Summary

- The UK Government has been able to learn lessons from previous emergency responses, including the H1N1 (2009) influenza pandemic and the Fukushima Daiichi nuclear disaster (2011). However, the Science and Technology Committee’s report on the Ebola epidemic demonstrates that preparation for an infectious disease emergency is less robust than it ought to be. The report highlighted that: it is unclear how information is escalated across Government; there is no overarching strategy for dealing with emerging infectious diseases; there was systemic delay in both the UK Government and international responses; and neither the UK nor the international community was ‘research ready’ when the outbreak occurred.

- An area that would benefit from investigation is the extent to which the UK is prepared for potential consequences arising from the onset of a combination of (connected) emergency incidents. The biggest risks can emerge from the combination of factors that give rise to unexpected emergent effects (e.g. the triggering of multiple incidents in the Fukushima Daiichi disaster). This demonstrates the importance of ensuring that planning for chemical, biological, radiological or nuclear (CBRN) emergencies provides for adaptable and flexible responses. The CBRN risk domain needs to be proactively informed by the latest scientific thinking. It is also crucial that operational planning exercises are as robust as possible, including being tested under conditions where access to major infrastructure (e.g. telecommunications, energy, road network etc) is compromised. The Committee might therefore wish to examine the efficacy of CBRN incident(s) scenario planning.

- It will be important to examine to what extent the Government has considered the capacity (infrastructure, facilities and skilled personnel) required to meet current and future CBRN-related threats. Any assumption that capacity which is not formally retained in key technical and specialist areas can be scaled-up during emergencies needs to be challenged. The Inquiry might also consider whether changes in management and structure (and resourcing) of emergency services (i.e. first responders) and local authorities has implications for the way in which information is communicated and acted upon in CBRN incidents.

- It is crucial to ensure that the work of a Scientific Advisory Group for Emergencies (SAGE) and existing or newly constituted advisory groups is founded on mutual understanding of their respective roles and responsibilities. This is needed to ensure a coordinated approach, avoiding duplication of effort and the potential for conflicting advice. Emergency response plans need to take account of how the emergency is unfolding on the ground. The Ebola Report highlighted that a lack of research prioritisation and coordination meant that the immediate needs of the front-line health workers were not addressed as effectively as they should have been.

- While responsibility for most emergencies is devolved, emergencies may be UK-wide or affect matters reserved to Westminster (e.g. national security and counter-terrorism). It is crucial, therefore, that there are agreed protocols in place to provide clarity as to which Administration and organisation is expected to lead, and when that responsibility would be assumed.

- The UK Government’s Chief Scientific Adviser (CSA) and the departmental CSAs are key to informing the Government on science policy, including on high-profile CBRN-related challenges. No CSA can be expert in every aspect of science and this emphasises the requirement that those appointed to these positions not only have credibility in their own areas of expertise, but also a good field of vision across scientific sectors and access to wide-ranging scientific networks. The RSE has expressed substantial concern at the delay over the appointment of a CSA in Scotland. We welcome the signals that a new Scottish CSA will be appointed imminently. This is a vital appointment given the need to ensure there is effective scientific cooperation between the governments on cross-border CBRN incidents.
• Expert scientific advice must be available to governments and decision-makers to help inform CBRN assessments and responses. However, the role of the scientific community is not to determine policy: that is for Government. The role of the scientific community is to develop and present the evidence for different options. Scientific evidence will be part of a broader range of considerations of which the Government will need to take account. In a fast-moving emergency, practical aspects are likely to dominate: keeping (or regaining) control; preventing immediate and obvious further damage; safeguarding facilities; and managing the public. Scientific advice is therefore likely to be subordinate to security and safety considerations.

• It is essential that social and behavioural scientists are involved in the CBRN science advisory groups. The way in which the Ebola epidemic unfolded highlighted the critical aspects of human social behaviour and this will be a key determinant of how any disease outbreak spreads and how it can be contained. The Inquiry could explore the extent to which the ‘Behavioural Insights Team’ has provided input to CBRN risk assessments and responses. The behaviour of humans in response to potentially complex CBRN events appears to be an important area for further exploration.

