HEALTH SECTOR SECURITY AND RESILIENCE PLAN 2017/18

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1. EXECUTIVE SUMMARY

The Health Sector Security and Resilience Plan (HSSRP) provides an overview and assessment of the security and resilience of the health sector and its Critical National Infrastructure (CNI).

It outlines the risks and vulnerabilities to the sector in delivering its day to day business and sets out the risk management strategies undertaken to address these.

The health and social care sector is diverse and needs to be resilient to a wide range of risks and disruptive challenges which may affect its ability to deliver services, whilst also ensuring it is able to deal with any resulting casualties.

The National Risk Assessment (NRA) is a classified document that helps the UK Government monitor and prioritise the most significant domestic emergencies that we could face over the next five years. The health sector can be impacted by the majority of risks in NRA because of its role in managing and treating any casualties that result from the risk occurring. Because of this, it is essential that within the health sector, national planners are not necessarily considering individual risks within the NRA, but instead are planning against the common consequences of these risks as set out in the National Resilience Planning Assumptions (NRPAs).

The HSSRP shows that there are generally good levels of resilience, with good preparedness and business continuity arrangements in place. With respect to social care, the sector could effectively respond to a relatively short lived or localised emergency situation, but it is likely to be much more challenged during a severe, prolonged emergency.

Last year progress was made on improving the resilience to risks of loss of electricity and supply chain resilience, but there is more work that is still required against this and other areas identified in the plan.

As part of the plan for 2017/18, there are a number of active workstreams that will continue to be progressed during the year in order to reduce or mitigate those types of risk identified as being particularly significant. These risks are:

- Social Care
- Loss of electricity
- Cyber security of the health sector and its Critical National Infrastructure (CNI)
- Personnel security of the health sector CNI
- Physical security of the health sector CNI
- Pandemic Influenza
- Supply chain.

The HSSRP presents an action plan for delivering these objectives including planned exercises to support these.

2. SECTOR OVERVIEW

2.1 KEY FUNCTIONS, INTERDEPENDENCIES AND SUPPLY CHAINS

Since 1948 the National Health Service (NHS) has been the core of health provision in the UK, with most services provided by increasingly autonomous NHS funded organisations. Although the vast majority of UK healthcare is NHS (and therefore state-) funded, a growing range of services are provided by private or third sector organisations. NHS healthcare is complemented by the private sector and the corporate sector supplies pharmaceuticals and medical consumables and devices.

The HSSRP covers the Health Sector and the Social Care Sector, as set out below.

2.1.1 HEALTH SECTOR

The "Health Sector" includes acute hospitals; inpatient mental health facilities; outpatient; primary care; community care; NHS Blood and Transplant centres, Public Health England laboratories; NHS 111 call centres; NHS Supply Chain warehouses; NHS Digital; and Ambulance Service assets.

The 2017 HSSRP considers resilience and security of the infrastructure for the health sector itself, and also wider work being undertaken supporting the resilience of the social care sector. The Plan defines the "Health Sector" as including matters within the remit of the Department of Health (DH), NHS England, Public Health England (PHE) and NHS Blood and Transplant (NHSBT). Where applicable, the HSSRP will also cover the ambulance services.

2.1.2 SOCIAL CARE SECTOR

The "Social Care Sector" here refers to adult social care only. The Department for Education (DfE) is the Lead Government Department for child social care. Responsibility for the policy and legislative framework lies with DH. The Department for Communities and Local Government (DCLG) owns the relationship with Local Authorities (LAs), who are responsible for commissioning social care and meeting various statutory duties. Most providers are in the independent and voluntary sector.

The Care Act 2014 modernised legislation to focus on promoting individual well-being and set out the LA's responsibility to promote the market in care and support services, and to protect people in the event of a provider failure. The Act gives LAs a responsibility to oversee local markets – including for those funding their own care.

The social care sector is diverse in the types of activities it includes for both acute and chronic conditions. The vast majority of both residential and domiciliary care is provided by the

independent sector through an active and competitive market of independent providers, with the remainder a mixture of public and voluntary provision, including individuals (e.g. family members) providing social care. The market is plural and not dominated by one large provider. Parts of the market is split between State and self-funded care.

2.2 GOVERNANCE, ROLES AND RESPONSIBILITIES

As Health is a devolved matter, the DH HSSRP only covers England. The Devolved Administrations of Scotland, Wales and Northern Ireland have their own arrangements for tracking and improving the resilience of their health infrastructure. There are mechanisms for the consideration of EPRR matters on a "Four Countries" basis, but these are outside the scope of this plan.

2.2.1 THE DEPARTMENT OF HEALTH AND SYSTEM OVERSIGHT

DH, as Lead Government Department, oversees planning and response across the health sector, in conjunction with NHS England, providing assurance to Minsters about the resilience of the health sector, including public health.

In social care, DH and the Department for Communities and Local Government (DCLG) are joint Lead Government Departments. DH performs a policy making role along with high level planning.

Section 253 of the National Health Service Act 2006 and Section 47 of the Health and Social Care Act 2012[1] set out the powers available to the Secretary of State for Health. When it is appropriate to do so by reason of an emergency, the Secretary of State can give directions to all English NHS bodies, the National Institute for Health and Care Excellence (NICE), NHS Digital and any provider of NHS services.

The Secretary of State may direct the body:

- About the exercise of any of its functions;
- To cease to exercise its functions;
- To exercise its functions concurrently with another body; or
- To exercise the functions of another body under the NHS Act

In relation to providers, the Secretary of State can direct the provider:

[1] http://www.legislation.gov.uk/ukpga/2012/7/section/47/enacted

http://www.legislation.gov.uk/ukpga/2012/7/section/46/notes

- About the provision of NHS services by the provider;
- To cease to provide services or to provide additional services.

Other legislative powers available to ensure resilience are shown in Table 1.

Table 1 - Powers for Response and Preparation

Legislation	Exercised by	Over	Objective
NHS Act 2006 Section 8	SoS	NHS trusts, special health authorities e.g. NHS Business Services Authority and the NHS Blood and Transplant.	SoS may direct these bodies about the exercise of their functions.
Health and Social Care Act 2012 Section 254	SoS	NHS Digital	SoS may direct NHS Digital to establish and operate a system for the collection or analysis of information.
Reg 32 National Institute for Health and Care Excellence (Constitution and Functions) and the Health and Social Care Information Centre (Functions) Regulations 2013/259	SoS & NHS England	NHS Digital	SoS or NHS England may give directions to NHS Digital requiring NHS Digital to exercise such systems delivery functions of the Secretary of State or (as the case may be) the Board as may be specified in the direction.
NHS Act 2006 Section 252A	NHS England	NHS England, Clinical Commissioning Groups (CCG) and NHS service providers	NHS England and CCGs must take appropriate steps for securing that they are properly prepared for dealing with an emergency which might affect them. NHS England must also take such steps as it considers appropriate for securing that each relevant service provider is properly prepared for dealing with an emergency which might affect it.
NHS Act 2006 Section 253	SoS	NHS England, Clinical Commissioning Groups (CCG) and NHS service providers	SoS can direct NHS England to take such steps as it considers appropriate for securing that each relevant service provider is properly prepared for dealing with an emergency which might affect it.

