

Record: 1

Title: THE ENEMY LOOKS STRONG. (cover story)
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Source: Discover; Oct2005, Vol. 26 Issue 10, p47-47, 2/3p
Document Type: Interview
Subject Terms: BLOOM, Barry -- Interviews
DEANS (Education) -- Interviews
COMMUNICABLE diseases
INFECTIOUS
VIRUS diseases -- Treatment

Abstract: Interviews Barry Bloom, dean of the faculty at the Harvard School of Public Health, about infectious diseases. Greatest infectious disease threat faced by the society in the 21st century; Information on how people can prepare from this infectious disease; State of technology when it comes to treating viral infections.

Lexile: 820

Full Text Word Count: 546

ISSN: 02747529

Accession Number: 18260185

Database: Middle Search Plus

Section: FRONTIERS OF SCIENCE

Infectious Diseases

THE ENEMY LOOKS STRONG

DIALOGUE

BARRY BLOOM is dean of faculty at the Harvard School of Public Health.

[What is the greatest Infectious disease threat we face these days?](#)

B: The possibility of a bird flu outbreak. The frightening thing is that we have no immunity to bird flu. We get flu outbreaks every year, but these are viruses we have developed an immunity to. In 1918 the flu killed between 20 million and 40 million worldwide because we had no immunity to that flu [the original source of the pandemic].

[How can we prepare?](#)

B: We don't know what the virus is--the human one--because it hasn't yet occurred, so it's difficult to prepare for it. We know the bird version of the virus. We have several [genetic] sequences, and we're making vaccines for these bird viruses. But think about spending millions to make a vaccine for a virus that hasn't appeared yet.

[Can a virus that is likely to emerge in Asia be contained?](#)

B: This is the vexing thing: If it happens, how are we going to know about it?. There are no little CDCs [Centers for Disease Control] in the region. The World Health Organization has some programs, and the governments, too, but there's nobody home in terms of pulling the information together to rapidly respond to an outbreak.

[Is there any treatment for avian flu?](#)

B: A drug called Tamiflu slows down the virus; it doesn't prevent it. If there is an outbreak, we will need it, but it's still on patent [with Roche Laboratories], and it's

expensive. There is enough stockpiled in the United States for about a quarter of the population. We need more. There is none in Asia.

What is the state of technology when it comes to treating viral infections?

B: We don't have a lot of drugs for viruses. A virus works with the cell machinery, so it's hard to come up with a drug that doesn't interfere with the cell's normal function. We should have a bigger research effort for this. Bacteria are easier because you can shut down mechanisms in the cell.

How big a problem is drug resistance?

B: It's a huge, emerging, threatening problem. We used to think that if we had a vaccine or a drug, then that was that, but we now know that bugs mutate. If you apply a pressure to kill off the normal variants, you allow the mutants to survive. We are causing resistance by putting antibiotics into pigs that we eat. In hospitals, staph infections are becoming resistant to vancomycin, and resistance is already there for penicillin and methicillin. If we lose vancomycin, we're in trouble.

Can our technology get better?

B: I think we'll keep up. There will be a lag of two to three years with each case of resistance.

Is bioterrorism a real threat?

B: We are more aware of the threats since September 11, 2001, and the following month, when anthrax was released in the mall. The National Institutes of Health and the Centers for Disease Control have stepped up efforts on research on pathogens that could be used for bioterrorism. I am optimistic. But what company will invest millions of dollars against a pathogen that does not yet exist? One solution would be a guarantee of purchase by governments and foundations.

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By David Ewing Duncan

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