• Public communication is a vital part of preparing for and responding to CBRN emergencies. The Government’s communication with the public should be led by a spokesperson who not only has the authoritative technical competence, but also the ability to synthesise complex information and present it clearly. These attributes are crucial to ensure the trust and confidence of the public and to ensure that the public reaction is proportionate to the risk. Coordination between the Government and the media is vital to ensure that mixed and confusing messages are not given. The need to help all citizens make sense of science, including its inherent uncertainty, remains a key priority. Independent scientists who are advising the Government in an emergency should not be prevented from providing information to the media and the public. We note that the Cabinet Office has ‘paused’ the implementation of the “anti-lobbying” provision while it reviews its potential implications. It would be a seriously retrograde development if the introduction of this clause hindered scientists’ communicating advice to the government and/or the public.

1 The Royal Society of Edinburgh (RSE), Scotland’s National Academy, welcomes the opportunity to respond to the House of Commons Science and Technology Committee’s Inquiry into Science in Emergencies: Chemical, Biological, Radiological or Nuclear (CBRN) Incidents. Given its multi-disciplinary breadth, the RSE has been able to convene a working group comprising experts from a wide range of fields relevant to CBRN from the natural and social sciences and public health. We have also been able to draw upon the input of those who have substantial experience of engaging with policy-makers and the public on the communication of science. We address the four topics identified in the call for evidence. We would be pleased to discuss further any of the issues raised in our response with members of the Science and Technology Committee.

How Prepared the Government is for a CBRN emergency

2 Since the Second World War the UK has been developing policy and procedures in preparation for CBRN-related incidents. Every two years the UK Government produces a classified assessment of the risks of civil emergencies facing the UK in the form of the National Risk Assessment (NRA). The National Risk Register of Civil Emergencies (NRR)¹, first published in 2008, is the unclassified version of the NRA. As well as natural hazards (e.g. flooding, volcanic eruption, heatwaves), the NRR also assess a range of CBRN-related risks as well as potential terrorist and cyber-attacks. The NRR assess how serious the risk of an emergency is depending on the likelihood of it happening over the next five years and the potential consequences. Risks are assessed on a continuous basis meaning that the risk matrices remain fluid and are subject to change. We recognise that the current threat level for international terrorism in the UK is ‘severe’ which means an attack is highly likely. On the basis of these assessments, it can be concluded that the UK is prepared, at least to the extent that some form of ‘incident’ is considered likely and preparations have (according to the National Risk Register) been made.

¹ National Risk Register of Civil Emergencies; 2015 Edition; Cabinet Office
3 Given the need to take account of global developments, the UK Government collaborates in international networks in relation to the prevention, detection and research into CBRN-related incidents. Protocols are in place to guide the UK’s Civil Contingencies Secretariat in working with international partners in planning and responding to civil emergencies. In addition, UK Government Departments have led international developments. For example, Defra has led on the coordination of animal research globally to address priority diseases. The UK Government has also participated in international collaborations with the US, Canada, Australia and New Zealand in developing strategies and responses to potential biological emergencies caused by terrorism.

4 The Government has also been able to act upon lessons learned from previous experiences and take account of the latest scientific evidence. For example, the UK-wide Influenza Pandemic Preparedness Strategy for planning for and responding to an influenza pandemic was published in 2011. This updated strategy takes account of the experiences and lessons learned in the H1N1 (2009) influenza pandemic (which was subject to an independent review). In another area, following the Chernobyl nuclear disaster the UK Government established RIMNET, the nuclear radiation monitoring and nuclear emergency response system, to monitor the consequences for the UK of nuclear incidents abroad. In response to the emergency at Japan’s Fukushima Daiichi nuclear power site, the UK Government’s Chief Inspector of Nuclear Installations examined the circumstances of the accident in order to determine what practical contingencies could be taken to enhance safety and emergency response arrangements for UK nuclear sites.

