

A 'One Health' approach to human health, animal health and our shared environment

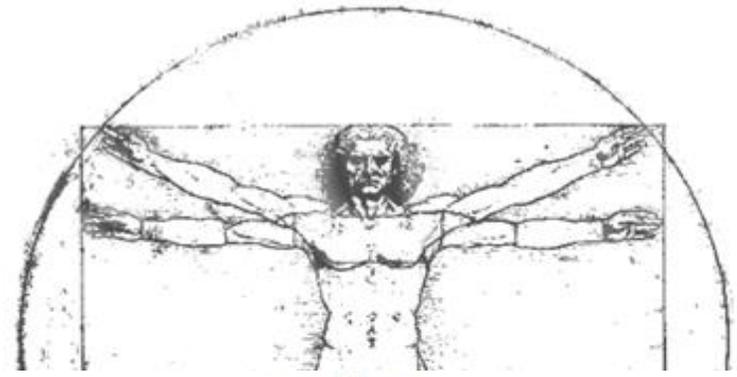
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**World Health
Organization**

Representative Office
for the South Pacific



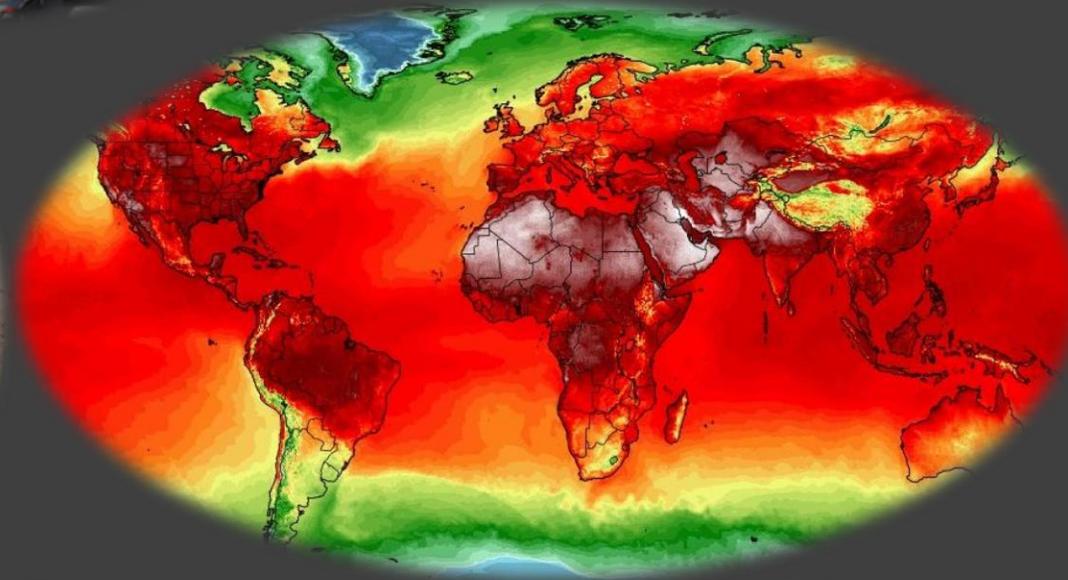


- **One Health** is “the collaborative effort of multiple disciplines working locally, nationally, and globally – to attain optimal health for people, animals and our environment” (AVMA)
- **Ecohealth** “fostering the health of humans, animals and ecosystems ...recognises the inextricable linkages between the health of all species and their environments”

Planetary health

The relationships between human health and natural systems, the human-induced drivers of ecological change, and their broader sociocultural context

