

Worst- Case Scenarios, Bird Flu and Risk Perception

Interview with Peter Sandman Part 2

I studied Peter Sandman's risk communication videos during a tertiary diploma in risk management. I hadn't heard of him before that but as a student I was impressed by the breadth of his knowledge and the applicability of his basic outrage concepts.

In the second part of this exclusive interview Peter discusses the threat of bird flu, the importance of worst-case scenario planning and reminds us how lucky we are. Part 1 of the interview was in the previous edition of SAFETY AT WORK [Editor]

SAW: Your outrage equation has been out now for 20 years. Have you seen examples where companies or organisations have acknowledged its validity and have planned their actions to diminish the outrage or to avoid the whole issue?

PS: Absolutely. It has never been my position that if you do a good job of managing outrage you can let hazard go to hell. I am at pains to tell companies that if you have to choose between pissing people off

without killing them or killing them without pissing them off, you would be better off pissing them off because eventually killing people is very costly.

It's not as if companies are learning that if they manage outrage well they won't have to manage hazard well. Companies are learning that if they manage outrage well, people will notice when they manage hazard well. If they don't, people won't notice and will become increasingly outraged even about small hazards. I think there are more and more companies managing outrage well more and more often.

I am not the only one out there urging them to do that, either through the outrage/hazard model or some other model. Whatever the model, lots of companies have learned that doing a good job is half the job and being seen to be doing a good job is the other half. Neither half is dispensable. The essence of being seen to be doing a good job is not just doing the good job and boasting about it. It has to do with giving

away credit, it has to do with sharing control, it has to do with recognising and responding to peoples' voiced concerns.

I think these are things that are happening not just in the most hazardous industries, not just in the heavy industries but even in fields like railways and other customer-service fields. It's becoming clearer and clearer that a railway's reputation for on-time performance does not correlate very highly with on-time performance but it correlates quite well with what I call "outrage management" – whether you apologise when you're not on time, for example. You look at a bunch of railways and their on-time performance and their outrage management performance and their reputation and you do a regression analysis and reputation predicts the public's impression of on-time performance better than on-time performance does.

If your performance is terrible, the public figures that out even if you are

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managing outrage extremely well. And if your performance is decent but you manage outrage badly, it doesn't look decent because every time you are late, people get far more furious than they would be otherwise.

The same is true in hotels, where I spend most of my life. Hotel reputation is much more dependent on what the hotel does when you have a problem than on how often you have a problem.

SAW: If they fix a problem well you are more likely to go back.

PS: Yes - and if they are apologetic, and if they don't try to blame you, and they don't try to pretend it wasn't a problem. There are a variety of things that good hotels and good desk clerks do that make you like the hotel even if your breakfast was lousy and your king bed ended up being a double bed. There are other things desk clerks do that make that same situation intolerable.

SAW: "It was my head that got in the way of the phone you threw at me."

I had another look at your website this morning (www.psandman.com) and there were no trademark symbols. Recently one of your dialogues on your website was with someone who had expanded your equation with different elements and you said in response that the equation was more metaphorical than mathematical. In the safety field there are many people who promote services and concepts where the trademark symbol is everywhere, even on very generic concepts.

Why didn't you trademark this concept? Why didn't you promote this as a system – the Sandman System?

PS: I guess I have the soul of an extension agent. I was an academic before I was in business. I have been very lucky in business; I make as much money as I need. I have always been more motivated by

influence than by profitability. Now, I am 60 and I don't want to be doing this when I am 80. So the last thing I'd want to do now is trademark "Risk = Hazard + Outrage." I want to get it used as widely as possible, without my having to be out there flogging it for a fee.

I have a website that has hundreds of pages of information on it. It has every handout that I use in training. They are all copyrighted in an effort

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to stop people from changing them because I want them to get it right and I want them to give me credit. I have an academic's notion that it is really not nice to plagiarise but if you give me credit then God Bless. I want it out there. I want it used.