5 However, the Science and Technology Committee’s recent report, Science in Emergencies: UK lessons from Ebola, demonstrates that preparation for an infectious disease emergency is less robust than it ought to be. The report highlights that it is: unclear how information is escalated across Government; that there is no overarching strategy for dealing with emerging infectious diseases; that there was systemic delay in both the UK Government and international responses; that neither the UK nor the international community was ‘research ready’ when the outbreak occurred; and that there was a reluctance to use newly-developed and experimental procedures. We note that the UK Government has responded to the Committee’s report. We recognise that the Committee will want to monitor the Government’s progress in addressing the recommendations in the context of ensuring there is appropriate preparedness for CBRN emergencies, more generally.

6 An area that we believe would benefit from investigation is the extent to which the UK is prepared for potential consequences arising from the onset of a combination of (connected) emergency incidents. While the NRA and NRR indicate that when identifying risks, a “reasonable worst case is chosen which represents a challenging manifestation of the scenario…” it is not clear to us how the boundaries of potential scenarios are determined. While the UK might be sufficiently prepared for a single anticipated event, the biggest risks can emerge from ‘unknown unknowns’ or rather the combination of factors that give rise to unexpected emergent effects (e.g. the triggering of multiple incidents in the Fukushima Daiichi disaster). A recent report from the Royal Academy of Engineering highlights the susceptibility of national infrastructure, including telecommunications, resulting from the direct and indirect effects (and combinations thereof) of emergency incidents. In the future we are likely to see increasing interconnectivity in our national networks, creating new possibilities for emergent behaviours that are difficult to predict and challenging to communicate. This demonstrates the importance of ensuring that planning for emergencies provides for adaptable and flexible responses to take account of the potential for rapidly escalating circumstances. It is also crucial that operational planning exercises are as robust as possible, including the need to be tested under conditions where access to major infrastructure (e.g. telecommunications, energy, road network etc.) is compromised. The Committee might therefore wish to examine the efficacy of the CBRN scenario planning that it being conducted at both national and local levels.
Maintaining Capacity to respond

As part of its inquiry we believe that it is important that the Science and Technology Committee examine to what extent the Government has considered the capacity (infrastructure, facilities and skilled personnel) required to meet current and future CBRN-related threats. In doing so, the Committee could consider whether the NRA process provides for the long-term funding and maintenance of appropriate skills capacity and infrastructure to respond to a CBRN incident and support the recovery phase. Any assumption that capacity which is not formally retained in key technical and specialist areas can be scaled-up during emergencies needs to be challenged. We note that in its Ebola Report, the Science and Technology Committee raised significant concern that its limited capacity to manufacture vaccines leaves the UK in a vulnerable position. Whereas in the past Government departments have used directly funded research contracts as an informal means of maintaining capacity which could be redeployed in emergencies, we are concerned that this has been eroded in recent years with reductions in Departmental budgets, which would have implications for the UK’s resilience to respond to CBRN incidents, particularly those of a complex, multifaceted nature. As an example, following the 9/11 attacks, the UK Government arranged access to experts and specialist facilities across the UK to help detect the nature of the threat from incidences of potential bioterrorism. We understand that these specialist facilities are currently undergoing rationalisation in the belief adequate cover can be provided with fewer facilities. It is not clear to us how that conclusion has been reached or quantified. If specialist laboratory facilities are too few, how will this be remedied?

Generally speaking, information relating to potential CBRN incidents is communicated effectively through the relevant international and national channels, and appropriate counter-measures are put in place, with close working among the UK Government, the devolved administrations, industry, regulators and emergency responders to reduce the chance of any incident occurring. Emergency responders (i.e. the emergency services) have well-developed specialist capability for dealing with CBRN incidents, including planning and regular testing of scenarios to facilitate an effective and integrated response. In addressing CBRN emergencies it is crucial to ensure that there are strong lines of communication to and from responders. In this context, the Science and Technology Committee might wish to consider whether changes in management and structure (and resourcing) of emergency services and local authorities has implications for the way in which information is communicated and acted upon in responding to CBRN incidents. With reference to Scottish developments, single services for police (Police Scotland) and fire (Scottish Fire and Rescue Service) were established in April 2013 following the merger of their respective regional operations. In light of these structural changes it will be important to consider the ability of these bodies to plan for and respond to CBRN emergencies.

