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## Purpose of this document

This document is intended to assist the Government Chief Scientific Adviser and the Scientific Advisory Group for Emergencies (SAGE) to provide timely, relevant scientific advice to the Cabinet Office Briefing Rooms (COBR) in the event of an emergency involving a non-influenza emerging or unidentified infectious disease which might affect the UK.

The document includes:

- A brief introduction to emerging infections
- A list of likely questions COBR will ask of SAGE
- A list of potential candidates to supply this information
- A summary of supporting information which might be useful in SAGE discussions

Subsequent iterations of this document intend to include further information on the uncertainty around this information which may need to be stressed when reporting into COBR.

The Most Likely Scenario is based on SARS – a completely novel respiratory transmissible virus disease with a CFR of ~10% which was controlled by barrier nursing with isolation of patients, suspect cases, and contacts of confirmed cases; and ebola – an emerging virus disease with a CFR of ~70%, not transmissible by the respiratory route in the natural situation. It should be noted that CFR is not the only measure of severity – a low CFR disease that left 10% of those affected with significant long-term disability would be expected to cause many of the short-term problems of a high CFR disease, with additional health and economic costs post-event.

The Reasonable Worst Case scenario is based on smallpox – a virus disease with a case fatality rate of ~40%, transmissible by respiratory droplets. Eventually eradicated by internationally co-ordinated vaccination, the disease had nevertheless circulated worldwide prior to the introduction of vaccination. Once established, immunity among survivors was high, and new outbreaks became possible when the population of susceptibles had built back to a level that could sustain an outbreak and provide onward transmission to other communities.

*Key issue: impact on public and animal health from emerging infectious diseases*

Emerging infectious diseases can pose a hazard to human health. The population is unlikely to have immunity to an emerging pathogen, so the majority of the population will be susceptible. If the disease is readily transmissible and particularly if transmission can occur before clear symptoms arise in those affected, then there is potential for the majority of the population to become infected during an epidemic that may last from months to one or two years. The possibility exists for significant excess deaths, short-term morbidity, and long-term morbidity.

There is a further possibility of a disproportionate incidence among healthcare workers, especially in the initial stages of a major epidemic. This was a feature of the early stages of the 2003 SARS event, MERS, and Ebola in West Africa.

Emerging infectious diseases can also affect domestic or wild animal species, either exclusively or in conjunction with infection of humans. As with humans there is unlikely to be population level immunity and most animals of an affected species will be susceptible. Effects can range from high levels of mortality (e.g. RHDV; African swine fever) to reduced growth rates and yields (e.g. foot-and-mouth disease, Schmallenberg disease). Outbreaks can result in restrictions in transboundary movement of livestock and livestock products, imposed unilaterally by trading partners, or by the World Organization for Animal Health (OIE), of which the UK is a member.

Emerging infectious diseases of animals are not expected to adversely impact UK food security, due to the broad based nature of indigenous UK agriculture.

*Key issue: impact on social and civil society from emerging infectious diseases*

An epidemic of a novel infectious disease with perceived or actual risk to life or long-term health is likely to result in altered behaviours in some or all sectors of society. Altered behaviours are likely to be aimed at avoiding infection. These might be limited to following official advice, or might extend to altered travel or working patterns, or pre-emptive removal of children from otherwise open schools. Where some sectors are perceived as foci of infection (e.g. healthcare workers involved in