These powers ensure that the Secretary of State may give directions to both NHS bodies and providers of NHS services not only regarding their own activities but also to ensure coordination between bodies in exercising their activities in times of emergency.

The EPRR Partnership Group, chaired by the Director General (Global and Public Health) within DH, is presented with information from NHS England and PHE about the respective resilience of the organisations. This is then used to assure Ministers of the resilience of the Health Sector.

DH, NHS England and PHE have agreed a comprehensive set of EPRR Core Standards, which are also used in providing assurance to the EPRR Partnership Group on an annual basis.

As outlined in section 2.1.2, responsibilities for social care are shared. DH has the policy lead for social care but local government provides the delivery mechanism. DCLG is in charge of co-ordination of social care as the lead department for local government but does not lead for all local government functions. For example, DfE is the lead department for schools including those under LA control.

Both PHE and NHS England have regional and local representation. This coordination is further supported by both organisations being represented at Local Health Resilience Partnerships (LHRPs). LHRPs provide strategic forums for organisations in the local health sector (including private and voluntary sector where appropriate) to conduct joint health planning for emergencies and support the health sector's representative(s) at Local Resilience Forums (LRFs). LHRPs are co-chaired by NHS England and a designated Director of Public Health from the Local Authority. PHE are invited as members. NHS England and PHE would be represented at a Strategic Coordination Group if one is established.

DH commissions an internal audit every two years to assess its own emergency preparedness capability. The independent audit provides assurance on the degree to which risk management, control and governance support the achievement of objectives.

In order to develop understanding of resilience capabilities at a local level, Cabinet Office oversees an annual Resilience Capabilities Survey (RCS). The next survey is taking place in spring 207. PHE and NHS Trusts (including ambulance services) complete the survey.

2.2.2 NHS ENGLAND EPRR ASSURANCE

NHS England has published a suite of EPRR Core Standards which set out the standard that NHS organisations and providers in England are required to achieve. The Core Standards for EPRR provide NHS organisations and providers of NHS-funded care across the country with a consistent framework for self-assessment, review and more formal control processes carried out by the NHS England and regulatory organisations:

- The Core Standards are reviewed and updated on an annual basis in accordance with the changing operational environment;
- NHS England has a suite of risk-specific plans, including Mass Casualties and Surge Guidance, which will also be updated during the year;
- Further work is underway to increase preparedness for Fuel disruption.

NHS EPRR assurance is conducted by self-assessment against the Core Standards for EPRR with suggested evidence of compliance.

NHS organisations are required, through their respective Accountable Emergency Officers, to provide a Board level report demonstrating their organisations' compliance against the Core Standards for EPRR each year.

The annual statement of compliance/board report along with any improvement plan is submitted to the Clinical Commissioning Group and LHRP for consideration. Following submission, the LHRP arranges a review and selects sample evidence to support that review.

The review also includes a specific area for 'deep dive'. Fuel resilience was assessed in 2016.

A report is taken to the NHS England Board annually detailing the overall compliance of NHS England and the NHS in England against the core standards whilst highlighting any gaps or development needs for inclusion in an improvement plan. Based on this, a statement is provided to the EPRR Partnership Group providing assurance to DH about the resilience and preparedness of the NHS.

An EPRR Oversight Group has been established under the chair of the Director of Operations and Delivery and with representation from the four NHS England regions. This group will ensure that the work programme, the core standards and assurance processes are fit for purpose.

2.2.3 PUBLIC HEALTH ENGLAND EPRR ASSURANCE

Public Health England's key strategic responsibility is to fulfil the Secretary of State's duty to protect the public's health from infectious diseases and other public health hazards, working with the NHS, local government and other partners in England to protect the public's health.

The PHE EPRR Assurance process is comprised of three strands.

The first strand involves sending out a questionnaire to emergency preparedness leads across PHE which sets out the key service requirements against PHE's EPRR core standards. Each component part of PHE completes the questionnaire and is asked to provide a statement of EPRR assurance based on their responses to the core standards questionnaire. This evidence provides a means of measuring year-on-year improvement in the organisation's EPRR capability.

The EPRR core standards and key service requirements cover all elements of the organisation's response to outbreaks and emergencies, namely:

- Leadership and planning,
- Command and Coordination arrangements,
- Alerting,
- 24/7 availability in an emergency,
- Sustaining the response phase,
- Risk assessment and advice,
- Communications in an emergency,
- Surveillance,
- Business continuity,
- Incident Co-ordination Centres
- Records/information management,
- EPRR Training.

The EPRR assurance standards have been developed as internal standards in line with the Health and Social Care Act and the DH standards for Better Health, regulated by the Care Quality Commission (CQC).

The EPRR assurance report and statement of assurance from this process will be reviewed and endorsed by the PHE EPRR Oversight Group and an annual report on PHE's EPRR capability will be presented to the PHE Management Committee and DH.

This process will support the development of plans and promote best practice in the area of emergency preparedness, resilience and response.

The second strand is PHE's nation-wide response to the Resilience Capabilities Survey, which is informed by the PHE core standards questionnaire.

The third strand is a peer review process which provides for an independent assessment of quality by experts in the field in order to maintain standards, improve performance and provide credibility in PHE's EPRR capability. This takes place annually in March - April and the assessment is based on agreed protocols.

2.2.4 NHS BLOOD AND TRANSPLANT

Although NHS Blood and Transplant (NHSBT) does not itself have statutory responsibilities under Civil Contingencies Act 2004, as critical supplier to NHS hospitals, NHSBT will work with the Department, NHS England, PHE and the NHS to ensure support for the effective emergency response plans that are in place, take part in national exercises, and coordinate responses as

necessary. NHSBT also holds a number of internal exercises at local and national levels to test organisational response.

In support of this, NHSBT will comply with the terms of its Service Level Agreement (SLA) with the Department on emergency preparedness. In addition, NHSBT will comply with the relevant core standards in NHS England's Core Standards for Emergency Preparedness Resilience and Response and provide an annual statement of compliance to the EPRR Partnership Group.

NHSBT also takes part in the RCS.

