Cabinet Office

2019 National Security Risk Assessment

An assessment of risks and their common consequences

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Foreword

The United Kingdom has a world-leading national approach to resilience and emergency response. Our ability to mitigate, respond and recover from significant events is vital to protect our people, values and way of life. Robust, evidence-led risk assessment underpins everything we do and is enables contingency planning at all levels.

The National Security Risk Assessment (NSRA) assesses the key risks that could potentially damage the safety or security of the UK or our interests both domestically and overseas. It also draws out the consequences in the event of such scenarios occurring. This makes the NSRA an effective tool that can be used at all levels of government to drive risk management and an essential part of the way we approach national security.

The analytical framework ensures that our capabilities, plans and priorities are driven by evidence and expert judgement, and that risks are assessed in a consistent way. Crucially, the NSRA recognises that a large number of risks that the UK faces can be planned for generically: taking a risk agnostic approach and making sure our capabilities are used in the most effective and efficient ways. The global risk landscape is perpetually changing, making it essential that we update the risk assessment evidence base regularly and identify ways to continuously improve our risk management processes.

The 2019 NSRA builds on the strengths of previous iterations, including combining the National Risk Assessment and the National Security Risk Assessment, in order to deliver a unified risk assessment framework and directly compare malicious and non-malicious, domestic and international risks. This recognises that risks can transcend borders and acknowledges that domestic and international risks will often interconnect. This iteration also has an increased focus on the capabilities required to enable effective recovery.

In line with previous versions, as much information as possible has been included at OFFICIAL-SENSITIVE classification to enhance usability and transparency.

The production of the NSRA has been supported throughout by an extensive stakeholder group, who have been dedicated in providing evidence and challenge. This has included relevant government departments, Devolved Administrations, Chief Scientific Advisers, the intelligence community, and Local Resilience Forums, as well as experts from academia and industry.

This broad community is essential in the delivery of the assessment, and in ensuring that the NSRA meets the needs of its users. Recipients of the NSRA should continue to exercise care in how this document is used and interpreted, focusing on the planning activities that result from the risks, rather than where specific risks fall on the matrix. Ultimately, any assessment is only worthwhile if it is used, and translated into actions to meet the challenges ahead.

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Introduction

What is the National Security Risk Assessment?

The National Security Risk Assessment (NSRA) identifies and analyses the major risks to the UK's national security, assessing impacts in order to determine the common consequences of these risks occurring. It is produced through an evidence-led, cross-government process, and facilitates critical risk management and contingency response planning at the local and national levels. The NSRA is of vital operational importance as it encourages contingency planning, but is also strategically important as it provides a framework for risk management decision making.

Purpose of the NSRA

Historically, the Civil Contingencies Secretariat (CCS) produced a National Risk Assessment (NRA) and a National Security Risk Assessment (NSRA) separately. The NRA focussed on domestic emergencies over a five-year timescale and the NSRA focused on broader national security risks (including international risks) over a 20 year timescale. CCS has now combined the NRA and NSRA to deliver a unified risk assessment framework, which for the first time enables the direct comparison of risks that are malicious and non-malicious, as well as those that are domestic and international. It brings together the full range of issues that could affect the UK and its interests, ranging from conflict overseas and terrorism, to natural hazards and major accidents, reducing duplication and improving the government's ability to compare, prioritise and manage different risks. Each of these risks is evaluated in a consistent manner using a reasonable worst case scenario approach, and assessed in terms of likelihood and impact. These are then plotted on a matrix in order to compare each scenario. Although some scenarios may be location specific, they could occur anywhere in the UK, although the likelihood and/or impact may be different.

The NSRA is updated every two years and is based on extensive data provided by Lead Government Departments (LGDs), the intelligence community and relevant external experts as well as the Devolved Administrations, whilst drawing upon a number of the UK's other risk assessment products. Whilst these products assess specific threats and vulnerabilities in greater detail, the NSRA presents an oversight of the risk landscape.

The NSRA does not present an exhaustive list of all national security risks, instead focussing on those perceived to be the most serious by each LGD. This approach allows risk owners and planners to understand the common consequences of the most serious risks (known as Planning Assumptions) and the UK to take a common consequences approach to planning. This approach is proportionate, allowing the government to focus on developing specific plans and capabilities for the most concerning risks and generic capabilities to deal with a range of other events. This enables us to continue to strengthen capabilities that will allow us to tackle a wide range of situations, allocate resources effectively and generate risk awareness across government. Having flexible response arrangements based on common consequences also provides some degree of preparedness against unforeseen risks.