Life in the Anthropocene

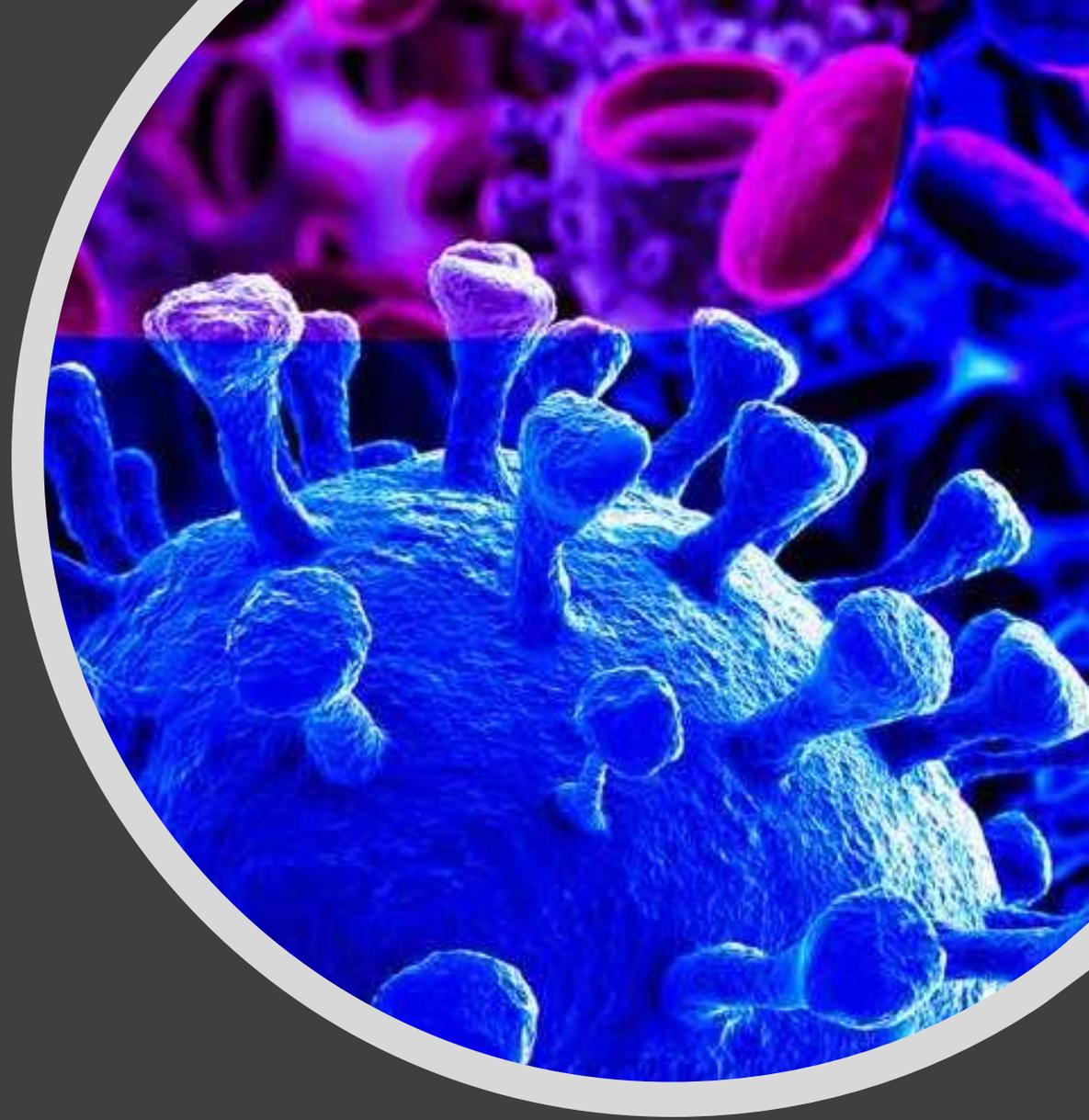


Why is focusing on human health not enough?