2.3 REGULATORS OVERSEEING THE SECTOR

2.3.1 NHS IMPROVEMENT

From 1 April 2016, NHS Improvement has been responsible for overseeing Foundation Trusts and NHS Trusts, as well as independent providers that provide NHS-funded care. NHS Improvement offers the support these providers need to give patients consistently safe, high quality, compassionate care within local health systems that are financially sustainable. By holding providers to account and, where necessary, intervening, the NHS is helped to meet its short-term challenges and secure its future. NHS Improvement is the successor to the following organisations:

- Monitor
- NHS Trust Development Authority
- Patient Safety, including the National Reporting and Learning System
- Advancing Change Team
- Intensive Support Teams

NHS Improvement builds on the best of what these organisations did, but with a change of emphasis. The priority is to offer support to providers and local health systems to help them improve. During 2017 NHS Improvement will form part of the review of assurance statements and any subsequent follow up.

2.3.2 CARE QUALITY COMMISSION

All providers of health and adult social care registered with the Care Quality Commission (CQC) are required to meet the fundamental standards regulations. These set out the basic standards of quality and safety that must be met. CQC publishes guidance to help providers understand what they should do to meet these standards. The regulations and guidance combined highlight the need for providers to plan for service impact risks.

Regulation 12 of the CQC fundamental standards requires that "Care and treatment must be provided in a safe way for service users", and as part of this, providers must comply with the nine descriptors in the regulation. CQC's guidance about complying with this regulation elaborates on the things providers should do to mitigate risks of unsafe care, and to ensure that appropriate planning takes place to ensure the health, safety and welfare of service users. This includes the following:

- To make sure that people who use services are safe and any risks to their care and treatment are minimised, providers must be able to respond to and manage major incidents and emergency situations.
- This includes having plans with other providers or bodies in case of events such as fires, floods, major road traffic accidents or major incidents, and natural disasters such as earthquakes or landslides[2]

Non-care services (including a wide range of support and personal assistance services) are not regulated and limited information is held centrally.

CQC are aware of the NHS England EPRR Core Standards and are now requesting copies of the self-assessment/board report when undertaking assessments.

2.3.3 THE NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

The National Institute for Health and Clinical Excellence (NICE) provides national guidance and advice to improve both health and social care. NICE's role is to improve outcomes for people using the NHS and other public health and social care services. It does this by:

- Producing evidence based guidance and advice for health, public health and social care practitioners;
- Developing quality standards and performance metrics for those providing and commissioning health, public health and social care services;
- Providing a range of informational services for commissioners, practitioners and managers across the spectrum of health and social care.

Since 1999, NICE has provided the NHS, and those who rely on it for their care, with an increasing range of advice on effective, good value healthcare, and has gained a reputation for rigour, independence and objectivity. In April 2013 NICE gained new responsibilities for providing guidance for those working in social care.

[2] Civil Contingencies Act (2004) http://www.legislation.gov.uk/ukpga/2004/36/pdfs/ukpga_20040036_en.pdf

2.4 SECTOR CRITICAL NATIONAL INFRASTRUCTURE ASSETS

Critical National Infrastructure (CNI) is defined as:

"*Those critical elements of infrastructure (namely assets, facilities, systems, networks or processes and the essential workers that operate and facilitate them), the loss or compromise of which could result in:*

- *Major detrimental impact on the availability, integrity or delivery of essential services – including those services, whose integrity, if compromised, could result in significant loss of life or casualties – taking into account significant economic or social impacts;*

  and/or
- *Significant impact on national security, national defence, or the functioning of the state*."

A small number of health assets across the health sector are classed as CNI. In order to oversee work in this area and share best practice between sub-sectors, DH established the CNI health sector working group. The Centre for the Protection of National Infrastructure (CPNI) has continued to provide advice and guidance to those sites deemed as health CNI assets to help inform the security work plans and business continuity plans. We have begun work to identify our cyber CNI assets.

The CNI assets are listed in ANNEX A in a version of this plan classified at SECRET.

For the purposes of civil emergency planning, the emergency responders may need to make special provisions for other infrastructure of primarily local significance in their emergency response plans. These might include arrangements for infrastructure whose loss would impact on delivery of essential services, or have other significant impacts on human welfare or the environment within the local area, or be needed to support a local emergency response.

Accordingly, HSSRP 2017 considers CNI, but also takes into account more general resilience work applicable to all health sector infrastructure.

There have been no changes in number of assets in each category since 2016.

As part of a cross departmental work programme, DH has considered the potential impact of future foreign investment to health critical infrastructure. This has also included a consideration of investment in health supply chains. The work concluded that foreign investment is unlikely to impact on health services.

3. RISK IDENTIFICATION, ASSESSMENT AND MONITORING

The HSSRP takes an "All Risks approach", informed by the cross-government National Risk Assessment and the National Resilience Planning Assumptions. Particular attention is paid to Common Consequences that may prohibit or disrupt the delivery of health and social care services.

3.1 RISKS TO THE HEALTH SECTOR

3.1.1 IDENTIFICATION AND ASSESSMENT OF RISK

The National Risk Assessment (NRA) is an assessment of the most significant risks the UK could face over the next five years, which could result in a civil emergency. It is produced every two years (the first such assessment was carried out in 2005) and is collectively agreed by Ministers.

The NRA assesses both 'hazard' and 'threat' risk scenarios, which together cover accidents, natural hazards, disease, malicious attacks (cyber, conventional and unconventional), public disorder and industrial action risks. The risks in the NRA are all 'reasonable worst case scenarios,' meaning that they represent a challenging but plausible manifestation of a particular risk, which in turn helps to ensure that Government is preparing for a range of potentially severe consequences and not just routine incidents.

The health sector can be impacted by the majority of risks in the NRA because of its role in managing and treating any resulting casualties that result from the risk occurring. Because of this, it is essential that within the health sector, national planners are not necessarily considering individual risks in the NRA, but instead are planning against the common consequences of these risks as set out in the National Resilience Planning Assumptions (NRPA).

Complementing the NRA, the Cabinet Office produces a quarterly Forward Look which assesses the most significant domestic risks over the coming six month period. DH contributes to this Forward Look, bringing together information from across the health and care sector.

3.1.2 ASSESSMENT OF SECURITY AND RESILIENCE

Given the diversity and interconnectedness within the health sector, and the extent to which it needs to respond to the consequences of emergencies in other sectors, emergency preparedness, resilience and response planning in the health sector adopts an 'All Risks' approach.

The impacts on the health sector can be subdivided into three main categories:

- Risks that result in a number of casualties which the health sector will need to deal with – **Casualty impact risks**;
- Risks that affect the ability of the health sector to continue to provide a service – **Service impact risks**;
- Risks that both affect the ability of the sector to provide its service and risks that result in casualties at the same time – **Service and Casualty impact risks.**

3.1.2 CASUALTY IMPACT RISKS

Casualties are defined in the NRA as being:

> *"Those requiring medical intervention as a result of an event, either for chronic, acute or psychological effects. Calculation includes those whose existing condition deteriorates significantly as a result of the event (for example by delay to treatment), but not those who seek medical advice but do not receive an intervention, for example 'worried well'."*

A casualty may be seen, treated and discharged from a permanent healthcare facility such as a Walk in Centre, Minor Injuries Unit or Emergency Department by a Doctor, Nurse or AHP (Allied Health Professional) or a temporary healthcare facility at or close to the scene.