Surveillance

Increased globalisation makes the transmission of human, animal and plant diseases more likely through travel and trade. (Global) surveillance is therefore an important component of CBRN preparedness strategies. A key focus will be on the need to gather intelligence for monitoring the spread and severity of a CBRN incident. This requires accurate and detailed surveillance data to be gathered at an early stage. The analysis of surveillance data with a view to early detection and estimating rates of spread requires that the data are shared immediately with the wider scientific community. (We return later in this response to data sharing).

The mechanisms that are in place to allow scientific advice to be provided to Government in the event of a CBRN emergency, and to share information and response strategies across Government and with local government.

Recognising that timeliness is of the essence (“minor delays in responding cost lives”, as highlighted by the Ebola Report), an Emergency Co-ordination of Scientific Advice (ECOSA) mechanism is in place which is intended to provide “immediate, coordinated and effective scientific advice” to the relevant bodies in the period (notionally a few hours) before the formation of a Scientific and Technical Advice Cell (STAC) and activation of an emergency-specific Scientific Advisory Group for Emergencies (SAGE), into which the STAC[s] advice is fed. Important features of this SAGE mechanism are that it should be “flexible and scalable.” In order to ensure that the establishment of a SAGE is both timely (i.e. as early as possible) and is underpinned by scientific advice, the Ebola Report recommended that the “trigger for the formation of a SAGE should be a formal recommendation from the Government Chief Scientific Advisor” (as opposed to being reliant on activation by ‘Cobra’). In response to this recommendation we note that the Government has recently amended the procedures to enable a pre-SAGE expert group to be convened, where appropriate, to provide a scientific assessment of the evolving situation.
It is crucial to ensure that the mechanisms in place ensure the work of a SAGE and existing standing advisory groups is founded on mutual understanding of their respective roles and responsibilities, particularly in relation to coordination and communication of their activities. While a SAGE will include scientific and strategic expertise among its membership, it will not necessarily comprise those with detailed expertise and front-line experience. It is therefore reliant on the advice and activities of pre-existing (or newly constituted) expert groups. However, the Ebola Report highlighted that the standing Advisory Committee on Dangerous Pathogens (ACDP) was not fully integrated into the SAGE process. It is clear that in both the guidance documentation and in practice, the relationship between a SAGE and other scientific advisory committees needs to be understood by all those concerned to ensure a coordinated approach, avoiding duplication of effort and the potential for conflicting advice.

We would welcome clarification on the extent to which the NRA process may have considered specific aspects of CBRN emergencies (e.g. mechanisms for assessing the areal extent of potential hazards) and how such (possibly classified) information would be communicated to the appropriate SAGE.

While responsibility for most emergencies is devolved, emergencies may be UK-wide or affect matters reserved to Westminster (e.g. national security and counter-terrorism). It is therefore crucial that there are agreed protocols in place to provide clarity as to which Administration and organisation is expected to lead, and when that responsibility would be assumed. The Scottish and UK Governments agreed in 2006 a concordat to ensure effective cooperation on civil contingencies issues. The Committee might wish to consider how the terms of this concordat have operated in practice and whether they provide the necessary level of clarity.

The extent to which the Government currently works with scientists and others to identify and assess CBRN risks, and to communicate public advice

Scientific advice is primarily required at two points: anticipation of an incident, including prevention and preparation, and response to an incident, including recovery. In the UK there are more than 70 scientific advisory committees or councils with a range of roles and responsibilities in the provision and interpretation of scientific information in support of the Government. The UK Government’s Chief Scientific Adviser (CSA), with input from the network of departmental CSAs, is a key conduit for advising Government on science policy, including high-profile CBRN-related risks and challenges. No CSA can be expert in every aspect of science and this emphasises the requirement that those appointed to these positions not only have credibility in their own fields of expertise, but also a good field of vision across scientific sectors and access to wide-ranging scientific networks.