Examples

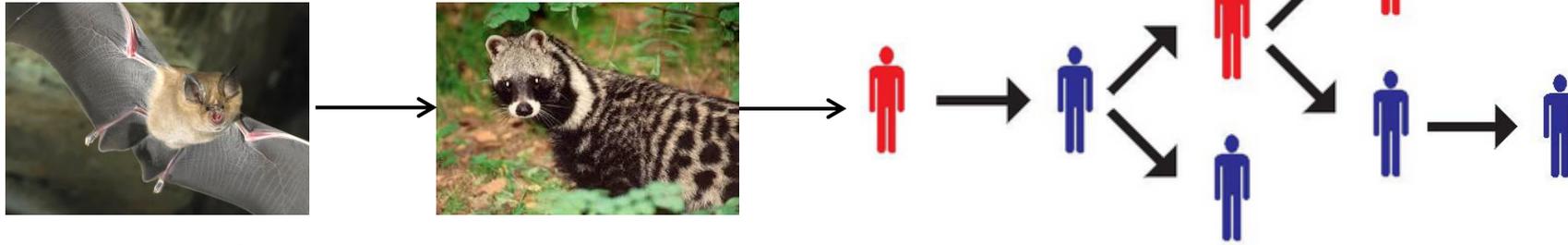
- Avian influenza (HxNy) and reassortant avian-swine-human influenza viruses
- Henipaviruses (Hendra, Nipah)
- Lyssaviruses (rabies, other)
- Coronaviruses (SARS, MERS, COVID-19)
- Arboviruses (Zika)
- Antimicrobial resistance (AMR)
- Food-borne diseases (e.g. E. coli, salmonella) and intoxications (e.g. ciguatera)
- Leptospirosis etc.