I obsess over use of my website. I check my website statistics at least once a day. I say to my wife "Look, someone from Lebanon has downloaded all my handouts!" I've never worked in Lebanon but I get really excited that a Ministry of Health or a university or a corporation in Lebanon – or anywhere – is spending

a lot of time on the website and coming back. I follow what they're reading and they come back a couple of days later and the next week there are three more URLs from the same company. "All right, they're getting it!" I didn't make a nickel but I didn't have to do anything. That's what I want.

Trademarking anything would conflict with my desire to have as much impact as I can.

SAW: I always respond better to people who provide information and say if you go with it, that's great, if you don't that's great too. But some just want to get the hook in.....

PS: I'm somewhere in the middle, I want to get my hook into you, I want to reel you in. I just don't especially want to make any money off you by working harder. I want acolytes. I want converts.

My focus has shifted over the last couple of years so that I am doing much more crisis communication. I'll sit there and read the new US pandemic preparedness plan or Singapore's new biohazard preparedness plan or I'll read the Australian one. I'll read it and wonder if I had any influence on this. I'll look for ideas and language. I'm not thinking "did they violate my copyright?" I'm thinking partly, are they moving in the right direction? Is the world going to be a safer place? But I am also thinking partly, did I help? Are my fingerprints on this? And I want them on it. That's ego. I want to help the world and I want to know I helped the world. I want to see my own impact.

SAW: I want to ask you about avian flu but I also wanted to talk about worst case scenarios. Lee Clarke of Rutgers University says that we need to be changing the way we see some crises so that we move from a probability model to one where we genuinely consider worst-case scenarios. I think that he is advocating a totally different way of anticipating crises.

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You talk about worst-case scenarios frequently. What do you see as worst-case scenarios and how functional and useful is it if we recognise them, plan for them and use them?

PS: The literal worst-case scenario almost never exists. If it did it wouldn't be sensible. You can pick any scenario and say all that plus there's an invasion from Mars at the same time, and now you have a worse one. Then you could say, all of that and it rains. If you take the phrase literally it doesn't make any sense at all. But what turns out to be very important both for planning and for implementation is the worst credible scenario, the worst scenario that isn't a reductio ad absurdum, isn't making fun of the idea of "worst-case scenario" but is meant to be

it's talked about.

The second point is one that is grounded in work by Daniel Kahneman and others on risk perception. Worst-case scenarios have two principal characteristics, they are very unlikely and they are horrible. It doesn't have to be unlikely, it could be horrible and not unlikely - but worst-case scenarios are almost always unlikely.

People have trouble thinking about very unlikely and horrible at the same time. They tend to focus on one and ignore the other. You either inflate the probability to the point where you feel good about taking precautions or you diminish the probability to zero, so you can feel okay about not taking precautions. What is very hard for people to do is to say: This is exceedingly unlikely and any precaution we take will

Precautions are possible and you have to decide whether they are worth it.

Another risk that is not quite so unlikely and not quite so horrible is that terrorists have smallpox and unleash it. Precautions are perfectly obvious; we vaccinate the whole population against smallpox. We have a smallpox vaccine but it has side effects. It can cause serious harm to 15 in a million people vaccinated. The smallpox itself kills about 1 in 3. So do the math. One in three is 333,333 in a million – versus 15 in a million. That's a factor of 22,222. If the odds of your getting smallpox if you're not vaccinated are one in 20,000, then, you're better off getting vaccinated. You don't have to think a smallpox attack is likely to think vaccination is a good investment.



serious.

One of my answers is: If it is serious enough that you have a contingency plan for it, then it is serious enough for the public to be told about it. And the public needs to be part of that planning process. If it's so bloody unlikely that you are prepared to shrug it off and not plan for it, you'll probably still need to talk about it in the end. Somebody's going to ask why you ignored that worst-case scenario, and you will need to defend your decision to shrug it off. You'll need to be prepared to say: If that happens we're naked. We decided it was too unlikely to be worth planning for. And then you'll need to debate that decision on the merits.

