ICAP Grand Rounds
Emerging Infectious Diseases: The Value of a One Health Approach
May 18, 2021
Agenda

1. Welcome and Introduction
   Fatima Tsiouris, MS
   ICAP at Columbia University

2. Emerging Infectious Diseases: The Value of a One Health Approach
   Woutrina Smith, DVM, MPVM, PhD
   School of Veterinary Medicine, UC Davis
   USAID One Health Workforce – Next Generation Project

3. Q&A and Discussion

Reminders:

For questions to the speakers, use Q&A box

Please use chat box to indicate your name and organization

The webinar recording and slides will be posted on www.icap.columbia.edu
Woutrina Smith, DVM, MPVM, PhD

School of Veterinary Medicine, UC Davis

Project Director, USAID One Health Workforce – Next Generation Project

Dr. Smith is a Professor of Infectious Disease Epidemiology in the School of Veterinary Medicine at the University of California, Davis, and co-leads the USAID One Health Workforce – Next Generation Project working with AFROHUN and SEAOHUN. She also co-leads the multi-campus Planetary Health Center of Expertise within the UC Global Health Institute, and is an Associate Director at the UC Davis One Health Institute. Dr. Smith has worked on One Health research projects across Africa, Asia, and in the Americas, where multidisciplinary teams innovate together to solve complex health problems. Dr. Smith has received funding from diverse sources including the National Institutes of Health, the US Agency for International Development, the US Department of Defense, and the Bill & Melinda Gates Foundation to support her research and training programs.
Emerging Infectious Diseases: The Value of a One Health Approach

Woutrina Smith, DVM, MPVM, PhD
Associate Dean for Global Programs
School of Veterinary Medicine, UC Davis
We are a globally connected society
A One Health approach considers connections between humans, animals, plants, and their shared environments.
One Health puts technical knowledge into social contexts
One Health Framework
Transdisciplinary Problems

DRIVERS
Land use
Climate change
Economic development
Globalization
Energy extraction
Migration

PROBLEMS
Zoonotic disease emergence
Pathogen distribution
Health disparities
Food and water safety & security
Endangered species & habitat conservation
Poverty alleviation
Loss of biodiversity
Environmental contamination
Diagnostic limitations

INFLUENCES
Culture
Economics
Policy
Behavior
Education

Animals
Humans
Environment
One Health

Holistic

Collaborative and transdisciplinary

Focused on integrated solutions
One Health

The collaborative efforts of multiple disciplines working locally, nationally and globally to attain optimal health for people, animal and our environment

(FAO, OIE, WHO, WB...)

http://www.cdc.gov/onehealth

From theoretical to operational definition:

“One Health” can be defined as the added value in terms of lives of animals and humans saved, financial savings and improved ecosystem services from a closer cooperation of human and animal health as compared to single sector approaches (Zinsstag et al., 2012)
We start, and end, in communities...
What kind of wildlife do we live with?
DISEASE?

PATHOGEN

ENVIRONMENT
Land use change & population density drive viral spillover events...
Drivers in Emerging Infectious Diseases

- Globalization
- Changing Ecosystems
- Human Demographics & Behavior
- Markets & Trade
- Migration & Conflict
- Poverty & Social Inequality
- Microbial Adaptation

and more...

Source: Author San Jose, 27 November 2006, based on the [Generic Mapping Tools](http://gmt.soest.hawaii.edu/).
One Health Economics

COVID-19 Worldwide $3.9T
The Ministries of Health, Agriculture & Environment and Implementing University and NGO Partners in 35 Countries
One Health Interface

- Majority of emerging infectious diseases (EIDs) in people are of animal origin (zoonotic)
- 75% of emerging zoonoses have wildlife origins
- Human activities at the interface linked to EIDs (Nipah virus, SARS, Ebola)
- Annual population growth among highest in buffers to protected areas near wildlife
Targeted, Risk-based Surveillance

- Primates
- Bats
- Rodents
- Birds
- Suids
- Carnivores
- Ungulates
Viral shedding

Target = zoonotic viruses that causes disease in animals & people

PREDICT Surveillance Strategy

Early recognition of potentially zoonotic viruses in wildlife

Syndromic surveillance in people to detect potentially zoonotic viruses that cause disease & assess behavioral risk
High Risk Interfaces
Developed & Operationalized Diagnostic Platform
PREDICT OVERVIEW

DEVELOPED the One Health Workforce by training more than 6,000 people in over 30 countries.

