

Emerging Infectious Disease.
R97-DHSC

OVERVIEW INFORMATION

Risk Title
Emerging Infectious Disease
Risk Type
Hazard-related risk

Risk Assessment Owner
Department of Health

Reasonable worst case scenario

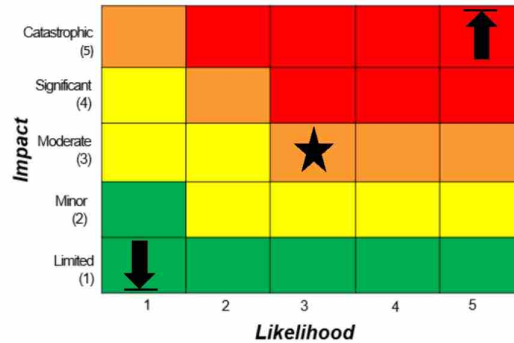
Over the past 30 years, more than 30 new or newly recognised diseases have been identified. Most of these have been zoonoses, i.e. diseases that are naturally transmissible, directly or indirectly, from animals to humans. The reasonable worst case scenario (RWCS) is an outbreak of a high consequence infectious disease (HCID) which is airborne. An airborne disease is more likely to spread rapidly from person-to-person, and can make contact tracing more difficult compared to other diseases which have a different route of transmission. Other

emerging infectious diseases which are spread through different routes of transmission are explored in the three variations below.

Specifically, the current RWCS is based on an outbreak of an emerging respiratory coronavirus infection in the United Kingdom (UK). This may be similar to the outbreak of Middle East Respiratory Syndrome (MERS) seen in South Korea in the 2015 or could cause a global outbreak such as the outbreak of Severe Acute Respiratory Syndrome (SARS) in 2003. Currently, MERS poses the highest risk of an emerging coronavirus causing an outbreak given that it is endemic in Saudi Arabia and there is historical precedent of imported MERS cases in the UK and imported cases leading to an outbreak in Republic of Korea. However, it should be noted that 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 so a range of figures are given in some cases.

The RWCS is predicated on a novel or emerging infection (i.e. one that is either globally unknown or unknown/very rare in the UK) arising in another country and then arriving 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.

Based upon the experience of recent international outbreaks of MERS, the likely impact of such an outbreak originating outside the UK would be cases occurring amongst returning travellers and their families and close contacts, with potential spread to health care workers, and other patients within a



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

There is also an emerging risk from high level azithromycin resistant (HLAziR) gonorrhoea in England. Gonorrhoea is the second most common bacterial sexually transmitted infection (STI) in England and in 2016 36,244 diagnoses were made. Gonorrhoea has progressively developed resistance to the antibiotic drugs prescribed to treat it and few antimicrobials remain effective. Current recommended therapy involves ceftriaxone in combination with azithromycin. Gonorrhoea can develop resistance rapidly, therefore dual therapy is recommended because simultaneous development of resistance to both drug types is unlikely, and first-line treatment will remain effective. If azithromycin becomes ineffective against gonorrhoea, there is no 'second lock' to prevent or delay the emergence of ceftriaxone resistance, and gonorrhoea may become untreatable.

Between January 2015 and June 2017, 81 cases of HLAziR were made in England. Cases were first seen among young heterosexuals in Leeds but have since spread to other parts of England including London. Partner notification is essential to the control of STI-related outbreaks but success was limited indicating that there was likely to be many undiagnosed cases. However, the average number of new cases identified per month has remained relatively stable. All cases have been treated successfully. PHE has alerted clinicians to raise awareness of HLAziR gonorrhoea via the British Association for Sexual Health and HIV network. A National Resistance Alert was issued to all microbiologists in October 2015 to ensure that all gonococcal isolates are tested for azithromycin and ceftriaxone susceptibility, and resistant isolates are referred to PHE Colindale for confirmation and follow-up. The rapid spread of the outbreak highlights the likelihood that multi-drug resistant and untreatable strains of gonorrhoea will emerge and spread in the near future.

This variation, particularly HLAziR is linked to the antimicrobial resistance risk. This variation differs from the reasonable worst case scenario as it is likely that the outbreak would take a longer to spread and potentially longer to be detected. It also has the potential to particularly affect vulnerable groups. The focus of the response would be contact tracing to prevent further spread and the development of treatments.

Confidence – likelihood/plausibility

Moderate

Confidence –impact

Low

LIKELIHOOD

Likelihood

0.5% - 5%

Likelihood score

3

Explanatory notes

Although new zoonotic risks arise with relatively high frequency, the ability of these infections, especially respiratory ones to transmit between people is more limited. This is evidenced by MERS which spreads more frequently from

person to person in household and healthcare settings but sustained person to person transmission in the wider community has not been observed. On balance, a likelihood score of 3 (<1/20 but >1/200) is therefore considered a reasonable assumption.

Likelihood – confidence assessment

There is significant uncertainty about the frequency with which an emerging infection may develop the ability to transmit from person to person.

HUMAN WELFARE

Fatalities (UK)

Total number

- 200

No notice and excess deaths

- Using the upper bounds, 3 no-notice deaths (i.e. in first two weeks) and a further 197 excess (using average from range above).

Impact on fatality management processes

- Two – Local/regional fatality management processes under significant pressure

Notes

- See explanatory notes (19e) for further details on fatalities. For fatality management process, level two has been indicated as infection control precautions may be required if post-mortem examinations need to be undertaken. For variation 2, the outbreak of a disease such as Ebola, special handling would be required for all of the deceased due to the infectiousness of the body which would likely increase the impact.

Casualties (UK)

Total number

- 2000

No notice and excess casualties

- Using the upper bounds, 20 no-notice, 1,800 excess

Casualties abroad (British Nationals)

0

Fatalities abroad (British Nationals)

0

Fatalities and Casualties abroad (non British Nationals)

8774

Crisis Hub cases

0

Shelter and evacuation

Evacuation in the UK

- 0

Temporary shelter requirements

- 0