How bad a scenario you need to plan for is always debatable on the merits. What isn't debatable is that if it's bad enough to plan for, it's important that

almost certainly be wasted, but it is so horrible that it is still cost-effective to take precautions. That's a rational position but it is not a position that our minds hang onto very easily. But when you look at the universe of risks for which that is the right position, it is a very interesting universe.

Start with things that are exceedingly unlikely and exceedingly horrible. An asteroid hits the Earth. It is not impossible and it would destroy all life as we know it. We actually have a program to monitor asteroids that may come near, but we don't have one to deflect an asteroid that threatens us. At the moment, if an end-of-the-Earth asteroid happens, we'll know. We won't be able to stop it but we'll be able to "party" and prepare for the end.

The asteroid risk is exceedingly unlikely and extremely horrible.

In the US where this was an issue, public health establishments are dead set against smallpox vaccinations. The CIA wanted to do it and the public health people didn't want to do it - because the public health people considered 15 in a million side effects pretty serious. But when I asked a roomful of public health people – all of whom opposed smallpox vaccination – to estimate the probability of dying in a smallpox attack, they didn't come up with a smaller probability than one in 22,222. They came up with about one in a thousand. According to their own calculations, then, they should have wanted to vaccinate everyone in town. But they didn't.

They have converted one in a thousand to zero in their minds.

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They think precautions against a risk with a probability of only one in a thousand simply aren't worth taking. Statistically, that just isn't true when the harm done by the risk is more than a thousand times as bad as the harm done by the precaution.

Here's a third example. We now know that global warming is real. We don't yet know if it is going to be catastrophic. We know it might be catastrophic. And we know that by the time we know whether it is catastrophic; it will be too late to diminish greenhouse gas emissions. So that's right up there with smallpox vaccinations. If you think the chances are one in a hundred that global warming will be catastrophic, then that is a good enough reason to take precautions. But people don't think that way. Either they over-estimate the probability of a global warming catastrophe or they underestimate the wisdom of reducing greenhouse gases.

Greenpeace pretends that the chances of global climate catastrophe are high when they are not demonstrably high. They are demonstrably non-zero. Similarly, President Bush pretended that the chances that Saddam had weapons of mass destruction were high. They weren't high, they were demonstrably non-zero. People who are advocating precautions against low probability, high magnitude worst-case scenarios almost always have to pretend there is a higher probability than there is, because it is so hard for people to wrap their minds around the idea that a risk can be exceedingly unlikely and it is worth taking precautions anyhow.

In that context, there will be a flu pandemic, sooner or later. There have been three a century for the last three centuries and there is no reason to think we'll have fewer or more than this average in the coming century. It is, by the way, not periodic. Three a century doesn't mean every 33 years; sometimes two pandemics are only a few years apart, and sometimes they are many decades

apart. People who say we are overdue are not doing good science; it's a new roll of the dice every time.

Flu pandemics are not rare. Catastrophic flu pandemics are rare. We know of one for sure in 1918. But recent pandemics in 1957 and 1978 were both quite mild. They were serious public health events but most people don't remember them and many people didn't know they were occurring at the time. 1918 was cataclysmic.

H5N1 has similarities to the virus that caused the 1918 Spanish Flu pandemic. A significant number of virologists I talk to say intuitively, their hunch is that this is the "big one".

“If you really think there is going to be a severe pandemic, the first thing you are going to want to do is organise the earliest survivors, the people who get the flu and don't die, into delivery people. .”

This is 1918 again. Or at least they are saying, it looks like it could easily be the big one. It feels like it could be 1918 again. They are saying things now they haven't said a dozen times before.

On the other hand, there are some virologists, just as eminent as the first bunch, who are saying they might have felt that way in 1997 when H5N1 first showed up in Hong Kong. But it has been around for eight years now and it hasn't learned to do efficient human-to-human transmission yet. Their intuition is that if it were going to learn, it would have learned already.

