

# Why we fail to prepare for disasters

A Blog by Tim Harford

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You can't say that nobody saw it coming. For years, people had warned that New Orleans was vulnerable. The Houston Chronicle reported that 250,000 people would be stranded if a major hurricane struck, with the low-lying city left 20ft underwater. New Orleans's Times-Picayune noted the inadequacy of the levees. In 2004, National Geographic vividly described a scenario in which 50,000 people drowned. The Red Cross feared a similar death toll. Even Fema, the Federal Emergency Management Agency, was alert: in 2001, it had stated that a major hurricane hitting New Orleans was one of the three likeliest catastrophes facing the United States.

Now the disaster scenario was becoming a reality. A 140mph hurricane was heading directly towards the city. More than a million residents were warned to evacuate. USA Today warned of "a modern Atlantis", explaining that the hurricane "could overwhelm New Orleans with up to 20ft of filthy, chemical-polluted water".

The city's mayor, Ray Nagin, begged people to get away. He was reluctant to make evacuation mandatory because more than 100,000 people had no cars and no way of leaving. The roads out were jammed, anyway. Thousands of visiting conference delegates were stranded; the airport had been closed. There were no emergency shelters. Nagin mooted using a local stadium, the Louisiana Superdome, as a temporary refuge — but the Superdome was not necessarily hurricane-proof and Nagin was warned that it wasn't equipped to be a shelter.

But then, the storm turned aside. It was September 2004, and New Orleans had been spared. Hurricane Ivan had provided the city, and the nation, with a vivid warning. It had demonstrated the need to prepare, urgently and on a dozen different fronts, for the next hurricane.

"In early 2005, emergency officials were under no illusions about the risks New Orleans faced," explain Howard Kunreuther and Robert Meyer in their book [The Ostrich Paradox](#). But the authorities did not act swiftly or decisively enough. Eleven months later, Hurricane Katrina drowned the city — and many hundreds of its residents. As predicted, citizens had been unable or unwilling to leave; levees had been breached in over 50 places; the Superdome had been an inadequate shelter. Surely, with such a clear warning, New Orleans should have been better prepared to withstand Hurricane Katrina? It's easily said. But as the new coronavirus sweeps the globe, killing thousands more people every day, we are now realising that New Orleans is not the only place that did not prepare for a predictable catastrophe.

In 2003, the Harvard Business Review published an article titled "Predictable Surprises: The Disasters You Should Have Seen Coming". The authors, Max Bazerman and Michael Watkins, both business school professors, followed up with a [book of the same title](#). Bazerman and Watkins argued that while the world is an unpredictable place, unpredictability is often not the problem. The problem is that faced with clear risks, we still fail to act.

For Watkins, the coronavirus pandemic is the ultimate predictable surprise. “It’s not like this is some new issue,” he says, before sending over the notes for a pandemic response exercise that he ran at Harvard University. It’s eerily prescient: a shortage of masks; a scramble for social distance; university leaders succumbing to the illness. The date on the document is October 12 2002. We’ve been thinking about pandemics for a long time.

Other warnings have been more prominent. In 2015, Bill Gates gave a TED talk called “The next outbreak? We’re not ready”; 2.5 million people had watched it by the end of 2019. In 2018, the science journalist Ed Yong wrote a piece in *The Atlantic* titled “The Next Plague Is Coming. Is America Ready?” Now we know the answer, and it wasn’t just the Americans who were unprepared.

Officialdom had also been sounding the alarm. The World Health Organization and the World Bank had convened the Global Preparedness Monitoring Board (GPMB), chaired by Elhadj As Sy of the Red Cross and Gro Harlem Brundtland, a former director of the WHO. The GPMB published a report in October warning of “a cycle of panic and neglect” and calling for better preparation for “managing the fallout of a high-impact respiratory pathogen”. It noted that a pandemic “akin to the scale and virulence of the one in 1918 would cost the modern economy \$3 trillion”.

Alongside these authoritative warnings were the near misses, the direct parallels to Hurricane Ivan: Sars in 2003; two dangerous influenza epidemics, H5N1 in 2006 and H1N1 in 2009; Ebola in 2013; and Mers in 2015. Each deadly outbreak sparked brief and justifiable alarm, followed by a collective shrug of the shoulders.

It is understandable that we have too few doctors, nurses and hospital beds to cope with a pandemic: spare doctors are expensive. It is less clear why we have so few masks, are so unprepared to carry out widespread testing and didn’t do more to develop coronavirus vaccines after the Sars epidemic of 2003, which involved a strain related to the current outbreak. (There was a flurry of activity, but interest waned after 2004.) We were warned, both by the experts and by reality. Yet on most fronts, we were still caught unprepared. Why?

