

# Insights from Outbreak Work Overseas 2003-2020

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Hong Kong Centre for Health Protection

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# Lesson: Past Epidemics Help Prepare for Future Epidemics

## Personal Protective Equipment (PPE)

**SARS Toronto-ICU 2003**



**Ebola Monrovia-MSF 2014**



## Lesson: “What’s Next?” Is Already Here

Guangzhou Sept. 2003: No Civets in Market  
But Avian H5N1 Flu = “What’s Next” in 2004



Saudi Arabia 2011: MERS from Camels  
is “What’s Next” discovered in 2012





# Lesson: The Source of the Next Pandemic Flu May Be a Surprise

e.g., 2009 H1N1 from Mexico, not H5N1 from Asia or Egypt

**H5N1 Avian Flu Egypt 2006-2015**



**Avian Flu Risk: Live Bird Markets**



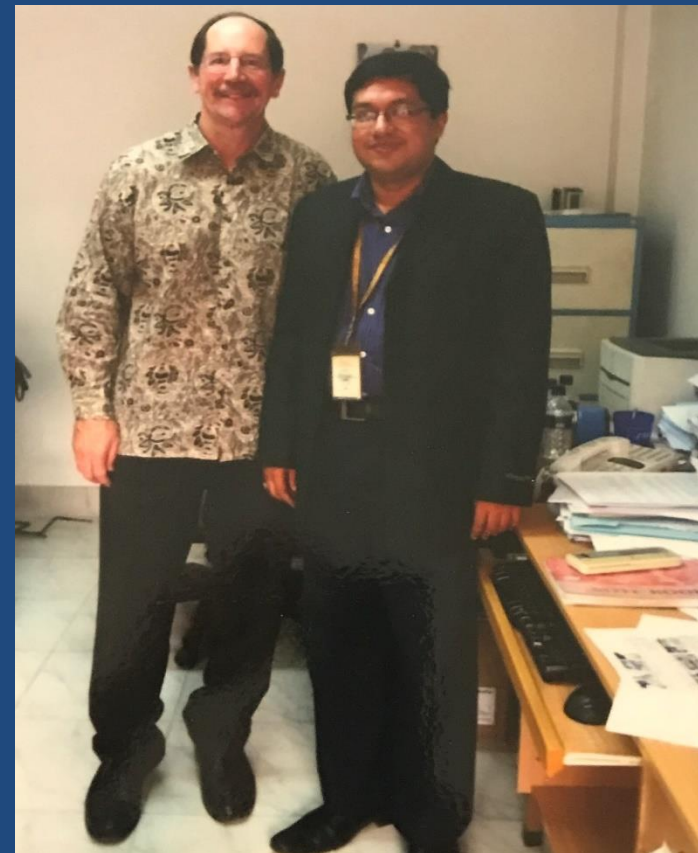
# Lesson: Virus Epidemiology Can Change e.g., Nipah

Malaysia 1998 Bats-Pigs-People, to Bangladesh Bats-Palm Sap-People

To Nipah Village, Malaysia (2011)



Dhaka, Bangladesh w/Nipah Expert





Lesson: Need *Written Protocols* EARLY in Outbreaks  
MERS in Qatar 2013 @Hamad General Hospital



## Lesson: Common Solutions from Outbreaks

e.g.,

Toronto SARS 2003 and Seoul MERS 2015:

### MERS and SARS Patient Triage Areas in Parking Lots Outside Hospitals





# Lesson: Expect to Be Asked to Do More than You Expected

Ebola-PPE Training Ministry of Health, Sierra Leone, August, 2014





# Lesson: Trust means 'Your Safety is My Safety is Our Safety'

Fighting Ebola TOGETHER in Monrovia, Liberia Oct. 2014



Lesson: Anticipate the Fear and Stigma in Epidemics  
Ebola Psychosocial Team & Patients Liberia, 2014





