

In Extensive Interview of June 2, 2006 Physician Preparedness Expert Finds U.S. Hospitals Totally Unprepared For Pandemic

TRANSCRIPT OF JUNE 2, 2006 INTERVIEW

A Feature of Health Business And Policy
James Unland, Executive Editor

Note: the full actual audio of this interview and other materials relevant to Dr. Toner's organization can be found on the web site: (www.healthbusinessandpolicy.com/TonerInterview.htm)

Background and Introduction

Unland: We've been joined by Dr. Eric Toner, a Senior Associate of the Center for Biosecurity. Doctor, thank you for taking a few minutes with me.

Dr. Toner: It's my pleasure.

Unland: Just very briefly, what are some of the Center's activities? What do you all do?

Dr. Toner: The Center for Biosecurity of the University of Pittsburgh Medical Center was originally founded in 1997 at Johns Hopkins University as one of the country's first think tanks on Biosecurity and bioterrorism. Of course, the center has grown in not only staff but in mission following the anthrax attacks in 2001 and has grown further in the course of the last two years as we tackle the issue of avian and pandemic flu in addition to our original mission of bioterrorism response and defense.

Unland: It is correct to say that you introduce or issue your own reports as well as testify before Congress and other government agencies?

Dr. Toner: Yes, that is true, we do primarily policy research and analyses much of which we use to inform the various parts of the federal government. We do a lot of testimony before Congress. We do even more briefing of Congressional staff and briefing and consulting with the federal agencies as well. We also try to tackle what we think are really the hard issues in the field and often bring together key experts and thought leaders to try and solve some of the thorniest problems.

Unland: And I've been told that you yourself, among others there, have spent some time on the possible avian flu pandemic. Is that correct?

Dr. Toner: That is correct. And we have had a particular focus on the issue of hospital preparedness for pandemic flu.

H5N1 Is Not 'The Flu' As We Know It...Far From It

Unland: The virologists I have talked to are convinced that this has become aerosolized; the ones I've talked to are convinced that it has definitely gone human-to-human in Indonesia.

Dr. Toner: Well, it surely has. There is no doubt about that.

Unland: And the way it spread is by being aerosolized?...by sneezing, touching, that sort of thing?

Dr. Toner: Exactly.

"This disease as it exists now, the avian flu virus, causes severe pneumonia in the vast majority of the patients who get it. And almost all of these patients have required supplemental oxygen as well as fairly intensive care at some point during their illness...and this cannot be provided at home. This is not a matter of chicken soup and Tylenol."

Unland: It is not necessarily floating around in the air, in the water tanks and so on?...it is mainly through touch, sneezing and direct transmission, Doctor?

Dr. Toner: It is transmitted largely by droplets when you cough or sneeze. These droplets drop to the ground typically in a distance of about three feet. So these are not viral particles that float through the air. Walking by somebody casually is not likely to get you sick. It generally requires close proximity, less than three feet.

Unland: If a significant number of people is infected, based on what we know, is it conceivable that a lot of these people, or most of them, could be quite seriously ill. By that I mean possibly needing interventions that require a hospital?

Dr. Toner: I think in that case—in the scenario in which the current avian flu virus, the H5N1 virus, grows into a pandemic virus—the health consequences would be just phenomenal. Huge numbers of people will require inpatient care and intensive care and the numbers would far exceed our capacity to care for them.

Unland: You alluded before to the assumption that home health care is not necessarily conducive to the severe symptoms in this. Is that because of its attack on the lungs?

Dr. Toner: Yes. This disease as it exists now, the avian flu virus, causes severe pneumonia in the vast majority of the patients who get it. And almost all of these patients have required supplemental oxygen as well as fairly intensive care at some point during their illness...and this cannot be provided at home. This is not a matter of chicken soup and Tylenol. This requires, in many cases, the most sophisticated care we have.

Unland: Is it required that somebody might end up in an ICU or on a ventilator for several days or weeks? What are we talking about here in terms of a profile of a case?

Dr. Toner: Certainly it is likely that many people who are infected with this virus would be severely ill and will require intensive care, would be on mechanical ventilation, and this is not care that can likely be provided outside of a hospital setting.

Unland: So this attacks bodily systems that require major intervention, ventilators taking over a person's breathing and major assistance? Is that correct so far?