Wilful blindness is not confined to those in power. The rest of us should acknowledge that we too struggled to grasp what was happening as quickly as we should. I include myself. In mid-February, I interviewed an epidemiologist, Dr Nathalie MacDermott of King’s College London, who said it would likely prove impossible to contain the new coronavirus, in which case it might well infect more than half the world’s population. Her best guess of the fatality rate at the time was a little under one per cent. I nodded, believed her, did the maths in my head — 50 million dead — and went about my business. I did not sell my shares. I did not buy masks. I didn’t even stock up on spaghetti. The step between recognising the problem and taking action was simply too great.

Nor did the broadcast of my radio interview with MacDermott on the BBC seem to spark much in the way of disaster planning. Psychologists describe this inaction in the face of danger as *normalcy bias* or *negative panic*. In the face of catastrophe, from the destruction of Pompeii in AD79 to the September 11 2001 attacks on the World Trade Center, people have often been slow to recognise the danger and confused about how to respond. So they do nothing, until it is too late.

Part of the problem may simply be that we get our cues from others. In a famous experiment conducted in the late 1960s, the psychologists Bibb Latané and John Darley pumped smoke into a room in which their subjects were filling in a questionnaire. When the subject was sitting alone, he or she tended to note the smoke and calmly leave to report it. When subjects were in a group of three, they were much less likely to react: each person remained passive, reassured by the passivity of the others.

As the new coronavirus spread, social cues influenced our behaviour in a similar way. Harrowing reports from China made little impact, even when it became clear that the virus had gone global. We could see the metaphorical smoke pouring out of the ventilation shaft, and yet we could also see our fellow citizens acting as though nothing was wrong: no stockpiling, no self-distancing, no Wuhan-shake greetings. Then, when the social cues finally came, we all changed our behaviour at once. At that moment, not a roll of toilet paper was to be found.

Normalcy bias and the herd instinct are not the only cognitive shortcuts that lead us astray. Another is *optimism bias*. Psychologists have known for half a century that people tend to be unreasonably optimistic about their chances of being the victim of a crime, a car accident or a disease, but, in 1980, the psychologist Neil Weinstein sharpened the question. Was it a case of optimism in general, a feeling that bad things rarely happened to anyone? Or perhaps it was a more egotistical optimism: a sense that while bad things happen, they don't happen to me. Weinstein asked more than 250 students to compare themselves to other students. They were asked to ponder pleasant prospects such as a good job or a long life, and vivid risks such as an early heart attack or venereal disease. Overwhelmingly, the students felt that good things were likely to happen to them, while unpleasant fates awaited their peers.

Robert Meyer's research, set out in [The Ostrich Paradox](#), shows this effect in action as Hurricane Sandy loomed in 2012. He found that coastal residents were well aware of the risks of the storm; they expected even more damage than professional meteorologists did. But they were relaxed, confident that it would be other people who suffered. While I realise some people are paranoid about catching Covid-19, it's egotistical optimism that I see in myself. Although I know that millions of people in the UK will catch this disease, my gut instinct, against all logic, is that I won't be one of them. Meyer points out that such egotistical optimism is particularly pernicious in the case of an infectious disease. A world full of people with the same instinct is a world full of disease vectors. I take precautions partly because of social pressure and partly because, intellectually, I know they are necessary. But my survival instinct just isn't doing the job, because I simply do not feel my survival is at stake.

The fact that the epidemic started in China, among ethnically Asian people, can only have deepened the sense of personal invulnerability in the west. As epidemiologist Neil Ferguson told the FT: "What had happened in China was a long way away, and it takes a certain type of person to take on board that this might actually happen here."

The virus started to feel real to Europeans only when Europeans were suffering. Logically, it was always clear that the disease could strike middle-class people who enjoy skiing holidays in Italy; emotionally, we seemed unable to grasp that fact until it was too late.

A fourth problem, highlighted by Meyer's co-author Howard Kunreuther, is what we might call *exponential myopia*. We find exponential growth counterintuitive to the point of being baffling — we tend to think of it as a shorthand for “fast”. An epidemic that doubles in size every three days will turn one case into a thousand within a month — and into a million within two months if the growth does not slow.