# New Policy 2014: The Stronger Patients Help the Weaker Patients Then more Patients Survive Ebola

**STEPS TO HELP OUR PATIENTS SURVIVE EBOLA**

- **INSIDE the TENT (too hot)**
  - STEP 1:** CANNOT SIT UP IN BED. CANNOT DRINK & EAT  
TREATMENT: MUST HAVE HELP TO DRINK & EAT  
MUST CONTROL VOMITING & DIARRHEA → 
  - Step 2:** CAN SIT UP IN BED. CAN DRINK & EAT (a little)  
TREATMENT: STILL MUST HAVE HELP TO DRINK & EAT  
MUST CONTROL VOMITING & DIARRHEA → 
- **OUTSIDE the TENT (less hot)**
  - STEP 3:** CAN SIT IN CHAIR. CAN DRINK & EAT (some)  
TREATMENT: GIVE ENCOURAGEMENT TO DRINK & EAT → 
  - STEP 4:** CAN WALK WELL. CAN DRINK & EAT (well).  
TREATMENT: MONITOR FOR 3 DAYS: IF NO FEVER, VOMITING OR DIARRHEA, RETEST BLOOD. IF NEGATIVE, THEN A SURVIVOR! → 

11 October 2014 Dr. Dan Lucey ELWA-3 Ebola Tent C3-4

OCTOBER 2014

MSF ELWA -3

WHERE THE STRONGER PATIENTS  
HELP THE WEAKER PATIENTS.  
SO MORE PATIENTS  
BECOME SURVIVORS OF  
EBOLA!



**MEDECINS SANS FRONTIERES**

**ARBEIDEN TONDER GRENZEN**



## 4 STEPS TO HELP OUR PATIENTS SURVIVE EBOLA

- **INSIDE the TENT (too hot)**

**Step 1:** CANNOT SIT UP IN BED. CANNOT DRINK & EAT

TREATMENT: MUST HAVE HELP TO DRINK & EAT

MUST CONTROL VOMITING & DIARRHEA



**Step 2:** CAN SIT UP IN BED. CAN DRINK & EAT (a little)

TREATMENT: STILL MUST HAVE HELP TO DRINK & EAT

MUST CONTROL VOMITING & DIARRHEA



- **OUTSIDE the TENT (less hot)**

**STEP 3:** CAN SIT IN CHAIR. CAN DRINK & EAT (some)

TREATMENT: GIVE ENCOURAGEMENT TO DRINK & EAT



**STEP 4:** CAN WALK WELL. CAN DRINK & EAT (well).

TREATMENT: MONITOR FOR 3 DAYS: IF NO FEVER, VOMITING OR DIARRHEA, RETEST BLOOD. IF NEGATIVE, THEN A **SURVIVOR!**



Lesson: Create Solutions by Working with Colleagues  
Ebola Survivors Despite No IV Fluids or Labs





Ask the WHO D-G to CONVENE an Emergency Committee (JAMA Jan. 27, 2016)  
Lesson: Only the WHO D-G can CONVENE the Emergency Committee

VIEWPOINT

## The Emerging Zika Pandemic Enhancing Preparedness

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**The Zika virus (ZIKV)**, a flavivirus related to yellow fever, dengue, West Nile, and Japanese encephalitis, originated in the Zika forest in Uganda and was discovered in a rhesus monkey in 1947. The disease now has "explosive" pandemic potential, with outbreaks in Africa, Southeast Asia, the Pacific Islands, and the Americas.<sup>1</sup> Since Brazil reported Zika virus in May 2015, infections have occurred in at least 20 countries in the Americas.<sup>2</sup> Puerto Rico reported the first locally transmitted infection in December 2015, but Zika is likely to spread to the United States. The *Aedes* species mosquito (an aggressive daytime biter) that transmits Zika virus (as well as dengue, chikungunya, and yellow fever) occurs worldwide, posing a high risk for global transmission. Modeling anticipates significant international spread by travelers from Brazil to the rest of the Americas, Europe, and Asia.<sup>3</sup> What steps are required now to shore up preparedness in the Americas and worldwide?

**Mild Disease but Growing Concerns  
About Microcephaly**

most fail to meet international standards. To ensure national preparedness for Zika, countries—including the United States—should fund and adopt these strategies, particularly countries already affected and those with significant *Aedes* mosquito populations.

**Vector Control.** Mosquito-borne diseases require reducing source populations, including physical (eg, removing water-containing sources) and biological (eg, fish that feed on larvae) controls. Insecticide spraying of mosquito habitats or adult populations can be effective. Although it remains controversial due to ecological concerns, releasing genetically modified sterile male mosquitoes could reduce disease-transmitting mosquito larvae. All these strategies require effective mosquito surveillance to ensure focused interventions.