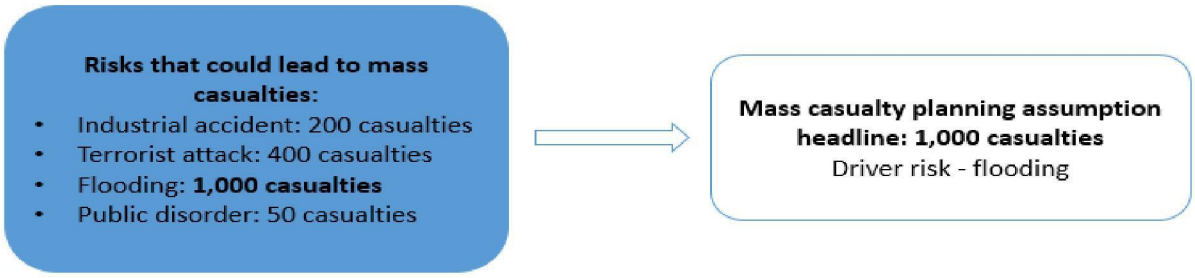


Figure 1: Example of a planning assumption – numbers are illustrative

Note to readers when comparing the 2019 NSRA to the 2015 NSRA or 2016 NRA:

Some of the risks have not changed in terms of their likelihood and/or impact since the 2015 NSRA or 2016 NRA, however they have moved position on the matrix due to methodological improvements made between iterations. Low temperatures and heavy snow, storms, influenza-type pandemic and animal disease are examples of risks which have shifted due to methodology. Please see Annex A for more information on the updated methodology.

Developments in the risk landscape

General Risk Updates

- A number of new risks have been included in the 2019 NSRA as their assessed likelihood and/or impact scores have increased in the period since the last iteration of the NRA/NSRA. These include the collapse of a major government contractor, major fire (which includes wildfire as a variation) and **Irrelevant & Sensitive**
- The UK's exit from the European Union does not appear as a separate risk in the NSRA. Risk owners were asked to account for the potential impact of EU Exit when devising their reasonable worst case scenarios. Where the impacts of EU Exit are unclear, risk owners have specified their level of confidence in the impact and likelihood assessments for each risk.
- The NSRA includes risks which are malicious (where a human actor – either individual or group – has a specific intent to carry out the risk) and non-malicious (with no human intent).

Malicious Risks

- The UK's increasing reliance on technology has likely contributed to a notable increase in cyber-enabled risks, though increased awareness and cyber incident reporting may contribute to this pattern. As cyberspace, notably the dark web, can facilitate the flow of criminal/terrorist finances, enable the transfer of illicit information and allow for encrypted communication, malicious acts against individuals, groups and states, have increased. Cyber technologies and an increased penetration of social media have also fuelled a growth in online harms such as radicalisation and child sexual abuse and exploitation. Over recent years, the number of non-state actors with the capability to perpetrate cybercrime and interrupt the operation of critical national infrastructure has also grown.
- **Irrelevant & Sensitive**

Methodological Challenges

Bringing together the NSRA and NRA into one assessment, and updating the methodology in order to do this has raised a number of challenges which will be addressed in future iterations. These include:

- Likelihood assessments. Likelihood can be assessed in a variety of ways depending on the nature of a given risk. Non-malicious risk likelihoods are predominantly assessed using historical event data and models (although there are exceptions, particularly amongst the societal risks), whereas malicious risk assessment rely on intelligence and expert judgement. Due to the methodology used for intelligence assessment, malicious risks tend to be skewed to the right hand side of the matrix. However, it should be noted that the confidence in these assessments is typically lower than for non-malicious risks; for risks where there is a long and reliable history of incidence, there is greater confidence in assigned probabilities, whereas for malicious risks, where the landscape changes very fast, confidence is more limited.

- Defining reasonable worst case scenarios (RWCS). The level of specificity within a RWCS varies across different categories of risks. This is notable for grouped risks, where one RWCS is chosen but there could be numerous variations with significantly different likelihood/impacts scores, which can mask cumulative risk. For example, the likelihood of a specific animal disease reasonable worst case scenario such as foot and mouth disease (FMD) occurring may be low, but the collective probability of one of the other many exotic animal diseases occurring is much higher.

