacity, hospitals may need to redeploy ventilators and other essential equipment that is normally used elsewhere. Similar decisions will need to be taken in relation to medicines and consumables.
45. To staff the additional beds, existing critical care staff may be asked to work longer hours, and reserve staff deployed to critical care facilities. In addition, some staff, e.g. anaesthetists, those who normally work in recovery areas or on specialist respiratory wards, have skills which can be used to manage patients in critical care. These staff will need to be deployed to critical care to boost the numbers of staff who are able to manage critically ill patients under supervision, supplementing the cohort of staff who usually work in critical care.
46. Depending on how many extra beds are required, it may be necessary to change the normal staffing ratios with fewer highly specialist staff, supported by non-specialist nurses, looking after more patients. The mechanisms to support staff to take these steps are detailed below. The Pandemic Flu workforce guidance, which was revised and published on 11 August 2009, advises Boards on the preparation of redeployment plans, including considering the use of staff from other sources and former staff. This is covered at paragraph 75 below.

47. Elsewhere in the hospital, changes will be needed to keep as many critical care beds as possible free for pandemic flu and emergency patients, and allow staff to be redeployed to support expanded critical care units. For example, the majority of inpatient elective surgery could be postponed and outpatient activity could need to be reduced. These decisions will be made on a needs based approach at local level.
48. Paediatric critical care facilities tend to be smaller than adult units, reflecting the smaller proportion of children in the community to adults and the fact that children require critical care more rarely. Although some children are occasionally admitted to adult critical care facilities, very sick children in Scotland, under the age of 13, are normally transferred to and cared for in a specialist paediatric critical care facility.
49. Scotland has two paediatric Level 3 units (PICUs) based in Edinburgh and Glasgow. Two other hospitals, the Royal Aberdeen Children's Hospital and Ninewells Hospital in Dundee also have Level 2 (HDU) units. In association with the Scottish Ambulance Service, the two PICU units also provide the National Paediatric Retrieval and Transport Service.
50. Outwith the established Level 3 PICUs, the decision may be made that it is necessary for a child of an appropriate age or weight to be treated in adult critical care facilities, with direct input from appropriately trained paediatric medical, anaesthetic and nursing staff and with support from the specialist centres. For those hospitals with established paediatric HDUs this will involve close working with the adult Level 3 (ICU) facilities.

### ***Clinical Guidance, Professional and Ethical Support***

51. Clinical guidance to support clinicians in emergency and acute admissions units has been provided to Boards. This has been developed by an expert panel of Scottish clinicians and sets out the criteria which should trigger the involvement of ICU specialists in clinical management. Covering adult and paediatric care, the guidance also includes detail on:
- Infection control;
  - Recognition of common presentations;
  - Features suggesting severe infections and/or complications;
  - Antiviral therapy;
  - Assessment of secondary bacterial pneumonia and its treatment;
  - Pregnancy.
52. A group of the foremost clinical and logistical experts in the 4 UK countries has been established to provide advice to frontline staff on how to maximise the benefits for patients that can be achieved through a doubling of critical care capacity and to coordinate and support the provision of comprehensive critical care services across the UK (The Swine Flu Critical Care Clinical Group). Dr Judith Hulf, President of the Royal College of Anaesthetists will chair the group which will meet throughout the period of the current flu pandemic. The group will include representation from the relevant professional bodies.

