



One health and emerging infectious diseases – what is the connection?

Jacqueline Weyer (PhD MPH)

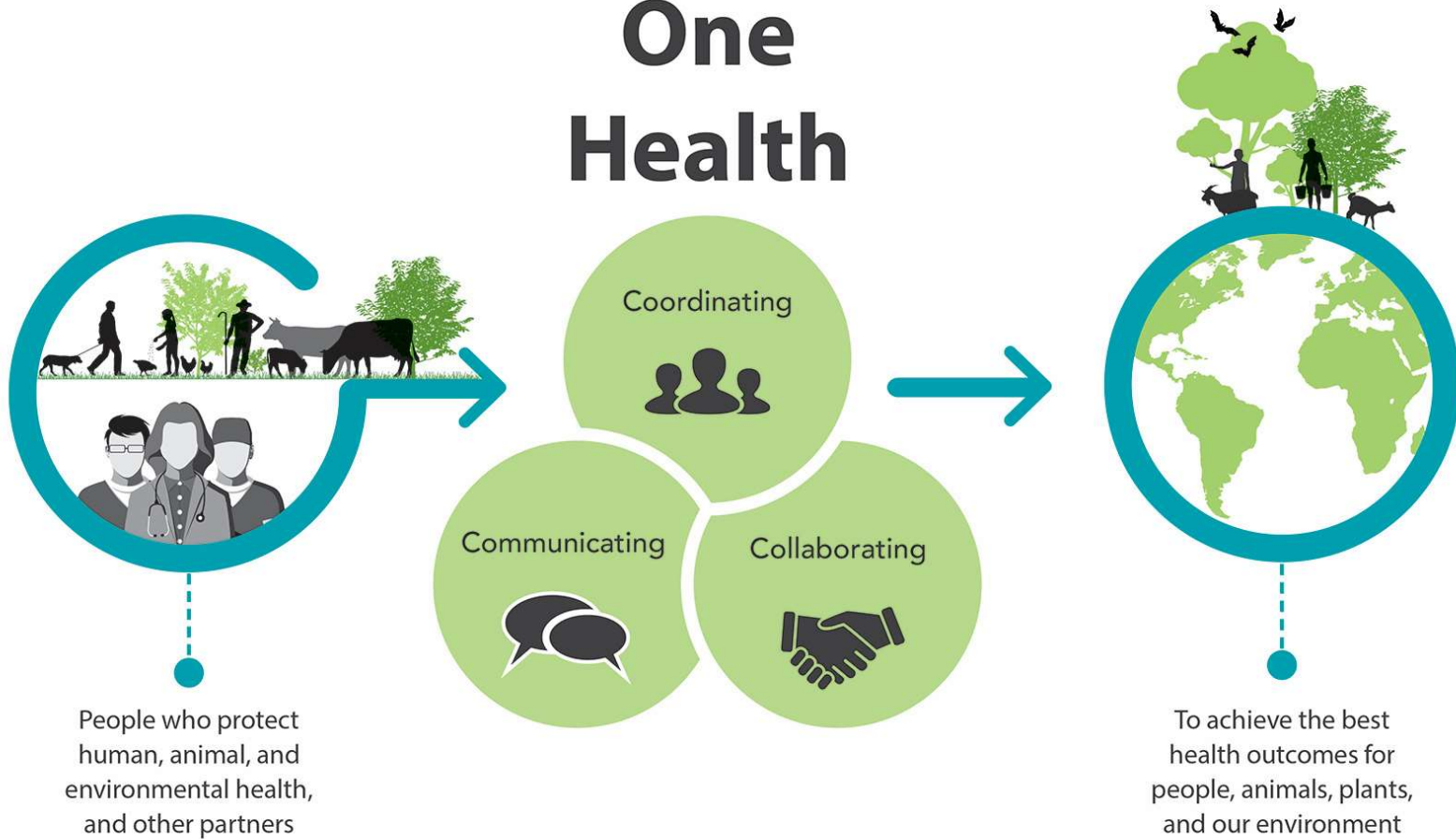
29 May 2019

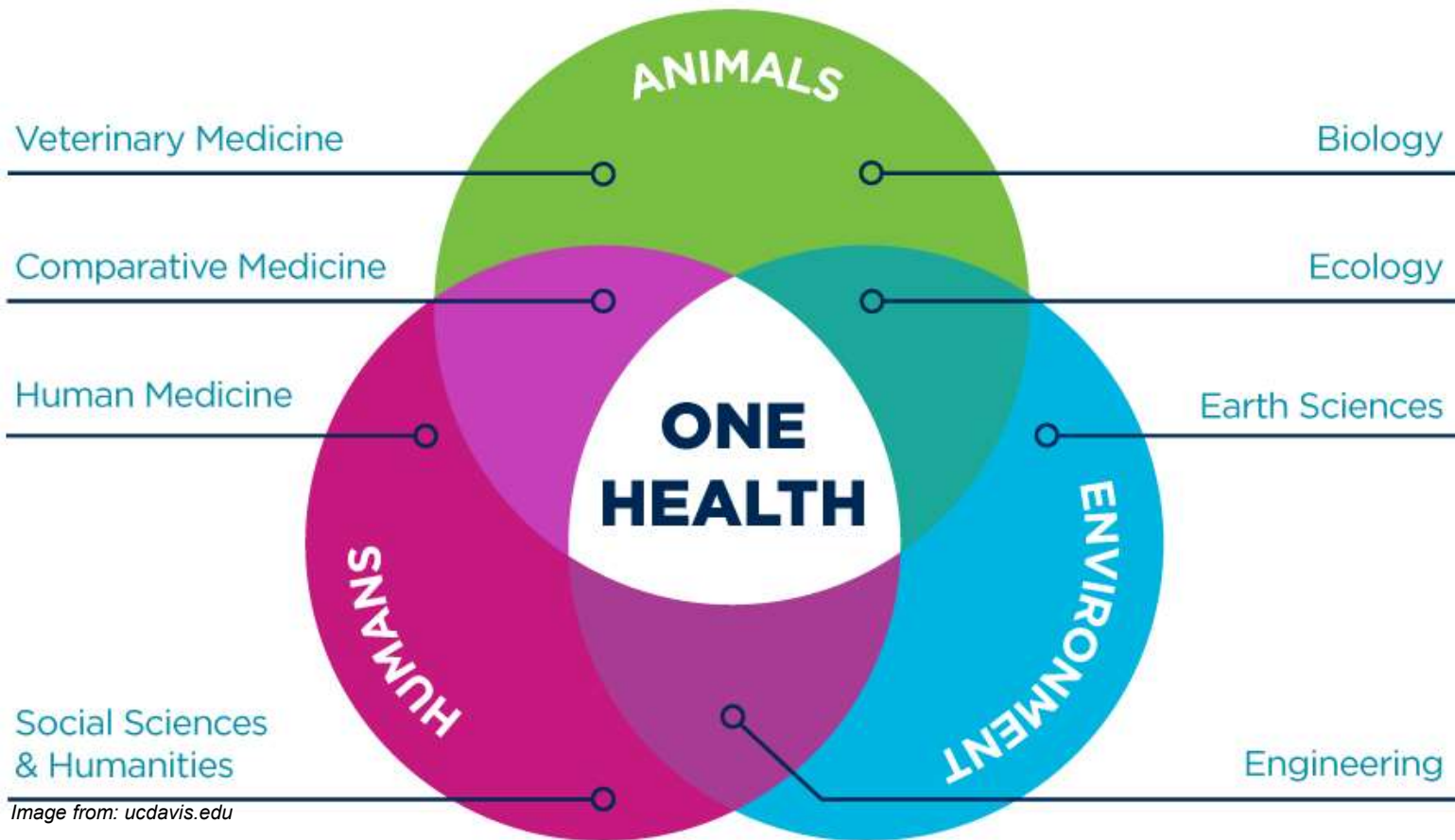
NICD Forum

 NATIONAL INSTITUTE FOR
COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

One Health





One Health: An integrated approach to public health that considers the interlinked nature of human, animal and environmental health. Considers the health of humans, animals and the environment and requires the consequent multi-sectoral approach for management.