- Comparing chronic and episodic risks. There are challenges around defining a RWCS and assessing the impact of something that does not typically take the form of a discrete event. This is most commonly seen for risks falling within the serious and organised crime family, where risks have been represented as a significant increase in activity. A nuanced reading should be applied to these risks which, in their chronic form, will pose harm to the UK every day.

Bearing the above challenges in mind, it should be noted that risks must be interpreted and used in light of other available and relevant information. Risk management initiatives and strategic direction **should not be solely** dictated by the position and/or colour of a risk on the matrix, although this may inform and support decision-making.

Risks under review

All risks included in the NSRA are regularly reviewed to ensure they still reflect the most plausible challenging scenario. The below risks are either pending a full assessment or are included in the 2019 NSRA, but are being reviewed at the time of release. An update will be issued as soon as a new assessment is complete. The full list of risks under review can be found in Annex B and Annex C. Ahead of the next iteration of the NSRA and in light of the methodological limitations noted above, CCS will conduct a comprehensive content review with risk owners and relevant other interested parties.

Risk title	Justification for review	Owning department	Included in 2019 NSRA?
Irrelevant & Sensitive			
New and emerging animal disease	Reasonable worst case scenario for a zoonotic vector borne disease is being developed within departments	Defra	No – currently under review

How to navigate the NSRA

Part A of the NSRA presents one-page summaries of the risks included in the assessment. These summaries provide a brief descriptive overview of the risk, the overall level of the risk in terms of the combination of likelihood and impact displayed on a matrix, the range of likely impacts, and information about response capabilities, recovery and uncertainties. The risks are grouped together into chapters which provide additional narrative about common themes across the risks.

Part B of the NSRA is comprised of the National Resilience Planning Assumptions (NRPAs). These describe the highest levels of impact which can be expected from the range of risks on the NSRA, resulting in an assessment of the common consequences of all NSRA risks. These inform national and local capability building and contingency planning decisions. The NRPAs outline the maximum severity, duration and/or scale of each common consequence that can be expected nationally, and provide further detail to help guide planners when interpreting the national planning assumptions for local purposes.

Annex A: The full methodology used to assess the likelihood and impact of each risk and the position of the risk on the matrix.

Annex B: Detailed assessments of all Official Sensitive risks (**Irrelevant & Sensitive** Irrelevant & Sensitive , Natural Hazards, Human and animal disease and Societal risks (OFFICIAL SENSITIVE). Includes risks under review.

Annex C: **Irrelevant & Sensitive** Irrelevant & Sensitive

Annex D: Future trend papers, which provide context about how drivers of risk could change over the next 20 years.