53. The group will consider and advise upon management, staffing and logistics issues, e.g. equipment, medicines and consumables associated with an increase in demand for critical care services. It will also work with a wide range of clinicians and existing clinical groups to develop credible clinical advice and strategies to support staff to deliver critical care services through the pandemic.
54. This is likely to include, for example, advice on admission and discharge thresholds to critical care, staffing ratios, and how best to care for paediatric patients in adult critical care facilities. For example, what age, or weight, of child can be treated in an adult critical care bed, should no paediatric bed be available.
55. Scottish experts have been closely involved in producing a UK Ethics Framework for responding to an influenza pandemic. This framework is designed to help people think about the ethical aspects of their decisions, and about how to put their decisions into practice within their specific context.  
<http://www.scotland.gov.uk/Topics/Health/health/AvianInfluenza/ethics>
56. The Ethics Framework is designed to assist clinicians (who will also be guided by their own professional codes of ethics) and others in thinking about the ethical dimensions of their work in relation to a pandemic. In the context of critical care, the fundamental principle underpinning the framework is that of equal concern and respect.
57. Guidance from the General Medical Council (Good Medical Practice: Responsibilities of doctors in a national pandemic [http://www.gmc-uk.org/guidance/news\\_consultation/GMP\\_in\\_pandemic\\_draft\\_24\\_Feb\\_09.pdf](http://www.gmc-uk.org/guidance/news_consultation/GMP_in_pandemic_draft_24_Feb_09.pdf)) details the roles and responsibilities of doctors in a pandemic.

### ***Critical Care Checklist***

58. As part of the support to Boards in their planning processes a critical care checklist has been developed which focuses on assurances on availability of staff, ventilators and other equipment as well as interdisciplinary working within critical care facilities in their area. This checklist will assist Boards in strengthening their resilience in the face of pandemic flu.
59. As part of overall pandemic flu programme management, Boards are required to report to the Scottish Government on their progress towards maintaining and sustaining the 100% target on a monthly basis via the Critical Care Delivery Group, as detailed at paragraphs 6 and 29. Regional clinical leads have also been supplied with a Critical Care Escalation Framework and a worked example detailing how this can be achieved.

### ***Increasing Clinical Flexibility***

60. Under current plans, many Boards would rely on the use of theatre/recovery room equipment to expand critical care capacity. However, this has a potential drawback in that this type of equipment may not be optimal for all categories of patients requiring the forms of ventilatory support needed by flu patients.

61. There is general agreement across the critical care community (adult and paediatric) that having a reserve stock of ICU-type ventilators is a prudent and forward-thinking development. Having considered the case for the purchase of additional ventilators, the Scottish Government is funding the purchase of 40 adult ventilators and 15 paediatric ventilators. This will provide additional clinical capacity and flexibility in the provision of ventilatory support for adults and children in Scotland.

### ***Supporting NHS staff***

#### ***Preventing illness as a result of the pandemic***

62. Frontline health and social care workers have been prioritised for both H1N1 and seasonal flu vaccination. These groups are at increased risk of infection due to the nature of their work. As well as protecting themselves and their families (particularly if they have underlying medical conditions that put them at higher risk), vaccination will also reduce the risk of staff transmitting the virus to vulnerable patients. Staff vaccination will reduce sickness absence, helping the NHS remain resilient and continue caring for sick patients.

63. To maximise vaccine take-up, staff need to be fully informed about the benefits of vaccination, and able to access vaccination at a convenient time and place. NHS Boards, their Chief Executives, Medical and Nursing Directors are accountable for the success of their vaccination programmes.

64. Staff should also follow good hand hygiene practices and make use of available personal protective equipment to help reduce their risk of infection.

65. NHS employers are expected to fully support staff who are put under extra pressure as a result of the pandemic. These extra demands might have an impact on staff morale and well-being as well as their psychological health. The revised Pandemic Flu workforce guidance which was published on 11 August 2009, provides advice to Boards on addressing staff concerns, and advises that they should put in place counselling and other support service, through their occupational health services.

#### ***Enabling staff to contribute further***

66. The most straightforward way for critical care units to increase their available staffing resource to support a doubling of capacity is for employers and staff representatives to agree flexibility over working hours.

67. For example, there is provision within the Working Time legislation for staff to make an additional contribution beyond the 48 hour week for a short intensive

period, recouping the time over the following months to suit individual needs and to allow an orderly recovery back to normal services<sup>2</sup>.

68. There may also be scope for employers to increase available staff numbers to sustain services by deferring leave, including annual leave or a leave of absence for other reasons. Requests for annual leave should continue to be considered on their merits and service demands, as it is important to allow staff to recuperate from a period of intense pressure.

