

Bird Flu: A Worst-Case Scenario

By an anonymous Australian physician

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A 'Concerned Intensivist' paints a hypothetical picture of how our hospitals would cope with an outbreak of bird flu:

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Oh dear. The bird flu experts tell us not to worry, these people sit in a lab, they don't tend the sick, and as a clinician, an intensivist who will be at the coal face when it all happens, I'm a little more circumspect.

We are told that medicine is a whole lot better than in 1919 and this is undoubtedly true, in 1919 you stayed at home, the doctor came to you and then if his ministrations proved ineffective the undertaker came to take your corpse away. Only the poor and the indigent went to hospital. We are told that when the next pandemic occurs (and one will occur, if not with H5N1, then with another strain) that with the combined miracles of improved medical care, modern pharmaceuticals and the discipline of intensive care medicine will result in the carnage being much less. I'm afraid being at the coal face of intensive care medicine I can't share their optimism.

Let's look at this from a logistic point of view, and use Melbourne as a case study. Victoria has around 350 to 400 intensive care beds, most of these are in Melbourne (but then so is most of the population) and most (but not all) are in the public system. Now, in the event of a pandemic, emergency departments will be flooded with all and sundry, all clamouring for anti viral medication, antibiotics for the accompanying bacterial infections and climbing over one another to get their loved ones into the few intensive care beds that exist.

Intensive care is known in the business as Expensive Scare. It costs the price of a small used car to keep one patient in one bed for one 24 hour period. Three nurses are required to provide the one-on-one nursing care that is required over the day's three shifts (in desperate times bought on by a pandemic, 12 hour shifts will probably become necessary). The patient will be supported by an extensive array of technology, of which there is a finite supply. Let us assume for the exercise that we see the same 50% infection rate as we saw in 1919 with a 1% fatality rate (supposedly less than in 1919).

In Melbourne that means two million people with the flu and of those two million, 20,000 Melburnians will be casualties of the pandemic. Over a six month period that's 100 a day. Which means on average each day of a six month pandemic 100 people will die. Makes the road toll look rather insignificant. Each of those 100 will be desperately sick and will require an ICU bed if they are to have any hope of survival.

Fifty of these will be oldies in a nursing home, no big deal. These people mean a great deal to their relatives but not a lot to Rupert and Kerry or the person in the street so there will not be a great deal of community focus on what has taken place. The other 50 will make it to hospital. Now Melbourne runs at 90%+ ICU bed occupancy. This means of your 350 beds, the most you have available is 35 beds (and that would be a really good day).

All those people with complications of trauma, of cancer chemotherapy, with life threatening infections, with surgical misadventures, they will still be there. So of your 35 beds you take the most deserving of the 50. The other 15 die in the Emergency Department. Now the average stay in ICU will be five to seven days so these beds are gone for a week and there are none left. You might free up another 10 to 20 by early discharge of existing patients or early withdrawal of therapy in the case of the hopeless. The beds in the private sector are probably going to be off limits for the first 24 to 48 hours before the government takes steps to co-opt them.

Now the next day another 50 turn up. There are 10 beds left. 10 get in, three from the day before die, making room for three more and so only 37 more snuff it in ED.

Day three of the pandemic: 50 more grannies shuffle off this mortal coil in the nursing home. Nursing homes are now getting rather empty. 50

otherwise reasonable, probably young members of society die on trolleys in ED. This will cause a reasonable degree of concern in the community. By now Rupert has realised that Kerry is in mortal peril (after all he is immuno suppressed following a renal transplant, and his recourse to a private hospital ICU bed has just been subsumed by the government) and a large run starts on PBL shares.

Day four: By this time the great unwashed are starting to realise that infrastructure does not exist to meet their needs. They will be getting very, very restless. The government starts to act. There are simply not enough ICU beds, not enough ICU nurses, not enough ventilators, not enough machinery to deal with the disaster that is developing. The clinicians are told don't admit anyone over 50 to ICU, and think very, very carefully about only taking non-smoking 40-year-olds.

Day five: All of us intensivists and ICU nurses are on Tamiflu, but many are actually sick, some will die. The age limit for ICU admission is now 30 and non-smokers are the only ones even looking like getting into an ICU bed. Everyone else gets a generous dose of morphine in ED and the relatives are asked to take them home. The riots start happening about now.

That's just those who are obviously super sick. With death rates of 1% and 100 dying per day this means that at least five times (probably ten times) that many will warrant ICU admission. This means that saturation point will be reached in six hours, not four days. The whole process is simply accelerated. And that is with only a 1% fatality rate, the current reported rate for H5N1 influenza in humans is 50%, but there are probably a huge number of lesser infections that go unnoticed.

Let's be generous and reduce the fatality rate by an order of magnitude, to 5%, and we have 500 Melburnians dying daily for six months.. An MCG full of dead people. Any way you look at it, it's all too awful to contemplate. Yes, modern intensive care medicine can reduce the mortality from virtually every serious illness, but in ones or twos, not in the tens of thousands that will be required.

And for the moderately sick, hospital may not be such a good idea either. Remember that survey that showed 14,000 Australians die each year from medical mistakes? In this scenario there will be a lot more pressure on a very sick system. A lot more people will come to grief. In recent years most

Australian hospitals have instituted a system called MET or Medical Emergency Team.

When a patient gets seriously unwell the MET team is called and attempts are made to rapidly stabilise the patient and get things back on track before a disaster occurs. The staff on the MET are by and large drawn from the staff of the ICU. The MET teams do no more than what I was expected to do as a resident, apply meticulous attention to detail and stop patients from getting sicker. These days our junior doctors and nurses seem less willing to put in the 100 hour weeks that we had to in order to accomplish this.

In addition, in the bad old days each unit or team had its own ward. The staff all knew each other and each ward only dealt with a subset of conditions dictated by its particular speciality. The more experienced nursing staff played a very big role in the ongoing education and development of a junior doctors skills (I went so far as to marry one of the nurses most influential in converting me from an arrogant little shit into a rounded human being). The bean counters in the 80s and 90s realised that the surplus beds created all over the hospital by this system were an appalling waste. They were cut.

Patients now go into any bed anywhere. Surgical patients on medical wards, medical patients on orthopaedic wards (one of my regional colleagues is fond of quipping the best thing about getting sick on the orthopaedic ward is that you are close to the hospital), orthopaedic patients on the children's ward. It's bedlam. Nursing staff no longer get to hone their skills on a small number of conditions but now know less and less about more and more. Junior doctors from Gen Y, who treat their 35 hour week as a right, spend most of their days travelling from ward to ward trying to track down all of the patients under their care. Very little time is left for them to develop the trust and team bonding that is required for them to work at their best or care appropriately for their patients.

Hence the MET team and courses run by the College of Surgeons like CCrISP, Care of the Critically Ill Surgical Patient, devised to help redress just these problems. Those wasted beds are starting to look more like a long term investment in medical training that has been squandered. This is not a system that is going to cope very well with a health crisis of such proportions.

And don't bother calling the MET team during the pandemic, we're going to be a wee bit busy with all those fulminant influenza pneumonias.