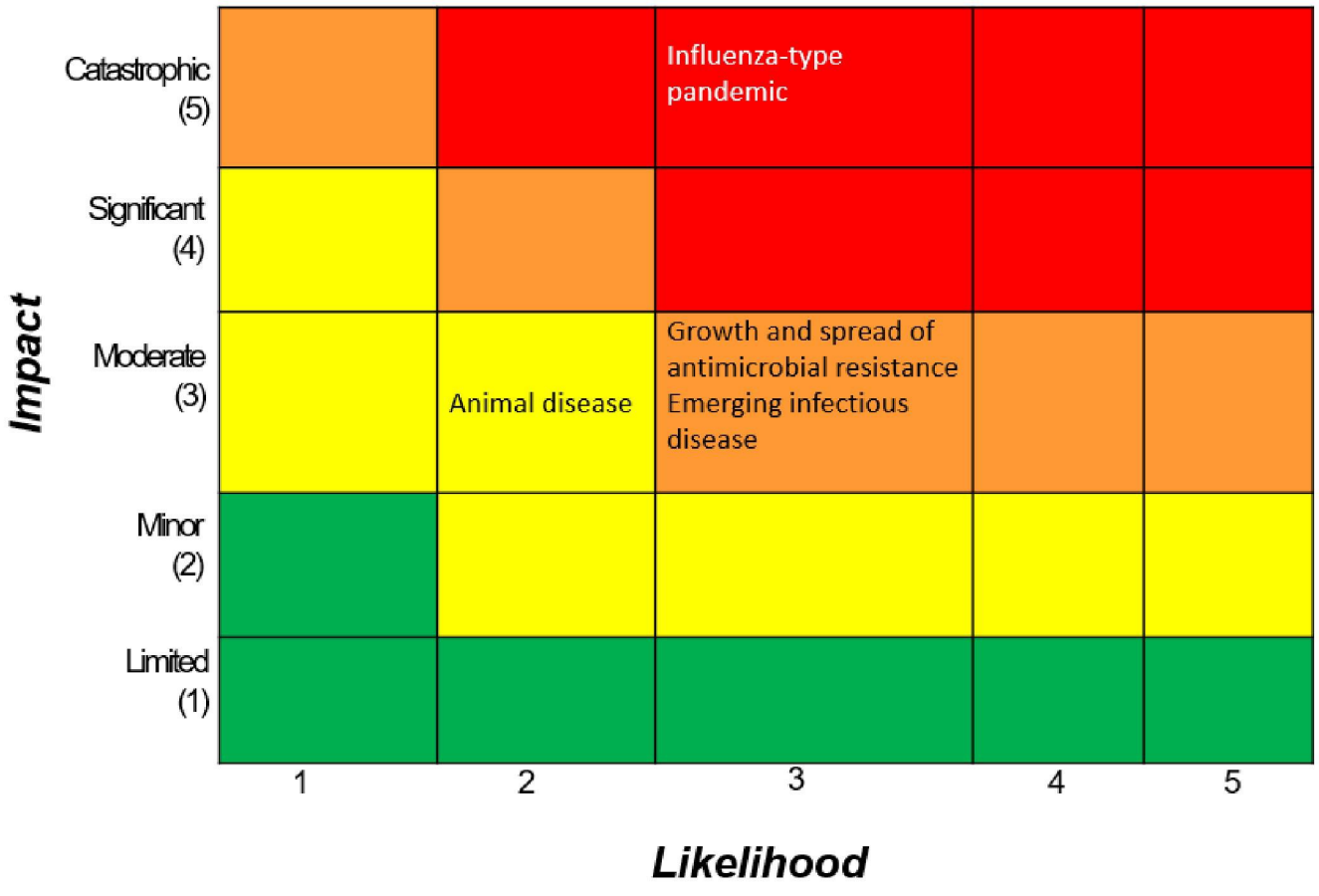
Risk Scenario Title	Risk ID	Chapter	Page
Irrelevant & Sensitive			
Irrelevant & Sensitive			
Irrelevant & Sensitive			
Irrelevant & Sensitive			
Natural disaster overseas	R89–FCO	Natural Hazards	128
Irrelevant & Sensitive			
Influenza-type pandemic	R95–DHSC	Human and animal disease	137
The growth and spread of antimicrobial resistance	R96–DHSC	Human and animal disease	138
Emerging infectious disease	R97–DHSC	Human and animal disease	139
Major outbreak of animal disease	R98–DEFRA	Human and animal disease	140
Irrelevant & Sensitive			
Influx of British nationals	R105–MHCLG	Societal	150
Irrelevant & Sensitive			

Human and Animal Disease

This chapter covers human disease and an increase in resistance to medicines to combat disease in the population. It also includes animal disease.
These risks could have a potentially major impact causing numerous fatalities and casualties and affecting workforce availability.

Highlights

- Influenza-type pandemic remains the most severe non-malicious risk in the NSRA, with the potential to cause catastrophic impacts across a wide range of sectors, hundreds of thousands of fatalities and millions of casualties.
- Antibiotic use has increased to such an extent that resistance to them has emerged and spread in many species of bacteria. Many of the medical advances in recent years are dependent on our ability to prevent and treat infection and will be set back by the spread of antimicrobial resistance.
- Over the past 30 years, more than 30 new or newly recognised diseases have been identified. The emergence of new infectious diseases is unpredictable but evidence indicates it may become more frequent.
- For Animal diseases, foot and mouth disease (FMD) has been assessed as having the greatest potential impact of all the animal diseases, but at the time of publication, African swine fever, avian influenza and bluetongue virus all have a higher outbreak likelihood. It's essential that departments are prepared to respond to the full range of exotic animal diseases, some of which are zoonotic and can cause disease in humans.



Depending on the control policies put in place, there could be long-term impacts on the environment, the agriculture sector, UK food supply and the rural economy.