Dr. Toner: That is correct.

Unland: And that kind of assistance in a hospital setting, and I know I am putting you on the spot, but let's say a middle aged person who is otherwise fairly healthy, are we talking about a few days of that intensity, or a week, or longer?

Dr. Toner: They would probably be on a ventilator for ten days or so and in the hospital for several weeks. Those who don't succumb to the illness would be recuperating at home for probably months. It certainly would be very different from the kind of flu that many people have experience from year to year. This is a very different kind of illness.

Unland: Actually the word "flu" sounds very deceptive.

Dr. Toner: I really wish we had a different word for this because this is so different from what we normally think of. This is an entirely different disease than the seasonal flu.

Is the Government's Risk/Impact Analysis Flawed?

Unland: Can I just ask you to clarify some statistics and basic information to the extent that you are able to?

Dr. Toner: Sure.

Unland: The impression I have is that the avian flu thus far in humans has been highly lethal...meaning above a 50% death rate. On the other hand, the United States Government and some others are predicting that the death rate if one hundred million people in the United States get it is about 2% to 3%. How do we get from a 50% to 60% death rate to 2% or 3%? Is that assuming that more anti-viral interventions will be available? Is that assuming that a lot of interventions with ventilators and other types of care will be available? It seems like a big jump to go from a 50% to 60% death rate of basically hemorrhagic pneumonia down to 2% or 3%. I must be missing something.

Dr. Toner: No, you are not really missing anything. And what you say is absolutely true. Currently, those people who have been infected with the H5N1 virus have had a case fatality rate in excess of 50%. And that has been consistent across the world. The pandemic planning that has gone on in this country has been based on the 1918 pandemic, which was the worst pandemic of the last century. In that pandemic, the case fatality rate was roughly 2.5%. And until recently, the government had actually been using the 1968 pandemic, which was the mildest pandemic on record as their model. So moving the government in planning from a 1968 model to a 1918 model was actually, we think, a major step forward.

Unland: But Doctor, I have to ask...why is the government using a death rate from a flu that occurred a hundred years ago?...it was a different flu, a different situation, instead of using the factual data that they have in front of them? I mean, you indicate that the 1918 death rate was about 2%...the death rate we are now confronted with is 50% or 60%. Isn't it possible that this could actually be a lot worse than the 1918 situation?

Dr. Toner: You are absolutely right. A 1918-like pandemic is far from the worst case possible. And a pandemic with this virus could certainly be worse than that, worse than 1918.

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Why Hospitals Could Be Overwhelmed During The First 'Year of Maximum Exposure'

Unland: Is it fair to say, Doctor, that the utilization of hospitals for example, would depend on a couple of factors, one being how quickly a vaccine could be developed and a possible second factor, how quickly an anti-viral intervention could be developed? Are those big factors in hospital utilization during a pandemic?

Dr. Toner: Well certainly, if there were a vaccine that was available at the beginning of a pandemic, utilization of hospitals would be cut dramatically but that's, I think I can say categorically, not going to happen. For the simple reason that you cannot make a pandemic vaccine before the pandemic starts because you can never know what the pandemic strain is going to be. Right now we have produced a trial vaccine against H5N1, which the government is stockpiling in limited amounts. We know that that vaccine is not a good match for the virus that is spreading already, and may provide relatively little protection against that virus. And whatever virus emerges as the next pandemic strain, we won't be able to predict what it will be like. All of the vaccine will have to be produced. First of all, it would have to be designed, manufactured and then produced after the pandemic starts. And that is a process that takes many months. It takes months to design a trial vaccine. It takes months to test it. And then it takes many more months to produce it in quantities that would provide vaccination for a significant number of people. It would probably take a year.

Unland: Yes sir, and is it also correct to say there is a lead time in terms of anti-virals?

Dr. Toner: That issue is a little bit different. Right now there is enough Tamiflu to protect 3% to 4% of the world's population and a very small portion of the U.S. population, and there is limited manufacturing capacity for Tamiflu. That is a temporary problem as I see it. What I think is a bigger problem with Tamiflu and any other anti-viral, for that matter, is the issue of resistance {*editor's note: he refers to the increasing ability of the virus to 'resist' an antiviral, much as some bacteria acquire the ability to 'resist' antibiotics*}. Although there is not a huge problem with Tamiflu resistance right now, it is likely that resistance will develop during the course of a pandemic. I think anti-virals will be important; having as much of them available is important, but I wouldn't put all of our hopes on anti-virals as something that would prevent the overwhelming flood of patients that would come to hospitals.