Donald Trump's boast, on March 9, that there had been only 22 deaths in the US, was ill-judged in light of what we know about exponential growth, but he is hardly the only person to fail to grasp this point. In 1975, the psychologists William Wagenaar and Sabato Sagaria found that when asked to forecast an exponential process, people often underestimated by a factor of 10. The process in that study was much slower than this epidemic, doubling in 10 months rather than a few days. No wonder we find ourselves overtaken by events.

Finally, there's our seemingly limitless capacity for *wishful thinking*. In a complex world, we are surrounded by contradictory clues and differing opinions. We can and do seize upon whatever happens to support the conclusions we wish to reach — whether it's that the virus is being spread by 5G networks, is a hoax dreamed up by “the Dems” or is no worse than the flu.

Both Robert Meyer and Michael Watkins made an observation that surprised me: previous near misses such as Sars or Hurricane Ivan don't necessarily help citizens prepare. It is all too easy for us to draw the wrong lesson, which is that the authorities have it under control. We were fine before and we'll be fine this time.

This, then, is why you and I did not see this coming: we couldn't grasp the scale of the threat; we took complacent cues from each other, rather than digesting the logic of the reports from China and Italy; we retained a sunny optimism that no matter how bad things got, we personally would escape harm; we could not grasp what an exponentially growing epidemic really means; and our wishful thinking pushed us to look for reasons to ignore the danger.

The true failure, however, surely lies with our leaders. We are humble folk, minding our own business; their business should be safeguarding our welfare, advised by expert specialists. You or I could hardly be expected to read Gro Harlem Brundtland's October Global Preparedness Monitoring Board report, and if we did, it is not clear what action we could really take. Surely every government should have someone who is paying attention to such things?

Margaret Heffernan, the author of [Uncharted](#), warns that the same mental failings that blind us to certain risks can do the same to our leaders. “We hang around with people like ourselves and if they're not fussed, we're not fussed,” she says. “Gro Harlem Brundtland lives inside a global health institution, so she cares. Most politicians don't.”

While politicians have access to the best advice, they may not feel obliged to take experts seriously. Powerful people, after all, feel sheltered from many everyday concerns. Heffernan argues that this sense of distance between the powerful and the problem shaped the awful response to Hurricane Katrina. Leaked emails show the response of Michael Brown, then the director of Fema.

One subordinate wrote: “Sir, I know that you know the situation is past critical. Here some things you might not know. Hotels are kicking people out, thousands gathering in the streets with no food or water... dying patients at the DMAT tent being medivac. Estimates are many will die within hours...”

Brown’s response, in its entirety, was: “Thanks for update. Anything specific I need to do or tweak?” That’s a sense of distance and personal impunity distilled to its purest form.

Sometimes, of course, the feeling of invulnerability is an illusion: in early March, the British Prime Minister Boris Johnson jovially declared that people would be “pleased to know” that he was shaking hands with everybody at a hospital tending to patients with coronavirus, and inviting people to make their own decisions about such matters. It was a shamefully irresponsible thing to say — but it also spoke volumes about his misplaced intuition that he could come to no harm. Within weeks, the story of Johnson had become a classical tragedy, the hero laid low by his own larger-than-life qualities.

We should acknowledge that even foreseeable problems can be inherently hard to prepare for. A pandemic, for example, is predictable only in broad outline. The specifics are unknowable. “What disease? When? Where?” says Heffernan. “It’s inherently unpredictable.”

The UK, for example, ran a pandemic planning exercise in October 2016, dubbed “Exercise Cygnus”. That forethought is admirable, but also highlights the problem: Cygnus postulated a flu pandemic, perhaps a strain of the H1N1 virus that killed tens of thousands in 2009, and many millions in 1918. Covid-19 is caused by a coronavirus instead, a relative of the Sars-Cov strain from the 2003 outbreak. Some of the implications are the same: we should stockpile personal protective equipment. Some, such as the danger of flu to young children, are different.

In any case, those implications seem broadly to have been ignored. “We learnt what would help, but did not necessarily implement those lessons,” wrote Professor Ian Boyd in *Nature* in March. Boyd had been a senior scientific adviser to the UK government at the time. “The assessment, in many sectors of government, was that the resulting medicine [in terms of policy] was so strong that it would be spat out.”

Being fully prepared would have required diverting enormous sums from the everyday requirements of a medical system that was already struggling to cope with the nation’s needs. The UK’s National Health Service was short of staff before the crisis began, seems to have had woefully inadequate stores of protective equipment for doctors and nurses, and has long pursued a strategy of minimising the use of hospital beds.