What they have in common is that they are all speaking from intuition. They don't have good evidence, so usually they don't want to be quoted publicly. Some have an intuition that

there won't be an H5N1 pandemic. Some have an intuition that there will, but it'll probably be mild, as most pandemics have been mild. Some have an intuition that it's coming and it is going to be catastrophic. Some have no intuition at all, or won't say what their intuition is. And all of them know they don't know. This is not low probability, it is unknown probability. The probability that we will eventually have a flu pandemic is high. The probability it will be H5N1 is not known. The probability that if it is H5N1 it will look like 1918, instead of 1957 or 1968, is also unknown. If it is going to be 1957 or 1968, no precautions are appropriate except medical precautions. If you expect 1957, you might want to stock up on some Tamiflu, you might want to work on hospital surge capacity, and that's about it.

If you are expecting 1918, you really want to revolutionise your vaccine manufacturing capabilities so that you can do it fast. You really want contingency plans for keeping the soup kitchens operating, and the water treatment facility operating - keeping the infrastructure going. You really need a triage standard that allocates your anti-virals to the people who you need to keep alive rather than to those who are likeliest to die. The anti-virals aren't going to go first to immuno-compromised people. If it's going to be like 1918, they should go first to health care workers or cops. Or maybe they should go first to delivery people, who are incredibly valuable in a pandemic. They can supply everyone else who can stay home.

If you really think there is going to be a severe pandemic, the first thing you are going to want to do is organise the earliest survivors, the people who get the flu and don't die, into delivery people. Then they can deliver food and fuel and everything people need so that everyone else can stay home.

There are all kinds of things to be done to get ready for a severe pandemic and all of that

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preparedness is largely wasted if it doesn't happen. Nobody has any data on the probability of a severe pandemic. It happened once before in history we know of, 1918.

SAW: That previous event generated a greater state of knowledge about the hazard, and so we must be in a better position than then.

PS: In a community that has no anti-virals, prior to a vaccine that is for this particular virus being manufactured in large quantities, the main thing that we are better at than we were in 1918 is going to be dealing with secondary infections. In 1918 there weren't that many secondary infections, there was something called a "cytokine storm". Essentially the flu bug overcame the body's defences en masse,

more vulnerable than we were in 1918 to calamitous shortages if a pandemic slows transport to a trickle.

Assuming it is like 1918, the one area where we have a hope is that in 1918 by the time you knew a pandemic was coming the cat was very much out of the bag. There may be some lead time, I think, in optimal conditions ... and this is what optimal conditions look like. Say there is a human-to-human cluster in Vietnam. A bunch of nurses are getting it from treating patients, family members are getting it, the elevator operator in the hospital is getting it, you have a genuine cluster – not a dead-end cluster like the ones we have seen so far. There have probably been h-to-h transmissions of H5N1 but not yet h-to-h-to-h transmissions. So far they have been dead-ends. But if you start getting a real cluster, the best-case scenario is that the government

It requires more candour and better surveillance than we usually think we have. It requires better transparency than we think we have. It requires extraordinary generosity. It means that just when the First World is thinking a pandemic is actually on its way, instead of hoarding our Tamiflu for ourselves we decide to send a lot of it to Vietnam. What do you think the chances are of that?

SAW: We have to plan for that contingency, in hope, but would you criticise people who planned for failure?

PS: For failure of that? No, that's going to fail. You have to try but that is probably going to fail.

SAW: There's no backup. We tried that, it failed and that's the reality?

PS: By and large, the first world's governments are planning pretty well



and you didn't have a secondary infection. That's why 1918 killed healthy people. Flu usually kills the young and the elderly and the immuno-deficient. 1918 killed mostly the healthy. If this is like 1918, there won't be a lot of secondary infections.