A casualty may be required to increase their use of health services following an incident (either attending more frequently, or accessing a different range of services than they would otherwise have needed).

Other individuals may not have been affected directly or indirectly by the incident itself, but may have their access to healthcare services affected by the demands of an emergency response (for example cancelled appointments or bed spaces being unavailable). These are not casualties, but it is recognised that they have been affected by the incident or emergency.

The impact of the 'worried well' cannot be underestimated. Many of these could become revolving door patients and ultimately be diagnosed with PTSD or some Psychological Impact following the events.

Many of the NRA risks have a Casualty Impact that the health sector has to deal with. These include acts of terrorism such as Improvised Explosive Device (IED)/Vehicle-Borne IED attack on a crowded place, collapsing buildings, aircraft crashes, heatwaves, infectious disease outbreaks, CBRN (chemical, biological, radiological or nuclear) incidents or MTFAs (marauding terrorist firearms attacks). Although a number of NRA risks cause an increase in casualties, and the NRPAs give an indication of the numbers expected, these risks themselves are not always specifically planned for. Instead, it is the common impact of the risks (the increased casualties) that are used to plan against.

DH leads on the non-contaminated casualty (mass casualty planning assumption for the National Resilience Capability Programme. The ongoing Mass Casualty capability assessments, joint work with other government departments and French authorities to identify lessons from the Paris attacks of 2015, together with the Westminster incident in March 2017 as well as results of continuous planning, are positive given the assumed scale of an incident, and showed that the health capabilities in place to respond to an incident that resulted in the consequences set out in the planning assumptions would be relatively good.

Although it is predominantly the NHS that responds to casualties, there are a number of risks that were they to materialise would require a very active role from PHE, for example in infectious disease outbreaks. Similarly, as part of the response to an increase in casualty numbers the surge plans that most hospitals utilise will potentially impact on the social care sector as capacity can be created by moving patients from hospitals into care homes or back to their own homes with support of domiciliary care.

3.1.3 SERVICE IMPACT RISKS

3.1.3.1 FLOODING

An example of a Service Impact Risk is flooding, which would potentially result in disruption to services out of proportion to the direct casualties caused. This would include damage to the physical infrastructure of the health and social care sector within which health services are carried out (which include GP surgeries, NHS hospitals, urgent care centres, walk in centres, care homes and laboratories and sites of PHE and NHSBT), or where services are provided in the patient's own home, or through interruption to the supply of essential utilities (electricity / water / telecommunications).

The cross-government National Flood Resilience Review (NFRR) chaired by the Chancellor of the Duchy of Lancaster, Oliver Letwin, was published in September 2016.

The review focused on four key areas: updating climate modelling and stress-testing the nation's resilience to flood risk; assessing the resilience of important infrastructure to flooding (in the healthcare sector itself, and also in utility sectors transport and utility sectors where there are dependencies for the health sector, such as electricity substations; the use of temporary defences; and future investment strategy

Mapping work was undertaken by DH to assess the risk of flooding to hospital and ambulance sites, using the PHE owned Strategic Health Asset Planning and Evaluation (SHAPE).

The focus of the NFRR assessment was on health facilities which are significant on a regional or national level, for example regional trauma centres, which serve very large areas and the loss of which will reduce the standard of care available to trauma patients, specialist national beds,

such as ECMO (to support acute respiratory failure) or burns where there are a limited number of commissioned locations offering these services.

After consultation with NHS England at regional level and contact with the local NHS, it was determined that at those sites that were considered to be of significance, there was either little risk of flooding, high levels of protection was provided by EA defences, or significant efforts at mitigation had been undertaken.

Therefore no locally significant health sites are assessed as being in need of additional permanent defence measures, although the risk of surface flooding (for which additional defences provide little protection) remains.

Two assets – Pilgrim Hospital and the Royal Hull Infirmary - were identified as being at risk of coastal flooding. As mitigation measures would be prohibitively expensive, NHS England has decided to accept this risk.

3.1.3.2 ADULT SOCIAL CARE PRESSURE

Significant reductions in Adult Social Care budgets over the previous spending review and the need for further reductions will lead to delivery risks.

The Adult Social Care (ASC) Spending Review (SR) settlement gives growth by the end of the parliament, via an additional £3.5bn in 19/20 from a direct grant through the Better Care Fund (BCF) and the ability of councils to raise their council tax by 2% pa through the Social Care Precept. The Clinical Commissioning Group (CCG) contribution via the Better Care Fund will also increase funding to the sector. However, the first two years of this SR period are extremely challenging.

The financial constraint on councils is leading to increased pressure on provision across the system, which is largely delivered by the independent sector. Additional pressures on care providers from the National Living Wage may lead to increased market exit and a further decline in capacity and/or quality. There are also significant constraints in the social care workforce across the whole of the sector. Specific shortages include social care nurses and registered managers, but there are also pressures in recruiting domiciliary care workers and care home staff.

The level of risk varies across the country, but DH's assessment is that the sector has limited capacity to absorb further pressures which may be put on the system from a prolonged emergency period. Furthermore, the ability of providers to absorb further cost pressures associated with preparing for an emergency, including the vaccination of the workforce, is very limited and we would expect low levels of compliance if specific funding is not identified.

A significant proportion of people in need of care fund it themselves – either because they do not pass the means test, or because their needs are not high enough to pass the eligibility threshold. As a result there will be many vulnerable people with social care needs across the country that may not be in direct contact with the LA. Under the Care Act 2014, the LA has responsibilities for these people in terms of ensuring that there is sufficient care provision for their whole population, but LAs' ability to identify and reach self-funders quickly in an emergency situation is relatively untested, this is particularly true for people receiving care in their own homes. Evidence from the 2015 flooding suggests that there is inconsistent practice in terms of LAs having lists of potentially vulnerable people and there is a strong reliance on primary health care services and the community to support self-funders.