Unland: I am interpreting some of your remarks to mean that there is what I would call a "maximum exposure period" of anywhere from several months to a year in which the availability of vaccine and other interventions is limited. Is that a fair statement?

Dr. Toner: Yes, I think that is a fair statement. I think the first year or so following the start of a pandemic is going to be a terrible challenge. After that I think that vaccines will be available and a large percent of the population will already have been exposed to the virus. I think the first year of the pandemic would be a major, major challenge.

"It is reasonable to assume that over the course of that first year, somewhere between one-quarter and one-third of the population would be infected... I think one can say if there is a pandemic with this particular virus, large percentages of people will be sick, you know, severely ill."

Unland: Has anyone modeled the likelihood of infection during that first year? I know that the amount, one hundred million people, has been tossed around, but I am not sure if that is within some specific time frame of just over the life of the whole pandemic.

Dr. Toner: The general assumption is that about 1/3 of the population will become infected with the pandemic strain. It is reasonable to assume that over the course of that first year, somewhere between one-quarter and one-third of the population would be infected, would be sick.

Unland: So, just statistically, going back to that first "year of maximum exposure," let's say that maybe one-fifth of the population gets this which is about sixty million...the majority of those could be quite seriously ill?

Dr. Toner: I think one can say if there is a pandemic with this particular virus, large percentages of people will be sick, you know, severely ill.

Unland: Again, we are talking about this first year, maximum exposure. I am hearing that if sixty million people acquire this, which is one-fifth of the population as apposed to one-third, and let's say that even 10% of those require ventilators...that's six million people.

Dr. Toner: That's correct. And in fact...

Unland: If you think that half of the infected people might require intensive care, that's thirty million people.

Dr. Toner: Yes, that's exactly true...

Unland: Are some professionals, are these numbers so disturbing that some professionals are basically...it sounds like these numbers are even afraid to be talked about in some circles.

Dr. Toner: Yes, I think that is true. I think particularly the government does not want to talk about these numbers. They have issued planning assumptions, but they don't really spell out what those assumptions lead one to conclude. But you are absolutely right. The numbers are truly frightening and far exceed our ability to care for those numbers of patients.

Tiny Fraction of Required Hospital Resources Exists

Unland: Going to your issues and your organization's papers regarding hospitals including the testimony, I can totally understand why you are pointing out that the hospital system, to put it mildly, could be overwhelmed by this and probably in its present state doesn't have anywhere near the capacity for this. Is that correct, or am I exaggerating?

Dr. Toner: No, you are not exaggerating at all. I think it is true that the U.S. healthcare system would have great difficulty

handling even the mildest of pandemics at this point. The 1968 pandemic which was the mildest one on record still produced a significant number of patients...and in our health care system, we have reduced our surge capacity—our excess capacity—tremendously over the last several decades as the way of increasing efficiency. We have reduced the number of hospitals, we have reduced the number of hospital beds, we have reduced the number of emergency departments, we have turned semi-private rooms into private rooms...and all of this reduces our ability to cope with a spike in the number of patients. We have also gone from having stockpiles of supplies and medicines to "just-in-time" supply chains across the board in our society and particularly in our health care system. So, no hospital has a stockpile of even basic antibiotics, gowns, gloves or masks. Few hospitals have more than just a few days of those items on hand. So in the setting of a pandemic where these items will become scarce, they are likely to run out in many places.

Unland: Doctor, if hospitals have masks, and gowns and so on, are their workers, are the hospital workers able reliably to protect themselves against this virus? It sounds like in some context, a hospital could potentially be a very dangerous place to work.

Dr. Toner: That is absolutely true. We think that the lack of staff is going to be the single biggest problem for hospitals in a pandemic. Not only will the staff become sick at a higher rate than other people in society because they will be more exposed to the disease, but they will be home taking care of their families, and they will be afraid to come to work, you know, quite rightly. It is reasonable to think that with the use of proper masks, gowns, gloves and infection control procedures that health care workers can be protected, but they need to know that there is an adequate supply of these items, they are adequately trained, there are systems in the hospital to protect them in order for them to feel safe coming to work. That is key.

