Fifty million people died when about a third of the world’s population became victims of an influenza pandemic, dubbed the Spanish flu, that started in 1918 and ended in 1919. The cause of that outbreak, which spread to every continent on the planet, was a particularly deadly H1N1 influenza virus, believed to have come from birds. So, the world held its breath again in 2009 when another H1N1 outbreak started, this time passed from pigs to humans. That pandemic ended in 2010, killing over half a million people.

In 2014 an outbreak of Ebola, one of the deadliest diseases known to man, started taking its toll on human life in West Africa. That epidemic was over in 2016, but not before it had spread to 11 countries, including the United States. It affected 26,616 people and killed 11,310 worldwide. Ebola is
caused by Zaire ebolavirus, normally found in bats, but passed on to humans and transmitted through close contact, including the unprotected handling of the corpse of an Ebola victim.

Most newly recognized infectious diseases, including severe acute respiratory syndrome (SARS) and West Nile fever are zoonotic diseases, i.e. they were animal diseases that have jumped into humans. Once in humans, they can rapidly spread, leading to epidemics. How do zoonotic diseases start? Why is there an increase in their incidence? How are they transmitted between humans? How do we prepare for the next outbreak? How do we prevent outbreaks?

Now “Outbreak,” (https://www.si.edu/exhibitions/outbreak-epidemics-connected-world-6197) a new exhibition which opened in May at the Smithsonian National Museum of Natural History in Washington, is bringing awareness to zoonotic diseases and helping to answer these questions. The theme for Outbreak is ‘One Health’, which recognizes the interconnectivity between the health of humans, animals and where they both live. It demonstrates how in a world in which the environment is changing rapidly, causing humans and wild life to live closer together and global travel is the norm, we cannot just think of human health, but must also protect the health of livestock and wild animals, as well as that of the environment.

The exhibition shows how a single infected person can cause a global pandemic in a matter of days. An example is SARS, caused by a virus found in bats but was transmitted through civet cats to humans leading to an outbreak in China in late 2002. A physician, who caught it from a patient in February 2003, passed it on to 16 guests on the 9th floor of a Hong Kong hotel where he had spent a single night. By July 2003, SARS had been carried along international air routes, causing outbreaks in 17 countries around the world, including the United States and Canada.

Outbreak has educational material and interactive games that enlighten us on the security threat pandemics pose to a connected world and help generate debate on its policy implications.

Click here to see: Impact of basic research on the 2014 Ebola outbreak (https://medium.com/@NSF/ebola-epidemic-of-2014-f71cff26a9b9)

Image: P. Lartey

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