

Munich Health Security Conference
Bill Gates
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Thank you, David. And it's great to be here.

Your Excellencies, ladies and gentlemen.

When 20 years ago I decided to make global health the priority for our philanthropic work, I didn't think that I'd be speaking at security policy conferences. But I'm here today because I believe our worlds are incredibly tightly linked, far more than most people realize.

One example of that is the work that we've done on eradicating polio. It's really an amazing story of progress. Of the 125 countries where polio was endemic, 122 countries have gone over 3 years with no disease. Only Afghanistan, Pakistan, and Nigeria have never been polio-free. And it's no coincidence.

War zones and other fragile state settings are the most difficult places to eliminate epidemics or provide even the most basic healthcare. This is also where we see epidemic starting. For example Ebola in Sierra Leone and Liberia and cholera in the Horn of Africa. So, to fight pandemics, to improve health we have to uplift incomes and we have to have stability.

We also face a new threat that the next epidemic has a good chance of originating on the computer screen of a terrorist intent on using genetic engineering to create a synthetic version of the smallpox virus or a contagious and highly deadly strain of the flu.

So the point is that we ignore the strong link between health security and international security at our peril.

Whether it occurs by a quirk of nature or at the hand of a terrorist, epidemiologists show through their models that respiratory-spread pathogen would kill more than 30 million people in less than a year. And there is a reasonable probability of that taking place in the years ahead.

It's hard to get our mind around a catastrophe of that scale, but it has happened. In 1918, a particularly virulent flu strain called the Spanish flu killed over 50 million, more than World War One.

The fact that a global pandemic has not occurred in recent history shouldn't be mistaken for evidence that it won't occur.

Even if the next pandemic isn't on the scale of the 1918 flu, we have to consider the social and economic turmoil that even a smaller size epidemic could create. We saw this with Ebola, as it guided to the urban centers of the three affected countries. And it is only by diverting polio resources that we avoided it getting into the urban areas of Nigeria. Or even this disease which was not nearly as infectious as the average pathogen would have caused incredible chaos.

The good news is that by using advances in biotechnology we can create new vaccines, drugs and diagnostics to help prevent epidemics from spreading out of control. And, many of the things we need to do whether it's surveillance or doing a training exercise to look at these emergencies there are also very helpful just to improve health on an ongoing basis.

So we need a new arsenal of weapons. These are anti-viral drugs, antibodies, vaccines, and new diagnostics.

Today vaccines take too long. Typically a number of years, up to 10 years for new vaccines. And yet to really curb a fast-moving airborne pathogen, we have to get this down to a few months.

There is a new type of platform technology for vaccines that promises to do this. And we took a step towards this with the launch of a public-private partnership called the Coalition for Epidemic Preparedness Innovations or CEPI. Norway, Germany, Japan, our foundation were the initial founders. We are going to challenge the industry that's has these new approaches to build particular vaccines and mature these platforms. And so it's really the advances in genomics that can enable the defense against these possibilities.

The fact we can't predict what the pathogen will be means that that responsiveness finding that private sector capability, understanding how we do the trials, the safety, indemnification. We have to do that far far better than we did in Ebola. We saw with the lack of preparation that we didn't have answers to any of those questions. There is no platform technologies actually harness their own immune system to generate the vaccine. So we need a very small amount of material meaning we could ramp up manufacturing very quickly.

That flexibility and reusability really are pretty magical. And this platform would be valuable not just for these epidemic diseases either natural or intentionally caused but also would be valuable as we need to create vaccine to treat malaria and tuberculosis.

Of course, even having these tools won't make that much of a difference if we don't have good surveillance. Once an epidemic is spread to a certain degree, today with international travel it's very tough to fight it back to zero.

We need basic public health systems. And we need them connected up to very sophisticated surveillance. That surveillance will tell us what's going on with normal diseases but it will also see uptake deaths and get samples very quickly so we can start the process not only building the new tools but also the type of quarantine that's so critical in the early stages.

We have to have the laboratory capability nearby, we have to have the samples be able to travel. Those labs have to be able to deal with highly infectious material. And although we have some of this capability in place for polio we don't have nearly enough.

Finally, we need to prepare for these epidemics the same way that we prepare for war. It includes simulations, so-called germ games and other preparedness exercises so we can understand better how diseases will spread, how people will respond and how to deal with the overloaded high rise in communications systems.

We also need to figure out how we get the trained medical personnel ready to contain an epidemic and coordinate with the military who's really the only that indeed has the capacity of transport and going into the interested areas.

We saw the Ebola epidemic because the military that weren't trained for this, they could have been more effective. It was fantastic that they were involved there but they ended up playing a more limited role because it wasn't part of their background.

I am encouraged that global forums like the G7 and the G20 are talking about pandemic preparedness. We got leaders like Chancellor Merkel and Prime Minister Solberg are contributing to this.

We need to have concrete plans before the memory of the most recent epidemics like Ebola have faded.

The irony here is that the cost of actual preparing for an epidemic whether it's the training, the simulation, or even the R&D for these tools is a few billions a year. And that to prevent something where the annual loss would be many hundreds of billions of dollars.

So we have a new threat. In the past bioterrorism was something that only a nation state had the sophistication to be able to build. The challenge is that with the new biology this is now something that's within the capability of non-nation state actors. So it's a very scary situation whether we are talking about man-made or a product of nature. And I think if you take the multidecade timeframe

that chance of one of those happening is quite significant.

When I was young, there was really only one existential threat that the world faced. It was the threat of a nuclear war.

By the late 1990s, most come to accept that climate change over time was one of the major threat that could hurt the humankind. Now I would add the third element of equal importance which is the threat of a deadly pandemic.