RESILIENCE FIRST
SURVIVE & THRIVE

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Resilience First Roundtable Summary

'Zoonosis: avoiding the next pandemic'

Supported by the National Preparedness Commission

Chair:
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Speaker:
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Key Points:

Zoonosis:

- Zoonosis is defined as a disease which can be transmitted from animals to humans and accounts for as many as two thirds of human infections.
- Zoonotic organisms include those that are both endemic in human populations and enzootic in animal populations with frequent cross-species transmissions. This creates a huge disease burden.

Spill-over:

- Many viruses have host animals which do not suffer ill effects from the virus. This can mean there are multiple, undiscovered viruses carried by a particular species at any given time.
- The viruses can spread from the host species into other animals who may suffer from moderate symptoms. We often live close to these animals as they are part of our food chain, our household pets or our working animals. Close proximity makes it easier for the viruses to jump across into humans.
- What we know about Covid-19 is that it came from a bat and ended up in humans. What we don't know is whether it went through another animal on the way eg pangolins, and there is still some debate on that.
- Flu viruses are something we know about: they often present in birds. What we really worry about is that a nasty bird flu, which might not make the bird ill, hops into a human when they are suffering from ordinary flu and recombines with the ordinary flu virus, allowing it to jump from human to human.
- Covid-19 is a SARS virus as is MERS which has come from camels, a common animal in the Middle East.

Zoonosis kills:

- What is clear is that Zoonoses can kill and what we must prioritise is diagnosing them at the spill-over so that it does not turn into an outbreak.
- The timeline tends to be spill-over > outbreak > pandemic.

Zoonosis on the rise:

- Zoonoses are on the rise. As populations increase, we encroach more and more on the habitats of wild animals. Bats carry many viruses: the case zero for Ebola in West Africa was a small boy who was playing outside his village in a hollowed-out tree in which there were bat droppings. Climate change and population increasing are having an impact. Pandemics are also assisted by globalisation and travel.

Spill-over likelihood

- What distinguishes the spill-over consequences of various viruses is the ease with which they can spread to and between humans and the seriousness of symptoms when that

happens. Rabies, for example, it is hard for the virus to jump to humans but when it does it can have very serious consequences.

From Spill-over to crisis:

- Events go awry when the pathogen peaks in wild animals and crosses over into domesticated animals, making it easier to infect people. If we can detect it early enough in wildlife, we can control it. If we can detect it early in domesticated animals, we can control it. If we pick it up early and respond rapidly in the affected human population, we can also control it.

Reducing Zoonosis:

- To reduce Zoonosis, we need good infection control and animal husbandry. If it is in the food chain, we need good biosecurity and food handling hygiene.
- Essentially, it is about keeping things clean so you reduce the risk: good access to WASH (water, sanitation and hygiene) is a part of this. It can be very difficult if you are in a poor country without access to WASH to manage these risks for yourself, let alone any domesticated animals which you may have.
- Mosquito-borne diseases also have great impacts on humans: Malaria is the obvious one but Zika, which should have been called a pandemic, has also had a great impact. Controlling these outbreaks requires a combination of preventative measures such as mosquito eradication, access to mosquito nets, insect repellents and effective clothing.
- We also need to be able to detect where there is a problem and treat it effectively. It is even better if we can prevent it with vaccinations of animals. For example, farmed Scottish and Norwegian salmon and trout are vaccinated in their infancy, hence stopping infection transmission amongst fish stocks and eventually the consumer.
- If we can diagnose viruses in the animal kingdom, we are able to treat them, to isolate them and, as a last resort, cull them in an effort to control the spread.

Widening inequalities even before the pandemic:

- What Covid-19 has shown us is that there has been a growth in inequality amongst our UK populations. For both men and women across the UK, the difference in life expectancy between the most and least deprived has grown.

Child obesity impacting future generations:

- People with obesity suffer more with Covid-19 than those who are not obese. The numbers of obese children have doubled during the completion of the primary school years and obesity is now most prevalent in the most deprived 10%. This creates a worrying problem for our communities with respect to outbreaks of infectious diseases like Covid.
- Covid-19 has not been felt equally across the UK. Higher levels of deprivation have a direct correlation with higher levels of Covid mortality.

The Slow Pandemic:

- While we are in the middle of an acute outbreak, we have a slow pandemic going on arising from Antimicrobial Resistance. New, unpublished data show that every year 1.2m people around the world are already dying of bugs that infect them and they do not respond to the treatment.