Apparently, if it is like 1918, we are not that much better prepared. We may know a little bit more about hygiene but they knew about washing your hands in 1918. In some ways we're worse off. Our hospitals have as much demand on them as they did in 1918. Hospital surge capacity isn't a lot better than it was in 1918. Hospitals are better at doing things but their ratio of beds to population hasn't improved. And of course, transport is much quicker so the next pandemic will be a much faster moving catastrophe. Also, globalisation and just-in-time inventory policies mean we are much

sees it fast, the government tells WHO fast, and WHO mobilises real quantities of anti-virals fast. You essentially ring the outbreak and you treat everybody with anti-virals - not just the people who have it but the people who have had contact with the people who have it and the people who might have had contact. You simultaneously shut down the city. You don't let any planes fly; you don't let any donkey carts go. The people who have modelled this say you might stop it. It has never been possible to stop a pandemic before because we have never seen it in time and we didn't have anti-virals anyway.

We have a chance of stopping it. Nobody I know thinks that this last-ditch strategy is going to work. But everybody thinks we are going to have to try.

for a moderate pandemic. They're getting in pretty good shape for a rerun of 1957. No country is in decent shape for a rerun of 1918.

SAW: I can understand that at a government and planning level but individually, the public doesn't seem to have grabbed the severity of the threat.

PS: No. There's been progress. Tony Abbott (the Minister for Health) in Australia has been one of the best of the world's officials in being candid with the population. His willingness to speak his mind in this case has served his country well. There is a whole lot more understanding of the real possibility of a severe pandemic and what that would be like in the world now than there was two months ago. It is still only a

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small percentage of the population that gets it but that percentage is a hundred-fold increase on what it was a few months ago.

Some of the websites that are focused on the risk, like FluWiki, <http://www.fluwikie.com>, have seen a hundred-fold increase in their traffic. People are reading the newspapers; some of them grasp that this could be serious, hang onto the information and begin to do more investigation. Whether the snowball is now rolling downhill or whether the snowball rolled down the hill and is in the valley again, we don't know. It isn't clear to me that public concern is continuing to increase. It is clear that it increased massively in the last month but it may not increase further. We may need to wait for another spurt of interest, and be ready to capitalize on it when it arrives.

The reality that more and more governments are taking seriously is that if the worst happens soon we are not going to be ready. That is really horrible. The goal is for governments to admit that to their people, and then to add that here are some things that you can do now to get more ready than you would be otherwise. That's the goal. Five months ago the US Government thought that was the wrong goal. The US policy was we'll prepare inside the Government, but let's not frighten the public. Largely as a result of Katrina, they changed their mind. Now the US Government is acting much more like the Australian Government. The US public and the Australian public are much more concerned than previously. We don't know yet if we have had just a little bubble of interest, if we have had our 15 minutes of fame, and it's over.

SAW: Someone quoted you in an article. "People may think more about avian flu but they'll compensate for it by worrying less about something else." Do individuals have limited worry?

PS: Yes, because of the theory of risk homeostasis. People have a risk

budget. They know how much risk they want in their lives - they don't want more than that, they don't want less than that. They have a worry agenda. It's allocated however it's allocated. Sometimes some of it is unallocated and that takes the form of free-floating anxiety, which in some ways is harder on people than worrying about stuff.

It is well established that if you are heavily involved in a battle to get the nearby factory to reduce its emissions and pollutants and one day you discover that your 14-year-old daughter is on heroin, you don't go to the next bunch of meetings of

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the action group. You worry about your daughter and you're focused on what to do about your drug-addict daughter. That is as it should be.

In the short term when a new worry surfaces, you draw on a reservoir of latent worry, a reservoir of fearfulness that is not allocated, and is ready to be accessed for a very short term. Very shortly you settle into the "new normal".

I often talk to health departments who say that they don't want to scare people. I tell them they are not going to make people more fearful. You can't, except very briefly. They are as

fearful as they are. But the Christian Right wants them to be afraid of gay marriage. Greenpeace want them to be afraid of genetically modified food. You want them to be afraid of bird flu. It's a competition for their fearfulness. You try to increase your slice of the fearfulness pie. You're not going to increase the size of the pie, except very briefly. In a pandemic the pie will grow but even then it will grow only for a little while.