Against this backdrop, steps have been put in place to specifically support the adult social care sector:

- DH oversight of the social care system has been strengthened, with the Social Care Oversight Group (DH, DCLG, CQC) regularly reviewing the risks facing the sector, including an emergency response;
- Working closely with partners to support both emergency planning and response – DCLG, Local Government Authority (LGA), and Association of Directors of Adult Social Services (ADASS). Relationships have been strengthened by recent work on flooding (Christmas 2015) and the industrial action by Junior Doctors;
- There has been specific work with the sector on preparedness for emergencies with key areas scoped which may need to be reviewed locally (such as holding of vulnerable people lists, treatment of self-funders, and access to utilities). We have agreed that emergency preparedness will form a part of our overall care and health sector led improvement programme for local government.
- Updating operational guidance on pandemic flu response following the Tier 1 exercise;
- CQC monitors the financial performance of the most 'difficult to replace' care providers (i.e. those that are large and operate nationally or those that are concentrated in a specific region);
- DH is working with CQC to agree national roles and responsibilities and test a business failure/restructuring scenario. A further table top exercise is planned for May 2016 with a Ministerial exercise later in 17/18. The work is linked up to wider civil contingency arrangements;
- At the March Budget 2017 the government announced that an additional £2 billion will be given to councils over the next three years for social care;
- £1 billion of this will be provided in 2017-18, ensuring that councils can start to fund more care packages immediately;

- There will also be measures to help spread best practice and ensure that the funding helps to ease pressures on the NHS. This will include targeted measures to ensure those areas facing the greatest challenges at the interface between social care and the NHS improve rapidly. Further details will be laid out in due course. This additional funding is for councils to support more people and promote a sustainable local care market. It will also address pressures on the NHS, such as delayed discharges from hospital;
- In the longer term, the government is committed to establishing a fair and more sustainable basis for adult social care, in the face of future demographic challenges. The proposals to put the system on a more secure and sustainable long term footing will be set out in a green paper later in 2017.

3.1.3.3 HEALTH AND SOCIAL CARE: DATA AND CYBER SECURITY

The health and care system in the UK faces the same growing cyber threat as the wider economy. However, recent incidents such as the Northern Lincolnshire and Goole NHS Foundation Trust attack in autumn 2016 and, to a lesser degree, the January 2017 incident at Barts Health Trust demonstrate how cyber-attacks can have a direct impact on patient care.

Recognising the potential impact of data and cyber security incidents, the National Data Guardian's independent review of Data Security, Consents and Opt-Outs was published on 6th July 2016.

The review found that strong Board level leadership is a vital factor in an organisation's resilience. Often simple changes costing very little, such as reviewing local training, firewall rules or password management practices, can make big differences in averting incidents.

The review recommended 10 data security standards for local health and care organisations to adopt to build their own resilience and to help them identify local threats and vulnerabilities before they become incidents. The standards cover leadership obligations relating to people, process and technology.

As a core part of the programme to implement and support these standards, NHS Digital (previously known as the Health and Social Care Information Centre) provides an increasingly comprehensive package of support - CareCERT - for local health and care organisations to increase their levels of preparedness and resilience:

- CareCERT Knowledge and Intelligence provide guidance to assist organisations in increasing their resilience and response to cyber threats and, when they occur, data breaches;

- CareCERT React is already operational and provides a first responder capability for local organisations to draw upon in the event of a cyber attack, providing trusted advice, guidance and technical support;
- CareCERT Assure, supporting health and care organisations to undertake assessments of the level of data security using existing frameworks such as Cyber Essentials;
- As recommended by the National Data Guardian's review, NHS Digital is working to develop a data security focused successor for the Information Governance (IG) Toolkit which currently assures information governance in health and care. This will be used to support local organisations' implement and embed the standards. NHS Digital is planning to intend to pilot the new service during 2017, before fully replacing the IG Toolkit from 2018/19.

Following a public consultation in 2016, the Government is now preparing to publish its response to the consultation.

3.1.4 SERVICE AND CASUALTY IMPACT RISKS

Risks that impact the health sector both in terms of the Service and Casualty Impact are particularly challenging because in addition to having to implement business continuity management procedures to maintain as close to normal service levels as possible, the health sector is faced with an increased workload. There are a number of risks that impact the health sector both in terms of both reduced and/or disrupted service delivery and increased casualty numbers.

3.1.4.1 PANDEMIC INFLUENZA

The best example of a service and casualty impact risk would be Pandemic influenza, which would potentially have a significant effect across the whole health sector. Within DH, governance for the work addressing this risk is at the highest level with the Director General for Public Health chairing the Pandemic Influenza Preparedness Programme Board to which the respective work stream leads report. Across government, this was recently discussed at Cabinet Committee and a new cross-government group of officials, co-chaired by CCS and DH, has been convened to raise preparedness.

During a pandemic all parts of the health (and social care) sector would be facing staff shortages at the same time as the NHS would have an increased patient demand. Most of this demand would be in access to general practice, pharmacy, intensive care units, acute medical services and Paediatrics. Decisions would need to be taken with respect to highly specialist services with very limited capacity such as ECMO, on how to flex these services to meet demand, or suspend activity where resources could be better utilised for maximum survival

rates. The NHS would also maintain core services for Maternity, Emergency Medicine & Surgery, and Emergency Departments to continue to meet the needs of the population. In addition, services such as antiviral collection, vaccination campaigns would be managed by the health sector and require resourcing.

PHE would step up its surveillance and public health support activities; and social care would potentially need to make more visits to individuals who require more assistance or who perhaps were previously looked after by a family member who is unable to visit due to their own illness. The supply chain and also the ability to transport patients or healthcare workers to places for treatment would also be disrupted if drivers were incapacitated by the pandemic illness). Other key sectors of the economy would face similar strain, and there would be rising demand in certain areas including death management.

Pandemic influenza is considered to be the most significant risk in the NRA due to its potential impact and likelihood of occurring. Government therefore carries out bespoke planning to prepare for this risk.

3.1.4.2 EXTREME WEATHER

Other risks where the health and care sector would have to deal with both a reduction in staff and an increase in patients/service users include Extreme Weather of any kind. With severe winter weather, as many health and care workers may struggle to get into work, there would also be an increase in the number of patients/service users suffering from snow and ice-related injuries. During a heatwave, as well as heat related casualties, the air conditioning units of some health and care facilities may become overwhelmed, and therefore the buildings become unsuitable for treating patients/service users, and health and care workers not being able to function and deliver safe health and care in overheating buildings.

As a result of this, NHS England works with Public Health England and DH to publish annually revised specific cold weather and heatwave plans, to advise and guide health and social care providers and inform the public. These publications are accompanied by briefings to stakeholders and an accompanying media release.

3.1.4.3 NEW AND EMERGING INFECTIONS

Robust systems are in place for the detection, assessment and reporting of potential threats from new and emerging infections. PHE has a National Situational Awareness Cell (NSAC) that produces a daily report [Mon-Friday] of incidents or situations, taking an all hazards approach, that have the potential to impact upon public health. If a significant threat is detected, it is assessed and reported up the management chain in PHE and to DH. Since most emerging infections are zoonoses, any new diseases in animals which might have zoonotic potential or reports of recognised zoonoses in animals are discussed in the Human Animal Infections and

Risk Surveillance group – an established cross Government, multidisciplinary horizon scanning group, chaired by the PHE Emerging Infections and Zoonoses section.

