

MANAGEMENT PROCESS DESCRIPTION MPD617/2

Pandemic Influenza - NHSBT Plan

This Management Process Description replaces
MPD/PTI/DI/011/01

Copy Number

Effective

29/04/09

Summary of Significant Changes

Document has been completely re-written and made more comprehensive.

Policy

NHS Blood and Transplant (NHSBT) must be ready to respond to a Human Influenza Pandemic.

Purpose

The document describes the scale and nature of the human influenza pandemic threat and the overall approach that NHSBT will use to respond to an outbreak of pandemic influenza.

Responsibilities

Head of Emergency Planning (& EPG) – to create and maintain a state of preparedness based upon this document and associated plans and the document reflects current best practice.

NHSBT Leads for Emergency Planning – to ensure that the individual NHSBT directorates use this document for producing and maintaining more detailed specific plans..

Definitions

BPL – Bio-Products Laboratories, a directorate and distinct supply chain area of NHSBT.

NBS – National Blood Service, comprising of two key directorates – Patient Services and Blood Donation - a distinct supply chain area of NHSBT.

ODT – Organ Donation and Transplantation, a directorate and distinct supply chain area of NHSBT.

UKF – UK Forum, collaborative body bringing together CEOs and Medical Directors of UK Blood Services.

DH – Department of Health

JPAC – Joint Professional Advisory Committee, sets UKBS standards.

HPA – Health Protection Agency

SACTTI – Standing Advisory Committee on Transfusion Transmitted Infections.

WHO – World Health Organisation

ICC – NHSBT Infection Control Committee

MHRA – Medicines and Healthcare products Regulatory Agency. UK blood service regulator

UKBS – UK Blood Services

LET – Local Emergency Team

PPE – Personal Protective Equipment

Applicable Documents

Refer to Significant Documents and References listed in the Administration section in document.

Note: This document does not highlight changes from the previous version due to the comprehensive re-write of version 1 of the NHSBT Pandemic Influenza Plan (MPD/PTI/DI/011/01).

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1 Introduction

1.1 All NHS organisations are required to plan, prepare and remain prepared for human influenza pandemic. This requirement is reinforced in the high level of impact an outbreak of pandemic influenza would have for the UK in the National Risk Register prepared by the Cabinet Office.

2 Information

2.1 The influenza virus exists in many sub-types and is rapidly and constantly evolving. In forms which are well adapted to humans it is highly infectious. Its symptoms range from mild feverish disease through to severe, debilitating illness which alone or in combination with complications such as bacterial pneumonia can cause severe morbidity or death. The scope of this plan only encompasses human pandemic influenza.

2.2 Human Pandemic Influenza

Human influenza pandemics occur regularly with three in the 20th Century. It occurs when an influenza virus emerges to which the majority of the population has little or no immunity. As a result it spreads rapidly infecting large numbers of individuals. Because of its speed and extent of spread there is unlikely to be time to develop and deploy significant quantities of vaccine to prevent or reduce its impact. All human pandemic response plans, including this one, therefore assume that no effective vaccine will be available for at least the first wave of the outbreak.

2.3 Anti Virals

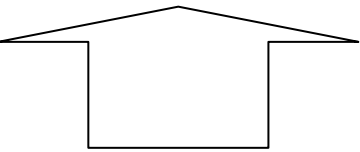
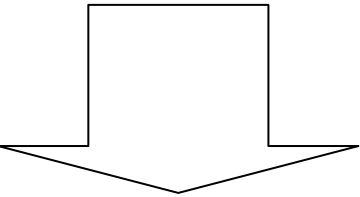
Influenza is treatable with anti-virals. These can reduce the severity of disease and/or the risk of complications and reduce slightly the duration of symptoms. In a pandemic, any individuals who take anti-virals prophylactically are quite likely to be infected with influenza after their prophylactic course completes. The UK government is not generally planning to deploy anti-virals other than for post infection treatment of symptoms very early after these first appear (within 24-48 hours). This strategy means that it must be assumed that anti-virals are of no significant benefit in lessening the disruptive impact of influenza.

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2.4 World Health Organisation (WHO) and UK Alert Levels

WHO and UK pandemic alert levels will form an important framework for responding to the impact of the pandemic. This plan uses the alert levels as potential triggers but does not use the alert levels as triggers for specific actions.

INTERNATIONAL PHASE ALERT LEVELS (WHO)		Possible UK responses/levels
Inter-pandemic period		
Phase 1	No new influenza virus subtypes have been detected in humans. An influenza virus subtype that has caused human infection may be present in animals. If present in animals, the risk of human infection or disease is considered to be low.	
Phase 2	No new influenza virus subtypes have been detected in humans. However, a circulating animal influenza virus subtype poses a substantial risk of human disease.	UK not affected OR UK has strong travel/trade connections with affected country OR UK affected
Pandemic Alert Period		
Phase 3	Human infection(s) with a new subtype, but no new human-to-human spread, or at most rare instances of spread to a close contact.	
Phase 4	Small cluster(s) with limited human-to-human transmission but spread is highly localised, suggesting that the virus is not well adapted to humans	UK not affected Or UK has strong travel/trade connections with affected country OR UK affected
Phase 5	Large cluster(s) but human-to-human spread still localised, suggesting that the virus is becoming increasingly better adapted to humans, but may not yet be fully transmissible (substantial pandemic risk).	
Pandemic Period		
Phase 6	Pandemic phase: increased and sustained transmission in the general population. Past experience suggests that a second, and possibly further, waves of illness caused by the new virus are likely 3-9 months after the first waves subsided. The second wave may be as, or more intense than the first.	UK Alert Levels 1 Virus/cases only outside the UK 2 Virus isolated in the UK 3 Outbreak(s) in the UK 4 Widespread activity across the UK
Post pandemic period		
	Return to inter-pandemic period	Recovery

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2.5 Planning Assumptions

This plan is intended to help NHS Blood and Transplant counter the “Reasonable Worst Case” assumptions, right hand column in below:

Clinical Scenario	"Best Scenario"	"Medium Severity"	"Reasonable Worst Case"
Clinical Attack Rate (% population ill)	5-15%	15-35%	35-50%
All demographic groups affected similarly	Yes		
Over how many waves (for planning purposes)?	1	1	1
Could be over how many waves?	1-3	1-3	1-3
Duration of Pandemic Wave (locally / small groups)	5-8 weeks		
Duration of Pandemic Wave (nationally)	12-17 weeks		
Extra deaths due to Pandemic Flu (% those ill)	0.40%	1.50%	2.50%
Extra deaths due to Pandemic Flu (% population)	0.04%	0.45%	1.25%
Assume international borders remain open?	Yes		
Cancel mass gatherings and/or social distancing?	No	Possibly	Yes
Schools closed as policy to limit spread?	No	Probably	Yes
Most elective healthcare cancelled?	No	Possibly	Yes
Effective Pandemic Flu Vaccine available?	No		
Pandemic vaccine available in first wave	No		
Antivirals generally available for prophylaxis	No		
Antivirals generally available for treatment	Possibly	Yes	Yes
Face masks for public encouraged/supplied as policy	No	No	No
Face mask wearing common place / an expectation?	No	Possibly	Probably
Illness / absence from work duration (calendar days)	9	10	11
Assumed Impact of Pandemic Flu on Blood / Transplant Organisations			
Reduction in NHS transplant capacity	5%	5-50%	>50%
Reduction in Demand for Red Cells	5%	10-25%	10-25%
Reduction in Demand for Platelets	0%	0%	0%
Reduction in Demand for Frozen Components	0%	0-10%	0-10%
Reduction in Demand for Laboratory Services	Relates to transfusion transplantation		
Reduction in Demand for Fractionated Products	0%	0%	0-5%
Overall reduction in Donors available	10-15%	15-25%	20-30%
Peak donor reduction (due to illness alone)	5%	10%	15%
Peak staff reduction* (incl. normal absence + caring)	5-10%	20-30%	35-50%
% Additional working days lost over whole wave	2%	4%	7%
Duration of peak	3 – 6 weeks		
Supply chain disruption (e.g. blood pack supplies)	No	Yes	Yes
Infrastructure disruption (e.g. public transport, fuel)	No	Possibly	Yes

*Peak % absence rates are likely to be worse for small localised teams of co-workers.

2.6 A key NHSBT assumption is that blood donation sessions will not be hampered by any restrictions which might be placed nationally, regionally or locally on “gatherings” restricting access to its normal blood collection venues. Some restrictions may still occur for other

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reasons such as illness of the key holder. It is also possible that as vaccine becomes available on a large scale (possibly towards the end of the first wave), then mass vaccination centres will be established. These could compete for venues normally used by NHSBT to collect blood.

2.7 Plans also assume that UK infrastructure will continue to operate with only minor, sporadic or highly localised disruptions and that UK borders will remain open to the free movement of key materials, consumables and persons (e.g. specialised engineers). This will include the movement of plasma from USA to BPL (provided it can be collected) and the movement of organs, stem cells etc. internationally to support transplantation to the extent that these treatments can continue in a pandemic. Key assumptions include:

- International borders remain open for import and export.
- Fuel supplies.
- Power and energy supplies.
- Mains water and sewerage.
- Clinical and general waste disposal including incinerators.
- Telecommunications (including mobile telecommunications).
- Information technology (particularly own services and internet connectivity).
- Public and commercial transport, road, rail, air, sea and related infrastructures.
- Emergency services cover (e.g. in event of fire).

3 Intention

3.1 Strategic Objective

The strategic intention of NHSBT is to endeavour to maintain the provision of critical products and services at or above the level demanded by the healthcare community throughout the pandemic, the recovery period and, if applicable, subsequent wave(s).

3.2 If, despite best endeavours, this cannot be achieved NHSBT will implement fair, equitable and clinically appropriate product and service shortage management strategies and plans to continue to maintain services to those in most clinical need. It may be necessary to deploy shortage management plans early based on forecasts in order to conserve available resources before they reach critical levels.

3.3 Focusing on the above objectives and approach, with effective national and local clinical input, together with managing communications with all stakeholders in an open and timely manner, will be key to reducing any adverse impact on NHSBT's reputation and public standing to a minimum.

3.4 The severity and impact of a pandemic will only become clear as the actual disease emerges. It is quite likely that the impact will be much less than the "reasonable worst case scenario". In order to manage this situation and avoid an "automatic over-reaction", NHSBT will use a range of responses and options identified to select the optimal combination of actions. Key amongst this will be clear and rapid intelligence gathering; decision-making, decision deployment and feedback arrangements.