CHALLENGES FOR ONE HEALTH APPROACH

- Compartmentalization of government structures, difficulty of cross-ministerial collaboration, but also training in health
- Differences in objectives and focus areas (for example Ebola virus disease). Competing priorities – for example many zoonotic diseases are considered neglected diseases (or NTDs)
- Who is the boss? Taking responsibility with multi-sectoral collaboration
- Lack of socioeconomic evidence to promote concrete policy shifts (Okello et al, 2014)
- Lack of political will? “...if economists can demonstrate the monetary value of what we are doing (that is one health), then the political impetus would follow quite rapidly....” (Johnson et al, 2018).





ONE HEALTH:
ONE GLOBAL ENVIRONMENT
**ONE HEALTH
CONFERENCE**



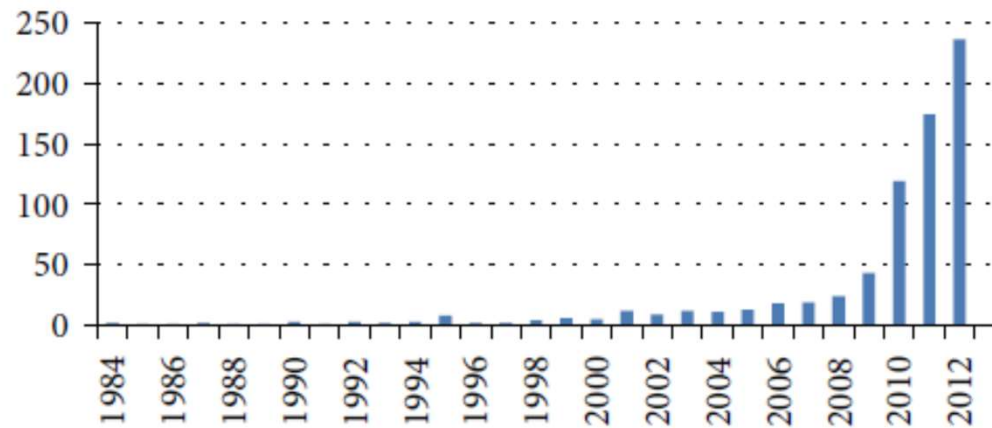


FIGURE 1: Frequency of recorded publications on one health between 1984 and 2012.

Review Article

Zoonoses and One Health: A Review of the Literature

Satesh Bidaisee^{1,2} and Calum N. L. Macpherson^{2,3}

¹ Department of Public Health and Preventive Medicine, St. George's University, School of Medicine, St. George's, Grenada