2016 has seen the publication by PHE of Travel and clinical advice on Zika: assessing pregnant women following travel; epidemiology; symptoms; transmission. The advice for pregnant women has been developed in collaboration with the NHS and the Royal College of Obstetricians and Gynaecologists and Guidance for neonatologists and paediatricians in England. It has been produced by PHE and a Zika virus neonatal working group.

NHS England continues to work with health partners to identify new and emerging health risks and ensure that appropriate measures are available to deal with these in all appropriate care settings.

The learning from the Ebola outbreak is being incorporated into High Consequence Infectious Diseases (HCID) Programmes led by NHS England and PHE. The HCID Programmes are working together to ensure that there is an agreed approach to managing the end to end patient pathway for known and unknown HCIDs and to ensure that PHE is fully prepared to lead the public health response to a significant outbreak of, whether arising in the UK or abroad.

3.2 INCIDENT REPORTING

Significant incidents that occurred during 2016/17 are presented in ANNEX B.

3.3 SECTOR WIDE VULNERABILITIES

The NSC(THRC)(O) monitors the vulnerability to threats and hazards of sectors' CNI against a set of criteria. These threats and hazards for the health sector are listed below with the current assessment (March 2017):

Table 2 - CNI vulnerability (March 2017)

1. Physical Security			2. Cyber Security			3. Pers Security			4. Floods, Storms & Snow			5. Loss of Elec.			6. Loss of Comms			7. Staff Absence		
Current	Target	Progress RAG	Current	Target	Progress RAG	Current	Target	Progress RAG	Current	Target	Progress RAG	Current	Target	Progress RAG	Current	Target	Progress RAG	Current	Target	Progress RAG
M	L	G	MH	M	G	LM	L	G	M	M	G	M	L	G	M	M	G	M	M	G

The vulnerability assessment criteria are in ANNEX C.

The following section outlines controls/mitigations against these risks.

4. UPDATE ON COMMITMENTS IN THE 2016-2017 SSRP

4.1 PROGRESS MADE IN COMPLETING ACTIONS DESCRIBED IN LAST YEAR'S HSSRP

Table 3 outlines progress made in completing actions described in last year's HSSRP:

Table 3 - HSSRP Actions Update 2016/17

Risk	Action/Activity	Action completion date	Progress (completed/ outstanding/ no longer relevant + reasons)	RAG	Outcome of the completed actions (e.g. resulting improvements to security and resilience)
Loss of Electricity	Hold workshops to examine in detail the implications and means of mitigation following the changed timing assumptions within NRA Risk H41	2016/17	A workshop to consider changes to H41 was held in October 2016.		NHS England is holding a series of webinars to learn from the experience of Morecombe NHS Trust in response to power loss following severe weather.
Fuel disruption	Contribute ambulance trust data to the DECC (now BEIS) led review of the National Emergency Plan for Fuel (NEP-F)	May 2016	This data was shared with BEIS in May 2016		
Fuel disruption	Collect information on fuel as part of NHS England assurance process. DH to consider feasibility of collating this data from the wider health sector and providing to BEIS	May 2016	Ongoing		
Cyber Security	Implement a programme of interventions to increase the responsiveness of the system to Cyber-risk with the establishment of CareCERT	May 2016	CareCERT has been set up Further services are being rolled out		This will increase data security and resilience across the health and care system.
Cyber Security	CQC and National Data Guardian to conduct review on data security across the NHS	Summer 2016	Complete		Ten data security standards have been recommended for the health and care system.
Cyber Security	Consolidate CNI cyber asset list	September 2017	In progress – timing and approach revised following NCSC ownership of Cyber CNI policy		We will have an improved understanding of how critical national cyber assets are protected.
Floods, Storms & Snow	Contribute to CCS led National Flood Resilience Review (NFRR). Map locally health significant assets not protected against flooding to Extreme Flood Outline.	May 2016	Complete		No locally significant health sites are assessed as being in need of additional permanent defence measures, although the risk of surface flooding (for which additional defences provide little protection) remains
Social	Social Care Sector Led Improvement programme	March	Ongoing		LGA strategic workshop to scope and co-

Care	(delivered by the Local Government Association (LGA) and Association of Directors of Adult Social Services (ADASS) and funded by DH)	2017			ordinate future offer to councils on managing and mitigating financial risk. ASC Risk Assessment Tool refreshed. Identifying improvement programme for 2017/18
Personnel Security	CPNI and PHE to plot maturity level, following personnel security self-assessment completed by PHE (CNI owner) (Dependent on CPNI resources)	End July 2016	Maturity level has been plotted and measures have been taken forward to move up the maturity scale		
Staff Absence	Carry out contingency planning and coordinate detailed information about pressures within the NHS ahead of strike days. Industrial Action has been conducted by Junior Doctors since late 2015. Contingency planning in advance and coordination of detailed information about pressures within the NHS during strike days	May 2016	NHS England coordinated the response to planned industrial action by NHS doctors through 2015/16		A review of this work has been incorporated into future strike response/contingency planning.
Physical Security	Take forward the actions following consideration of CPNI recommendations	End of 2016	Given potential changes to the physical CNI assets, it was judged to be disproportionately costly to take forward the original recommendations. A revised set of recommendations has been agreed and following discussion at PHE Management Committee, implementation is now progressing.		These measures increase the security of the CNI.
Supply Chain Resilience	Develop and implement national supply resilience strategies for critical medical devices and clinical consumables	Ongoing	Products of concern have been identified and DH is working with manufacturers and suppliers to monitor and mitigate any future failures in the supply chain		This has led to the Supply resilience Checklist Project which will provide NHS trusts with a self-assessment tool kit to assess exposure to products of concern and offer mitigation strategies.

4.2 DH PARTICIPATION IN CROSS-GOVERNMENT EXERCISES CARRIED OUT IN 2016/17

DH participated in four cross Government exercises in 2016/17:

Table 4 - Cross Government exercises 2016/17

Date	Title	Exercise lead	Description
June 2016	Red Kite	HO	Counter terrorism
July 2016	Talon's Reach	HO	Counter terrorism recovery exercise
September 2016	Central Station	HO	Counter terrorism
October 2016	Cygnus	DH	Pan flu tier 1 exercise

4.3 HEALTH SECTOR EXERCISES CARRIED OUT IN 2016/17

DH participated in three health sector exercises in 2016/17:

Table 5 - Health sector exercises 2016/17

Date	Title	Exercise lead	Description
June 2016	Delta II	DH	National cross health sector Command Post Exercise
August 2016	Cygnet	DH	Pan flu pre-exercise to Ex Cygnus
December 2016	Theodor	DH	Food borne disease exercise

In addition to these, the health sector ran its own training and exercising programme:

- NHS England held 4 Regional Exercises and 24 EMERGO Exercises to test decision making in complex emergencies, in planning and managing the response to a major incident. The exercises enable assessment of how different outcomes could have been achieved (for example, in terms of lives saved and quality of treatment) if different decisions had been made;
- PHE participated in monthly UK-wide multi-agency chemical and radiological exercises at chemical, nuclear and fuel sites;
- PHE centres and NHS organisations used off-the-shelf exercises including Communicable Disease, Pandemic Influenza, Winter Pressures and hospital evacuation exercises to test new plans and protocols.

