HEALTH, SECURITY
AND THE RISK SOCIETY

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Executive Summary and Policy Recommendations

Key points which arise from this paper are:

- There has been a change in the perception of risk by society. We have moved to a ‘risk perception society’ where what is important is not whether the number or nature of risks have increased in their seriousness, but that people believe that this is so and act accordingly.

- The perception of risk has increased because: with the dwindling significance of community in the West there is no mediating mechanism to mitigate the sense of vulnerability; individuals believe that they lack control over the threats they face.

- Risk is no longer an opportunity but something to be feared. As a consequence we can see two trends emerging: the politics of fear, where sensitivity to risk is high and quickly becomes politicised; and risk regulation, where the demand is for the authorities (usually the government) to act to mitigate risk.

- Some actions undertaken to reassure the public have had major benefits because of the perception that something could and was being done, even though the epidemiological consequences were negligible.

- Expert assessment of the probability of harm appears to have become less important than the popular perception of risk. There has been an erosion in both the confidence placed in expert opinion, and the confidence placed by experts in their own assessments. The status of knowledge moreover has been undermined, being often perceived as biased or unattainable. Knowledge has therefore become not so much contested as devalued, with opinion regularly becoming the basis on which behaviour is based.

- Debate on risk has regularly been reduced to a simple binary choice of risk/no risk with a proclivity to assume the worst; i.e. there is a tendency to assume that there is a risk rather than that there is not; and because risk is a binary set rather than a spectrum disorder, then the risk is absolute rather than probabilistic.

- There is a sense of pessimism and uncertainty over the ability to control risk perception.

- Criteria which have been developed for judging whether health issues are likely to be seen as risks can generally be reduced to two basic questions: what is known about a disease, and how dangerous is it? Both assume that objective assessments of the probability of harm will be made which will determine subsequent behaviour. This is probably an inadequate assessment of risk perception however and more subjective factors appear to come into play.

- If a threat is perceived as being temporally or geographically distant, then the perception of risk is reduced and behaviour is less likely to be affected. In contrast if a threat is physically present then the risk is likely to be seen as high.
Risk appears to be sensitive to the extraordinary. Thus everyday threats tend not seen as high risks. In contrast novel situations or diseases may have greater perceived risks attached to them.

A key variable in risk perception appears to be the ability of an individual to control her/his exposure to hazards. When there is a lack of agency, then risk perception is increased, but when there is an ability to control exposure to hazard then it is reduced.

Mass communication can heighten levels of anxiety or it can provide reassurance; authorities can use it, but can rarely control it; and there is a difficult balance to be struck over the amount of information to release, particularly early on in an emergency, when saying too much may lead to an overreaction and appear panicky, while too little can appear complacent or conspiratorial. Thus how information is managed, and how successfully it is managed are key variables in risk perception.

The demand for information about risks is such that when none is provided through official channels, then it will be filled from elsewhere. Doing, or saying nothing has therefore become a dangerous strategy for those in authority, even when there is nothing to say.

This analysis suggests a number of policy recommendations/conclusions:

1. The tendency by health professionals and security analysts to adopt a positivist risk assessment methodology is probably misplaced. Probabilistic assessments of actual risk are less important than perception and (inter-) subjective factors. Not least cognitive dissonance is possible where the actual danger is not reflected in the perception of risk by individuals. This needs to be recognised not only to allow prompt identification of when dangers are likely to be seen as risks, but in mitigating the sense of risk.

2. The referent object for risk appears to be the individual and therefore it is the individual which needs to be reassured. This may be done collectively, but the focus should be on the concerns of the individual.

3. Public fragility and sense of vulnerability is high with the result that health threats – particularly novel threats which have a geographic and temporal immediacy – are very likely to trigger a perception of risk. Can this general sense of vulnerability to health threats be mitigated in advance of specific threats emerging?

4. The demand for government action is likely to be high. Actions taken may reassure anxious publics, possibly despite limited epidemiological effectiveness. Inaction is not advisable.

5. The sense of vulnerability is in part because of a lack of mediating mechanisms. Health professionals and in particular professional bodies may have a role to play here in reassuring the public over the risk involved (as WHO demonstrated with SARS). But such responses need to be agile and perceived as independent and authoritative.