There are many more examples. After 9/11, telephone calls to anti-pollution hotlines plummeted. People were worried about terrorism; they didn't have time to worry about pollution. The use of seatbelts declined.

There is all the evidence in the world that people allocate their worry.

SAW: How can we raise people's awareness of bird flu without them seeing it simply as "this year's hazard"?

PS: It's hard. I think you do it through a series of jolts. The things that make people more worried about bird flu often aren't the things that the experts consider most relevant. In every country where birds have been found with bird flu the level of public anxiety and public preparedness has increased, temporarily at least. That increase doesn't make a lot of technical sense. If there is a flu pandemic, it doesn't matter where the pandemic starts, it'll get everywhere. Australians won't be more endangered when there are birds in Australia with H5N1 than they were before there were birds in Australian with H5N1. As long as there are birds in Southeast Asia with H5N1, every contact of an H5N1-positive bird with a human being is an opportunity to launch a pandemic - and it doesn't matter where the pandemic is launched.

Logically, one wants to say to people that it is not about the birds. If you're in the poultry business, it's about the birds. If you live in Melbourne, it's not about the birds. You're not going to get it from a bird; you're going to get

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it from somebody on the subway who got it from somebody, who got it from somebody who got it from somebody who got it from a bird. It doesn't matter where that first transaction happened.

That's what the science says. But every time H5N1-positive birds are discovered it reawakens public concern in that country, which is good. My sense is that it takes a series of jolts that raise the floor and each of them settles to a new, higher floor.

SAW: When people in safety say that they want to raise awareness, what they mean is they want to get their attention.

Safety managers are often juggling many different priorities to generate awareness. What is the path to sanity for managers?

PS: The reality is people today have less to worry about than ever before in history. We know we have food. We know we have sanitation. We are able to be worried about a bird flu pandemic that is a long shot because we really don't have to worry about typhus and cholera and a wide range of other diseases. The notion that modern man and modern woman are beset by hundreds of terrifying risks

is a self-indulgence.

The problem may be that we have become a little effete. The real, palpable, understandable risks in our lives have been coped with so well that our risk meter isn't calibrated well.

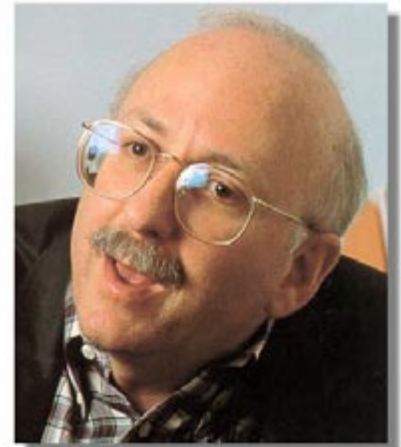
The notion that we are beset by risks that our grandfathers never faced is nutty. Our grandfathers led much more dangerous lives than we do.

Essentially what has happened is that we have replaced risks that were well understood, very local and extremely difficult to prevent with risks that are much less understood, global and amorphous. A farmer who used to be worried that his tractor would tip over and crush his leg is now worried that his flock is going to get bird flu, and I'm supposed to feel like that is not an improvement?

The risks are still real. And there are ways that high-tech global risks are emotionally different from low-tech local risks. Being afraid that your tractor will tip over, or more to the point that your harvest will fail and you'll have nothing to feed your family with, is different from being afraid of terrorists that you have never heard of, who will sow microbes you've never heard and will cause you to die in a way you've

never heard of. The second risk is a whole lot less likely than the first one but it has higher outrage.

There have been changes that are hard to cope with but it's not that our lives have become more risky. Our lives have become less risky; it's just that the risks that are left are harder to wrap our minds around.



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