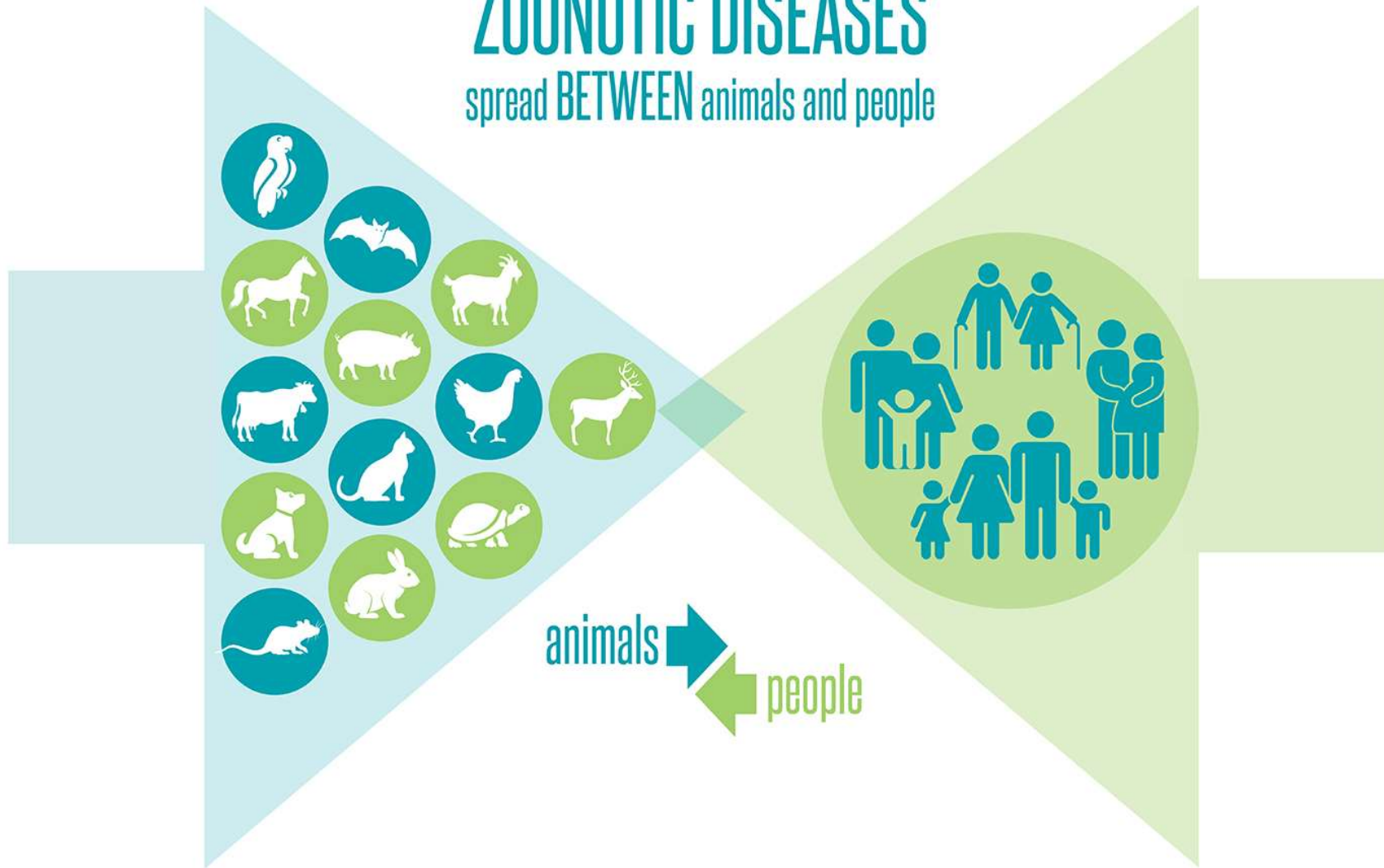
² Windward Islands Research and Education Foundation, St. George's, Grenada

³ Department of Microbiology, St. George's University, School of Medicine, St. George's, Grenada

Journal of Parasitology Research
 Volume 2014, Article ID 874345, 8 pages
<http://dx.doi.org/10.1155/2014/874345>

ZOONOTIC DISEASES

spread BETWEEN animals and people





Animal
Medicines
Australia

Zoonosis

75%

Up to 75% of all human diseases are zoonotic in origin, meaning they are naturally transmitted between animals and humans

200+

Currently there are over 200 identified zoonotic diseases that represent a clear threat to our health and the welfare of animals

20%

Up to 20% of global animal production is lost to disease

\$120Bn

The impact of zoonotic epidemics from 1995 to 2008, many of them preventable, exceeded \$120 billion globally



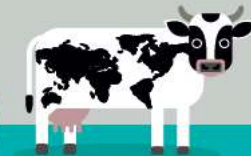
Some zoonotic diseases such as rabies can be eradicated