The RSE has, however, expressed substantial concern that the position of Chief Scientific Adviser (CSA) in Scotland has remained vacant since December 2014. Given the important role that the CSA has in relation to facilitating the provision of independent scientific advice to the highest levels within the Scottish Government, we welcome the signals that a new CSA for Scotland is to be appointed imminently. The CSA to the Scottish Government is expected to attend the CSA network meetings organised on a UK basis. Given that CBRN events have considerable potential to span borders, it is crucial that there is effective cooperation between the governments. This emphasises the importance of ensuring that a CSA for Scotland is appointed without further delay.

It will be important to ensure that methods of risk and hazard assessment keep pace with the complexities that can surround CBRN events. This means that the risk domain needs to be proactively informed by the latest scientific thinking. We recognise that Government Departments routinely work with scientists in universities and research institutes, as well as in their own laboratories (where they exist), to obtain information in preparation for emergencies. An example is the 2013 Tree Health and Plant Biosecurity Initiative involving Defra, Forestry Commission, BBSRC, NERC, ESRC and Scottish Government. This initiative is focussed on developing new rapid detection methods, understanding public risk concerns, modelling economic impact, and addressing specific diseases, including ash dieback.

Primary scientific responsibility for the anticipation of new risks should fall to the Scientific Advisory Committees (SACs) of lead Departments in Government, which meet regularly. For example, the Defra SAC has considered emerging animal diseases, including Bluetongue and African Horse Sickness, both insect-borne and present elsewhere in Europe.

5 Civil Contingencies Act 2004: Concordat Between the UK Government and the Scottish Ministers.
Recent concerns about antibiotic resistance has seen BIS invite scientists to present information on antimicrobial resistance to policy makers as well as the creation of a Funders’ Forum and the Learned Society Partnership on Antimicrobial Resistance (LeSPAR).

As we have commented under the section on Mechanisms, the quality and breadth of scientific activity and advice available in the UK to identify and assess CBRN risks is not in question. The key issue is how the scientific endeavour is mobilised, coordinated and utilised in preparing for and responding to emergencies.

**Role of scientific advice in decision making**

Expert scientific advice must be available to governments and decision-makers to help inform policy choices generally. And it should certainly be available in relation to informing responses to CBRN risks. However, the role of the scientific community is not to determine policy: that is for Government. The role of the scientific community is to develop and present the evidence for different options and responses. Depending on the nature of the prevailing circumstances, government will undoubtedly have to take account of other social, ethical, legal, economic and political considerations. The effective control of bovine TB is a prime example of where the scientific advice and politically acceptable solutions may be incompatible.

The Blackett review highlighted an important issue whereby scientific expertise can often be very narrowly focussed or specialised and difficult to generalise or to apply in complex situations which are likely to characterise CBRN events. Another important issue to consider is the essential need for the sharing of scientific information as a vital part of the process for managing emergency incidents. It will be important that the Committee consider the effectiveness of current approaches for the sharing of information i.e. is the sharing of data among the relevant organisations and laboratories afforded priority status and is it sufficiently resourced? In these contexts, the Committee might find it instructive to consider EPIC – the Scottish Government’s Centre of Expertise on Animal Disease Outbreaks, established in 2011. The multidisciplinary EPIC consortium brings together scientists from across seven Scottish research institutions to prepare Scotland’s livestock industry and stakeholders for Animal Disease Outbreaks. Through partnership working, including links with the Animal and Plant Health Agency (APHA) and the Institute of Animal Health, EPIC provides evidence-based advice to Scottish Government. This advice ranges from developing risk assessments to providing contingency plans that can be deployed in the event of a disease outbreak. Its work includes horizon scanning on future livestock production and the implications for the prevention and control of exotic diseases. Key to its success is effective knowledge exchange, whereby EPIC includes scientists who have a broad base of knowledge and act as ‘knowledge brokers’ to improve two-way communication between government and scientists.