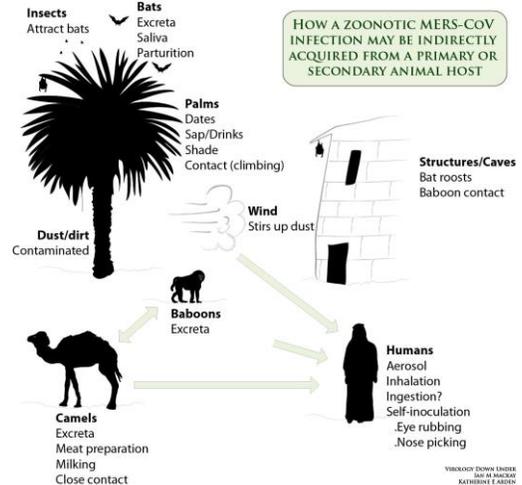
From zoonosis to human adapted

Examples SARS, MERS-CoV, Ebola, SARS-CoV-2

SARS



MERS



Ebola

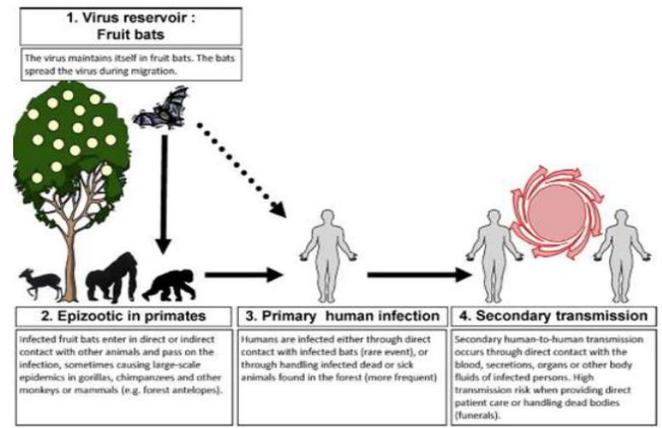


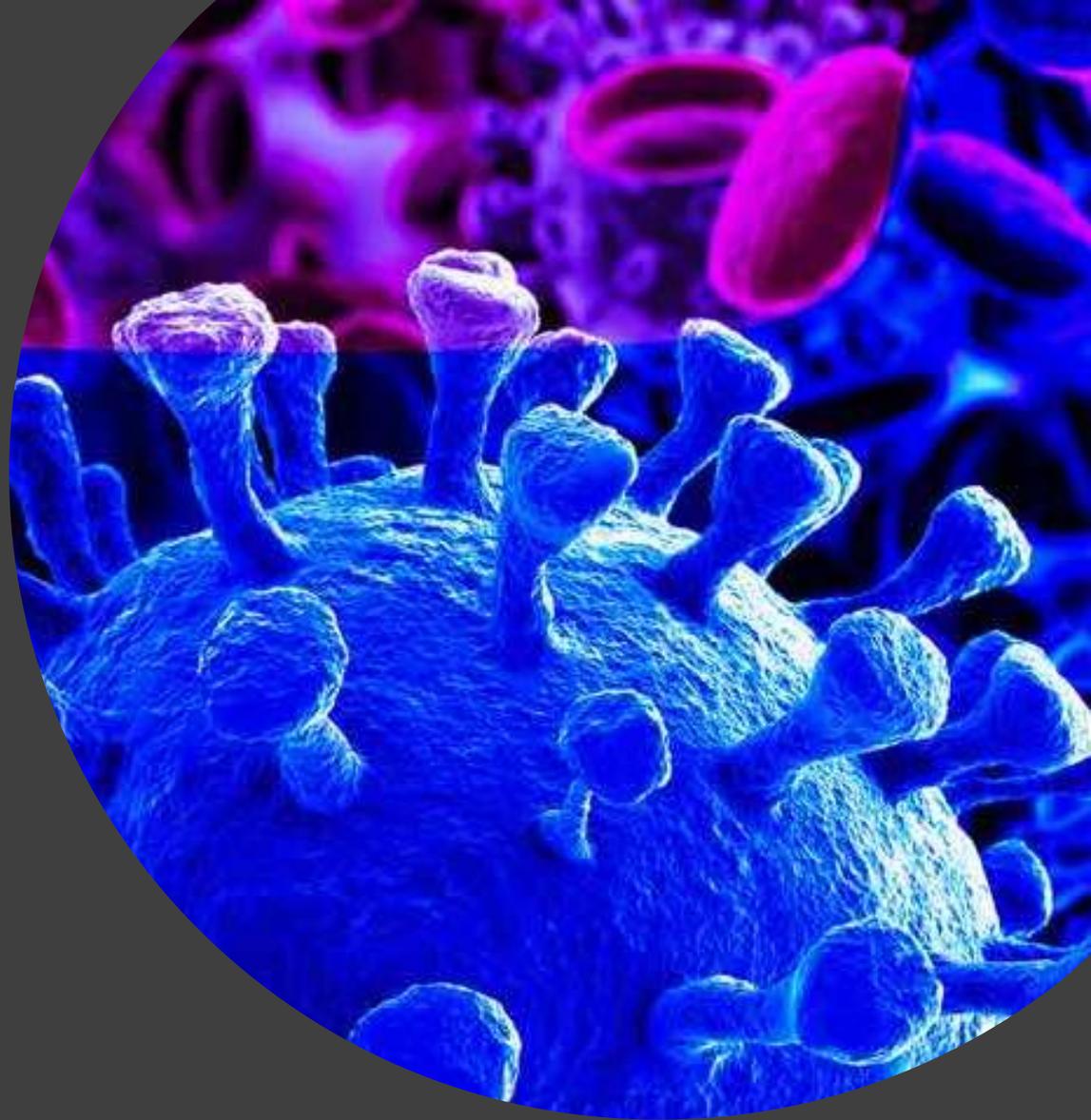
Figure 2. Transmission cycle of the Ebola Virus (Rodriguez et al., 1995).

COVID-19



Predict, prevent and control zoonotic EIDs

- Priority actions:
 - Fully characterise the causative viruses
 - Understand mammalian viral persistence
 - Understand the conditions / stressors for host viral shedding and transfer pathways of spread
 - Conduct human, animal and environmental surveillance
 - Determine control options with clear measurements of outcomes and success
 - Conduct applied research to address the unknowns



Lessons learned internationally

- Expect the unexpected e.g. H1N1pdm2009 arising in Mexico
- Multiple, undetected spillover events occur creating opportunities for human adaptation e.g. HIV, SARS, Ebola, H7N9 etc.
- Superspreading events occur in part because of poor IPC practices e.g. SARS, Ebola, COVID-19
- Health facilities as a point of amplification of transmission e.g. SARS, Ebola, MERS, COVID-19
- A growing list of recent bat-borne zoonotic spill over events. Efficient animal reservoirs e.g. bats, have co-evolved with many viruses e.g. lyssaviruses, SARS-CoV, MERS-CoV, Ebola, and recently SARS-CoV-2



Lessons learned cont.