3.5 This plan, and NHSBT's more detailed associated plans, are not therefore lists of actions that will be taken, they are instead documents describing impact, response areas and actions that need to be prepared for, considered, and selected from as the pandemic materialises.

3.6 NHSBT's pandemic response will need to be based upon forecasts of the impact rather than on actual impact. One of the major challenges of delivering the pandemic response will be to take appropriate actions in anticipation of imminent likely impact rather than waiting until the impact has actually.

3.7 Enabling objectives for the organisation will be:

- Priority and Pace – A sustained response that allows us to maximise our chances of maintaining services for the duration of the challenge.
- Focus on Essential Activities and Services to Recipients – Ensuring a continued supply of safe, high quality, life-saving products and services.
- Minimal Disruption - Standards, operating procedures and related duties and requirements will only be varied to the minimum extent.
- Donor Care and Availability – Maintaining our normal high standards of service to, and care for, donors and to create an environment in which donors are encouraged to donate and feel safe to do so without any increased risk of influenza infection.
- Staff Care and Availability – Ensuring we support our staff and those of contractors when attending our premises so as to optimise their ability to support our provision of critical, life-saving components and services.
- Transparency - Provide regular, up-to-date and accurate information to employees, their staff side organisations and others with whom we work with the aim of maintaining understanding, agreement and mutual commitment to our common cause.
- Flexibility – Delivering a response as proportionate as possible to the evolution of the actual pandemic in real time.
- Infection Control – Ensuring our response will not include actions that facilitate spread of the pandemic.
- Collaboration between Blood Services – Leadership and co-ordination of the UK Blood Services pandemic response through the UK Forum to deliver a consistent and optimal UK-wide blood service response. In addition, we will exchange information with, seek help from, and provide help to other Blood Services internationally where possible.

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4 Risk Assessment

4.1 The impact of a severe human influenza pandemic on NHSBT and the UK blood supply is likely to be very significant. Whilst blood services share much in common with other organisations, they also face some specific and unique challenges in a pandemic. When planning for human pandemic influenza, the major potential impact areas for NHSBT are:

- Transmission of influenza through blood or transplant service activity
- Changing need for blood and transplant products and services
- Donor availability and welfare
- Employee availability and welfare
- Consumables and supply chain
- Equipment and infrastructure
- Financial

4.2 Transmission of influenza through blood or transplant service activity

Influenza is generally spread via the respiratory tract and transmission via hard and soft communal surfaces. It is currently considered that the risk of additional transmissions of influenza through blood itself or NHSBT's associated activities is low. The main reason for this is that to transmit via blood, the donor has to be viremic (i.e. have infectious influenza virus in their blood stream). The expert view of influenza is that the onset of and subsidence of the major symptoms and viremia tend to closely coincide and that screening donors for absence of influenza symptoms and asking donors to report any illness which emerges soon after donation will minimise any risk of additional transmissions via blood transfusion. In the UK, this position is under constant expert review via the Standing Advisory Committee on Transfusion Transmitted Infections (SACTTI) and the NHSBT Infection Control Committee.

4.3 For organ donation the situation is less clear. It may not be possible to ascertain with any certainty whether the donor had influenza at the time of donation. In some influenza cases, the cornea is particularly infected. Solid organ recipients are particularly vulnerable because of their immuno-suppressed status and therefore the anticipated guidance would be to suspend the retrieval and transplant of donor organs across the UK (at least other than for urgent, life saving transplants). Where organs are available for these, either a test is required on the donor or, potentially, the recipient might be treated with anti-viral. If a flu test were available, retrieval and transplants would be suspended only for those (donors or recipients)

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testing positive for influenza (subject, of course, to the availability of organs and NHS capacity to retrieve and transplant these).

4.4 Changing need for blood and transplant products and services

Due to finite and relatively limited specialised capacity, intensive care facilities for treating influenza complications are likely to be under particular pressure. As result, it is anticipated that NHS medical capacity will be extensively re-prioritised towards basic healthcare and life support than might normally be the case. The expectation is that most, if not all, elective surgery and other less urgent clinical interventions will cease or at least be temporarily deferred during the worst periods of the pandemic.

4.5 In this context, the demand for NHSBT's services will reduce. Less blood and support for blood transfusion will be required. Most international predictions of reduced red cell demand range between 10 and 25% (25% from SARS, Toronto). However, due to successful efforts in the UK over recent years to reduce avoidable blood transfusion, demand for blood component therapy in influenza will not fall by the significant amount that it would have in previous times as a result of suspension of elective healthcare. The demand for certain blood components, such as platelets, may not reduce at all. NHSBT's pandemic plans therefore assume only a modest (10%) reduction in demand for red cells and no reduction in demand for other blood components. With the notable exception of frozen plasma components which can be stored for up to two years, most blood components have a short shelf life and significant stock-piling is not practical or possible.

4.6 Specialised procedures involving stem cell transplantation are likely to be deferred by the NHS until after the pandemic where possible. However, patients who are already undergoing treatment or who are already conditioned for a transplant are expected to continue to be treated.

4.7 The demand for specialised diagnostic services provided by NHSBT are likely to reduce considerably as elective healthcare and transplantation activity is temporarily curtailed across the NHS. There is a possibility that laboratories across the NHS, finding themselves short staffed, will either refer samples to NHSBT which they would normally have dealt with themselves or request staff from NHSBT to assist them. NHSBT will aim to assist in these circumstances if it can do so without compromising any of its own critical activities.

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4.8 The demand for non life-saving tissues is likely to fall as capacity to perform elective work in the NHS reduces significantly. Demand for skin or other life-saving tissues is unlikely to change significantly.

4.9 NHSBT is planning to support any transplant activity which is required in a pandemic although it is anticipated that there is likely to be a very significant drop in organ transplantation activity during the worst phases of the pandemic at least.

4.10 The demand for fractionated blood products is assumed not to be significantly changed by a pandemic. It is possible that there could be some increase in demand or opportunities arising if other commercial suppliers cannot supply their normal contracts. Due to long shelf lives, stock policies and the general nature of the production processes of the fractionation plant at BPL it is assumed that we will aim to hold adequate stocks to be able to continue to meet demand for these products through a pandemic.

4.11 It is currently assumed that there will not be any moves to use “influenza immune plasma” to treat victims or to reduce the incidence of pandemic influenza in the absence of vaccine. It is further assumed that there will not be any demand for any pandemic influenza specific immunoglobulin production from BPL. However, it is known that this area remains under discussion in the USA and that there is a very remote possibility of this position changing. Any demand for such products would have a very significant additional impact on blood organisations like NHSBT.

4.12 Donor availability and welfare

Blood Donation

Blood donors (including those giving plasma in the US for supply to BPL) will be infected by pandemic influenza to the same extent as the general public: Donors will become ill and will need to care for others. Those in work will have less time to give as their employers become stretched and people are likely to modify their normal social behaviour considerably.

4.13 Donors will therefore be much less likely to donate blood. In addition, normal donor selection requirements mean that donors cannot give blood until two weeks after making a full recovery (i.e. two weeks later than they might return to work, for example). Those who

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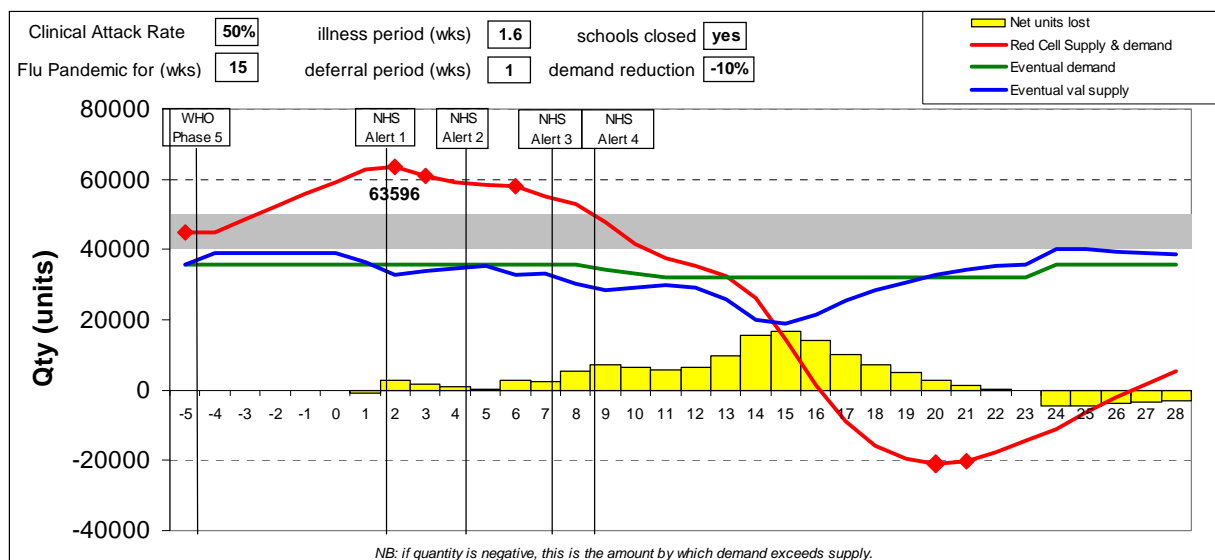
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have been in close contact with a person having an infectious disease such as influenza are also normally asked not to give blood for at least seven days after contact.

4.14 There may also be significant changes in donation patterns in advance of the actual pandemic as the WHO pandemic alert level rises due to donors re-prioritising their own activities.

4.15 In a severe pandemic, applying all normal donor eligibility criteria, work carried out in conjunction with modellers at the Department of Health has demonstrated that there could be almost no eligible donors available around the pandemic peak. Overall, we estimate that even with significant mitigation measures in place there could still be a reduction in total blood collection of about 30-40% over the whole pandemic wave (cf. 0-10% reduction in demand for blood components).

4.16 Blood supply is predicted to be severely compromised and, without intervention, blood stocks are likely to run out. This possibility has been flagged to NHS planners and is included in the Secondary Care Guidance for Acute Trusts and in the overall National Framework Plan. The NHSBT blood supply model set up with a starting stock of about 45,000 units, a significant early stock build as the pandemic approaches, and the parameters stated is represented here:



4.17 There may be some restrictions on normal collection sessions if, for example, universities were to close or if there are any venues which became unavailable (e.g. due to illness of key holder, temporary closure of businesses or, possibly, restrictions placed on the

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use of venues locally for gatherings of persons). A further complication which may impact upon blood collection towards the end of the first pandemic wave or beyond relates to the potential vaccination of the public against influenza as a vaccine becomes available. If a mass vaccination approach is deployed then NHSBT could find itself competing with local authorities for venues normally used for blood collection.