6. The sense of individual control over risk also appears to be important and advice over what
can be done to mitigate the risks is important. The appearance of some element of control, or that ‘something can be done’, is what is crucial.¹

7. Information will be sought about health risks and if no authoritative information is made available other sources will fill the gap. There is therefore a priority on maintaining a flow of timely information.

8. The status of knowledge and expert assessment needs to be reasserted and opinion challenged.

¹ Of course, when such advice appears to offer very limited control, then it is likely to have very limited effect and may be counter-productive – viz government advice over what to do in the event of a biological attack.
Preface

This paper is part of a broader programme supported by The Nuffield Trust and funded by the Nuffield Health and Social Services Fund. The programme is examining the relationship between health, foreign policy and security. It is based on the recognition that health has become a major international political issue cutting across traditional policy and academic communities. Issues such as HIV/AIDS, the spread of infectious disease, the impact of globalisation on population movement, climate change, illegal trafficking and bio-terrorism are forcing us to reconsider the relationship between traditionally discrete policy (and academic) communities. The aim of the programme is to build a better understanding of this new relationship and to develop policy options for the UK. Previous papers include a scoping study, a conceptual study on the relationship between the policy communities involved, and an analysis of the relationship between recent health issues and British foreign policy. Future papers will discuss the relationship of health and conflict, and the manner in which health impact assessment methodologies may be incorporated into foreign policy considerations and vice versa.

The initial scoping study identified significant disparities between perceived and actual risks arising out of health issues deemed to be of concern to the foreign and security communities. This raised further issues of how risk was considered in society, in particular how society reacted to international health risks, and how policy should take account of this. The programme has therefore addressed the issue of risk with a two stage project, for which this is the summary paper. The first stage consisted of a paper on the sociology of risk. Although the public health community is well-versed in risk assessment methodologies, this project was more concerned with risk in a broader social context. This paper was prepared by Bill Durodié. The second stage built on this with case studies on SARS (Richard Smith), bio-terrorism (Malcolm Dando) and climate change (Paul Wilkinson). All papers are available on The Nuffield Trust’s website. Initial conclusions were discussed in a series of seminars involving key participants and in a final seminar drawing in representatives of the policy community, NGOs and academia. We are very grateful to all those who participated in the various stages of this project. I am particularly grateful to Alan Ingram and Olivia Roberts for their support. Responsibility for the conclusions of this paper is mine alone.

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4 Colin McInnes, Health and Foreign Policy in the UK: The Experience since 1997 (London: The Nuffield Trust, 2005)
5 http://www.nuffieldtrust.org.uk/
Health, Security and the Risk Society

*If you can make one heap of all your winnings
And risk it in one turn of pitch and toss*

Rudyard Kipling, *If*

We appear to live in a very different world from that of Kipling, where the willingness to ‘take a risk’ is a quality to be admired, even encouraged as a sign of ‘manhood’. Rather we appear to be beset by risks, including those of bio-terrorism, infectious disease and climate change discussed in this project. But in identifying this shift two important distinctions need to be made. The first is between an increase in the number of risks faced and an increase in the danger posed by risks (the difference between a quantitative and qualitative increase in risk). Do we face more risks today and/or are the risks of a greater magnitude? In particular, are there more health risks to be faced, or is it that they are of a qualitative different nature? Bill Durodié suggests in his paper on the nature of risk however that this distinction may be less important than might at first be imagined. Rather Durodié suggests that what has happened is that there has been a change in the perception of risk. We have moved to a risk perception society where what is important is not whether the number or nature of risks have increased in their seriousness, but that people believe that this is so and act accordingly. This clearly has important implications both for the manner in which health issues might be deemed as being risks, and how such risks might be mitigated.

The second distinction follows on from this and is between risk and hazard (or, sometimes, threat). This distinction was suggested by the German sociologist Ulrich Beck and informs Durodié’s paper. For Beck, risk is an abstraction. It is sensed, or believed and therefore influences behaviour, but it occupies an indeterminate ground between security (ie not feeling at risk) and physical damage. Risk has consequences in the social realm, for example in influencing actions to mitigate the risk; but it does not itself cause physical damage (other than that which might be inadvertently caused by actions undertaken to mitigate risk). In contrast, hazards or threats have a material reality capable of causing damage regardless of whether they are considered to be a risk or not. Thus we can distinguish between the risk of infectious disease, which may be something perceived by individuals, communities or states, and the threat of AIDS to an individual infected with HIV which is a material condition posing an extreme danger whether the individual is aware of it or not. As Richard Smith points out in his paper on SARS, however, this can lead to cognitive dissonance where the perceived risks outweigh the actual danger and vice versa.