We agree with the Science and Technology Committee that gaining a better understanding of human behaviour is essential in risk assessment, contingency planning and emergency response. It is essential that social and behavioural scientists are involved in the science advisory groups that have roles in preparing for and responding to CBRN incidents. The way in which the Ebola epidemic unfolded highlighted the critical aspects of human social behaviour and this will be a key determinant of how any disease outbreak spreads and how it can be contained. The Science and Technology Committee might wish to explore the extent to which the joint UK Government/Nesta Behavioural Insights Team, which focuses on the application of behavioural sciences, has provided input to CBRN risk assessments and responses.

In other high hazard sectors, including transportation, medicine, nuclear power and petrochemical, there is considerable emphasis placed on Human Factors. In the aviation sector, for example, Air France Flight 447 (AF447) crashed in 2009 as a result of complex human performance problems on the flight deck. The Civil Aviation Authority has identified human error as the main cause or contributory factor in 75% of all aviation accidents and incidents. Human performance issues are also implicated in several notable recent events, from Deep Water Horizon to the National Grid’s 2003 loss of supply incident in London. The behaviour of humans in complex systems, such as the response to a potential CBRN event, appears to be an important area for further exploration.

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Repository of Scientific experts

23 We would welcome clarification on current and planned repositories of up-to-date directory of scientific experts who can be called upon in emergencies, including as potential SAGE members. At various times this has been recommended to be the Government Office for Science (GO), and the Nurse-recommended 'Research UK' body. While making provision for a single point of entry for expert input to be fed into Government is attractive, it will be important to recognise the valuable input and networks of the national academies and learned societies, particularly for matters regarding the devolved administrations. At a practical level, it will be important to ensure that any repository of scientific experts, including their contact details, is kept up-to-date so that, should they be required, the experts can be called upon without delay.

Communicating Scientific Advice in an Emergency

24 In all cases of CBRN emergencies, risk needs to be assessed and communicated. The communication of risk to lay audiences, whether the public or politicians, can be challenging. It is often said that public information needs to be controlled to avoid panic. On the contrary, the evidence is that provision of clear and timely information is an antidote to panic. It is important that the government’s communication with the public is led by a spokesperson who not only has the authoritative technical competence, but also the ability to synthesise complex information and communicate it to the public in an understandable form. These attributes are crucial to ensure the trust and confidence of the public and to ensure that the public reaction is proportionate to the risk. Good coordination between the government and its agencies and the media is vital to ensure that mixed and confusing messages are not given. In addition, for CBRN incidents which have international dimensions, alignment of communications is vital. Announcements made by the World Health Organisation (WHO) should therefore be consistent with advice given by the Chief Medical Officers in the UK.

25 The Science Media Centre (SMC) indicates that during emergencies, the public favour multiple sources of information. Third-party scientists independent of government have a very important role as part of this ‘interpretation’ system. The media tend to find their own “experts” based on instant availability, but in large or unprecedented emergencies, there can be much more of a need for active promotion of experts to the media by science organisations. In this context, the SMC fulfils an important role as it has substantial experience of coordinating and mobilising the rapid provision of scientific commentary from a balanced range of reputable and responsible experts during emergency incidents. The SMC has also emphasised the need to ensure that independent scientists who are advising the Government during an emergency are not prevented from informing the media and the public. While recognising that there may be confidential information that cannot be disclosed, it is important that scientists are not put in a position where they feel they cannot provide public briefings on the basis that they are advising government.