4.18 Organ Donors

NHSBT will aim to continue to retrieve tissues far as possible although there may be significant restrictions on these activities in hospitals due pressure on mortuary space and possible changes around the management of the deceased. Tissues will not be collected from donors who are known to have died from influenza. Overall, there are likely to be significantly fewer tissues available for retrieval in these circumstances.

4.19 It is anticipated that there will be a significant decrease in the number of donated organs for transplant. This is primarily because of anticipated limitations of NHS capacity to continue organ retrieval and transplant surgery but also because of increased risk of transmission of influenza to organ recipients.

4.20 The welfare of donors and, particularly in the case of Tissues and Organ donors, their families, will be an important priority. NHSBT's normally high standards of care will need to be preserved throughout the pandemic.

4.21 All plasma for fractionation by NHSBT is imported from the USA. It is assumed that deliveries will be largely uninterrupted as international borders are expected to remain open. However, the quantity of plasma collected could significantly reduce due to lack of available donors in the USA. This could cause short term supply problems for BPL.

4.22 Employee availability and welfare

NHSBT's staff and those of suppliers and contractors on whom NHSBT depends will be severely impacted by the pandemic. Staff absence rates could peak between 25% and 40% with small teams potentially being hit even harder (up to 100% absence) for short periods of 2-3 weeks.

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4.23 It cannot be assumed that resources will be available in the market place (e.g. agency staff) nor from potential mutual aid sources. Contractors will be equally hard hit. Employment pressures across society (e.g. the need to work extra shifts) is likely to impact on blood donor availability also.

4.24 ODT will need to be particularly mindful of the welfare and deployment of transplant coordinators who are based in hospital trusts. Other areas of NHSBT who have staff who are either based in hospitals or those whose work frequently takes them into hospitals will need to be considered carefully. Generally, these staff will be expected to follow the rules of the host hospital trust and be provided appropriate access to measures put in place by them. However, it is worth considering that these members of staff could be more anxious than others and could also find themselves being approached directly by the hospital trusts where they are based with requests to redeploy to the NHS front line.

4.25 There is a small but real risk that entire NHSBT departments or sites could be forced to close for short periods due to lack of key staff.

4.26 Consumables and supply chain

Supplies of key consumables will also be impacted. Discussions with key suppliers and modelling have suggested that suppliers may be forced to close factories for short periods at the pandemic peak due to shortages of their key staff. Some factories are likely to take time to recover to their full pre-pandemic capacity. There will be a significant resulting backlog which is likely to require a protracted re-stocking period. The combination of these impacts is likely to erode any safety stock levels and could cause localised or short term shortages of key consumable items. Timing of supply chain difficulties for NHSBT's suppliers relative to our own problems could be different depending on their geographic location.

4.27 Without careful planning and adequate stocks, these shortages may be further exacerbated by NHSBT increasing its use of consumables as it builds blood stocks ahead of the pandemic resulting in severe and, possibly, prolonged shortages at or after the pandemic peak. Donor availability is likely to restore relatively rapidly and post pandemic peak, such a shortage of consumables could seriously hamper any efforts to restore blood stocks quickly in time for a potential second wave.

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4.28 Maintenance and support providers may face similar staff pressures and potential service outages around the pandemic peak. The timing of such outages could also be different to the timing of the local peak especially where technical support comes from overseas.

4.29 Unlike much of the NHS, NHSBT deals almost entirely with well persons. Nevertheless, appropriate increased infection control measures will be required leading to demand for consumable items which are either not normally used at all (e.g. face masks) or which are currently used but will be required in significantly larger quantities in a pandemic (e.g. sanitising hand gels).

4.30 Face masks are a particularly challenging issue for blood services. According to all current UK guidance face masks will not be required in a well person setting. This is reinforced by HSE guidance and NHSBT's own pandemic influenza COSHH risk assessment carried out jointly with Trade Unions. If there is widespread use of face masks by the general public, face masks may become an expected norm amongst donors and staff, putting pressure on NHSBT to provide and manage masks even though not scientifically justified. To mitigate this risk a stock pile of masks has been procured by NHSBT.

4.31 Equipment and infrastructure

NHSBT's own infrastructure of buildings, IT systems, vehicles and equipment could be impacted due to insufficient staff or equipment breakdown and difficulty sourcing repairs, fuel, etc.

4.32 Financial

There will be a significant impact on the economy as a whole as a result of lost capacity and income. In addition, there will be additional costs of maintaining the organisation through the pandemic. For example, many organisations bear the additional cost of paying staff for more absence than normal, they will also be forced to cover this absence with more expensive options such as overtime or agency staff.

4.33 Public sector organisations, particularly those funded via income for products or services will be far from immune from this effect. Estimates made for NHSBT of the possible net financial impact of a severe pandemic have been made. In total, we estimate that the total net financial impact could be £21.7m (4.5% of NHSBT's total annual budget). Most of

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this is felt by business involved with blood as it is the largest part of NHSBT and because it is funded directly by income from its products and services. Similar effects will be experienced by all public sector organisations which will make the likely availability of public funding to redress this impact after the pandemic severely limited.

Financial Category	NBS £	ODT £	BPL £	NHSBT £
Income				
Total Lost Income to NHSBT	20009435	0	0	20009435
Expenditure				
Reduced variable Costs	-3520862	0	0	-3520862
Additional staff costs to replace lost time	2534834	61560	387826	2984219
Additional response costs - non pay	2210792	14423	14423	2239638
Total Additional Net Costs (i.e. to NHS)	1224763	75983	402249	1702995
As a % of total annual NHSBT / Division costs	0.33%	0.46%	0.42%	0.35%
Total Net I&E Impact on NHSBT	21234198	75983	402249	21712430
As a % of total annual turnover	5.72%	0.46%	0.42%	4.50%

5 Method

5.1 Response Activities

The key response activities required from NHSBT to mitigate the risks identified in section four are:

- Leadership, Command, Control and Coordination
- Prioritisation of activities and operational capacity
- Communications
- Maximising and managing the available supply
- Donor safety and availability
- Staff safety and availability
- Consumables and supply chain
- Infrastructure
- Finance

5.2 Leadership, Command, Control and Coordination

Clear and visible leadership of the NHSBT response will be provided by robust existing management arrangements enhanced, as appropriate, by emergency response command and control arrangements. NHSBT will also act as a co-ordination point for the overall UK Blood Services response. Effective clinical as well as managerial leadership will be vital.

5.3 The established emergency command and control response structure, in its current form will not be used for responding to an influenza pandemic. This system is designed in order to allow the management of an emergency to be effected with the minimum interruption to normal business, it avoids involving any more managers than necessary in response. Because of the duration of a pandemic and the fact that it is anticipated that it will impact on every part of the organisation simultaneously a command and control structure based on normal management arrangements will be deployed.

5.4 However, the need to maintain the integrity of operational supply chains at local level and the requirement to collaborate closely and regularly across functional boundaries (especially in relation to the redeployment of staff across these boundaries to maintain those local supply chains) the local element of the command and control will also be deployed. Under this system, Local Emergency Teams (LETs) led by the local Emergency Planning Manager will be formed and used to co-ordinate the local response. The local Emergency

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Planning Manager and LET will hold delegated authority to transfer NHSBT staff between functions locally and will be responsible for maintaining the operational supply chains from donor to recipient at the local level.

Specific emergencies occurring during the pandemic would be managed using the normal emergency planning command and control arrangements.

5.5 The timing and duration of the pandemic command and control arrangements will be important. It is assumed that the organisation will formally switch from “planning” through “preparedness” (the responsibility of the EPG at WHO 3 and 4) to “response” mode at the announcement of WHO Phase 5. From this point, until the pandemic is “over”, addressing the flu pandemic becomes the organisation’s top priority.

5.6 Enormous co-operation and good will, with both management and staff at every level being flexible enough to change their responsibilities, areas of work and their primary lines of accountability possibly on a day to day basis.

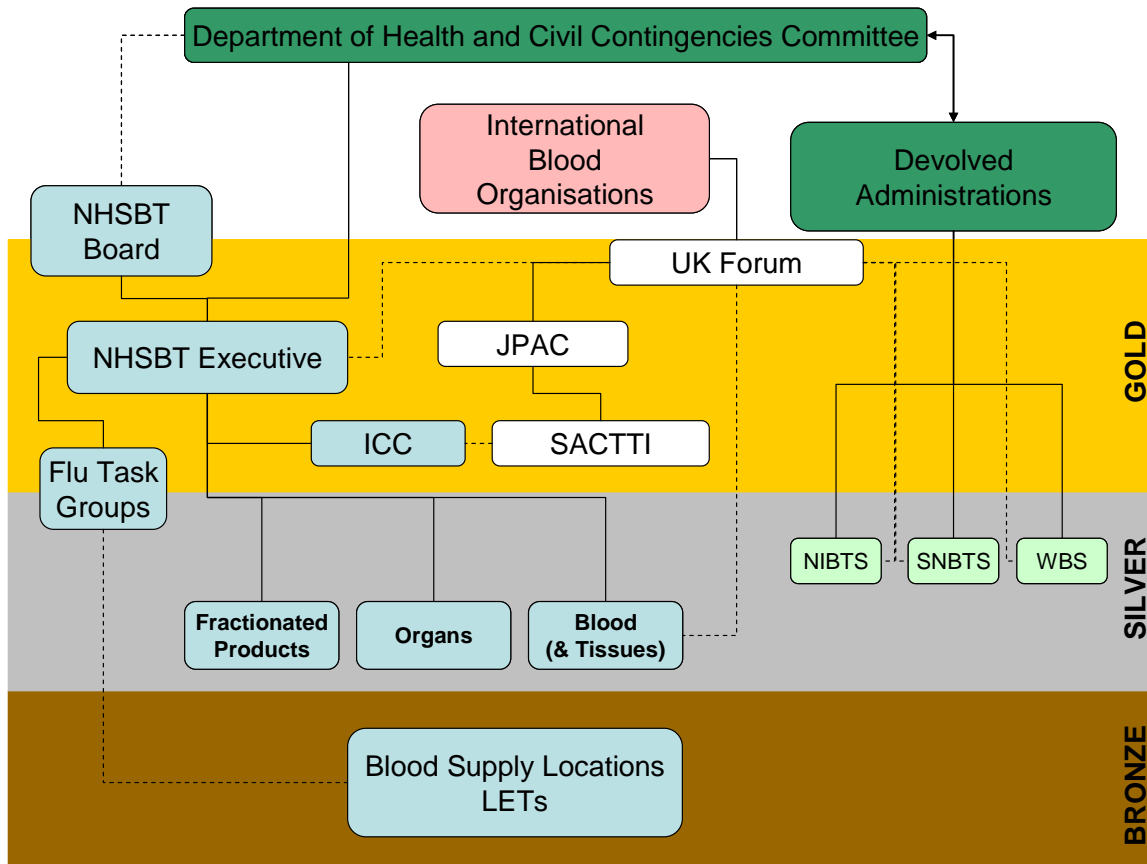
At every level, Gold – Strategic; Silver – Tactical and Bronze - Operational key players must ensure that they have robust deputising arrangements in place for an effective succession plan. It is recommended that every key player identifies at least two deputies to cover their role within the response.