Resilience:

- There is an argument to be made in the UK that we do not have population resilience as the levels of obesity comorbidity and inequality in the country make it difficult to consider it as resilient. We do not have system resilience in general. We have a great health system but by comparison to other countries on our OECD level, we fall short in numbers of doctors, nurses and ICU beds. We have done well, however, in knowledge systems and in research and science.
- The big issue for Covid has been behavioural science and behaviour, boiling down to trust. A lot of the data we need is not held by government: it is attitudes, behaviours and movements often held in the private sectors, and this is data we need access to in order to monitor and impact pandemic behaviours.

Discussion:

Is there a danger that the concentration on Covid-19 could distract pharmaceutical companies from the problem of Antimicrobial Resistance?

- Antimicrobial and antibiotic resistance has been used interchangeably. However, antibiotic resistance specifically refers to bacteria and that is where the 1.2m figure comes from.
- It did drop off the radar for 6-9 months of Covid-19, which was a shame. Unfortunately, the world overused antibiotics when they would not work, and overuse of antibiotics contributes to resistance.
- Although now we are starting to talk about pandemics, the realisation of the 'slow and silent pandemic' is starting to grow. We need to incentivise investment in the development of new antibiotics and diagnostics and vaccines.

How do we ensure that policy makers and politicians remember that abstract numbers translate into real people and that they don't forget what they have learned in the face of new, potentially more populist pressures?

- The first part of the answer is that, for pandemics we model on reasonable worst-case scenarios and, therefore, the numbers can come across as dramatically overestimated. We also need to be honest about this: we need to prepare for the worst but at the same time handle what is real.
- To keep this on the agenda we need to develop our preparedness. We need to have surveillance systems based on data that are useful for the day to day and to strengthen normal public-health systems that can be amplified in emergencies - not overly intrusive systems which will fall out of favour as the electoral cycles pass.
- If we were quick, we would be able to control the outbreak or the epidemic levels before getting to the pandemic level.

How realistic is it that the need to reduce inequalities among our communities will be addressed in line with political fears over being accused of creating a nanny state or exploiting personal data?

- There is a generational element to this question. Young people are used to sharing data. What we need to do is move away from thinking of data as the new oil; data is only useful when it is aggregated and interrogated.
- To make a broader audience comfortable with data sharing, we need to convey it as something that will add to their health and of society as a whole. We need to move away from conversations around confidentiality and, instead, frame the conversation around how we can protect peoples' privacy, and there are ways of doing that.
- Handling inequalities is going to be the big challenge: it is a societal issue and we have to come together. It requires a whole-of-society approach and we need to convey the notion that it makes business sense for organisations to look after the health of their employees and communities. Politicians need to invest for the longer term, beyond the electoral cycle.

We've seen the WHO struggle as countries fail to disclose public health information. Is the WHO the vehicle to do this surveillance or is there a need for a newer approach?

- The WHO is fairly good a developing norms and standards. However, it is not good as a delivery organisation. The WHO collects data but doesn't do surveillance so there is a need for a proper surveillance network. The idea given at the G7 summit was that individual country labs would do the data collection, with some being WHO reference centres responsible for collating the data and putting the information together. The WHO would ideally remain the decision-maker, although they did delay announcing Covid as a pandemic a little too long.

Why in some cases was the speed of information exchange slower than the speed of the actual virus transmission?

- It is not only that the data must flow but also that people must see it and believe it. There is an argument that in the Global North (the West) we didn't react to the information from Asia, or even what we were witnessing from afar, quickly enough. More than this, we know that because of climate change and population growth we are encroaching on the habitats of wild animals that contain Zoonotic diseases, and we need to consider what we are doing there to monitor it.

Do big tech and social media organisations have a responsibility in shaping behaviour for future resilience and preparedness challenges?

- They need to make sure we are not spreading misinformation. They can also be incredibly useful in surveying. The danger is that governments move on without developing and fostering the relationships needed to be able to provide public-health benefits through social media and big tech.

Public trust is key in tackling the challenges ahead. How do you get sufficient public trust, given it has declined, to believe the science and the actions that need to follow?

- To generate trust, you need to show that you are trustworthy. We have to take the community with us, show them what we are doing and build that trust. On the whole, the public have listened to the NHS and the scientists.
- We also need to develop the public-health workforce and ensure that they are up to date with technology and the science.
- It will be a long journey to build the level of trust needed and we perhaps should have embraced public consultation more in how the UK has handled the pandemic.
- Alignment within the scientific community is needed and an understanding of when decisions are made based on politics rather than science.
- We need to aim for consensus among scientists and recognise the evidence is always developing.

Key takeaway:

- Let's learn the lessons needed and do better next time.

A recording of the proceedings can be found here.