OPERATIONALIZED One Health surveillance and sampled over 163K animals and people, helping minimize the spillover of zoonotic disease threats from animals into human populations.

STRENGTHENED laboratory systems and zoonotic disease detection capabilities in over 60 labs around the world.

DETECTED over 1,100 unique viruses, including zoonotic diseases of public health concern such as Bombali ebolavirus, Zaire ebolavirus, Marburg virus, and MERS- and SARS-like coronaviruses.
Health professional colleagues around the world
SEAOHUN
SOUTHEAST ASIA ONE HEALTH UNIVERSITY NETWORK

OUR NETWORK

87 MEMBER UNIVERSITIES
28 ONE HEALTH STUDENT CLUBS®
8 COUNTRIES
200 INDIVIDUALS REACHED VIA COVID-19 RCCE ACTIVITIES
AFROHUN
AFRICA ONE HEALTH UNIVERSITY NETWORK

OUR NETWORK

18 MEMBER UNIVERSITIES
16 STUDENT ONE HEALTH CLUBS
9 COUNTRIES
1,043 INDIVIDUALS REACHED VIA RCCE ACTIVITIES RELATED TO COVID-19
OHW-NG Goal

Empower One Health university networks to sustainably develop and deliver world-leading model programs for equipping professionals with transdisciplinary skills to address complex global health issues.
The USAID One Health Workforce - Next Generation Project Supports SEAOHUN, AFROHUN, and the Member Universities in:

**WORKFORCE EMPOWERMENT:**
Develop and deliver trainings in alignment with prioritized One Health core competencies and technical skills.

**KNOWLEDGE MANAGEMENT:**
Establish systems and strategies to evaluate performance and track workforce placements.

**ORGANIZATIONAL SUSTAINABILITY:**
Strengthen capacities of the regional One Health University Networks for acquisition and management of direct donor funding.

**GENDER:**
Support gender integration as a core competency and include gender considerations as a cross-cutting theme.
Building a Global Community of Practice

Interactive COVID-19 ECHO Online Sessions

Sharing experiences and best practices around the world
Regional Webinars

LIVE WEBINAR: SESSION 2
COVID-19 PANDEMIC
SEPTEMBER 12, 2020 (SATURDAY)
2:00PM - 4.30PM (GMT+8)

Dr. Hana Maizuliana Solehan
Internal Medicine Specialist and Neurologist, USIM

Dr. Petrick Periyasamy
Infectious Disease Physician, UKM

Assoc. Prof. Dr. Mohd Dzulkhairi Mohd Rani
Public Health Physician and Occupational Health Doctor, USIM

FREE ONLINE SEMINAR
IMPLEMENTING ONE HEALTH IN THE CURRICULUM TO FACE AIDS FUTURE THREATS

Wednesday, September 2nd, 2020
13.00-15.00 (GMT+7), Jakarta
• e-Certificate available

Prof. drh. Wita S. Adisasmito, M.Sc., Ph.D.
Coordinator of Indonesia One Health University Network (INDOHUN)

Prof. Gandeas R. Rahayu, M.Med., Ph.D.
Vice Dean of Academic Affairs, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada

Moderator
Prof. Dr. drh. Fediq Abd. Razian
Coordinator of One Health Collaborating Center (OHCC), Universitas Airlangga
Since the first reports of COVID-19, the infection has spread to contain more than 81,552 cases in China and growing cases (>1,400,000) worldwide, prompting the World Health Organization (WHO) to announce a public health emergency in late January 2020 and describe it as a pandemic in March 2020.

What is COVID-19?
COVID-19 (Coronavirus Disease 2019) is a new respiratory virus disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2).

The incubation period of SARS-CoV-2 infection is assumed to be in 14 days succeeding exposure.