5.7 The Gold team will need to consider the use of small teams with specific remits. These flu task groups could be convened with the following remits:

- Intelligence gathering and modelling (to incorporate staff attendance blood stock and critical consumables management)
- Communications
- Staffing and Human Resourcing
- Guidelines, practice and regulation compliance
- Blood stock management and consumable stock management
- Recovery

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5.8 Command, Control and Coordination arrangements are depicted below.



Note to figure: Solid lines show formal lines of accountability. Dotted lines show collaborations.

5.9 UK Blood Services (UKBS), UK Forum and JPAC

NHSBT is responsible for about 82% of the UK blood supply and is the sole plasma fractionator, provider of organ donation services and some tissue services (e.g. skin). The UK Forum comprises the Chief Executives and Medical Directors of all four UKBS. It has been agreed by the UK Forum that NHSBT will take the lead role in both emergency planning and response co-ordination including blood stock management in a UK wide emergency including pandemic influenza.

For the blood supply chain, the four UK Blood Services are:

- NHS Blood and Transplant (NHSBT) as NBS – covering England and North Wales
- Northern Ireland Blood Transfusion Service (NIBTS) – covering Northern Ireland
- Scottish National Blood Transfusion Service (SNBTS) – covering Scotland
- Welsh Blood Service (WBS) – covering South and Mid Wales

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The UK Forum is the parent body of the Joint Professional Advisory Committee (JPAC). A number of the sub-committees of JPAC are relevant for pandemic influenza but one is of particular importance - Standing Advisory Committee on Transfusion Transmitted Infections (SACTTI). As a pandemic materialises, SACTTI and JPAC will be expected to continuously review emerging information about the pandemic, modify guidance and provide advice accordingly. UK Forum and UKBS Emergency Planning Action Group would draw on this advice to review and finalise their planned responses.

5.10 NHSBT Infection Control Committee (ICC)

The ICC is a specific “standing committee” within NHSBT which, in a pandemic, would be required to advise on infection control and work closely with SACTTI to review and revise guidance in response to the pandemic.

5.11 Prioritisation of activities and operational capacity

NHSBT will re-prioritise its activities in order to focus on those which are most critical to maximise its capacity. We also take into account changes in demand for services and re-deploy available resources to continue to meet these demands as far as this can be achieved safely. Re – prioritisation will be based upon the Critical Activities Analysis supported by the individual directorate and/or service Business Impact Analysis which has already been undertaken. Where there is contention for resources between activities of similar criticality, these must be resolved with clinical input.

5.12 Critical Activity Analysis

Categorises activities into four groups where 1 is most critical and 4 being the least critical with the following definitions/actions:

For detailed information about the criticality of specific activities refer to the current version of the Critical Activities Analysis found via the list of detailed plans in the Administration Section.

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Criticality	Lost Time Period (Recovery Time Objective)	Action
1	48 hours or less	Continue with the activities if possible.
2	Between 48 hours and 1 Week	If all lower priority activities already suspended, consider stopping these activities for short periods.
3	Between 1 Week and 1 Month	Consider stopping these activities for up to c.1 month and re-deploy staff to more critical activities
4	1 Month or more	Stop these activities for as long as necessary and re-deploy staff to more critical activities

5.13 Business Impact Analysis

The alternative assessment undertaken by some directorates and services within NHSBT through a process of Business Impact Analysis. Here the criticality - Impact and Recovery time objectives have been assessed using the following criteria:

Level of impact	
1	No disruption but may need to communicate problem
2	Minor disruption some sessions cancelled, minor risk to reputation or finances
3	Significant disruption actual harm or staff medium risk to reputation or finances
4	Severe prolonged disruption to service, major risk to reputation or finances
5	Catastrophic, death of staff, failure of service

Recovery Time Objective	
1	Within a month
2	Within a week
3	Within a day
4	Within 3 hours
5	Within an hour

5.14 BPL will adjust its production programme as far as possible around the actual / forecast availability of resources. It is possible to close the BPL factory down for a short period if necessary of between 1-2 weeks. Depending on the timing of the pandemic it may be possible to bring forward or delay the normal summer or Christmas factory shutdowns. However, even in these situations it is important to remember that certain essential staff would be required on site during shut down periods.

5.15 The majority of blood related activities involving the greater proportion of staff need to run more or less continuously. Generally, the volume or speed of throughput can be reduced where fewer numbers of staff are available but most activities cannot simply be stopped or suspended. In the NBS it will be especially important to operate flexible shifts and to redeploy staff towards those activities which are most time critical.

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5.16 In ODT it is possible to focus down for a period of time on very few critical activities provided that systems can be kept running. These key activities are primarily the waiting list and organ donor allocation services (although considerably fewer requests are anticipated) and, the statistical analysis functions performed to assist with organ allocations.

5.17 Maximising and managing the available supply

The extent to which stocks are boosted and the mechanisms for achieving this will depend on actual stock levels at the time, the general sense of public behaviour and attitudes and the available storage capacity. As a guide, the aim should be to boost and hold stocks at or near maximum capacity levels (55-65,000 units = c.11-13 days) from WHO 5. Consideration will need to be given to balancing blood groups and effective stock rotation is in place in order to ensure consistent age of blood at time of issue.

5.18 As infected persons begin to recover from influenza, NHSBT will particularly seek their support as blood donors because their natural immunity will further reduce the already very low risk of influenza transmission via our activities even further.

5.19 NHSBT blood stocks are managed nationally and modelling tools have been built that will help to predict near future stocks in a real pandemic. In a pandemic UK Blood Services stocks would be co-ordinated UK-wide by NHSBT leading data collection and action in collaboration with the other services. These arrangements will help give advanced warning of blood supply shortfalls, improve communications and provide an evidence base for decisions. Focusing stretched resources where they can maximise platelet donation and convert a greater proportion of diminishing whole blood collections into platelets are further focal points in our plans.

5.20 In the event that insufficient blood can be collected and blood supplies are forecast to fall to dangerously low levels, the UK NHS integrated blood shortage plans will be deployed to help ensure that blood supplies are conserved and the available blood is prioritised towards those whose needs are most acute.

5.21 The organ transplant donor register and allocation scheme and associated resources will be maintained in place to respond to the demands placed upon it.

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5.22 BPL generally holds a buffer stock of one month's supply of raw plasma as well as considerable finished good stocks (BPL products have long shelf lives). Fractionated blood products will continue to be provided from stock and manufacturing will be maintained as appropriate and necessary in the pandemic.

5.23 Key actions and considerations:

- Aim to meet demand for life saving products and services throughout.
- Manage available stocks at UK level (led by NHSBT) in order to ensure equitable treatment of whole UK population according to need.
- Concentrate attention on most life and time critical products, services and activities – stock up in advance where this is possible.
- Carefully monitor the NHS response and changes in activities for potential impact on NHSBT products or services.
- Implement forecasting tools for blood stocks.
- Maximise the number of donors available.
- Increase blood and plasma stocks ahead of the pandemic including considering the possibility of temporarily increasing the quantity of plasma from female donors (TRALI risk).
 - Take account of storage capacity limitations.
 - Take care to achieve an appropriate balance of blood groups.
 - Effective stock rotation and UK co-ordination will be essential.
 - Careful communication with hospitals who could otherwise start reducing their own stocks as a result of older blood being supplied.
- Be prepared to implement utilisation management aspects of blood shortage plans based on forecast rather than actual stocks to conserve supplies.
- Anticipate the possibility of hospitals sending additional diagnostic work to NHSBT as they respond to the pandemic themselves.
- Consider increasing the available shelf life of shorter life components (red cells and platelets) in order to improve stock flexibility. Careful communications with end users in hospitals are required if these changes are made. Note that:
 - Improving red cell shelf life is unlikely to increase the overall available supply especially if stocks are low. The best time to increase red cell shelf life and have an impact would be just before stocks are boosted ahead of the pandemic to minimise risk of waste at time of high stocks.

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- Bacterial screening of platelets does not necessarily increase the available shelf life at point of issue. It will probably not be worth extending platelet shelf life if the consequence is that more staff are required in order to undertake bacterial screening and there is no real extension of available life at point of issue.
- Importation of blood components from other services may be possible but is considered unlikely because most countries producing blood components from equivalent populations and to equivalent standards are likely to be affected to a similar extent at a similar time. However, if there are countries which are relatively unaffected at the time the UK is worst affected or who are being especially successful in boosting their blood supplies, this possibility should not be fully ruled out. Exploring this option via the international emergency planning network and CEO contacts (e.g. Alliance of Blood Operators, European Blood Alliance, Asia Pacific Blood Network) would be recommended in these circumstances.
 - Care should be taken not to deplete supplies in other countries ahead of them facing the pandemic for themselves.
 - The UK government should be kept closely informed via the Department of Health. This could have significant political ramifications, particularly for the UK who are unable to promise replacement blood components to others in return from its own population due to the unique UK vCJD risk.
 - Take account of practical obstacles due to the lack of standard blood component specifications and, in particular, the absence of full ISBT 128 labelling implementation in the UK.
 - Do not import blood that is unlikely to be used.
- Maintain a constant state of readiness to meet any residual demand for the allocation of available organs.
- Consider stock levels of raw plasma and finished goods held at BPL and, if appropriate, plan to increase these levels.