Risk is therefore socially constructed and as society changes so does the perception of risk. This is of course a very different perspective on risk from that traditionally employed by public health. For public health, risk is an objective, measurable phenomenon with a distinct methodology for assessment involving ‘risk factors’ and empirical evidence. Thus epidemiologists may assess likely rates of infection and mortality from an outbreak of a disease by reference to known risk factors. This study however is concerned with risk as a

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6 This paper draws on a series of commissioned supporting papers from Malcolm Dando (on bio-terrorism), Bill Durodie (on risk), Richard Smith (on SARS) and Paul Wilkinson (on health and climate change).
social phenomenon – how society assesses risk, and in particular health risks. Its disciplinary
focus is therefore the sociology of risk.

With the rise of a risk perception society we are more sensitive today to the idea of risk and
of being ‘at risk’. Risk is no longer an opportunity but something to be feared. This is linked
to two other trends. First, it has led to a loss of agency – a sense that we no longer control
our own destiny. Threats are perceived as being outside of the control of individuals, even
governments, heightening the sense of risk. Second, the referent object for risk is no longer
society but the individual. Increasingly in the West, what matters is not whether society is at
risk, but whether an individual is.\footnote{During the SARS outbreak in Singapore for example, buses were reportedly unwilling to pick up nurses outside hospitals because of the perceived risk of infection. In so doing the bus driver prioritised her/his individual security over the security of society.} Certain hazards may pose a limited danger to society but
may be extreme to an individual affected. In these circumstances, the risk is seen as great
\textit{because of the potential impact upon the individual affected}.

As a consequence of this change we appear to be easier to scare. Durodié identifies two trends
emerging from this development: the politics of fear, where sensitivity to risk is high and
where such risks rapidly achieve political salience; and risk regulation, where the demand is
for the authorities (usually the national or regional government) to act to mitigate risk. For
health this has important consequences both in the likelihood of health issues emerging as
risks and in the manner in which such risks may be mitigated. On the former, health issues
are more likely to be conceived of as risks, sometimes on the basis of limited empirical
evidence; second, there will be demands for action, principally by governments, to mitigate
that risk. As Richard Smith points out in his study of SARS, although such actions by
governments may be limited in terms of their epidemiological effectiveness nevertheless they
can have an important role in reassuring fragile publics.

The perception of risk

This heightened consciousness of risk, including risk from disease and other health-related
issues, is not then simply a result of an increase in the quantity or quality of threats faced by
individuals or societies. Nor is it solely the result of an increased awareness of these threats,
though this may be an important element in the sense of vulnerability identified by Durodié.
Rather it is the result of a \textit{perception} that these risks have increased. With SARS for example,
Richard Smith points out that what was crucial in explaining the popular reaction was the
perception of increased risk. Similarly Malcolm Dando in his paper on bio-terrorism argues
that biological agents not only pre-dated the terrorist attacks of September 11 and the anthrax
attacks, but had been used in the 1990s by both states and non-state actors as weapons of
terror. September 11 and the anthrax letters however increased the \textit{perception} of risk.
Government action was required in response to this, despite the fact that the technical
assessment of the danger had not changed and that many biological agents made a poor
choice as weapons of mass destruction for non-state actors. Moreover Smith points out that
some actions undertaken to reassure the public over SARS had a major benefit because of the
\textit{perception} that something could and was being done, even though the epidemiological
consequences were negligible.
Why has the perception of risk increased? There are two reasons for this. First, Durodié suggests that with the dwindling significance of communities and societies in the West, so responses have become individuated. Crucially, there is no mediating mechanism to mitigate the sense of vulnerability. Moreover the referent object has become the individual – what matters is not the risk to society but to the individual. So whereas society may prove robust in the face of a new disease such as SARS (in the sense that society is unlikely to cease to function), an individual infected is in grave danger. This however cannot in itself explain the sense of vulnerability, not least because the individual’s chances of being infected might be extremely low. Thus with SARS, the number of cases of infection outside health professionals globally was in the very few thousands, yet the perception was one of high risk. The decline of community may therefore be a necessary but not sufficient reason for the rise in risk perception.

