

Does the UK Have a Coherent Plan to Deal with the Public Health and Civil Order Consequences of a Nuclear Strike?

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The Threat

Recent events in the Ukraine have focused minds on the risk of a nuclear strike on our small and densely populated country. Russia has placed its intercontinental nuclear force on increased alert and we cannot be certain that it is bluffing. Indeed, such success as Ukraine may have on the battlefield will raise the risk of nuclear retaliation according to the Nobel Prize winning game theorist Thomas Schelling. [1] The Russo-Ukrainian war takes place against a backdrop of increasing risk. First, the number of countries with nuclear weapons has increased from four to nine since the end of the Cold War, while relationships among the largest nuclear powers are deteriorating. It is often argued that the main risk of nuclear strike arises from error and miscalculation in the heat of the moment, rather than cold-blooded targeting of cities under threat of a reprisal. This may be true, but the risk of error and miscalculation is increased at times of political tension. By way of example, a nuclear strike was avoided by a hair's breadth in the context of heightened tension at the time of the Cuban Missile Crisis. On the other hand, the heroic avoidance of an overreaction in the Petrov incident in 1983 and by Yeltsin in 1995, unfolded at a time of low geo-political tension. The recent analysis by the Economist [2] leads to the conclusion that the current risk is greater than at any time since World War 2. Given this threat, it seems reasonable to ask public health officials and the emergency services what they should do in the event of an attack.

The Scale of an Attack

Of course, nuclear bombardment is not easy to plan for, not least because it could take different forms. The extent of the initial and subsequent nuclear deployments could vary from release of one or two bombs (as in Japan at the close of World War 2), to hundreds of bombs. Clearly prevention is better than cure and the world should be doing everything in its power to reduce the risk of a military strike by increasing transparency, taking missiles off hair trigger alert, accounting for all fissile material and winding down nuclear arsenals. [3] In the meantime, it is also necessary to think the unthinkable and to prepare for a possible thermo-nuclear attack. Just as climate scientists talk about adaptation, not just prevention, so we need to think how we may mitigate damage in case of a nuclear strike.

Evidence of Preparedness

We find scant evidence that the UK has made comprehensive plans to deal with a nuclear strike. We appear much less prepared than we were back in the 1960s when numerous preparations, including exercises in which the public participated, were made. There is a Cabinet Office department with responsibility for management of catastrophic risks. We trawled through government websites but have been unable to discover any materials describing a comprehensive plan to deal with a nuclear strike. While there are a number of documents that detail what those in authority should do in

the event of a non-specific emergency situation, such as what information to tell the public, and how the emergency services should respond,[4] we find very little evidence of preparation for a nuclear attack. The only mention of nuclear attack seems to be in a National Risk Register document from 2020, which includes nuclear attack alongside other non-conventional attacks (chemical, biological and radiological) and states only that planning and testing for such events occurs (pages 124-6).[5] Certainly there are detailed documents on nuclear incidents arising from nuclear power stations or nuclear powered submarines,[6] but these documents explicitly exclude nuclear war while providing no relevant hyper-link or reference to any document that might do so. Although there is a planned 'Emergency Alert' system that would send out a warning to all mobile phones in the event of a public emergency,[7] the warning period is only about four minutes, after which electronic signals would not work in affected areas. Advice on personal protection against a nuclear attack was last issued by the UK government in 1980, which advised people to 'get inside, stay inside and stay tuned'.[8] This is in line with current USA guidance, which also details how to decontaminate, when to evacuate, and how to treat radiation injuries, amongst other things. [9] However, public health would be much more than a personal responsibility if one or a small number of our cities were bombed. We were alarmed therefore to discover no comprehensive plan to deal with the fallout from a nuclear strike. One imagines the Local Authority Director of Public Health would be in the forefront of disaster management in the event that their city, or a nearby city, suffered a nuclear strike. However, a Public Health Director with whom we discussed this issue, while aware of plans to deal with a nuclear leak from a power plant, was not party to any plans to deal with a nuclear strike. The newspaper, Mail Online, carried a recent article on the preparation for such an event and the reporter (Harry Howard) also found little information regarding the government response save evidence of an underground bunker in Essex that could accommodate 200 government

officials.[10] One Colonel de Bretton-Gordon is quoted by the *London News* as saying that the government could also retreat to bunkers deep under Whitehall.[11] However, this assumes sufficient warning of an attack, and a country primed to respond to government direction.