It’s this quest for efficiency above all else — in the NHS, and modern organisations in general — that leaves us vulnerable. The financial crisis taught us that banks needed much bigger buffers, but few carried the lesson over to other institutions, such as hospitals.

“On a good day, having 100 per cent of your intensive care beds in use looks efficient. The day a pandemic strikes is the day you realise the folly of efficiency. You’ve got to have a margin,” says Heffernan.

These margins are hard to maintain, though. In 2006, Arnold Schwarzenegger — then governor of California — announced an investment of hundreds of millions of dollars in medical supplies and mobile hospitals to deal with earthquakes, fires and particularly pandemics. According to the Los Angeles Times, emergency response teams would have access to a stockpile including “50 million N95 respirators, 2,400 portable ventilators and kits to set up 21,000 additional patient beds wherever they were needed”. It was impressive.

But after a brutal recession, Schwarzenegger’s successor, Jerry Brown, cut the funding for the scheme, and the stockpile is nowhere to be found. Brown isn’t the only one to look for something to cut when funds are tight. Managers everywhere have long been promoted on their ability to save money in the short term.

I spoke to a friend of mine, a senior NHS consultant who had contracted Covid-19 as he tended his patients. Recovering in self-isolation, he reminisced about the days that he was told to find cuts of five to 10 per cent — and the fact that his hospital was no longer providing coffee for staff meetings as a cost-saving exercise. That seems like a memo from another era — but it was just a few weeks ago. As the cost-saving measures were being introduced in the UK, Italians had started to die.

The pandemic has offered us few easy choices so far. Nor are there many easy answers to the general problem of preparing for predictable catastrophes. It is too tempting to look at a near miss like Hurricane Ivan or Sars and conclude that since the worst did not happen then, the worst will not happen in the future. It is tempting, too, to fight the last war: we built up reserves in banking after the financial crisis, but we did not pay attention to reserve capacity in health, vaccine production and social care.

Preparedness is possible. Margaret Heffernan points to Singapore, a tiny country with front-line experience of Sars, acutely aware of its geographical vulnerability.

“The foresight unit in Singapore is the best I’ve ever encountered,” she says. “There are serious people working through very serious scenarios, and there’s a diversity of thinking styles and disciplines.”

Serious scenarios are useful, but as the UK’s Exercise Cygnus demonstrated, serious scenarios are no use if they are not taken seriously. That means spending money on research that may never pay off, or on emergency capacity that may never be used. It is not easy to justify such investments with the day-to-day logic of efficiency.

Singapore isn’t the only place to have prepared. Almost four years ago, philanthropists, governments and foundations created the Coalition for Epidemic Preparedness Innovations. Cepi’s mission is to support and develop technologies and systems that could create vaccines more quickly. While the world chafes at the idea that a vaccine for the new coronavirus might take more than a year to deploy, such a timeline would have been unthinkable in the face of earlier epidemics. If such a vaccine does arrive within a year — there is no guarantee it will arrive at all — that will be thanks to the likes of Cepi.

Still, we are left wondering what might have been if Cepi had existed just a few years earlier. In October 2019, for example, it started funding vaccine “platform” technologies to enable a more agile, rapid response to what it called “Disease X... a rapidly moving,

highly lethal pandemic of a respiratory pathogen killing 50 [million] to 80 million people and wiping out nearly 5 per cent of the world's economy". That's preparedness; alas - Disease X may have arrived just a little too soon for the preparedness to bear fruit.

And what of New Orleans? In the summer of 2017, it was underwater again. A vast and expensive system of pumps had been installed, but the system was patchy, under-supplied with power and unable to cope with several weeks of persistent rain. It does not inspire confidence for what will happen if a big hurricane does strike.

Robert Meyer says that while the city has learnt a lot about preparation, "Katrina was not close to the worst-case scenario for New Orleans, which is a full category-five storm hitting just east of the city".

The same may be true of the pandemic. Because Covid-19 has spread much faster than HIV and is more dangerous than the flu, it is easy to imagine that this is as bad as it is possible to get. It isn't. Perhaps this pandemic, like the financial crisis, is a challenge that should make us think laterally, applying the lessons we learn to other dangers, from bioterrorism to climate change. Or perhaps the threat really is a perfectly predictable surprise: another virus, just like this one, but worse. Imagine an illness as contagious as measles and as virulent as Ebola, a disease that disproportionately kills children rather than the elderly.

What if we're thinking about this the wrong way? What if instead of seeing Sars as the warning for Covid-19, we should see Covid-19 itself as the warning?

Next time, will we be better prepared?

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