The second reason for the rise in the perception of risk is the lack of control felt by individuals over the threats they face. Durodié suggests that threats are presented as being either entirely external or innately internal, such that ‘there is little we can do about them’. This is reinforced by what Durodié identifies as ‘the growing tendency to focus more on hazard and uncertainty than on risk and probability’. Risk and probability imply agency – that individual or collective behaviour can mitigate the dangers faced. But by prioritising uncertainty we suggest that we do not have the data on which to make the necessary judgments about how to mitigate dangers; while focusing on hazards suggests that situations are inherently dangerous, rather than identifying the probability of harm given certain actions. Hazard and uncertainty removes agency from the equation – the idea that something can be done (particularly by the individual) to lower the level of risk – and reinforces the sense of a lack of control.

If the above helps to explain why there has been a rise in the perception of risk, it does little to explain the rise in risk perception rather than a focus on the actual probability of harm. In particular, expert assessment of the probability of harm appears to have become less important than the popular perception of risk. As Durodié puts it, it is a case of ‘never mind the evidence, focus on the possibility’. Why is this? Durodié’s paper implies an erosion in both the confidence placed in expert opinion, and the confidence placed by experts in their own assessments. The idea of an ‘expert’ has become elitist. Society has moved to a position where, the likes of Jeremy Paxman aside, it has become rude to interrogate views. In a society where everyone has a right to express their own viewpoint, all views have become equal. This is sometimes referred to as ‘democracy’ – that all views are equal regardless of the experience or qualifications of those expressing them. The status of knowledge moreover has been undermined, being often perceived as biased (as in the case for example of government advice over BSE and MMR) or unattainable (for example over the impact of climate change). Added to this, scientific advice has become increasingly equivocal with experts unwilling to offer definitive views, not least out of a sense of political vulnerability (for example, the Royal

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8 Indeed, the fact that the likes of Jeremy Paxman and John Humphrys are famous – even infamous – for interrogating views suggests that the willingness to question has become unusual (as opposed to outright cynicism, which appears endemic). Interestingly of course, Paxman et al question the views of politicians and occasionally scientific experts. Not even these doyennes of the hostile interview however interrogate the views of the public.
Society’s findings over GM crops). Knowledge has therefore become not so much contested as devalued, with opinion regularly becoming the basis on which behaviour is based.

The uncertainty of expert advice, and the situation where knowledge is legitimately challenged by opinion, is seen to a greater or lesser extent in all three of the case studies. On climate change, although Paul Wilkinson identifies a ‘reasonable scientific consensus that the world’s climate is changing as a result of anthropogenic emissions of greenhouse gases’, he also notes that the impact of such change is uncertain. The lack of evidence in some areas, differences over evidence in others, and difficulties in modelling climate change all add to uncertainty in predicting what might happen to the world’s climate. It is particularly difficult to predict how climate change might affect health due to a poor understanding of: the possibility of technological modifiers mitigating the impact of change; the behavioural adaptability of individuals and communities; and whether the impact of climate change is linear or not (in particular whether some catastrophic tipping point might be reached where a relatively small change might lead to disastrous consequences where previously similar changes had produced little effect).

On bio-terrorism, Malcolm Dando notes that recent intelligence failures, particularly regarding Iraq, have led to uncertainty and scepticism over expert assessments. Indeed public scepticism preceded the failure to find Iraqi WMD, demonstrating how opinion can become as important as expert assessment in determining popular reaction. Of course, that opinion in this instance now appears to have been vindicated and the government’s expert assessment proved wrong further undermines the position of knowledge and gives credence to the belief that knowledge and expert advice is politicised and not to be relied on. The Iraq case also highlights the difficulties in offering nuanced advice. The debate was often reduced to a simple binary choice of whether or not Iraq had WMD, rather than the more nuanced question of where Iraq probably stood along a spectrum of research and development activities which might lead to an operational WMD capability. This willingness to reduce complex issues to binary choices appears to be the case with bio-terror as well. Dando suggests that the problem of bio-terrorism is subtle and nuanced, involving a range of biological agents with varying properties and a mix of possible attack scenarios. But the debate appears to have been reduced to a simple binary choice of risk/no risk dominated by the worst case scenario of a WMD-type attack by apocalyptic nihilists and/or religious fundamentalists. Both Dando and Durodié suggest that there is a proclivity to assume the worst; in other words that there is a tendency in a binary set to assume that there is a risk rather than that there is not; and because risk is considered a binary set rather than a spectrum disorder, then the risk is absolute rather than probabilistic. However the scepticism over UK government claims that Iraq was intent on producing WMD suggests that such worst case thinking may not always govern public opinion.