5.24 Donor safety and availability

The public/donor perception of what will constitute a “safe donation environment” will vary greatly depending on the public health message and the prevailing behaviour of the general public. Even so, actual expectations are quite unpredictable. These public expectations will be key and are likely to change during the pandemic. They will need to be carefully monitored and, as far as possible, flexible plans put in place to respond to such changes.

5.25 NHSBT will provide an environment for blood donation which is safe and, importantly, perceived as safe by blood donors to encourage the continuation of donation. Additional hygiene and infection control measures will be implemented at blood collection sessions as appropriate. Some additional personal protective equipment will also be required and face masks are certainly a key consideration. Should blood donors expect face masks to be worn, the blood services may have to obtain and deploy them. Therefore, NHSBT has a limited stock-piling strategy for face masks on a “just in case” basis.

5.26 There will be some significant changes to the way that donors are invited to blood collection sessions, to the arrangements for meeting donors on arrival and to the flow of work through the blood collection venue. It will be a key action to ensure that donors who are unwell or who have been in recent close household contact with a case of influenza do not attend blood collection sessions. Donors will also be discouraged from bringing accompanying persons (e.g. children).

Key basic messages for donors will be:

- If you are unwell do not try to come to give blood.
- If you are fit and well please come to try to give blood.
- Please help to maintain our life-saving services.
- Expect some changes to our practices and procedures.

5.27 There is no expectation of any special treatment being available for blood donors (e.g. access to anti-viral prophylaxis). The normal donor selection criteria may need to be changed depending on pandemic severity to increase donor availability provided this can be achieved without compromising patient or donor safety and any potential legal or regulatory issues can be satisfactorily dealt with.

5.28 Key actions and considerations will be:

- Correct messages for donors through all available channels.
- Correct messages and training for staff.
- Revised donor invitation letters.
- Contacting donors by phone before their appointment to ask them if they or their immediate household contacts have any symptoms.
- Warning posters at session entry points.

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- Triage of donors on arrival for symptoms.
- Reinforce hand washing and respiratory hygiene (implemented now).
- Implement a range of precautions for donors and staff including the appropriate use of PPE depending on expert guidance and public expectations.

5.29 Avoidance of unnecessarily crowded donor sessions by:

- Where possible use larger venues for more space and segregation between donors.
- Arranging the waiting area to minimise donor to donor and staff to donor contact.
- Call as many donors as possible by appointment but donors will also be encouraged to donate using all options available.
- If resources permit, calling fewer donors at any one time but open sessions for longer.
- Only call local people to local sessions (i.e. to reduce travel) and be aware that work place sessions are likely to be cancelled due to staffing impact on businesses.

5.30 Increase the number of donors / donations available by:

- Proportionate and timely promotion of need for donors and of donor sessions.
- Minimising the deferral of donors including in relation to flu.
- Consider reviewing and amending normal donor selection criteria:
 - Only change normal criteria if proportionate to predicted or actual impact.
 - First, amend criteria within UK guidelines / law (e.g. temporarily increase the donation frequency to 12 weeks).
 - Second, before considering amending outside guidelines / law ensure other measures are in place to maximise and stretch the available supply (e.g. blood shortage plans).
 - Third, consider amending other criteria (in consultation with JPAC, Regulator and DH).
- Targeting donors who have recently recovered from pandemic flu. Depending on the scenario, the possibility of collecting more blood from offshore populations (including Channel Islands) may be of some assistance but, if such populations are not yet affected, special care will need to be taken to ensure NHSBT is not seen as bringing the infection to that population. There could be other sub-populations to target, such as emergency service personnel who may be vaccinated earlier than the general population or groups who may be given anti-virals for prophylaxis by their employer (subject to them being accepted for donation while in this medication).

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- Increase the number of donors giving platelets by apheresis including considering the donor selection criteria for this and for those donations which can be converted into pooled platelets (e.g. use of first time donors).
- Consider collecting all donations into platelet production bags (except those which are unsuitable for platelets) around the pandemic peak to increase the opportunities to make platelet pools.
- Liaising regularly and closely with local authorities and venue contacts to minimise the impact of any potential loss of venue availability. Consider the possibility of backup or emergency venues. Plan for the risk of potential competition for blood collection venues which may arise in the event of mass vaccination (note that if this occurs it is likely to be after the peak disruption period).

5.31 NHSBT will continue to encourage donors to join the organ donor register and make every effort to ensure that transplants can proceed where the NHS has the capacity to perform the organ retrieval and the transplant. ODT will regularly review and revise the policies and procedures for organ allocation with appropriate input from its expert committees.

5.32 Staff safety and availability

The key messages for staff and contractors who attend our sites during a pandemic will be:

- If you are unwell do not come to work.
- If you are fit and well come to work.
- Be prepared to be work differently or be re-deployed if necessary.
- Please help to maintain our life-saving services.

5.33 NHSBT will encourage employees and contractors who are fit and well to attend work and ensure that those who are ill stay at home. It will be essential to maintain a healthy work environment and to generally raise the level of hygiene and good health practice amongst staff and contractors. In a pandemic this will include revised control over entry to, and exit from, NHSBT premises with “triage” points and hygiene stations on entry.

5.34 NHSBT will work with staff to minimise absence (including requesting staff to defer planned absence) and to maximise flexibility so that limited resources can be targeted where

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most needed to keep our life saving services operating. NHSBT will expect contractors with whom it works to adopt similar approaches.

5.35 Department managers will prioritise the most essential and time critical activities and be prepared to seek help from, and to help out, other departments. Recent retirees and agency staff will be asked to assist. A staff emergency re-deployment policy is in place and agreed with Trade Unions. Although there is the theoretical possibility of seeking qualified staff from elsewhere, our planning assumes that in a pandemic any spare capacity in the wider NHS is likely to be more importantly focused elsewhere. Contractor redeployment will primarily be the responsibility of their employer but NHSBT will expect contractor services to be maintained. NHSBT will be as flexible as possible in assisting contractors to achieve this. Non-essential personnel such as visitors will be politely excluded from our premises.

5.36 The pandemic flu staffing strategy is to focus the management of its human resources around its most critical activities at local level. Travel between NHSBT sites will be minimised and it will not be a first choice strategy to support activities by re-deploying staff between regions. Increased use will be made of telephone conferencing, internet meetings and video-conferencing. Remote (e.g. home) working will also be increased where appropriate. If expert advice or support is no longer available locally due to illness, where possible it will be provided at distance by telephone and email. For certain expert functions which rely on very small numbers of "hands on" staff it may be necessary to redeploy between sites. In principle the re-locating work is more preferable than re-locating staff.

5.37 Key actions and considerations will be:

- Visible leadership.
- Correct messages for staff and contractors about attending work (see above).
- Education and training for staff ahead of the pandemic. The training of contractor's staff will be primarily a responsibility of their employer but NHSBT will provide any training specific to contractor's needing to work differently on its sites and will provide access to its training materials / courses for contractors on request.
- Hygiene and respiratory hand hygiene training.
- Ensuring symptomatic staff do not attend the workplace.
- Reduced entry and exit points to sites.
- Hygiene stations at entry and exit points.

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- “Triage” of staff and contractors on arrival at work (including possible the use of face masks by “triage” staff in case symptomatic persons present themselves for entry).
- Minimise planned absence and defer annual leave where possible.
- No visitors.
- Only essential contractors.
- Scrupulous personal hygiene especially hand washing / sanitisation.
- Staff or contractors taken ill on premises, escorted safely away from premises with appropriate precautions (e.g. ill person to be provided with face mask).
- Effective building cleaning regimes.
- Keep air-conditioning units operating (increase “fresh air” content if possible).
- Minimise / eliminate face to face meetings and all non-essential travel.
- Concentrate available resources on most critical products, services and activities.
- Local management of staff resources (by LET) and local redeployment to critical activities as necessary. Necessary basic training and supervision to be provided to all redeployed staff. Local redeployment management arrangements to include those staff in a locality who may not normally work on site.
- Regional or national redeployment only if local solutions cannot be found, work cannot be supported remotely (e.g. by phone advice) or the work (rather than the person) cannot be transferred.
- Sensitive handling of redeployment issues. Consideration of the implications for staff members of redeployment both those redeployed and others. For example, redeploying or allowing staff to decline redeployment requests because they are concerned about their own welfare would impact other staff who would have to cover those duties. Staff required to travel and stay away from home as part of redeployment likely to be under additional pressures as a result.
- Support staff with ill persons at home or children sent home from school due to school closures, e.g. by flexible rostering.
- Adjust working patterns where this will help the organisation and/or staff or contractors.
- Provide appropriate counselling support facilities for staff.
- Whether working time regulations will still apply.
- Sickness certification arrangements may change. (Follow government guidance).
- Remote working where possible but only for those staff who can perform critical activities remotely and/or who are not required on site for their normal duty or to be redeployed to a critical activity.

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- Seek additional staff from agencies, recent retirees and other local organisations but expect few to be available in reality.
- Staff recruitment. Urgent staff replacement (temporary and some permanent) is likely to be required. Speed up or bring forward recruitment processes. Note that pre-employment checks could be particularly difficult around the pandemic peak. Organisations that provide this information are likely to be short of resources.
- Plan and implement work attendance reporting systems to ensure staffing operational status can be monitored, assessed and communicated.
- Identify the front line group(s) of essential staff who should receive vaccine at the first opportunity if NHSBT staff are given agreed priority at any stage.
- Adjust BPL production programme to reduce demand on staff resources around the pandemic peak.
- Prioritise staff roles into groups for receipt of vaccines in case this is allocated to priority healthcare workers only.

5.38 It is assumed that anti-virals will not be available to NHSBT staff for prophylactic purposes at any point but that NHSBT staff would be given some priority as healthcare workers for access to pre-pandemic and/or pandemic vaccine if the vaccine is prioritised in that way.

5.39 Because elements within NHSBT are multi-site and very dispersed, detailed local pandemic influenza staffing plans have also been produced by each LET. These plans are held and kept under annual review by the local lead Emergency Planning Managers. A set of current copies is also held centrally by the Head of Emergency Planning.

Further details of NHSBT's pandemic influenza staffing policies and planning can be found via the list of detailed plans in the Administration Section.

5.40 Consumables and supply chain resilience

The general goal is to ensure that the supply of NHSBT's products or services are not compromised for want of consumable supplies at any stage. In the majority of cases consumables have a long shelf life (exceptions: liquid nitrogen, dry ice etc). They can therefore be held in sufficient quantities so as to ensure they do not become the supply chain bottle neck in a pandemic. This is not without consequences in terms of space, cost and routine efficiency.

