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New Century, New Challenges, New Dilemmas: The Global Nexus of Animal and Public Health

Cauldron of ecosystem chaos a tasty microbial treat Mapping out the encroachment of animal & public health crises

"Double, double, toil and trouble, fire burn and cauldron bubble." Shakespeare

Shakespeare's words from centuries ago take on renewed importance for those of us observing the swelling cauldron of elements in a stew called animal and public health.

A harbinger of what may be yet to come, this cauldron hosts a mixture that combines rising migrations of humans in peri-urban settings and concentrated animal production practices.

Thrown into the cauldron is growing demand for protein as incomes rise in developing countries. An outcome of this increasing demand is the growing trade of meat and animal products.

Changing demographics are also added to the pot. Better nutrition, a factor in rising longevity rates in many countries, contributes to an explosion in our global population. A consequence is more mouths to feed and greater competition for available resources.

*"Old solutions to new problems are not going to work."
- Dr. Lonnie King*

This resulting witches' brew is reflected in the destruction of ecosystems and subsequent increase in infectious disease in the animal and human populations.

Thirteen of 14 human health epidemics monitored by the Centers for Disease Control and Prevention (CDC) since 1993 are the result of zoonotic diseases. With so many factors contributing to these outbreaks, the charge to protectors of human health is to not use a single lens to view the problem but to include the many other elements contributing to this dish.

One example are mosquitoes, labeled one of the "world's most dangerous animals." Already capable



spreaders of diseases such as malaria, mosquitoes are hitchhiking to animal and human hosts on shipping pallets, in containers and aboard the water contained in used tires.

Chikungunya, a disease seen in India has migrated to Italy by such means. A viral fever, symptoms include rash usually on the limbs and trunk, and potentially debilitating arthritis.

All of the elements of this cauldron are interconnected, requiring new approaches if we are to solve the threats before us, says Global Nexus co-organizer Lonnie King.

"We have to think differently. Old solutions to new problems are not going to work."

Pushing the adoption of new solutions to tackle global issues is the mission of United Nations' avian influenza (AI) specialist David Nabarro.

Appearing in more than 50 countries in 2006, and 10 more by September 2007, AI has appeared in the human population, in addition to the animal world.

Citing humans as sentinels, Nabarro comments, "Where concentrations of virus is in poultry, you are likely to get infections in humans."

"In the end it is focusing on results and demands. We can only do that if we have convergence."

- David Nabarro

System Senior Co-ordinator for Avian and Human Influenza at the United Nations Development Group



While AI is more an epidemic at present, signs point to the opportunity for an influenza pandemic.

Vietnam and now, Indonesia, are hot spots, says Nabarro, where increases the number of human deaths due to the disease indicate we are “sitting on a ticking time bomb.”

Nabarro

By all estimates, it would be a very expensive time bomb, should it go off. SARS, by comparison, resulted in less than 1,000 deaths and led to a \$500B (USD) economic loss. An AI outbreak is estimated at \$1 trillion (USD).

Strategies to combat the threat of AI mentioned by Nabarro include involving representation from governance and security, organizations addressing social and humanitarian needs, and economic systems — not just health professionals.

Nabarro contends that “to be on top of, and be prepared” for nature’s capitalization on current environmental conditions, several determinants of success must be in place. These include the ability of governments and political leadership to create sustained support; a scaling up of people and funding sources; gaining convictions of support for long-term efforts; and, proper communication leading to full community engagement.



“We need to go beyond meetings and statements.”

- Share info
- Pursue one strategy and review it
- Achieve harmony and avoid discord
- Seek synergy
- Work as one