Finally with SARS, although Richard Smith notes that the WHO emerged as an authoritative and trusted voice, the overwhelming impression is one of scientific uncertainty creating the conditions whereby a sense of vulnerability could emerge. To a large extent of course this was because in SARS scientists were facing a new disease. But equally the initial fears of the public health community that SARS might be the harbinger of a new global flu pandemic reveal the tendency towards worst case thinking, while the manner in which rumour and suspicion...
flourished whenever hard information was lacking (and sometimes even when such information was available) indicates the potency of opinion: people were willing to listen and believe rumour and opinion rather than wait for expert assessment.

Why do certain health issues emerge as risks?

Despite this increased sensitivity to, and heightened perception of risk, it is clear that not all hazards become risks. This therefore raises questions over what factors lead to certain (health) issues becoming risks, the volatility of risk perception and the malleability of such perceptions. Although a number of factors are identified in the papers as bearing on risk perception, the overall conclusion seems to be one of pessimism and uncertainty over the ability to control risk perception. Durodié for example argues that ‘the more such concerns are highlighted, the more it becomes impossible for the authorities to satiate the insecurities they create.’ Smith suggests that responses are difficult to predict because they are so individuated. And although he suggests that there may have been an element of herd behaviour in the reaction to SARS, it is unclear whether this was true herd behaviour (in which individuals base their behaviour on the actions of others) or apparent herd behaviour (where large numbers of individuals make similar decisions). The consequences of such uncertainty are profound in making any judgment on the ability to control risk perception. If health risks lead to true herd behaviour, then it is possible to affect risk perception through effective communication with opinion formers; if it is apparent herd behaviour, then a different and more problematic communication strategy is required. Smith suggests however that SARS did demonstrate how effective leadership could mitigate risk perception, but also that perception relied on a degree of ‘othering’ – that is, the ability to present a hazard as being a risk to a geographically or culturally distant group.

Despite this pessimism and uncertainty over the malleability of risk perception, a number of factors do emerge from the papers as possible variables in the perception of risk from health issues, especially infectious disease. Smith in particular identifies six epidemiological factors which may contribute to a sense of risk from infectious disease:

- The likelihood of infection.
- The outcome of infection, particularly chances of death.
- The adequacy of protection or preventative measures.
- The rate or nature of an increase in cases.
- Uncertainty over routes of infection.
- Confidence in statements made by authorities and in particular whether there is a suspicion that risks are being downplayed.

Smith also cites WHO’s list of five criteria for judging likely public health concern (implicitly, the perception of risk):

- The extent to which the disease is unknown or unusual.
- The seriousness of the health impact/illness, particularly in terms of morbidity and mortality.
The risk of disease spreading internationally.

The risk of interference with trade or international travel.

The need for international assistance.

Although these are useful lists, they are of limited use in explaining risk perception. Both lists can – by and large – be reduced to two basic questions: what is unknown or uncertain about a disease, and how dangerous is it? An implicit assumption behind both of these questions is that objective assessments will be made in answering them and that subsequent behaviour will demonstrate a degree of rational instrumentality in risk reduction. In assessing risk however, more subjective – or probably more accurately intersubjective – factors appear to come into play. Three such factors are immediacy, normality and agency. To this may be added a ‘wild card’ of mass communication, including both the media and the internet.

1. **Immediacy**

If a threat is perceived as being temporally or geographically distant, then the risk is reduced and behaviour is less likely to be affected. In contrast if a threat is physically present then the risk is likely to be seen as high. Thus, although climate change is widely accepted as being a threat to health, as Paul Wilkinson points out in his case study because the impact is deferred the perception of risk is reduced and behaviour is not overly affected. Similarly because SARS was a disease which was largely confined to Asia and North America, the risk to individuals in the UK was perceived as being low and behaviour was not altered (excepting the case of travel to infected areas). In contrast, although the likelihood of a bio-terror attack against population centres may be low, the combined effects of 9/11 and the subsequent anthrax attacks served to heighten risk perception because such threats were seen as being ‘here and now’ (witnessed not least in the purchase of smallpox vaccines in the aftermath of 9/11).