Work in DH is ongoing to systematically capture and present lessons identified from exercises. In addition PHE keep a list of lessons identified from all the exercises that they have delivered.

5. 2017-2018 ACTION PLAN

5.1 ACTION PLAN FOR 2017/18

There are a number of active work streams outlined in Table 6 seeking to build resilience within the health sector for responding to all types of risk. A common mitigation strategy that is used across the health sector is around prioritising care provision.

Table 6 - Action Plan for 2017/18

#	Risk addressed	Current vuln.	Target vuln.	Sector	Actions to Achieve Target	Action owner	Completion date	Progress RAG	Target Risk Reduction	Commentary
1	Loss of electricity	M	L	All	Hold a series of webinars to learn from the experience of Morecombe NHS Trust in response to power loss following severe weather.	NHS England	End 2017		2018	
2	Cyber security	MH	M	All	Publish Government response to NDG Review and CQC Reviews including formal acceptance of the recommended data security standards	DH Cyber	March 2017		2020	Overdue - Awaiting cross Government Clearance, likely May 2017
					Deliver new CareCERT services to support health and care organisations in improving their data security	NHS Digital	End 2018		2020	Services will support health and care organisations to improve their level of data security and will increase system wide resilience and incident response
					Replace the Information Governance Toolkit to measure progress in implementing the data security standards	NHS Digital	April 2018		2020	This will allow for the implementation of the data security standards, and the level of cyber maturity, to me measured bot across the system and at organisation level.
3	Cyber security	LM	L	CNI	Consolidate CNI cyber asset list	DH Cyber	September 2017		April 2018	This will increase understanding of critical cyber infrastructure and how it is protected.

5	Pandemic Influenza	H	M	All	DH and CCS are taking forward a cross Whitehall work programme as endorsed by NSC(THRC), chaired by the PM on 21 Feb 2017	DH and CCS, PHE and NHSE on elements	February 2018		Feb 2018	
6	Personnel security	LM	L	CNI	Move up the CPNI personnel maturity scale	PHE	March 2018		March 2018	
7	Physical security	M	L	CNI	Take forward actions, following CPNI revised recommendations	PHE	March 2018		March 2018	Some actions will not be relevant given decisions about the future of the assets
8	Supply chain resilience	M	L	All	Develop and test a local provider Supply Resilience Preparedness Checklist model	DH Commercial	March 2018		March 2018	This project will provide NHS trusts with a self-assessment tool kit to assess exposure to products of concern and offer mitigation strategies.

5.2 EXERCISES PLANNED FOR 2017/18

The following table presents the exercises planned for 2017/18:

Table 7 - Exercises planned for 2017/18

Date	Title	Exercise lead	Description
September 2017	Tbc	DH Cyber	Test system wide response to a large scale cyber incident
October 2017	Tanner	DH	Operation of an Antibiotic Collection Centre
October 2017	Border Reiver	HO	Counter terrorism
January 2018	Delta III	DH	Table Top Exercise to test DH/PHE/NHS England joint CONOPs (T44 secnario)

List of Annexes

ANNEX A – HEALTH CNI ASSETS

ANNEX B – INCIDENT REPORTING

ANNEX C – CNI VULNERABILITY CRITERIA

ANNEX A – HEALTH CNI ASSETS

Provided at SECRET

ANNEX B – INCIDENT REPORTING

INDUSTRIAL ACTION

During 2015 the British Medical Association (BMA) was in formal dispute with employers and the Government. Junior Doctors commenced industrial action, withdrawing labour from elective and subsequently emergency care, this meant that organisations tested their plans to respond to staff shortages across a specific staff group, this action continued into 2016. This dispute, and all subsequent industrial action, was suspended in October 2016.

In the NHS, there are well rehearsed plans for staff shortages. These involve amending rotas to ensure that there is appropriate cover from available staff and utilising additional resources from across the NHS.

Where this is not providing adequate cover, hospitals are able to prioritise resources by reducing or stopping certain elective activities or non-essential clinics.

SUPPLY CHAIN

Five significant supply disruption events have been recorded affecting: Baxter Healthcare (IV and Irrigation consumables), Vygon (PICC location adaptor), Synergy Health and Shermond (sterile support bandages), BD (blood collection tubes and 50ml luer lock syringes) and Unisurge International (surgical procedure packs).

A National Supply Disruption Response was initiated to respond to the Baxter Healthcare incident, due the widespread nature of impact across the NHS and the potential for this to affect critical care. Response actions and mitigation measures were successful in avoiding any adverse impact of patient care and outcomes. Normal supply was resumed across all affected product lines in August 2016. Following meetings with the DH, Baxter have now established 6 months contingency stock cover across priority IV and irrigation product lines and are strengthening business continuity arrangements at their main production facility.

National Supply Disruption Responses were not mobilised for the other supply disruption events, due to the availability of alternative products and the ability for mitigation actions to be managed locally within the health system. The adoption of substitute product for the BD 50ml luer lock syringes has highlighted some patient safety concerns, which are currently under investigation by the Medicines and Healthcare products Regulatory Authority (MHRA). In addition, the supply disruption affecting Unisurge procedure packs has resulted in the cancellation of some elective procedures by affected trusts

SIGNIFICANT PUBLIC HEALTH INCIDENTS

Responding to public health incidents is part of the core business of PHE. In 2016/17, PHE responded to the Enhanced and Standard incidents listed in Tables 8 and 9. Note that prior to publication of the revised PH National Incident and Emergency Response Plan in October 2016, these were classified as Level 3 and Level 2 incidents.