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5.41 NHSBT has existing policies for maintaining supplies of its normal critical consumables (e.g. blood packs, test kits). NHSBT is also implementing firm supplier stock holding obligations and business continuity management requirements in key contracts.

5.42 Formal discussions with a number of key suppliers has identified the risk of a potential “hole” in the supply chain of about four weeks.

The impact on critical consumable suppliers from the need to be able to boost blood stocks just ahead of the pandemic peak (which will require extra consumables), the likely “competition” to stock up at WHO 4 and the possible short duration of WHO 4/5, internal baseline stocks should be increased to a minimum of between 8 and 9 weeks including any stock held contractually by suppliers (normally 4-5 weeks). In addition, it will be important to emerge from the pandemic with reasonably robust stocks in order to re-build blood and component stocks as rapidly as possible.

Consumable Stock Targets : Pandemic Flu Estimates	Weeks stock
Stock target at WHO 6	8 weeks
Plus extra needed to build blood stocks in WHO 4/5	3 weeks
Less net reduced usage over pandemic wave	1 week
Total stock required (at normal usage rates)	10 weeks
Less stock held by supplier (only if contractually in place)	4 weeks
So, minimum required by NHSBT	6 weeks
Less extra stock built in WHO4/5	1 week*
Minimum stocks to be held now (WHO 3)	5 weeks

*Only 1 week due to order/supplier lead time, “backlog” effect & potential competition for supplies

5.43 Some consumables are likely to vary differentially in the quantity used as a direct or indirect consequence of the pandemic (e.g. to obtain enough platelets, there is likely to be a need to increase platelet production from whole blood). These effects will overlay additional challenges to the amount of consumables required ahead of and during the pandemic which need to be factored into the above approach.

5.44 Key actions and considerations will be:

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- Develop and maintain policies, procedures and systems for setting and monitoring consumables stocks.
- Ensure firm access to sufficiently resilient stocks of consumables at WHO 3.
 - Typically about 8-9 weeks of stock minimum.
- Factor in probable/possible pandemic specific changes of consumable usage and adjust stock preparedness accordingly.
- Stock-pile face masks and any other flu specific PPE / consumables which do not get used as a matter of routine in appropriate quantities and keep these stock-piles appropriately refreshed.

5.45 Infrastructure

As far as possible, NHSBT will bring forward vehicle and equipment maintenance schedules as the pandemic emerges to reduce risk of breakdown and avoidable reliance on vehicle and equipment engineers during the pandemic. In the pandemic, only high priority maintenance work will be carried out upon equipment which the organisation depends for its supply chain or for health and safety.

5.46 NHSBT has continuity plans in place to enable it to relocate work rapidly and smoothly to other NHSBT locations in case of premises or equipment being at risk in any one of its major locations. These are integral to NHSBT's underlying emergency planning system which would be activated over and above the pandemic influenza response in the event of a significant premises, equipment or infrastructure failure in one or several locations. However, consideration would need to be taken of possible reduced capability of the re-provisioning site(s) when making decisions in this area.

5.47 NHSBT is heavily dependent on contract cleaning staff. During a pandemic, these resources are likely to be under severe pressure due to illness, pressure to work elsewhere and additional cleaning duties to improve hygiene standards in NHSBT buildings. This area will need particular attention by the facilities' departments of NHSBT and it may additionally be necessary for some NHSBT personnel to be redeployed to cleaning duties (see also section on staffing above).

5.48 Key actions and considerations will be:

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- Maintain close watching brief on forecast / actual infrastructure provision and adjust response accordingly.
- Bring forward maintenance schedules for vehicles and equipment as the pandemic approaches.
- De-prioritise all non-essential maintenance work during the pandemic itself.
- Defer implementing major new equipment or systems until after the pandemic where possible (new equipment may initially be less reliable than old and may require additional resource to implement and/or resolve teething problems).
- Ensure IT resilience (e.g. backup arrangements) are maintained throughout.
- Stock up with fuel and other supplies where possible / appropriate.
- Ensure fuel shortage plans up to date.
- Devise and implement new and/or more frequent cleaning regimes to improve hygiene standards and plan effectively for how these will be implemented and maintained.
- See previous section for arrangements for staff and contractor access to premises and requirement to keep air-conditioning units operating.

5.49 Finance

Maintaining adequate financial resources through and beyond the pandemic in order to be able to continue to pay suppliers and staff will be an important priority. Failure to pay either to time is likely to magnify the adverse impact of the pandemic on NHSBT. The organisation is funded primarily by income streams from commissioners or customers. We will need to liaise with these stakeholders and with the Department of Health about how we will maintain cash flow during a pandemic.

5.50 There is likely to be an increased call on cash just ahead of the pandemic due to a “stocking up effect” including, for example, the bringing forward of vehicle and equipment maintenance. Some of these additional costs will be offset to some extent at a later date. One option to consider carefully is the financing of stocks of consumables and how, if effective stocks are built in advance, this will potentially reduce the cash required at a later date as these stocks are consumed. As the pandemic approaches, some consideration should be given to triggering significant savings in order to reserve cash to pay for the most essential items during the pandemic itself.

5.51 Key actions and considerations will be:

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- Anticipate the potential impact of a pandemic on costs and cash flow (of NHSBT and of others in its financial supply chain).
- Do not assume that public money will be available in significant quantities during or after the pandemic to solve the financial problem; the whole economy is likely to be under enormous pressure.
- Devise and implement short term savings programme and/or freeze any development monies ahead of the pandemic.
- Consider carefully the effect of stock-holding policies on cash flow and work with procurement and others to optimise these.
- Liaise with closely key financial stakeholders including commissioners, customers, suppliers, staff and the Department of Health working in partnership to minimise the impact on both NHSBT and its key financial stakeholders.

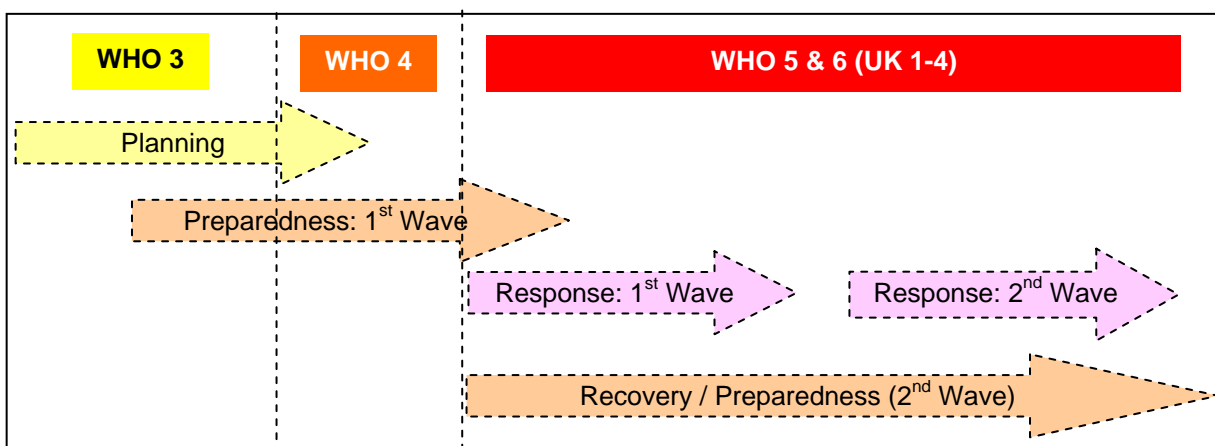
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6 Recovery and Further Wave(s)

6.1 There could be only a relatively short period of time between the subsidence of the first wave and a second wave. There is no certainty over a second wave or any definite prediction of its potential timing or severity. One possibility is that the operational impact could be more severe in the second wave as the pandemic virus adapts further to its human host. A first wave of mild severity should not be taken as a predictor of a mild second wave. There is a greater likelihood of a vaccine being available in time for a second wave but this cannot be assumed with certainty if the second wave is soon after the first. It is highly likely that anti-viral stocks will be severely depleted by the first wave and unable to be restored in time for a second. It should not be assumed that a severe first wave would be followed by a mild or moderate first wave or vice versa.

The approach will be to be at least as prepared for a second wave as for the first and to achieve this state as quickly as possible as the first wave passes through.

6.2 A recovery task group will be established very early in the pandemic response within NHSBT. This will allow recovery to be prepared for most effectively and in as timely a manner as possible. Having a separate recovery team will enable NHSBT to concentrate on both the peak response and the recovery process simultaneously and as effectively as possible. The recovery task group will report in to the same overall management structure described earlier in this plan and will gather intelligence and begin detailed recovery planning whilst the other teams are still finalising response actions and managing the response.



6.3 It is likely that the recovery task group will be the last part of the response to be “stood down” before the Gold team itself is stood down. However, this will depend on intelligence about a potential second wave. If a second wave is assumed and potentially imminent (within

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1-3 months) then the whole management structure is likely to be required to remain active for some time until this position resolves.

6.4 Good communications between the other response teams and the recovery task group will be essential. As well as being represented at Gold level, the recovery task group should be advised of each key change enacted and the date / sequence of enactment of these. It may be considered helpful for the recovery task group to be the primary owners and recorders of the response decision log and to keep this log in a format and sequence which will permit it to be used as a guide to withdraw decisions in the reverse sequence of their implementation.

6.5 Strategic Objective

The strategic objective for the recovery phase is the same as for the main response:

- To endeavour to maintain the provision of critical products and services at or above the level demanded by the healthcare community.

6.6 Enabling Objectives

However, for recovery, to this are added two enabling objectives:

- To return to a near normal operational status as quickly as possible.
- To return to a state of readiness for further pandemic waves.

To achieve these objectives the group will focus it's efforts towards recovery using the '7 P's of Recovery' framework for effective Business Continuity Management (Emergency Preparedness, Civil Contingencies Secretariat, 2005):

1. Programme
2. People
3. Processes
4. Premises
5. Providers
6. Profile
7. Performance

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6.7 Key actions and considerations will be:

1 Programme

- Strategic Planning
 - a) Determining the recovery point objectives. The default objective should be recovery to at least an immediately pre WHO 6 state of preparedness. This could be influenced by vaccines and vaccination or advised by DH/HPA there will be no second wave and/or that a vaccine will be both effective and available then recovery to a WHO 3 state of preparedness may be more appropriate.
 - b) Establish any sites, products or services that will not be recovered.
 - c) Unwind response decisions. To be considered in the reverse order of implementation. Any decisions with respect to regulations or guidelines should be reversed at the very earliest possible moment as the first recovery priority in order to restore a fully compliant, regulated blood, tissue and organ supply.
 - d) Ensure that plans for mass vaccination of the public do not prevent blood collection activities which are necessary to restore the blood supply.