2. **Normality**

There is a sense in all three of the case studies that risk is sensitive to the extraordinary. Thus everyday threats or hazards such as road deaths (or, in the context of health, heart disease), are not seen as high risks, despite the empirical danger involved. There is no especial sense of being ‘at risk’ unless something extraordinary happens in this context which heightens risk perception – a road traffic accident or a heart attack. In contrast novel situations (such as bio-terrorism following the anthrax attacks of 2001) or novel diseases (such as SARS in 2003), may have greater perceived risks attached to them. In this context climate change is in itself not particularly novel and not therefore seen as an immediate risk; but it may create novel situations with health impacts which are seen as risks (such as the deaths through heat in Western Europe in 2003).

Clearly novelty is not sufficient on its own for a threat to be seen as a risk, rather its impact is to heighten sensitivity. What is also uncertain is the tipping point when an individual may become desensitised to the dangers involved – that a threat is perceived as being normal or everyday and therefore not an especial risk.

3. **Agency**

A key variable in risk perception appears to be agency – the ability of an individual to control her/his exposure to hazards. When there is a lack of agency, then risk perception is increased;
but when there is an ability to control exposure to hazard then it is reduced. Thus with SARS, one of the key reasons why it was considered a risk was the uncertainty over how it was spread and therefore the inability of individuals to control their potential exposure to the disease. What is important however is not whether exposure is objectively reduced, but whether there is a feeling that something can (or cannot) be done (sometimes almost regardless of the efficacy of such actions). Thus Richard Smith notes in his paper on SARS that certain actions which had little impact in terms of reducing exposure to hazard could nevertheless prove to be reassuring and appeared to reduce the sense of being at risk. Similarly, Malcolm Dando points out that the danger from certain forms of bio-terror attack may be overstated (for example, because of problems in dispersing agents efficiently over large areas), but because of the perceived lack of control over such events the sense of risk is high.

Intriguingly, perhaps the one area studied here where there is the least individual agency is climate change. But the sense of risk here appears to be reduced by the lack of immediacy. This suggests either an issue hierarchy where immediacy is more important than agency, or that agency is insufficient on its own to determine risk.

4. Mass Communication

It has become commonplace to assert that we live in an age of mass communication. Whether through the traditional media of print, radio and television or through the recent rise of the internet, we have become accustomed to obtaining information on more or less what we want, when we want it. Crucially, the demand for information is such that when none is provided through official channels, then it will be filled from elsewhere. Doing, or saying nothing has therefore become a dangerous strategy for those in authority, even when there is nothing to say.

Mass communication has both a positive and negative potential for risk perception. Reports may create or heighten a sense of anxiety. Moreover early reports are often alarmist in nature, as the SARS case demonstrates. This can establish a baseline of accepted ‘facts’ or beliefs which may be difficult to rewrite once more, and especially more accurate information becomes available. On the other hand, mass communications can be used to reassure the public. In this respect, the role of WHO during SARS is instructive. As a trusted international body it was able to use mass communication to inform and reassure anxious publics. Indeed, the speed of modern communication can even be a reassurance in itself: as SARS demonstrated, modern communication technology allowed the rapid exchange of information which allowed better preventative actions, while the exchange of scientific data through secure websites etc allowed the SARS genome to be identified remarkably quickly.

Mass communication is therefore a wild card. It can heighten levels of anxiety or it can provide reassurance; authorities can use it, but can rarely control it; and there is a difficult balance to be struck over the amount of information to release, particularly early on in an emergency, when saying too much may lead to an overreaction and appear panicky, while too little can appear complacent or conspiratorial. Thus how information is managed, and how successfully it is managed are key variables in risk perception.
Conclusion

A number of points emerge from this as key to understanding risk in society. Underpinning all of the above is the central idea that there has been a change in the perception of risk. We have moved to a 'risk perception society' where what is important is not whether the number or nature of risks have increased in their seriousness, but that people believe that this is so and act accordingly. The perception of risk has increased because: with the dwindling significance of community in the West there is no mediating mechanism to mitigate the sense of vulnerability; and individuals believe that they lack control over the threats they face. Risk moreover is no longer an opportunity but something to be feared. As a consequence of this we can see two trends emerging: the politics of fear, where sensitivity to risk is high and quickly becomes politicised; and risk regulation, where the demand is for the authorities (usually the government) to act to mitigate risk.