Table 8 - Enhanced/Level 3 Responses

Level	Incident	Start Date	Closed
Enhanced	Meningococcal Disease: National increase in incidence of meningococcal disease type W	27/05/15	On-going
Enhanced	National increase in incidence of pertussis	11/04/12	On-going
Enhanced	UKAP 08/26 hepatitis C infected health care worker patient notification exercise.	23/02/16	16/01/17
Enhanced - lowered to Standard response on 30/09/16	Pseudomonas outbreak related to body piercings	13/09/16	03/11/16
31/05/16	E. coli O157 (PT 34) Outbreak/increase in national cases	31/05/16	27/07/16
Enhanced - lowered to a Standard response on 28/09/16	PHE response to Zika Virus (to facilitate co-ordination across Government)	29/01/16	14/02/17
Enhanced	Carbapenemase-producing Enterobacteriaceae (From 17/06/16 the incident control team has been stood down. Work streams continued within normal working programmes)	15/11/13	17/06/16

Table 9 - Standard/Level 2 Responses

Level	Incident	Start Date	Closed
Standard	Acute Hep B clusters in multiple regions. HBV A2 clusters in men, characterised by men who identify as heterosexual but likely participate in high risk MSM behaviour	04/2016	On-going
Standard	Candida auris: investigations in progress to identify potential links between sporadic cases identified in three separate hospitals to determine if there has been any transmission events	14/01/16	On-going
Standard	Outbreak of high level azithromycin resistant (HL-AziR) gonorrhoea in England	04/2016	On-going
Standard	HCW with HIV working in 2 A&E units and in 3 orthopaedic units during the period September 2010 and February 2016. (Patient notification and patient cross-matching exercise)	02/2016	On-going

Standard	Hepatitis A: Report of clusters of men who have sex with men and travel related cases of hepatitis A in England and Northern Ireland	20/12/2016	Escalated to Enhanced in April 2017
Standard	Salmonella enteritidis: national outbreak investigation in the UK by NIS, Public Health Wales and Health Protection Scotland in collaboration with FSA and APHA	05/2016	On-going
Standard	Workplace TB Outbreak; cluster of cases linked by WGS in Midlands and East; 4 cases associated with a work place	23/01/17	On-going
Standard	Avian Influenza incident in Wyre, Lancashire	25/01/17	24/02/17
Standard	Endophthalmitis - post corneal graft surgery	13/12/16	09/02/17
Standard	Increase in invasive Group A Streptococcal infections (iGas) in People Who Inject Drugs	31/10/16	02/02/17
Standard	National outbreak of suspected norovirus associated with restaurant chain	24/10/16	17/11/16
Level 2	Escherichia coli O157 outbreak – Gastroenteritis In London	02/09/16	03/11/16
Level 2	Streptococcus, Group A (iGAS in Brighton – street/homeless/IVDU) Became part of national investigation as above on 31/10/16)	18/10/16	02/02/17
Level 2	Candida auris outbreak at the Royal Brompton Hospital	04/2015	06/10/16
Level 2	Clusters of measles cases across London and East of England	10/03/16	08/07/16
Level 2	VTEC O157 Phage Type 8 Vero-toxin type 2a	19/08/15	09/06/16
Level 2	Extended-Spectrum Beta-Lactamases (ESBL) producing and macrolide resistant Shigella sonnei in men who have sex with men (MSM) in London	Prior to April 2016	09/06/16
Level 2	Infectious Tuberculosis in a meat inspector who worked in various factories since July 2015 in six PHE centre's areas	August 2015	08/04/16

ANNEX C – CNI VULNERABILITY CRITERIA

VULNERABILITY CRITERIA USED AGAINST THREATS AND HAZARDS.

PHYSICAL SECURITY:

High vulnerability: one or more significant physical security vulnerabilities apply to any of the following:

- **One single 'Category 5' site; or**
- **More than 40% of 'Category 4' sites; or**
- **More than 70% of 'Category 3' and 'Category 4' sites combined.**

Medium vulnerability: not a single 'Category 5' site has a significant physical security vulnerability, but the following are thought to have at least one significant physical security vulnerability:

- **20-40% of 'Category 4' sites; or**
- **30-70% of 'Category 3' and 'Category 4' sites combined.**

Low vulnerability: not a single 'Category 5' site has a significant physical security vulnerability and only the following are thought to have a significant physical security vulnerability:

- **Less than 20% of 'Category 4' sites; and**
- **Less than 30% of 'Category 3' and 'Category 4' sites combined.**

CYBER SECURITY:

- **High vulnerability: vulnerable to untargeted, unsophisticated attacks**

- **Medium / high vulnerability: vulnerable to targeted, unsophisticated attacks**
- **Medium vulnerability: vulnerable to moderately sophisticated attacks**

- **Low/ Medium vulnerability: vulnerable only to very sophisticated attacks**
- **Low vulnerability: not vulnerable to known capabilities**

PERSONNEL SECURITY:

- **High vulnerability: Majority of companies are not engaged, utilising guidance or demonstrating changes to build a security culture**

- **Medium vulnerability: Around half of companies engaged, utilising guidance and demonstrating changes to build a security culture**

- **Low vulnerability: Majority of companies are engaged, utilising guidance and demonstrating changes to build a security culture**

FLOODING, STORMS AND SNOW:

- **High vulnerability: significant disruption expected from at least 2 of the following natural hazards: significant flooding, severe storms & gales; and significant snow.**

- **Medium vulnerability: the sector may have a high vulnerability to 1 of these natural hazards but has some resilience to the other 2 natural hazards, even if some disruption might still be expect from these.**

- **Low vulnerability: the sector is resilient to significant flooding, storms & gales; and snow, such that only minimal disruption would be expected any of these.**

LOSS OF ELECTRICITY

- **High vulnerability: critical services would face significant disruption in the event of widespread power loss, with only patchy provision of generators and/or only a couple of days' generator fuel supply on site**

- **Medium vulnerability: generators are in place across most of the critical parts of the sector (with some back-up generator fuel supply which can be accessed without the need for electricity). However they are either;**
- **insufficiently widespread to maintain critical services across the majority of the sector AND/OR**
- **Do not have 5 days' generator fuel on site.**

- **Low vulnerability: critical services have regularly-tested generators across the majority of the sector (including the most critical parts of the sector) and at least 5 days' fuel supply on site, which can be accessed without the need for electricity.**

STAFF ABSENCE RISKS:

- **High vulnerability: no business continuity plans are in place for staff absence; or significant disruption to critical services would be expected during a pandemic illness or the 'reasonable worst case scenario' strike action within the sector.**

- **Medium vulnerability: some disruption would be expected, even to critical services, during a pandemic illness or 'reasonable worst case scenario' strike action within the sector itself.**

- **Low vulnerability: only minimal disruption to critical services would be expected during a pandemic illness or reasonable worst case strike action within the sector.**

CRITERIA USED RAG ASSESS PROGRESS IN MITIGATING VULNERABILITIES.

RED:
Issues encountered in plans to reach target vulnerability. No progress being made.
Target vulnerability is High (i.e. sector accepting this level of vulnerability)

AMBER:
At risk of issues or delays that will impact progress to target vulnerability and target vulnerability is Medium or below.
Target vulnerability is Medium High (i.e. sector accepting this level of vulnerability)

GREEN:
All planned actions are on track. Progress is being made to reach target vulnerability and target vulnerability is medium or below