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The Naked Scientists, bio-terrorism and Professor Tony Minson



Bio-terrorism - looking at the real threat

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have your say

With the threat of war comes the threat of bio-terrorism. We wanted to find out exactly what 'bio-terrorism' was and what were the implications to the nation. We enlisted the help of The Naked Scientists...

Who are The Naked Scientists?

They're a group of scientists keen to demystify the world of science and make it fun, accessible and exciting for all. Doctors Chris Smith, Sarah Urquhart, Chandy Nath and Shwen Gwee took over a chunk of the Drivetime show on BBC Radio Cambridgeshire to explore the real impact of bio-terrorism on the nation. In order to do this, they brought in Professor Tony Minson from the Division of Virology at Cambridge University and asked him the following:

War is now looming and many people are worried about this thing called smallpox because it's a virus which was apparently eradicated from the world something like 20 years ago. What is smallpox and are we right to be worried?

"It is a virus and it was actually eliminated about 30 years ago as a result of a mass vaccination project that the World Health Organization carried out globally. I guess we do have to worry about it as a bio-terrorism weapon but I think there's a lot of misunderstanding about it; I mean, it's been implied that one suicidal terrorist could infect themselves with some smallpox. It's thought for example that Iraq has it and a number of other countries may have it - we're just not sure where it is in laboratories, but people have said that one suicidal terrorist could infect themselves with smallpox and then travel round the underground in London or New York and start a massive new epidemic that would be completely out of control.



Professor Minson

"Now, it seems to me that is a sort of real risk but it shouldn't keep us awake at night. There was an outbreak of smallpox in 1976 accidentally from a laboratory in Birmingham - nobody knew that somebody was walking around with smallpox - they were unaware and we were an unvaccinated population. But actually, nobody else got infected."

So, how does it compare to, say, the flu or something like that?

"Well its clearly not as contagious as flu - if you get on the bus with someone with flu, you've got a fair chance of catching flu. But it seems as though smallpox is only infectious at the very end stages of the disease when somebody is very sick, and by and large, we have methods in place for controlling diseases like that."



Dr Chris Smith and Shwen Y Gwee from The Naked Scientists

measels; you get a fever and start to feel really sick with headaches and aching glands. Then the real symptoms in the end stages of the disease are when you get covered in large chickenpox-like spots which get bigger and then break and can become red."

I was vaccinated by smallpox when I was a baby, does that mean I'm still immune to it?

"Well, vaccination as a baby would mean that you're probably not totally immune. You are probably a little immune to it - generally, they say that a smallpox vaccination is valid for 10 years but then you should be re-vaccinated.

"The idea of not being able to control epidemics is not true. We can control an epidemic provided that we have public health surveillance methods in place, as in general we do for a lot of diseases, so you identify the individual, you identify their contacts, you isolate them and you vaccinate and you control the disease.

"So, I think as a bio-terrorism weapon, what we're talking about, is where someone grows a load of it and somehow sprays it into some underground area - but then you'd be talking really quite serious warfare where somebody can grow and dry and create large aerosols and that's a rather different game."

When people talk about bio-terrorism, many people think of anthrax but I think we try and reinforce the fact that anthrax is actually out there in the environment naturally isn't it?

"It is, it's in the soil, it's commonly associated with sheep and cattle and there are occasional infections in people who come into contact with hides and fleeces of sheep - it's not that uncommon a disease. Normally, however, it infects through the skin and you get so-called cutaneous anthrax which is not 'fast'. It can generally be identified and antibiotics can be given.

"The really dangerous form of the disease is so-called 'pulmonary' - this is where you breathe in spores. You have to breathe in something in the region of 10,000 spores to get infected and so once again, you need big doses and, I've heard this figure; if you had 50kg of anthrax spores and you released it two miles upwind of a big city, you might kill 100,000 people. Now, 50kg of spores would fill a removal van and growing it would be an industrial job; we're not talking about garden shed terrorism here, we're talking about really serious, industrial scale operations."

We've talked about smallpox and anthrax. Are there any other diseases that we should be more concerned about that are more contagious that terrorists could use?

"I don't think there are - that terrorists could use - not yet. Of course, there's always that worry as time goes on. But if we're talking about diseases that are already out there, what keeps *me* awake at night worrying about my kids and my future grandkids, is not what some terrorist might throw at them, but what's already out there - there's HIV out there, there's TB, malaria and the real danger is that we're so preoccupied with bio-terrorism that we stop worrying about the threats that are already out there.

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