Clinical Characteristics:
- Fever
- Dry cough
- Pharyngeal pain
- Nasal congestion
- Headache
- Pneumonia

The clinical symptoms of the COVID-19 disease by the severity of the disease (81%)

Critical disease (51%)

How is COVID-19 transmitted?
The major route of transmission of COVID-19 is droplet and close contact. Coughing and sneezing by symptomatic infected displays can move 1-3 meters and later put down on surfaces. The virus could stay visible on surfaces for days in desirable environmental conditions. COVID-19 can be transmitted e.g. by touching object and other people.

Prevention of COVID-19:
- Frequently clean hands by using alcohol-based hand rub or soap and water.
- Avoid touching your eyes, mouth, and nose.
- Practice good respiratory hygiene.
- Avoid close contact with anyone who has fever and cough.
- Keep at least 1 meter distance from others and distinct surfaces that are touched frequently.
- Cover the mouth and nose with a mask.
- Cover mouth and nose when coughing or sneezing.

I SAVE YOU, YOU SAVE ME
Following all the suggestion to prevent COVID19 transmission, is the way to save each other. It’s for Me, You and Us. Together.

Reference

A new infectious diseases, first found on December 2019 in Wuhan, China.

COVID-19 QUICK FACTS

The major route of transmission is from person to person, animals does not transmit Covid-19 to us. It can be spread via respiratory droplets when an infected person with an infected person, when coughing, sneezing or touching non-animalized and create objects such as a phone or touching your face.

Prevention Tips
Currently, the only way to stop the spread of COVID-19 is by breaking the chain of infection through:

- Wear good handwashing or using hand sanitizer.
- Stay at home, avoid going to crowded places.
- Stay at home, avoid going to crowded places.
- Keep at least 1 meter distance from others and distinct surfaces that are touched frequently.
- Cover the mouth and nose with a mask.
- Cover mouth and nose when coughing or sneezing.

What should do as a community?

- Protect the high-risk group, e.g. elderly (60+ years old) and people with underlying medical issues.
- Take a good care of our pets and do not abandon them.
- Help people that are affected by the pandemic, e.g. donation / volunteering.

Do not spread fake news.

SOURCE: WORLD HEALTH ORGANIZATION (WHO) & CENTER OF DISEASE CONTROL (CDC)
Training the Next Generation of One Health Leaders

APPLIED INNOVATIONS IN E-LEARNING TO EXTEND TRAINING OPPORTUNITIES IN THE CLASSROOM AND THE FIELD

• Teams used online platforms to continue teaching and training in the face of COVID-19
  – Platforms used for classroom instruction and field-based experiential learning
Training the Next Generation of One Health Leaders

Students obtained hands-on training on the frontlines of the COVID-19 response through Student One Health Clubs

- Student One Health Clubs led COVID-19 risk communication and community engagement campaigns
Training the Next Generation of One Health Leaders

Students gained real-world experience working with COVID-19 response teams through fellowships and internships.

- Uganda FAO, Amref Health Africa, Infectious Disease Institute, and Ministry of Health
- Put knowledge and skills in outbreak response, communication, and leadership into practice

- DRC Ministry of Health
- Gained experience in COVID-19 surveillance, contact tracing, and case investigation
Training the Next Generation of One Health Leaders

Vietnamese lecturer Tuyen Ha Van received fellowships, gaining hands-on experience with International Livestock Research Institute (ILRI).

SEAOHUN offered 6 scholarships to health professionals in pursuit of master’s degrees incorporating One Health.

Awarded small grants to 8 projects from 7 countries: Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Thailand, and Vietnam.

"This fellowship has really broadened my perspectives. I feel that I can be a better mentor to my students. What I really want to do for students is to help them think outside the box, explore many opportunities they have, equip themselves with One Health competencies, and apply One Health to improve the health of their communities."

Mr. Tuyan Ha Van
SEAOHUN 2020 Fellows
Q&A and Discussion
Join Our Upcoming Grand Rounds

Tuesday, June 29, 2021 | 9-10 AM ET

Addressing Cancer in LMICs — Progress and Plans at the US National Cancer Institute

- **Satish Gopal**, MD, MPH, Director of the Center for Global Health, National Cancer Institute, National Institutes of Health, will discuss progress and plans addressing cancer in low- and middle-income countries at the National Cancer Institute.
Thank You