### ***Staff working outside normal areas of expertise***

69. Staff have raised the question of whether they will be protected from legal action as a result of actions taken during a pandemic, particularly if they are working outside of their usual role. The question arises because, in making the most effective use of their resources to expand critical care provision, hospitals may need to approach staff with previous experience of intensive care but who no longer work there and backfill these staff accordingly.
70. The risks of being sued during a pandemic are no greater than at any other time, provided that healthcare professionals are supported by their employers and continue to act reasonably. As at all other times, healthcare professionals should ensure they are acting reasonably, and that they are competent to carry out any practice requested of them. This requirement is in patients' best interests.
71. The bodies which regulate healthcare professionals have published guidance for those who are registered with them on their websites.<sup>3</sup> The guidance reminds staff that they will always be held accountable for their actions. All staff must assure themselves that they are operating safely, within the scope of their training.
72. The guidance also notes that, where staff are asked to work outside of their scope of practice by employers, they should be mindful of their duty of care to patients and the public. This will also apply to staff who are asked to work within units under considerable pressures due to pandemic flu.

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<sup>2</sup> The Working Time legislation allows staff to work more intensively for short periods and average their hours over a 17 week period, which can be extended up to 26 weeks by local agreement. The UK Government is currently negotiating to extend this reference period to 52 weeks for all staff, except doctors in training.

<sup>3</sup> **The General Medical Council:**

[http://www.gmc-uk.org/guidance/news\\_consultation/medical\\_pandemic.asp](http://www.gmc-uk.org/guidance/news_consultation/medical_pandemic.asp)

**The Nursing and Midwifery Council:**

<http://www.nmc-uk.org/aArticle.aspx?ArticleID=3691>

**The Royal Pharmaceutical Society of Great Britain:**

<http://www.rpsgb.org.uk/pdfs/fluq&a.pdf>

**The Health Professions Council:**

<http://www.hpc-uk.org/mediaandevents/statements/swineflu/>

**The General Dental Council:**

<http://www.gdc-uk.org/Our+work/Standards/Influenza+Pandemic+Statement.htm>

73. Employers have a responsibility to ensure that staff are competent before any duties are delegated to them, and that staff are appropriately supported and supervised.
74. Boards working with NES and critical care networks, are therefore taking steps now to refresh the training for staff who have worked in critical care in the past and provide appropriate training for other staff to enable them to work flexibly during the peak of the pandemic.
75. Planning has taken place between the Scottish Government and the Regulatory Bodies to agree the arrangements for former staff returning temporarily to practice to boost resources during a peak. Health Boards will want to consider how these temporarily-registered staff could best be used to augment their existing plans. The revised Pandemic Flu workforce guidance for NHSScotland Boards included guidance on developing plans for the potential redeployment of staff both within Boards and from other sources, including former staff. Boards are expected to put in place plans for the redeployment of staff in line with this guidance by 1 October.

### **Conclusions**

76. NHS Boards in Scotland are prepared to meet an anticipated surge in the demand for critical care facilities during the course of the pandemic. Using the current “reasonable worst case” planning assumptions, Boards have in place detailed plans to increase their Level 3 ICU capacity by a minimum of 100% by the end of October 2009 at latest, should it be required. Steps are being taken to ensure sufficient equipment is in place to meet demands, and detailed work is underway to ensure that staff receive appropriate training to meet the challenges which they will face.
77. The standard of care provided by critical care facilities across Scotland remains amongst the highest in the world. Whilst the challenges which could be faced are significant, the dedicated teams who provide these essential services will continue to deliver the highest possible standards of service.