26 The need to help all citizens understand the role of science and evidence remains a key priority. Many of the challenges inherent in CBRN incidents are associated with considerable uncertainty. More must be done to ensure that the public become familiar with the concept of uncertainty and the fact that much scientific understanding is provisional and/or necessarily qualified, yet without corroding public confidence in the underlying scientific process. This is very important for instilling public trust in scientific advice. Governments, schools, HEIs, research councils, learned societies, national academies, science centres and scientists themselves all have important roles in this regard. We also note the important activities of organisations like Sense About Science in helping to equip people make sense of science and evidence. Scientists need to develop the confidence and skills to communicate effectively. It is pleasing to note the increasing number of early career scientists involved in initiatives to engage with the public, each other, decision-makers and the media. It is important not only that funding is available to encourage this, but also that the required support, recognition and credit are given to academics by their universities for the time spent engaging with the public.

27 We note that the Cabinet Office has ‘paused’ the implementation of the “anti-lobbying” provision into UK Government grants so that it can review the potential implications of this clause on scientists communicating the results of their research to government and the public. It would be a seriously retrograde development if the implementation of this clause hindered scientists’ communicating advice to the government and/or public in the context of a CBRN emergency.

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11 SMC submission to HoC Science and Technology Committee Inquiry, Scientific advice and evidence in emergencies; Session 2010-11 http://www.publications.parliament.uk/pa/cm201011/cmselect/cmsctech/writev/498/m25.htm

12 http://www.senseaboutscience.org/
Use of social media in emergencies

Social media can be a very effective tool for providing real-time information, including offering excellent opportunities for direct communication by government and increased interaction among scientists and the public. While social media can perpetuate the problems of public misinformation and distrust in science by giving unsound science a platform and degree of authority, it is interesting to note the strong self-correcting influences that come into play to address erroneous information. Increased engagement by scientists in social media should therefore be encouraged. It is worth noting, however, that should there be substantial disruption to telecommunications infrastructure in an emergency, access to social media may be significantly impaired.

The use of scientific evidence in informing current CBRN emergency response plans

Many of the comments we have made earlier in this response are relevant to this section. It is clear that CBRN emergencies can be either fast or slow. In a fast emergency, then practical aspects are likely to dominate: keeping (or regaining) control; preventing immediate and obvious further damage; safeguarding facilities; and managing the public. Therefore, scientific advice is likely to be subordinate to security and safety considerations.

While the input of external scientific expertise will often be highly desirable (even necessary), in the context of a CBRN incident where time is of the essence, it might not be beneficial to delay a response. In this context, it is worth noting a key conclusion of the Phillips BSE Inquiry Report:

“The Government was anxious to act in the best interests of human and animal health. To this end it sought and followed the advice of independent scientific experts – sometimes when decisions could have been reached more swiftly and satisfactorily within Government.”

31 It is paramount that response plans take account of how the emergency is unfolding on the ground. This emphasises the need to ensure that there are robust lines of communication between those at the ‘front-line’ and those with responsibility for overseeing the response. In this context, it needs to be recognised that the scientific input into response plans could conceivably conflict with field-derived “live” information. The Ebola Report highlighted that a lack of research prioritisation and coordination meant that the immediate needs of the front-line health workers were not addressed as effectively as they should have been.

32 As we have touched upon already, contingency planning exercises are likely to be very useful in helping to ensure a coordinated response and communications strategy. Undertaking these exercises enables cross-sectoral teams to come together, including the relevant scientists, response and emergency teams to explore procedures, enforcement actions and communication channels, and to identify key roles and capacity gaps.

Additional Information

This Advice Paper has been signed off by the RSE General Secretary.

In preparing this Advice Paper we would like to draw attention to the following RSE response which is relevant to this subject:

The RSE’s response to the Science and Technology Committee Inquiry into Science Communication (April 2016)

Any enquiries about this Advice Paper should addressed to Mr William Hardie (email: evidenceadvice@royalsoced.org.uk).

Responses are published on the RSE website (www.royalsoced.org.uk).

Advice Paper (Royal Society of Edinburgh) ISSN 2040-2694

The Inquiry into BSE and Variant CJD in the UK; 2000 http://webarchive.nationalarchives.gov.uk/20060715141954/http:/bseinquiry.gov.uk/index.htm

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