and in diverse ecological settings. I will show how incorporating seasonal climate forecasts in disease prediction models could support public health decision-makers in targeting timely disease control and prevention strategies to mitigate the risk of imminent disease epidemics and emerging disease threats.

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Final Abstract Number: 37.003
Session: A Planetary Health Approach to Emerging Infectious Diseases
Date: Saturday, March 3, 2018
Time: 15:15-16:45
Room: Libertador A

Type: Invited Presentation

Anthropogenic global defaunation and its consequences for planetary health

S. Morand

CIRAD, Bangkok, Thailand

The Convention on Biological Diversity has set the 20 Aichi targets for biodiversity by 2020. However, almost all indicators of the Aichi targets show negative trends. Anthropogenic pressure (human appropriation of biological productivity), biodiversity (Living Planet Index), biodiversity benefits (domesticated breeds, Red List of pollinators) show decline with negative consequences on resources and ecosystem services. Many academic studies and reports conducted by international organizations stressed that biodiversity loss is affecting ecosystem resilience but also health and well-being. However, we still lack a framework that could link socio-economics, ecosystems, biodiversity and health.

The social-ecology approach links ecological and biological metabolism with social metabolism, where social systems are seen as hybrid systems between cultures, socio-economics (exchanges and flows) and environments (metabolic exchanges). Human societies can then be characterized by stocks and flows that involve: population and its demography, biophysical stocks and trade/production, land and its biological productivity. An important parameter is HANPP (Human Appropriation of the Net Primary Productivity). HANPP has doubled in the 20th century and scenarios suggest that this appropriation will continue to increase considerably in the coming decades. HANPP is an appropriate indicator for research into the impact of human intervention on biodiversity and can link human appropriation of environmental metabolism with ecological theories on biodiversity, like the species-energy hypothesis.

We used the conceptual framework of social-ecology that links “drivers” (food consumption, energy), “pressures” (land use, HANPP), “states” (biodiversity change), “impacts” (reduction of the quality of ecosystem services) and “responses” (governance, land planning, conservation). This conceptual framework makes it possible to address the link between biodiversity and health.

We tested this social-ecology framework using several databases at the nation level. We confirmed the species-energy hypothesis by showing a positive correlation between HANPP and declining biodiversity. The hypothesis of a reduction in ecosystem services for the regulation of infectious diseases appears also to be confirmed with an increase in zoonotic disease epidemics with the increase in HANPP at the world nation level. The incorporation of health components in social-ecology might provide governance tools for global biodiversity conservation and planetary health.

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HCV - global challenges

M. Silva

Buenos Aires, Argentina

Hepatitis C virus (HCV) infection is the leading cause of chronic liver disease worldwide and is a serious health burden that requires urgent attention. It is estimated that around 2.5-3.0% of the world’s population is chronically infected, which equates to a total of 130-170 million people.

Annually, HCV infection causes 350,000-500,000 deaths worldwide, constituting approximately 1% of the total annual deaths. The large increase in its mortality, which surpassed that of HIV, indicates a worrying lack of action across countries. HCV is also the leading cause of cirrhosis, HCC and of liver transplantation.

Since a large proportion of patients with HCV remain undiagnosed and untreated, it becomes clear that the vast majority of them remain uncured.

Understanding barriers to diagnosis care and cure is critical for improvement of HCV disease burden. These barriers usually arise at the patient, provider, payer, and/or government level.

Finally, national health systems, governments and payer, are critical for overall HCV management. They should recognize HCV infection as an important public health threat and make resources available for implementation of effective programs.

Although most healthcare systems in the world are different, in many ways, they share common challenges. Most have poorly coordinated care and are paying for volume and not for value. Good management requires proactivity in terms of prevention of early detection, and access to cure.

Fragmentation of care, lack of quality and safety in healthcare systems and disconnections with occupational health emerge as necessary areas of improvement. Countries with effective HCV programs have comprehensive rather than focusing on a single intervention.

These programs are dependent on the uninterrupted supply of quality-assured, medicines, diagnostics and other health care commodities. Robust procurement and supply management systems are required to ensure that the right products are selected, purchased at a reasonable price and efficiently delivered to the point of care. The demand for affordable treatment for HCV requires price reduction strategies not only for medicines, but also for diagnostics and health commodities.

Often, countries that have a program do not reinforce it with an adequate budget for an appropriate implementation.

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