Links

A prolonged period of very hot or cold weather will affect vulnerable communities and will cause a large number of excess deaths above the number experienced in a normal summer or winter. This will place significant pressure on health and social care services. A spell of hot or cold weather occurring at the same time as a flu pandemic will compound the impacts of the disease. Hot and cold weather are often linked to anticyclonic weather conditions, incidentally the same kind of meteorological conditions which could lead to a spell of poor air quality.

AMR poses an additional risk when combined with pandemic flu or an emerging infectious disease.

Future trends

The emergence of new infectious diseases is unpredictable but evidence indicates it may become more frequent. This may be linked to a number of factors such as climate change, the intensification of world travel, the movement and displacement of people resulting from war, the global transport of food and intensive food production methods, humans encroaching on the habitat of wild animals, intensive commercial animal husbandry practises and enhanced detection. Similarly, climate change and environmental and demographic trends might increase the likelihood of outbreaks of notifiable animal disease, along with impacts on food production and supply.

While the proportion of resistance in monitored pathogens remains broadly stable, the incidence of infection continues and whilst there are no new drugs or alternative treatments on the horizon, the burden of AMR will continue to grow.

Key uncertainties

There is significant uncertainty about the frequency with which an emerging infection may develop the ability to transmit from person to person. Due to the nature of an emerging infectious disease there is some uncertainty as to whether a different emerging pathogen, including one which was airborne, would lead to an outbreak similar to those seen previously.
Areas of uncertainty lie within the long-term impacts of exposure to the levels of air pollutants described in the reasonable worst case scenario for poor air quality.
The influenza-type pandemic scenario is based on a 1918-like scenario, milder pandemics are more likely than the figure quoted and will have a lower impact, though, as with all risks, the NSRA focuses on the reasonable worst case scenario.

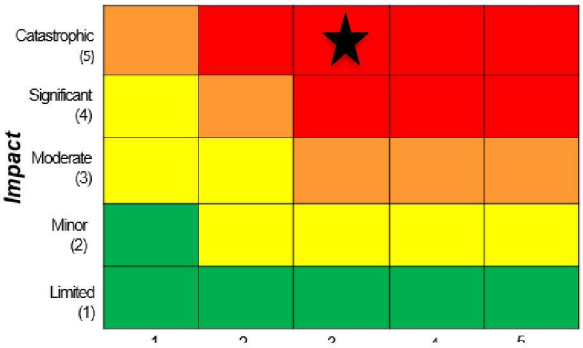
Further reading

- https://www.gov.uk/government/publications/progress–report–on–the–uk–5–year–amr–strategy–2016
- https://amr–review.org/
- https://www.gov.uk/guidance/pandemic–flu
- https://www.gov.uk/topic/health–protection/infectious–diseases
- https://uk–air.Defra.gov.uk/air–pollution/
- https://www.gov.uk/government/collections/animal-diseases-international-monitoring

Influenza-type pandemic

DHSC (R95 – DHSC)

Overall Assessment: VERY HIGH



Star – Reasonable worst case scenario
Arrows – Uncertainty bounds (if applicable)

Description

An influenza pandemic is a worldwide outbreak of influenza, which occurs when a flu virus emerges that is different from current or recently circulating seasonal influenza strains with sustained human-to-human transmission. There would be little or no immunity in the population which would allow the virus to spread rapidly and make it likely to be more virulent than seasonal influenza. The virus will rapidly spread across the world, even before it has been fully identified. The short incubation period of influenza means that within a relatively short period of time a significant number of cases will appear. Up to 50% of the UK population may fall ill with up to 20% of people off work during the peak weeks causing a significant impact on business continuity. Critical national infrastructure may also be affected during peak periods. There would be a huge surge in demand for health and social care services.

Besides very severe levels of stress on the NHS, the level of excess deaths would stretch capacity within organisations involved in the management of deaths. This would be felt on a national scale, with local capacity likely to start to be overwhelmed during the peak of the pandemic. Whilst not explicitly stated in every case, influenza-type pandemic would likely compound the effects of the vast majority of risks in the NSRA as all sectors would experience staffing pressures.

Impact Scores		
Dimension	**Highest Score (0-5)**	**Breadth of impact**
Human Welfare	5	20/45
Behavioural	5	9/10
Essential Services	5	56/125
Security	5	19/25
International Order	3	4/30
Environment	0	0/5
Economic	5	5/5
	Overall score: 5	**Total 113/245**

Highest score shows the maximum individual impact in the dimension. Breadth shows the range of impacts across the dimension.