Planning for What?

In order to sensibly consider possible public health and civil order policies it is necessary to consider the scales of attack that might occur. Herman Kahn proposed an escalation ladder representing no less than 44 rungs.[12] Rung 10, for example, is reached when diplomatic relations are terminated. Leaving aside dirty bombs (a conventional bomb that releases radioactive material into the environment), battlefield bombs (less than 0.3 kilotons of TNT), and strikes on military facilities we propose a simpler classification of severities as follows:

1. One or two large bombs detonated over one or two cities. This limited scenario would occur if de-escalation followed the initial deployment. Perhaps, most plausibly, the scenario would arise when the initial bomb was released as a result of a false alarm or some other form of accident.
2. A limited city scenario where we envisage an intermediate strike involving say three to six cities in a single country. Josef Rotblat, also a Nobel Prize winner, stated that 'if a war then all-out war'. Nobel Prize or not, we do not see why this scenario is inevitable. We propose a scenario in which one country makes an attack and then the other responds proportionately. Under such a scenario two leaders could enter negotiations and a settlement may be reached, perhaps mediated by a third-party country or countries.
3. 'Doomsday scenarios', where large numbers of cities were bombed, possibly across multiple countries, resulting in the destruction of life and civilisation as we know it, at least in the Northern Hemisphere. Here a nuclear winter has resulted from massive shield of dust

thrown into the upper atmosphere, exceeding even the effects of the Mount Tambora volcano in 1815. In addition, electronic media would be completely destroyed with the loss of all financial information and electronic records.

Like the British Medical Association, who reported on the consequence of all-out nuclear war in 1983,[13] we find it difficult to draw even the contours of a plan to deal with the Doomsday scenario. So we invite readers to think, at least in the first instance, about preparations for limited and intermediate scenarios. The purpose of this article is to argue firstly that such plans should be made (if they have not already) and second, that they should be widely disseminated so that relevant parties know how they should respond and have the means to do so. The 'morning after' is not the time to open the manual for the first time. It is not enough to await instructions from the government's Cabinet Office Briefing Room A (COBRA) committee. First, the committee itself may be incapacitated. Second, valuable time would be lost in waiting. Third, COBRA's instructions would be ineffective if those receiving them had not been equipped to respond. Our argument simply put is that it is imperative to make, disseminate and evaluate plans to cope with a nuclear strike.

What Shape Might the Response Take?

Broadly speaking there are three zones of damage radiating out from the epi-centre of a nuclear strike; fireball, shock wave and radiation.[14] The inner zone is where people are annihilated by the initial blast. Further out people suffer severe burns and injuries caused by the shockwave and flying debris. Further out still, people are affected by radiation sickness in the shorter term and cancers (especially thyroid) and foetal abnormalities over a longer time-scale. One must also assume that order will break down, roads will become clogged as people flee and there will be widespread looting and personal violence.

We are advocating for development of plans, rather than proposing what form plans should take. However, we offer some thoughts, if only to counteract a sense of nihilism. First, we need to provide underground shelters in densely populated areas. The underground system is available to many in London,[11] but shelters built during the Cold War should be renovated and new shelters built along the lines of underground shelters in the US hurricane belt. We propose the concept of 'buddy cities'. Each city in the UK would have two designated buddy cities. It is the responsibility of these cities to come to the aid of the stricken city. Buddy cities would have the necessary equipment on stand-by, including protective vehicles and clothing for the police and evacuation services. A means of non-electronic communication would be established by loudspeaker (since mobile phones will not work). The police would have extended powers enabling arrest of people without trial in the first instance, subject to subsequent judicial review. Measurement of radiation should be implemented immediately and people who have been exposed should have immediate access to stockpiled iodine tablets. There should be a detailed evacuation plan that takes into account the distribution of radiation exposure. Burns centres in buddy cities should have headroom to rapidly increase capacity. Food supplies should be provided to citizens who remain in or around the affected city. This is only a start; many plans will be needed: plans to house evacuees in the buddy city, plans to detect and combat disease we hardly think about (like cholera), and, yes, plans for mass burial of the dead in as dignified a way as possible, building on lessons learned in the Boxing Day Tsunami.[15]