**Risk Communication.** Health information campaigns should advise the public to avoid mosquito exposure, such as by wearing appropriate clothing, using insect repellents, and spraying insecticide in indoor spaces. Staying inside protected dwellings during peak mosquito biting hours can also reduce risk. Using physical bar-



# EDITORIALS



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## Time for global action on Zika virus epidemic

Our response to infectious disease epidemics must be faster and smarter

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**Lesson:** Go to the Frontlines to Learn the “Ground Truth”  
Does ZIKA Virus Cause “Microcephaly”?

**Recife, Brazil: Microcephaly Epicenter  
and Treatment Clinic (Feb 9, 2016)**

**Dr. Vanessa Van Der Linden: 1 of 1<sup>st</sup> to  
Recognize “Microcephaly” Epidemic**



Ask the WHO D-G to CONVENE an Emergency Committee (JAMA May 9, 2016)

Lesson: *Anticipate Vaccine Shortage, Recognize Emergency, Act*

VIEWPOINT

## A Yellow Fever Epidemic A New Global Health Emergency?

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**The worst yellow fever epidemic** in Angola since 1986 is rapidly spreading, including the capital, Luanda. In Angola, the epidemic began in December 2015 and the laboratory-confirmed outbreak was reported to the World Health Organization (WHO) on January 21, 2016.<sup>1</sup> Angola has had 2023 suspected cases and 258 deaths as of April 26, 2016.<sup>1</sup> China, the Democratic Republic of Congo, and Kenya also have reported cases arising from infected travelers from Angola. Namibia and Zambia also share a long border with Angola, with considerable population movement between the countries. Similar to other recent epidemics, quick and effective action to stop the spread of yellow fever is the responsibility of the world's health community.

More than 7 million Angolans have been vaccinated, but supply shortages could potentially lead to a health security crisis if yellow fever spreads within Africa, Asia (which has never experienced a yellow fever epidemic), or the Americas (where *Aedes mos-*

*Memphis, Tennessee; and in 1905 in New Orleans, Louisiana) and in Europe in 1730 and 1821.*

After an incubation period of 3 to 6 days, an acute febrile phase occurs with myalgia, headache, back pain, anorexia, nausea, and sometimes vomiting; symptoms typically resolve within 1 week. In approximately 1 in 7 individuals, a second phase quickly follows with high fever, jaundice, bleeding, and kidney damage, with death occurring in 50% of patients; most of the remaining half fully recover.<sup>4</sup> Each year, yellow fever causes an estimated 30 000 deaths, mostly in Africa.<sup>4</sup>

Even with knowledge of the typical clinical manifestations and outbreak epidemiology, clinical diagnosis can be difficult because yellow fever can mimic multiple febrile illnesses, including those causing jaundice and bleeding (such as acute viral hepatitis and viral hemorrhagic fevers). Laboratory diagnostic tests can detect the virus and specific antibodies in the blood. No specific antiviral drug or immune therapy exists for yel-



Lesson: Stop Epidemics by Working Together  
Kinshasa, DR Congo Yellow Fever Aug. 2016



# Urban Plague Pneumonia in Madagascar 2017

## 3 Lessons from Ebola in West Africa

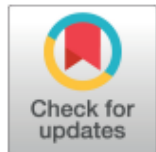
**PPE, Contact Tracing like Ebola in W. Africa**



**Treated, Recovering Patients in Tents**







# EDITORIALS

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## Containing pneumonic plague

Lessons from two contrasting outbreaks

Dera Ranaivozanany *emergency physician*<sup>1</sup>, Bertand Renaud *professor*<sup>2</sup>, Daniel Lucey *adjunct professor*<sup>3</sup>

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# “OUTBREAK: Epidemics in a Connected World”

Smithsonian Museum 2018-2022 Washington, DC





Lesson: “What’s Next?” Is Already Here,  
We Just Haven’t Recognized It Yet



# Exhibit at the United Nations NYC Dr. Tan & Dr. Fola January 14, 2020 Webinar on the 2019-Novel Coronavirus...





# “Lesson Learned” Should be Shared:

8 of 40 Reflections from A Career in Epidemics

- Anticipate, Recognize, Act
- Create Synergies of Strengths
- Fear is normal during Epidemics, use it as a source of strength
- Transform paralytic fear into catalytic fear
- If you want to receive something of value, be ready to offer something of value
- Take care of your patients, and at the same time yourself and your loved ones
- Fight the Stigma found in all Epidemics
- Stay humble while becoming self-confident