Although there is a general sense of pessimism and uncertainty over the ability to control risk perception, some actions undertaken to reassure the public over risk have had major benefits because of the perception that something could and was being done, even though the epidemiological consequences were negligible. Expert assessment of the probability of harm however appears to have become less important than the popular perception of risk. There has been an erosion in both the confidence placed in expert opinion, and the confidence placed by experts in their own assessments. The status of knowledge moreover has been undermined, being often perceived as biased or unattainable. Knowledge has therefore become not so much contested as devalued, with opinion regularly becoming the basis on which behaviour is based. Debate on risk has therefore been reduced in many instances to a simple binary choice of risk/no risk with a proclivity to assume the worst - in other words, that there is a tendency to assume that there is a risk rather than that there is not, and because risk is a binary set rather than a spectrum disorder, then the risk is absolute rather than probabilistic.

Criteria which have been developed for judging whether health issues are likely to be seen as risks can generally be reduced to two basic questions: what is known about a disease, and how dangerous is it? Both assume that objective assessments of the probability of harm will be made which will determine subsequent behaviour. This is probably an inadequate assessment of risk perception however and more subjective factors appear to come into play. In particular, if a threat is perceived as being temporally or geographically distant, then the perception of risk is reduced and behaviour is less likely to be affected. In contrast if a threat is physically present then the risk is likely to be seen as high. Risk also appears to be sensitive to the extraordinary. Thus everyday threats tend not seen as high risks. In contrast novel situations or diseases may have greater perceived risks attached to them. An additional variable in risk perception appears to be the ability of an individual to control her/his exposure to hazards. When there is a lack of agency, then risk perception is increased, but when there is an ability to control exposure to hazard then it is reduced. Finally mass communication can heighten levels of anxiety or it can provide reassurance; authorities can use it, but can rarely control it; and there is a difficult balance to be struck over the amount
of information to release, particularly early on in an emergency, when saying too much may lead to an overreaction and appear panicky, while too little can appear complacent or conspiratorial. Thus how information is managed, and how successfully it is managed are key variables in risk perception. Crucially, the demand for information about risks is such that when none is provided through official channels, then it will be filled from elsewhere. Doing, or saying nothing has therefore become a dangerous strategy for those in authority, even when there is nothing to say.

The above analysis suggests a number of policy recommendations/conclusions, specifically:

1. The tendency by health professionals and security analysts to adopt a positivist risk assessment methodology is probably misplaced. Probabilistic assessments of actual risk are less important than perception and (inter-) subjective factors. Not least cognitive dissonance is possible where the actual danger is not reflected in the perception of risk by individuals. This needs to be recognised not only to allow prompt identification of when dangers are likely to be seen as risks, but in mitigating the sense of risk.

2. The referent object for risk appears to be the individual and therefore it is the individual which needs to be reassured. This may be done collectively, but the focus should be on the concerns of the individual.

3. Public fragility and sense of vulnerability is high with the result that health threats – particularly novel threats which have a geographic and temporal immediacy – are very likely to trigger a perception of risk. Can this general sense of vulnerability to health threats be mitigated in advance of specific threats emerging?

4. The demand for government action is likely to be high. Actions taken may reassure anxious publics, possibly despite limited epidemiological effectiveness. Inaction is not advisable.

5. The sense of vulnerability is in part because of a lack of mediating mechanisms. Health professionals and in particular professional bodies may have a role to play here in reassuring the public over the risk involved (as WHO demonstrated with SARS). But such responses need to be agile and perceived as independent and authoritative.

6. The sense of individual control over risk also appears to be important and advice over what can be done to mitigate the risks is important. The appearance of some element of control, or that ‘something can be done’, is what is crucial.

7. Information will be sought about health risks and if no authoritative information is made available other sources will fill the gap. There is therefore a priority on maintaining a flow of timely information.

8. The status of knowledge and expert assessment needs to be reasserted and opinion challenged.
Of course, when such advice appears to offer very limited control, then it is likely to have very limited effect and may be counter-productive – viz government advice over what to do in the event of a biological attack.