Unland: Is the science of this such that with the proper protection—if money were no object—and hospital workers wore the right kind of gowns and other protective gear, that that could provide a fail-safe mechanism to keep the virus away from the workers themselves while they are taking care of patients or is this virus so pernicious that there is no guarantee?

"I think particularly the government does not want to talk about these numbers. They have issued planning assumptions, but they don't really spell out what those assumptions lead one to conclude. But you are absolutely right. The numbers are truly frightening and far exceed our ability to care for those numbers of patients."

Dr. Toner: There is never any guarantee, but I think that we can say that with proper infection control, backed with proper supplies and equipment, health care workers can be quite safe.

Unland: Well, Doctor, we have talked quite a lot about the exposure to the hospital industry. I am assuming that the hospital industry is fully aware of this and are the hospital industry and organizations like yourselves trying to wake the federal government up to the scale of this potentially?

I don't know how many ventilators there are in hospitals in the United States now and how many ICU beds, but I don't think there are six million and certainly are not thirty million.

Dr. Toner: Well, the answers to your questions are there are 105,000 ventilators in this country and approximately 87,00 ICU beds in this country. I would say hospitals are not acutely aware of this problem for the most part. I think many hospitals who struggle every day just to keep their doors open have really not taken this problem on. They feel, I think, that it is beyond their reach. That it is just too large a problem. They cannot imagine how they could cope and so they are burying their heads in the sand. I think the CDC and other federal agencies are doing the same thing. They have no authority over hospitals. Hospitals are regulated by individual states. And so they really don't know how to engage the hospital community either. And frankly, they do not know what to do about it.

Unland: It does sound like the American Hospital Association knows, and if not totally aware, is at least much more aware of the exposure here and are trying to talk to the feds about this.

Dr. Toner: Well, I think there are a number of organizations right now that are trying to ring bells and flash lights, trying to bring attention to this issue. But, so far, and to this point, there has been almost no realistic preparedness on the scale that is necessary in hospitals. I think it is fair to say that there is no hospital that is prepared for a 1918-like pandemic and as you noted earlier, that may not be the worst-case scenario. A pandemic with the H5N1 virus could be certainly worse than that. Right now, I would be happy if all hospitals would be prepared for a mild pandemic. We have a long, long way to go.

Unland: One of the most potentially unnerving aspects of all of this seems to be that without proper preparation, by the time this does hit and that first year of maximum exposure is encountered, it would be very difficult to ramp up on any type of scale. Another way of putting that, is it correct to say that if this hits without proper planning, it's too late?

Dr. Toner: Yes, I think that is absolutely true. You cannot make this up on the fly. You can't create surge capacity. If we haven't prepared ahead of time we will be stuck with whatever we have when the pandemic starts. And so, if we have not stockpiled personal protective equipment, if we have not stockpiled basic medications, forget Tamiflu...we need to stockpile antibiotics. We need to stockpile IV lines, just basic supplies that hospitals go through every day. And this is going to be an expensive proposition and hospitals are cash poor. A third of hospitals are estimated to be losing money and the rest, for the most part, are just breaking even. They don't have the million dollars or more that it will take for each hospital to be minimally prepared for a pandemic.

Unland: There is no question about that. The average operating margin is about 1%.

Dr. Toner: Exactly.

Unland: We have been talking with Dr. Eric Toner, a Senior Associate of the Center for Biosecurity. Doctor, I want to thank you for your time. I hate to say it but I think we will be visiting again, and I want to thank you for taking the time with me.

Dr. Toner: Well, you are very welcome. It has been my pleasure.

“... there are 105,000 ventilators in this country and approximately 87,00 ICU beds in this country. I would say hospitals are not acutely aware of this problem for the most part. I think many hospitals who struggle every day just to keep their doors open have really not taken this problem on. They feel, I think, that it is beyond their reach. That it is just too large a problem. They cannot imagine how they could cope and so they are burying their heads in the sand. I think the CDC and other federal agencies are doing the same thing.”

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