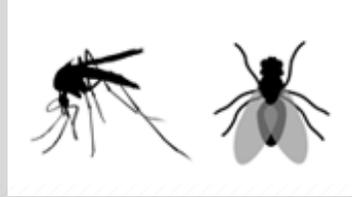
• Human behaviour drives epidemics

- Human encroachment into new ecological niches, including destruction of habitats
- Poor biosecurity practices in many countries
- Slaughter and consumption of wildlife e.g. bush meat (Ebola), civets (SARS)
- Multiple species under stress in wet markets
- Misuse of antibiotics
- Changes in food production e.g. BSE and vCJD
- Effects of climate variability and climate change

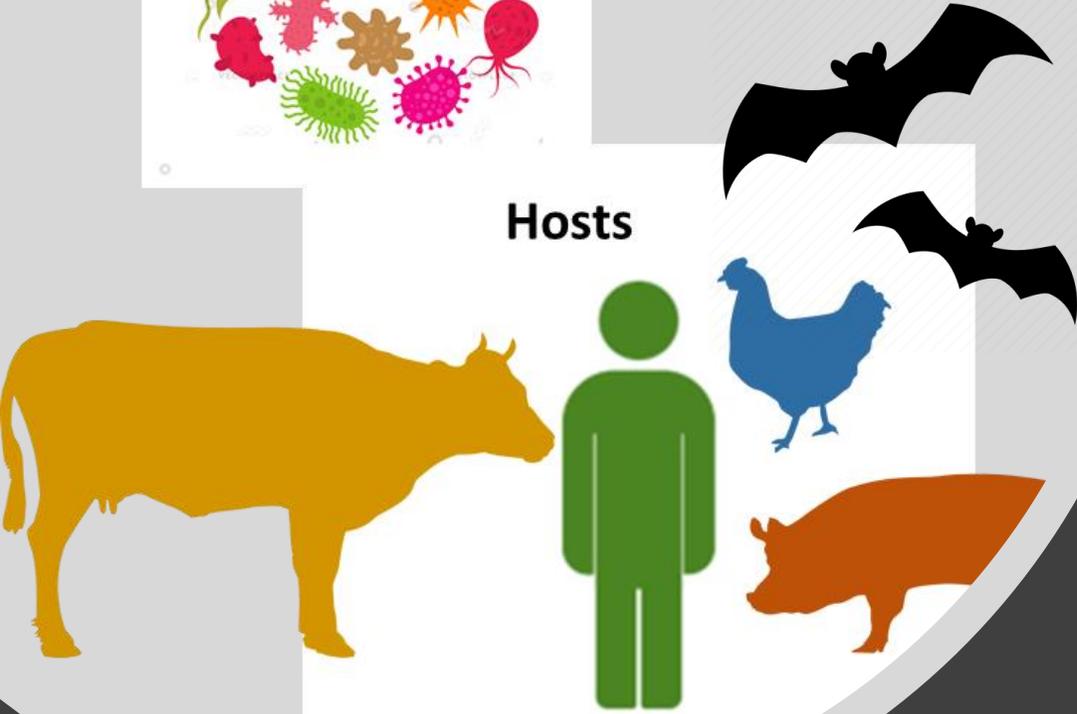
Pathogens



Vectors



Hosts



Why is One Health important in the Pacific?

- Brucellosis, leptospirosis, seafood intoxications, vector borne diseases are all examples of diseases or toxins that originate in animals, cause disease in humans, and are influenced by the **ecology** in which these interactions occur
- Prevention & control of multidrug resistant organisms / AMR also requires multisectoral action

Multidisciplinary, Multisectoral, Multilevel

- Locally acquired zoonotic diseases may be of low incidence in the Pacific island countries and areas BUT
- Establishing intersectoral relationships before the next BIG EVENT that requires a well-coordinated response
- Cross-sectoral surveillance, monitoring and data sharing across fields of ecology, human & animal health (public health, epidemiology, clinical medicine, laboratory sciences, mammology, sociology, economics etc.
- Livestock, wildlife, companion animals
- Central role of risk communication and community engagement

Frameworks for action

- **Healthy Islands vision** has been the unifying theme for health security and health promotion in the Pacific since 1995
- Maintaining ecological balance is a key theme
- International obligations for surveillance, diagnosis, assessment and response to potential threats at the human-animal-ecology interface include -
 - International Health Regulations (IHR, 2005)
 - Terrestrial Animal Health Code (2016)
 - Codex alimentarius and World Trade Organisation (WTO) standards



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