### DEFINITION OF CRITICAL CARE SERVICES

1. In *Comprehensive critical care: a review of adult critical care services*, the UK Government's Department of Health recommended a move away from the division of high dependency and intensive care based on beds to a classification focused on the level that an individual needs. The recommended classifications are:
  - Level 0 - Patients whose needs can be met through normal ward care in an acute hospital.
  - 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 post-operative care and those 'stepping down' from higher levels of care.
  - Level 3 - Patients requiring advanced respiratory support alone or basic respiratory support together with support of at least two organ systems. This level includes all complex patients requiring support for multi-organ failure
2. The definitions of critical care are slightly different for children and were cited in the *Paediatric Intensive Care Society Standards* document in 2001:
  - Level I: High dependency care requiring nurse:patient ratio of 0.5:1. Close monitoring and observation required but not requiring acute mechanical ventilation.
  - Level II: Intensive Care requiring nurse:patient ratio of 1:1. The child requiring continuous nursing supervision who is usually intubated and ventilated (including endotracheal CPAP). Also the unstable non-intubated child and the recently extubated child.
  - Level III: Intensive Care requiring nurse:patient ratio of 1.5:1. The child requiring intensive supervision at all times, who needs additional complex therapeutic procedures and nursing. For example unstable ventilated children on vasoactive drugs and inotropic support or with multiple organ failure.
  - Level IV: Intensive care requiring a nurse:patient ratio of 2:1. Children requiring the most intensive interventions such as unstable or level III patients managed in a cubicle; those on ECMO, and children undergoing renal replacement therapy
3. The definition of neonatal intensive care is provided by the British Association of Perinatal Medicine (BAPM): *Standards for hospitals providing Neonatal*

*Intensive and High Dependency Care* (2<sup>nd</sup> Edition) December 2001  
designations for units:

- Level 1 units provide Special Care. Babies receiving special care may need to have their breathing and heart rate monitored, be fed through a tube, supplied with extra oxygen or treated for jaundice; this category also includes babies who are convalescing from more specialist treatment before they can be discharged. This term includes units with or without resident medical staff.
- Level 2 units provide High Dependency Care. This takes place in a neonatal unit and involves care for babies who need continuous monitoring, for example those who weigh less than 1,000g (2lbs, 3oz), or are receiving help with their breathing via continuous positive airway pressure (CPAP) or intravenous feeding, but who do not fulfil any of the requirements for intensive care
- Level 3 units provide care for babies with the most complex problems who require constant supervision and monitoring and, usually, mechanical ventilation. Due to the possibility of acute deterioration, a specialist doctor should always be available. Extremely immature infants all require intensive care and monitoring over the first weeks, but the range of intensive care work extends throughout the whole gestation period.

**LINKS TO EXISTING GUIDANCE THAT SUPPORTS EMERGENCY PLANNING AND PANDEMIC INFLUENZA PREPAREDNESS**

**Pandemic Influenza: Guidance for infection control in critical care**

<http://www.documents.hps.scot.nhs.uk/respiratory/pandemic-influenza/ic-guidance-critical-care.pdf>

**Planning and managing critical care capacities: detailed models can provide information for making good decisions**

[http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_4005318](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4005318)

**NHS Emergency Planning Guidance: underpinning materials - critical care contingency planning in the event of an emergency where the numbers of patients substantially exceeds normal critical care capacity**

[http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_081282](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_081282)

**General Information on pandemic influenza**

<http://www.scotland.gov.uk/Topics/Health/health/AvianInfluenza/mexicanswiuneflu>

**Paediatric Intensive Care Society Website (due to contain more educational material):**

<http://www.ukpics.org/>

**Intensive Care Society Website:**

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

**Association of Paediatric Anaesthetists of Great Britain and Ireland Website:**

[www.apagbi.org.uk/](http://www.apagbi.org.uk/)

**APPENDIX THREE**

**CRITICAL CARE: BOARD ESCALATION PLANS**

NHS Board	Current ICU (Level 3) capacity	Current HDU (level 2) capacity	Maximum Level 3 (ICU) Capacity
NHS Ayrshire and Arran	10	16	18
NHS Borders	4	4	8
NHS Dumfries and Galloway	4	12	8
NHS Fife	12	8	18
NHS Forth Valley	7	10	31
NHS Highland	8	10	20
NHS Grampian	14	8	27
NHS Greater Glasgow and Clyde	49	56	92
NHS Lanarkshire	15	8	30
NHS Lothian	25	20	61
NHS Tayside	10	14	21
NHS Shetland	Nil	2	Nil
NHS Western Isles	Nil	4	4
NHS Orkney	Nil	Nil	Nil
NHS Golden Jubilee	22	24	40
<b>Total</b>	<b>180 beds</b>	<b>196 beds</b>	<b>378 beds</b>