- Financial Planning
 - a) Assess impact on services and financial agreements.
 - b) Consider long term financial impacts and implications for the organisation.
 - c) Consider how income streams will be recalibrated after the pandemic
 - d) Re-introduce targets parallel to restoring services

- Surveillance
 - a) Monitor impact on health in the workforce and donor base.

2 People

- Review workforce plans
 - a) If donors have been invited to attend more frequently (e.g. within 10 or 12 weeks of their previous donation) the team must consider how to convert back to normal donation intervals whilst not adding to problems with supply.
 - b) Managing access to vaccine for NHSBT staff as appropriate.
 - c) Review minimum resource requirements.
 - d) Monitor annual leave, dependent care leave, sick leave, AWOL.
 - e) Follow any backlog of staff related information (CRB, Qualifications, etc).

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- f) Identify and match any skill sets and skill gaps to 'survive to operate'.
 - g) Identify resourcing gaps to replace staff who will not return to work.
 - h) Manage any use of volunteers.
- Identify Gaps
 - a) Monitor availability and demand for products and services and identify gaps.
 - b) Use information to redeploy staff or workload as appropriate.
 - c) Initiate recruitment to fill vacancies for staff who will not return to work.
 - d) Arrange staff training where required.
 - Fulfil contractual obligations
 - a) Monitor payroll processes for staff.
 - b) Provide support to staff that have been personally affected by pandemic.
 - Communicate
 - a) Recovery changes and progress with recovery to key stakeholders especially hospital users of products and services, donors and key suppliers.
 - b) Acknowledge staff contributions and those of external partners, contractors, suppliers, volunteers.
 - c) Provide regular updates via NCC, intranet, external website, Connect.
 - d) Offer reassurance, advice, guidance and access to Occupational Health as appropriate.

3 Processes

- Review and update processes and activities
 - a) Apply any early learning from the first/previous wave(s) to preparations for the second/further wave(s).
 - b) Adjust second/further wave SOPs, MPDs, BCPs, Action Cards and preparations based on any new or emerging intelligence about the potential probability or impact of a second/further wave.
 - c) Share best practice and learning with other UK Blood Services.
- Restore information
 - Back up / restore core information as required
 - a) Staff records.
 - b) Accounting/payroll records.

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- c) Donor records.
 - d) IT systems.
 - e) Paper based systems.
 - f) Any other key system/data.
-
- Reporting
 - a) Link into Battle Rhythm, sequencing, reporting structure to provide regular updates to internal and external stakeholders.

 - Update key emergency contact and On Call rota information
 - a) Review contact information
 - b) Update details as required

4 Premises

- Stock
 - a) Take stock of local resources including;
 - Blood and non blood products. (consider affect of any critical decisions such as a decision has been made to allow production of plasma from female donors, it may be a recovery goal to restore plasma stocks to being 100% male derived as quickly as possible including arranging for the possible discard of male plasma from stock as male plasma stocks re-build).
 - Critical Consumables
 - Consumables
 - Food
 - Fuel
 - b) Review what has been used
 - c) Attempt to restock using usage profile

- Equipment
 - a) Arrange for routine inspection/service/replacement/recalibration as required.

- Security
 - a) Review arrangements

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- Contamination
 - a) Identify areas that require deep clean/decontamination and initiate cleaning including removal of any waste products.

- Maintenance
 - a) Identify and necessary maintenance work on buildings.
 - b) Arrange for maintenance work to be carried out and ensure that alternative facilities are available if necessary.

- Restoration
 - a) If any facilities have been used for multi or alternative purposes consider implications of reverting to original purpose.
 - b) In cases of partial/total relocation of services consider implications to fully restore services.
 - c) Initiate restoration process with other key internal and external stake holders, facilities, QA, Transport, MHRA, suppliers, utilities, etc.

5 Providers

- a) Inform suppliers/contractors on the restoration actions.
 - b) Coordinate the response critical and non critical suppliers with key internal stakeholders.
 - c) Continuously monitor availability of suppliers/contractors that are required for critical activities.
 - d) Consider resilience of suppliers/contractors and consider sourcing alternative if required.
-
- Update key contact information for suppliers/contractors.
 - a) Review and update information.

 - Review Mutual Aid arrangements
 - a) Review agreements with other organisations regarding staffing, use of facilities and supplies.
 - b) Establish new agreements with organisations if previous arrangements are no longer viable.

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6 Profile

- Manage Stakeholders
 - a) Review communications plans.
 - b) Keep customers, donors and staff apprised on restoration plans.
 - c) Keep staff and donors apprised of infection risks (respiratory and hand hygiene).
 - d) Reassure customers, donors and staff of a continuing service.
 - e) Issue regular updates to internal and external stakeholders regarding restoration plans and preparedness for subsequent waves.

- Reputational damage
 - a) Identify actions that can be taken to reduce reputational damage to NHSBT.
 - b) Initiate actions to rebuild reputation if required.

7 Performance

- Restoration of key services.
 - a) Re-establish normal working practice. It will be important not to cause the immediate recurrence of blood shortages by lifting restrictions too early.
 - b) Establish priorities. Responding to pressures to restore NHS capacity and address backlogs, it will be important for NHSBT not to be an unnecessary constraint on the NHS recovery process or any NHS backlog programme. Urgent priority should therefore be given to restoring blood stocks rapidly to near normal levels and to withdrawing blood shortage measures as quickly as possible. Consideration should be given to make blood, tissues and organs available for the NHS rather than holding onto limited stocks and reserves in NHSBT. Close liaison with hospitals and information about their stocks will be vital. Consideration should be taken not to “overshoot” the recovery of blood stocks by adjusting the recovery approach to the stock and donor response rate positions.

- Prioritisation
 - a) The aim should be to recover critical services/processes first.
 - b) Once critical service has been restored the focus should move to the restoration of less critical services until all have been restored.
 - c) The achievement of this could be impacted by subsequent pandemic wave(s).

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- Defence in death approach
 - a) Minimise illness and death due to the pandemic virus.
 - b) Reduce the burden on the NSHS during a pandemic.
 - c) Secure the confidence of the UK population.
 - d) Reduce the economic impact on the UK.
 - e) Reduce societal disruption as far as possible.

6.8 Return to Normality

Recovery is the core process by which NHSBT will return as close to normality as possible in as short a time as possible. Normality will be almost achieved when recovery point objectives have all been met. Restoration to normality as quickly as possible will be important but the time required for this to be fully achieved should not be under-estimated.

6.9 The recovery task group will consider these further points in relation to defining normality after a severe pandemic:

- Normality after a severe pandemic could be significantly different from normality before the pandemic. NHSBT will need to take this new context into account in its strategic planning and priority setting after the pandemic.
- A very severe and/or prolonged pandemic could have significant long term adverse impacts on people who are most affected. These effects could be both physical and psychological. This will need to be taken into account in dealings with staff, donors and others in the months following the pandemic.
- Because future pandemics or other events with severe or prolonged impact on donor and/or staff availability may require the adoption of similar measures to those applied in this pandemic, a return to normality should include a formal process of reviewing lessons learned and applying these to pandemic plans before those plans are stored away for future use.

7 Administration

7.1 Battle Rhythm

At WHO 4 planning and preparedness efforts will need to intensify significantly and mechanisms will need to be implemented that provide greater visibility and assurance of the state of preparedness of NHSBT (and the other UK Blood Services). A measured approach will need to be adopted to developing and intensifying the “battle rhythm” as the pandemic approaches.

7.2 From WHO 5 onwards, command and control arrangements are formally activated in NHSBT working towards a daily battle rhythm from approximately UK 3 (WHO 6) onwards. At each stage the battle rhythm should be established by the Gold Team taking account of any requirements placed on them by Civil Contingencies Committee (COBR) via DH. The same rhythm will be established for all levels of the command and control and a regular reporting cycle established for reporting and implementing decisions in such a way to smoothly accelerate (and later decelerate).

7.3 Reporting cycles should not force meeting cycles. Different types of reporting will be required at different points as the crisis evolves.

Modes of meeting will need to change as the pandemic evolves (a) in order to reduce face to face contact as an infection control measure and (b) to maximise efficiency as the pace of the response intensifies.

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7.4 Pandemic Battle Rhythm

Phase / Alert Level	NHSBT Response	Who Leads?	Meetings	“Battle Rhythm”	Type of Reporting	Emphasis / Key Actions	Possible Duration
WHO 3	Planning & Early Preparedness	Head EP/ EPG UKBS EPAG	Normal Normal	Approx. 6 per year Approx. 3 per year	Normal & Planning	Guidance → Plan / Monitor / Review Get into good flu /hygiene habits. Set consumable stock levels. Build preliminary resilience: <ul style="list-style-type: none"> • Educate • Build appropriate consumable / material stocks • Healthy finished goods stocks (e.g. blood) • Face masks and other flu consumable stocks • Staff policies and planning • Consult on possible changes (e.g. MHRA) • Consider/test IT systems/changes required • Maintain key resilience (e.g. platelet pooling) • Exercise / improve plans Develop preparedness reporting.	Indefinite
WHO 4	Full Preparedness	Head EP/ EPG UKBS EPAG	Normal Audio	Fortnightly Monthly	Preparedness	Review and intensify planning. Implement preparedness reporting. Finalise and verify resilience: <ul style="list-style-type: none"> • Increase blood stocks • Consumable stocks • Staffing policies and staffing levels / options • Refresher training • Intensify & broaden exercising Prepare preliminary response action list. (N.B. Include UKF and inform Regulator/DH) Prepare for situation reporting (agree format @DH).	1 - 6 months
WHO 5	Preliminary Response	CEO / Team UK Forum	Normal Audio	Fortnightly Monthly	Preparedness & Situation	Stand up command and control (all levels) “Lock down” organisation structure. “Clear decks” (e.g. secure projects at “safe points”). Maintain preparedness reporting. Build blood stocks, consider extending shelf life.	1 – 3 months