Response Capability Requirements

Procedures related to disease surveillance and early detection, plus any associated infrastructure, should be in place. Robust and tested arrangements for rapid scientific and clinical advice should similarly be in place. Local and national plans for management of excess deaths resulting from any mass casualty event should be present. Local and national plans to deal with a surge in demand for health and social care services need to be accounted for. There needs to be stockpiles of countermeasures and advanced purchase arrangements for those which cannot be acquired in advance. Communication plans to encourage social distancing and good hygiene should be active. Sector resilience plans, including planning for absence of key workers, need enforcing.

Recovery

It is predicted that an influenza pandemic would come in multiple waves. This means that recovery from one wave could be hampered by the arrival of a subsequent wave. Even after the end of a pandemic, it is likely that it would take months, or even years, for the health and social care services to recover, although an exact timescale cannot be predicted. It is likely that the economic impact would be felt for years.

Key Uncertainties

Each pandemic is different and the nature of the virus, where and the time of year it will emerge, and its impacts cannot be known in advance.

Variations

A novel pandemic virus could be both highly transmissible and highly virulent. Therefore, pandemics significantly more serious than the reasonable worst case described above are possible.

Linked and Compound Risks

The growth and spread of antimicrobial resistance
Low temperatures and heavy snow
Failure of the national electricity transmission network
Animal disease

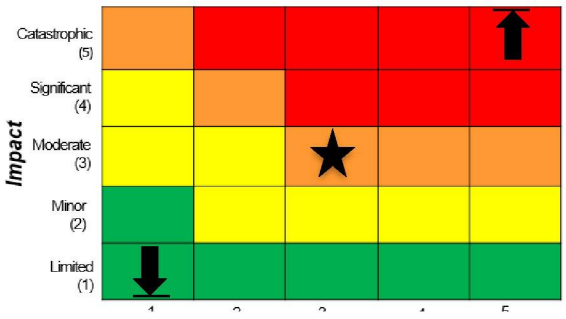
Planning Assumptions

A: Excess casualties and fatalities
G: British Nationals requiring assistance whilst abroad and/or on return to the UK.
J: Prolonged public outrage and behavioural change
Disruption to:
K: Transport services L: Energy supplies
O/V: Health/emergency services P: Finance
R: Food supplies U: Education
M: Communications T: Security

Emerging infectious disease

DHSC (R97 – DHSC)

Overall Assessment: AMBER



Star – Reasonable worst case scenario
Arrows – Uncertainty bounds (if applicable)

Description

A new or newly recognised outbreak of a high consequence infectious disease which is airborne, spreading rapidly from person-to-person, and making contact tracing difficult. An emerging respiratory coronavirus infection in the UK may be similar to the outbreak of Middle East Respiratory Syndrome (MERS) seen in South Korea in 2015 or could be part of a global outbreak such as the outbreak of Severe Acute Respiratory Syndrome in 2003. Currently, MERS poses the highest risk. This would arise in another country and then arrive in the UK before it is identified. It is possible that a novel infection could arise in the UK first but this is less likely.

Impacts would include an increased demand on specialist intensive care and infectious diseases facilities; short-term localised disruption to routine healthcare activities if outbreaks occur in hospital settings; possible disruption of several, or more, weeks to elective procedures; contacts of cases being placed under health surveillance; and public concern about travel, within and beyond the UK and possible international travel restriction advice. As a novel or emerging pathogen it is unlikely that effective vaccines will be available and the effectiveness of existing antivirals/antibiotics will be unclear, as will optimal clinical management strategies.

Impact Scores		
Dimension	**Highest Score (0-5)**	**Breadth of impact**
Human Welfare	4	9/45
Behavioural	3	6/10
Essential Services	5	21/125
Security	0	0/25
International Order	0	0/30
Environment	0	0/5
Economic	4	4/5
	Overall score: 3	**Total 40/245**

Highest score shows the maximum individual impact in the dimension. Breadth shows the range of impacts across the dimension.