The above are merely suggestions and we are not pretending for a moment that we have the answers. However, policy and plans need to be tailored to the specific horrors of a nuclear strike. We propose that a committee be formed, involving multiple stakeholders, to derive an appropriate response to a nuclear strike. New laws may be necessary. We would make a strong recommendation that some form of practice or simulation should be implemented. The public

should be engaged in the whole process at every level since, after all, this is everybody's business.

The Need to Plan and to Share Plans

Working in health, it strikes us as curious that the medical profession generally, and the public health speciality in particular, have taken little interest in the risk of a thermo-nuclear strike. It may be that they think the Cabinet Office have the matter in hand. However, even if this is true, the existence of plans is not enough. There will be little that the government can do if the country is not prepared. Some people with whom we have discussed the issue suggest that widely shared plans would give potential enemies some sort of tactical advantage. We do not find this convincing. Nor have previous governments; drills were enacted during the 1960s in many UK cities and elsewhere without alarming security services or raising concerns that this would affect the likelihood or nature of an attack. The nuclear risk is entirely hypothetical, but then so are all future risks. At an individual level, it has been shown that people are more likely to survive floods and other disasters if they can run different scenarios through their imaginations and thereby formulate strategic responses.[16, 17] Similarly, countries that plan ahead and earmark resources will be best equipped to deal with disasters when they arise. It is for this reason that we advocate urgent action.

Acknowledgements

We thank Dr Andrew Futter (University of Leicester) and Prof Jayne Parry (University of Birmingham) for their comments and suggestions.

References:

1. Schelling T. [The Strategy of Conflict](#). Harvard, MA: Harvard University Press; 1960.
2. The Economist. [Thinking the Unthinkable](#). *The Economist*; 14 Jun 2022.
3. Futter A, et al. [Nuclear war, public health, the COVID-19 epidemic: Lessons for prevention, preparation, mitigation, and education](#). *Bull Atom Sci*. 2020; 76(5): 271-6.
4. HM Government. [Defra CBRN Emergencies](#). 2018.
5. HM Government. [National Risk Register](#). 2020.
6. Department for Business Energy & Industrial Strategy. [National Nuclear Emergency Planning and Response Guidance](#). London: Her Majesty's Stationary Office; 2015.
7. HM Government. [Emergency Alerts](#). 2022.
8. Central Office of Information. [Protect and Survive](#). London, UK: Home Office; 1980.
9. Centers for Disease Control and Prevention. [Radiation Emergencies](#). 2021.
10. Howard H. [London's hidden nuclear bunkers: Secret underground Cold War hideouts still in the capital...but some are so dilapidated they would be useless against a 800 kiloton warhead](#). *Mail Online*; 21 Mar 2022.
11. Gulliver B, Mortimer J. [How well prepared London is in the event of a nuclear attack as Russia warns risk of nuclear war is 'considerable'](#). *My London News*; 1 May 2022.
12. Kahn H. [On Escalation. Metaphors and Scenarios](#). London: Routledge; 2009.
13. British Medical Association. [The Medical Effects of Nuclear War: Report](#). Chichester, UK: Wiley-Blackwell; 1983.
14. Wellerstein A. [Nukemap](#). 2020.
15. Easthope L. [When the Dust Settles](#). London: Hodder & Staughton; 2022.
16. Dimitrova A, Muttarak R. [After the floods: Differential impacts of rainfall anomalies on child stunting in India](#). *Glob Environ Change*. 2020; 64: 102130.
17. The Economist. [Climate change is harder on less educated people](#). *The Economist*; 14 Jun 2022.