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Phase / Alert Level	NHSBT Response	Who Leads?	Meetings	“Battle Rhythm”	Type of Reporting	Emphasis / Key Actions	Possible Duration
						Finalise format and rehearse situation reports. Review/implement preliminary response action list. Prepare escalating response action list(s). (N.B. Include UKF and Regulator/DH).	
UK 1 (WHO 6)	Escalating Response	CEO / Team	Normal	Weekly	Situation	Continue as WHO 5 but intensify. (Note: DH <u>may</u> initiate daily situation reports here) Review all policies / actions. Review / adjust escalating response action list(s). Hold ready.	4 weeks
		UK Forum	Audio	Fortnightly			
UK 2 (WHO 6)		CEO / Team	Normal	Weekly	Situation	As above. Finalise escalating response action list(s).	2 weeks
		UK Forum	Audio	Weekly			
UK 3 (WHO 6)		CEO / Team	Audio	Daily	Situation	As above. Communicate escalating response action list(s) including arrangements for decision-taking and implementation.	1 week
		UK Forum	Audio	Daily			
UK 4 (WHO 6)	Peak Response	CEO / Team	Audio	Daily	Situation	Intense situation reporting. Implement action list(s) as necessary. moderated to stay proportionate to actual / forecast impact. Prepare for possible mass vaccination impacts.	15-17 weeks
		UK Forum	Audio	Daily			
Recovery /Next Wave	Recovery Re-planning Restore to Full Preparedness	CEO / Team	Audio→ Normal	Daily→Wee kly	Situation & Preparedness	Controlled withdrawal of major response actions (in approximate “reverse” order). Restore workforce. Re-build consumable and blood / tissue stocks. Preliminary lessons learned, plan response improvements for 2 nd wave.	4-26 weeks
		UK Forum	Audio	Weekly			
Post pandemic	Stand down	Normal	Normal	Normal	Normal	Stand down command & control Full lessons learned Report for Board / DH Revise / store pandemic plans	Indefinite

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7.5 Sequencing

Although having information that is as up to date as possible at the top level is very important, this must be balanced against ensuring that time is allowed to ensure that the quality of the information is adequate. The quality and timeliness of information will vary depending on the systems in place to generate that information. For example, blood stock and blood collection information reporting and consolidation is already a well established daily routine and information on same day stocks and previous day collections is available to Gold Team current as at approximately 10:00hrs on Day 0.

7.6 Reporting

Preparedness Reporting

Preparedness Reporting is establishing, ahead of the crisis, the actual state of readiness of the organisation to weather the crisis and to deploy the response actions that it is planning. For example, if the planning process requires that consumable stocks should be increased or flu specific consumables should be obtained and stock-piled (e.g. face masks) then preparedness reporting would be used to assess progress towards ensuring these stocks are actually in place at the point in time planned. Early preparedness reporting may be appropriate at WHO 3 but this type of reporting becomes particularly important at WHO 4. It should remain in place until such time as the pandemic is close at hand (i.e. WHO 6) when situation reporting takes over.

7.7 Situation Reporting

Situation reporting describes the operational status of NHSBT at any given moment in the crisis. It draws together regularly and frequently the actual operational position in a useable and concise format. NHSBT will almost certainly be required to report daily on its operational status and key decision-making to DH. This reporting arrangement may also be useful for keeping other key stakeholders informed such as the NHSBT

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Board and the UK Forum. This daily situation reporting requirement may commence at WHO 5, but is more likely to be formally implemented by DH at WHO 6.

Key information required to be summarised on regular pandemic situation report will include:

- Demand for key products and services
- Capacity to meet demand
 - Staff attendance levels
 - Stocks of finished goods (e.g. red cells by blood group, Vigam)
 - Donation rates
 - Stocks of raw materials and critical consumables
 - Operational issues (e.g. failed plant or equipment)
 - Any other current activations of emergency plans
- Key measures implemented to date
- Key measures currently under consideration
- Key measures withdrawn (particularly as recovery commences)
- Current key messages to:
 - Donors/public
 - Hospitals/NHS
 - Staff
 - Suppliers

7.8 Significant NHSBT Pandemic Planning Documents

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Title	NHSBT Reference	Location
NHSBT Relevant General Emergency Plans		
Emergency Planning - Command and Control	MPD/PTI/DI/002	EP Manual
Critical Activities Analysis	DAT/PTI/DI/022	EP Manual
Emergency Planning: HR Arrangements	MPD/HUR/HR/003	EP Manual
HR Succession Planning	MPD/HUR/DI/002	EP Manual
Care and Cleaning of Hands	SOP/DSD/CS/002	Contr. Docs.
National Blood Stock Management and Shortage Protocol	MPD/PTI/IS/002	EP Manual
Integrated Blood Shortage Plan (NHS)	ESD/PCS/HL/001	EP Manual
Integrated Platelet Shortage Plan (NHS)	ESD/PCS/HL/003	EP Manual
Departmental operational continuity plans (Section 2)	Various	EP Manual
NHSBT Pandemic Specific Plans		
Pandemic Influenza – NHSBT Plan	MPD/PTI/DI/011	EP Manual
UK Transplant Pandemic Flu Plan	DAT/UKT/DI/002	EP Manual
BPL Emergency Planning for an Influenza Pandemic Event	DAT/BPL/DI/015	EP Manual
Pandemic Flu: Staffing Policy	POL/HUR/HS/002	EP Manual
Emergency Planning Redeployment	POL/HUR/HR/001	EP Manual
NHSBT Pandemic Flu: COSHH Risk Assessment	N/A	H & Safety
Pandemic Flu: Protecting and Managing Staff, Donors and Others	MPD/HUR/HS/054	EP Manual
Pandemic Flu: Staffing Plan	DAT/HUR/HS/034	EP Manual
Flu Pandemic Planning – Communication Framework Plan	DAT/PCS/DI/002	EP Manual
NBS Donor Facing Pandemic Flu Plan	DAT/DSD/DI/012	EP Manual
NBS Patient Facing Pandemic Flu Plan	DAT/PCS/HL/010	EP Manual

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NBS Operational Pandemic Flu Plan	DAT/PTI/DI/021	EP Manual
NBS Information Technology Pandemic Flu Plan	DAT/ITF/DI/004	EP Manual
NBS Procurement Pandemic Flu Plan	DAT/FIN/PU/004	EP Manual
Pandemic Flu Planning – Conduct at Donor Sessions	MPD/DSD/DI/003	EP Manual
Facilities Pandemic Flu Plan	DAT/ITF/EM/007	EP Manual
UK Transplant Information Technology Pandemic Flu Plan	DAT/UKT/DI/003	EP Manual
NBS Local Staff Planning Pack	N/A	Head of EP
NBS Local Staffing Plans (held locally)	N/A	Lead EPMs
Other UK Blood Services Plans		
UK Blood Services Pandemic Influenza Plan	MPD/PTI/DI/010	EP Manual
NIBTS: Pandemic Flu Plan	N/A	NIBTS
SNBTS: Pandemic Influenza Resilience Plan	N/A	SNBTS
WBS: Managing through a Flu Pandemic- Continuity Plan	N/A	WBS

7.9 Significant Planning References and Sources

UK Department of Health

1. Pandemic Flu – A national framework for responding to an influenza pandemic.

http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_080734

2. Pandemic Influenza: The Ethical Framework for Policy

http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_080734

3. Pandemic Influenza: Guidance for primary care trusts and primary care professionals on the provision of healthcare in a community setting in England.

http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_080734

4. Pandemic influenza: Guidance on preparing acute hospitals in England.

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http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_080734

5. Pandemic flu: human resources guidance for the NHS

http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_086833

6. Emergency planning: Development of an integrated plan for the management of blood shortages

http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4085662

7. An integrated plan for the National Blood Service and hospitals to address platelet shortages

http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4139156

8. Recovery Information Pack

7.10 UK Health and Safety Executive

1. Pandemic Flu - Workplace Guidance

<http://www.hse.gov.uk/biosafety/diseases/pandflu.htm>

7.11 World Health Organisation

1. Maintaining a Safe and Adequate Blood Supply in the Event of Pandemic Influenza

http://www.who.int/csr/disease/avian_influenza/guidelines/bloodsupply/en/

2. Donor selection in case of pandemic situations

<http://www.who.int/bloodproducts/brn/DonorSelectionincaseofPandemicSituations.pdf>

8 Communications

8.1 Protecting the reputation of the organisation requires action and engagement with staff, stakeholders and the media in order that the NHSBT plans are explained, understood and reported positively. Maintaining the reputation of, and public confidence in, NHSBT will be crucial in our aims to continue to provide a service to donors and customers during and after a pandemic. Effective communication and support from the media will be crucial to NHSBT throughout. Communications with the donating public, those who could potentially donate, staff, clinicians, hospitals, regulators, the Department of Health, other blood services in the UK and internationally will all be vitally important. A comprehensive communication framework plan has been produced which links to the DH communication plan. Within this, key messages have been developed for different stages of the pandemic. NHSBT is also linked in to central government communications planning for pandemic influenza.

8.2 NHSBT will seek support from others including Health Authorities, NHS Trusts, the UK Government and the media in appropriate and timely ways to help maintain blood stocks through the pandemic.

8.3 Rapid, clear and concise communications will be required following the declaration of a flu pandemic. As NHSBT moves into the peak period of the pandemic, more complex or specific targeted messages may be required. These will be developed in advance as far as possible but they will need to be modified and finalised as the actual scenario unfolds. Approaching and going into the recovery stage will require another set of messages and communications.

8.4 Communicating with staff is going to be equally important – it is vital that staff are aware of the changing situation and environment, what is expected of them, and changes to working practices, processes and rules.

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8.5 Throughout the pandemic, NHSBT will need to work very closely with the media nationally and locally to get the correct messages relayed to the public. NHSBT and the other UK Blood Services will also need to work closely together as well as with the DH and central government to ensure the consistency of messages being given out and to seek support for our messages.

8.6 Some of the key communication themes will be around clarification and reassurance, the importance of collecting blood/platelets, any modifications to practice or donor selection guidelines, transplant services, the need to be flexible, the important role of staff, NHSBT's work force plans and arrangements, and health and safety.

8.7 Effective and timely communication with blood donors, hospital customers and key suppliers will be crucial to optimising the blood supply during the pandemic. Blood services need to actively connect "influenza" with "a blood supply at risk" in the minds of the donating public. NHSBT will aim to boost blood stocks as the pandemic approaches and continue to encourage blood donation throughout the pandemic wave.

8.8 The NHSBT communication framework plan can be found via the list of detailed plans in the Administration Section.