Response Capability Requirements

The capability requirements include disease surveillance systems, staff trained in enhanced infection control practices, adequate access to personalised protective equipment, adequate access to public health staff for contact tracing and follow-up and excess death management capabilities (including potential infectious material). Decontamination services need to be available. Appropriate specialist healthcare services e.g. high level-isolation units must be accessible, as well as appropriate facilities for quarantine.

Recovery

For the individuals infected, the outcome of any infectious disease is that the infected individual recovers and may be subsequently immune to further infection with the same strain of organism or dies as a result of the infection. However, there could well be long-term consequences as a result of the disease, including becoming a chronic illness.

Key Uncertainties

This risk has low confidence. There is significant uncertainty about the frequency with which an emerging infection may develop the ability to transmit from person to person. Regarding impact, due to the nature of an emerging infectious disease there is some uncertainty as to whether a different emerging pathogen, including one which was airborne, would lead to an outbreak similar to those seen previously.

Variations

There is the possibility of Ebola or another highly infectious viral haemorrhagic fever emerging as a global public health threat. Based on recent examples, this would likely emerge overseas and could be brought to the UK via recent travellers. The mosquito vectors (Aides species) that can transmit Zika virus, dengue and chikungunya are currently spreading across Europe and there is a risk of these mosquitos becoming established in the UK, which could result in these vector-borne diseases becoming more common. A further scenario variation may result from the emergence of a new sexually transmitted infection.

Linked and Compound Risks

The growth and spread of antimicrobial resistance
Influenza-type pandemic
Low temperatures and heavy snow
Major Social Care Provider failure

Planning Assumptions

B: Excess casualties and fatalities
Disruption to:
O: Health services
V: Emergency services

Excess casualties and Fatalities

Non-contaminated casualties and fatalities arising from a persistent but time limited cause

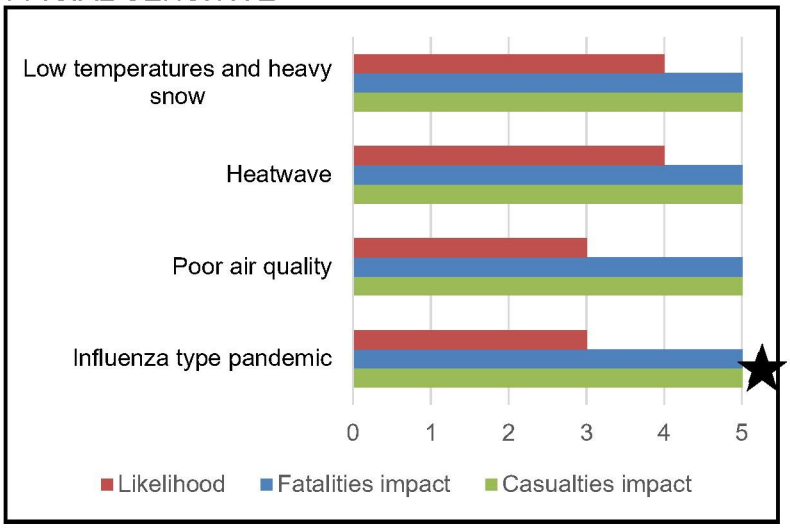
Planning Assumption A

(i) 32.8m excess casualties

(ii) 820,000 excess fatalities

Driver

Influenza type pandemic



Duration and advance warning	One or more waves of around 15 weeks; weeks or months apart. Usually no warning time
Scalability and/or variations	**Heat wave:** up to 2,000 excess fatalities (up to 800 of these no-notice) and 2,500 excess casualties. **Low temperatures and heavy snow**: up to 3,000 excess fatalities (up to 260 of these no-notice) and 7,000 excess casualties. **Poor air quality**: up to 1,500 excess fatalities and 3,000 excess casualties.
Uncertainty	The evidence base is firm. The main challenge for planners is the uncertainty surrounding the nature of the casualties and fatalities when they emerge, including spread and demography.
Relevant specific planning	• Pandemic flu • Pandemic influenza – guidance on preparing NHS trusts in Wales • Heatwave plan for England • Cold weather plan for England • Pandemic Flu – A Scottish Framework for responding to a an influenza pandemic • Extreme weather events (Wales) • Guidance for the management of deaths resulting from a flu pandemic

Linked assumptions

In addition to the impacts listed below, if the UK were to experience excess deaths on a level with a pandemic influenza event, there would likely be additional disruption to other sectors as a result of a drop in available workforce e.g. disruption to transport, education etc.