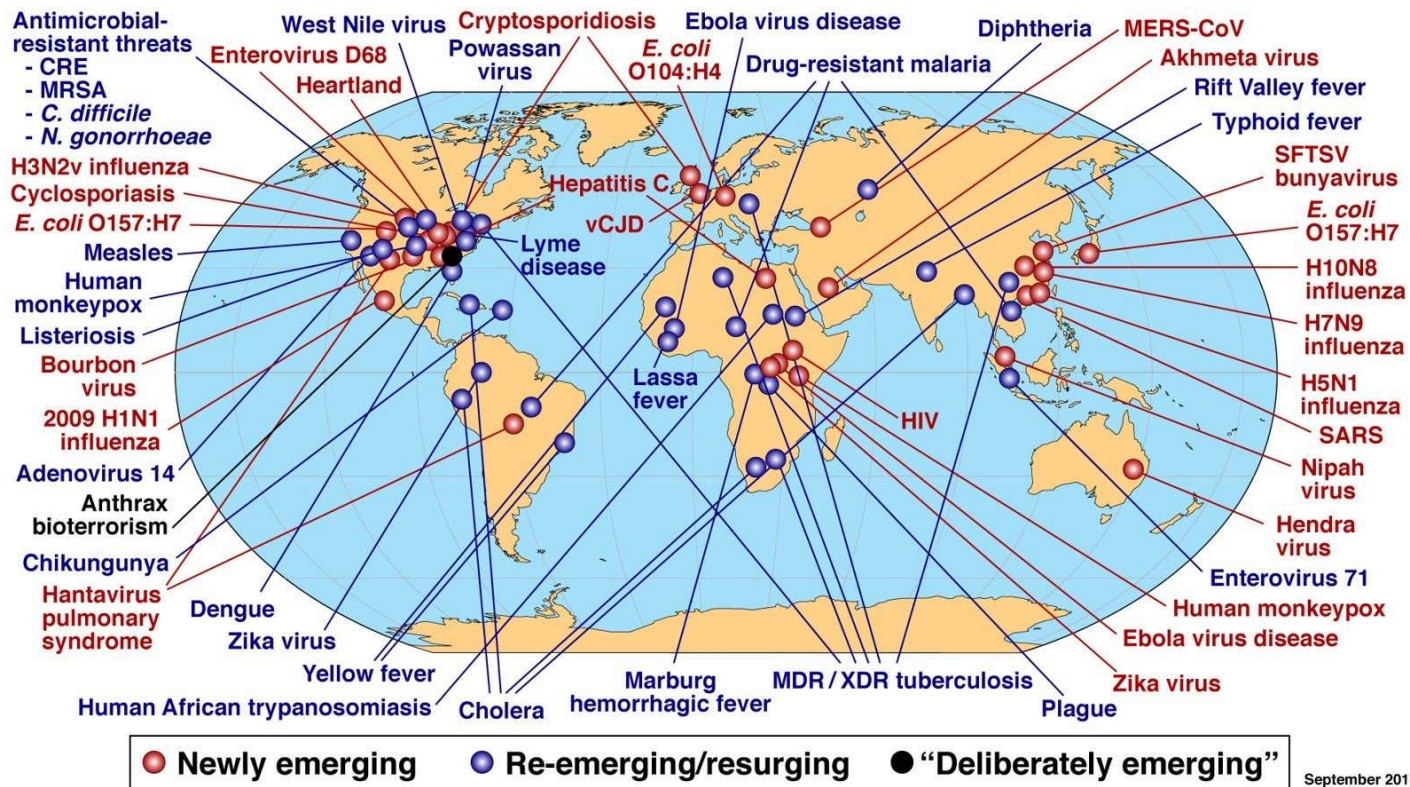
Preventive veterinary medicines & the widespread use & development of vaccines play an increasingly important role globally in effective disease control



The animal health industry is actively working with governments and regulators around the world to try to overcome the many challenges still existing to ensure that veterinary medicines can be delivered quickly and effectively when needed



Global Examples of Emerging and Re-Emerging Infectious Diseases



Emerging diseases:

Diseases that recently appeared in a population or when the incidence/geographic range of the disease have changed.

These are the 10 biggest threats to global health in 2019

Based on rankings from the World Health Organization

1. Air pollution and climate change
2. Noncommunicable diseases
3. Global influenza pandemic
4. Fragile and vulnerable settings
5. Antimicrobial resistance
6. Ebola and other high-threat pathogens
7. Weak primary healthcare
8. Vaccine hesitancy
9. Dengue fever
10. HIV

Source: World Health Organization

For more information: <https://www.who.int/emergencies/ten-threats-to-global-health-in-2019>

The WHO's top 8 list of diseases likely to cause severe epidemics

Crimean-Congo haemorrhagic fever
Ebola
Marburg
Lassa fever
MERS
SARS
Nipah
Rift Valley fever

Source: World Health Organization

1.4 billion



is the approximate number of people affected by mosquito-borne diseases each year.

Image from: ucdavis.edu



Rift Valley fever confirmed on Free State farm

16 May 2018 - 17:26 By Timeslive



Image: Centres for Disease Control

Rift Valley fever has been confirmed on a sheep farm in the Jacobsdal area in the Free State, the Department of Agriculture, Forestry and Fisheries said on Wednesday.



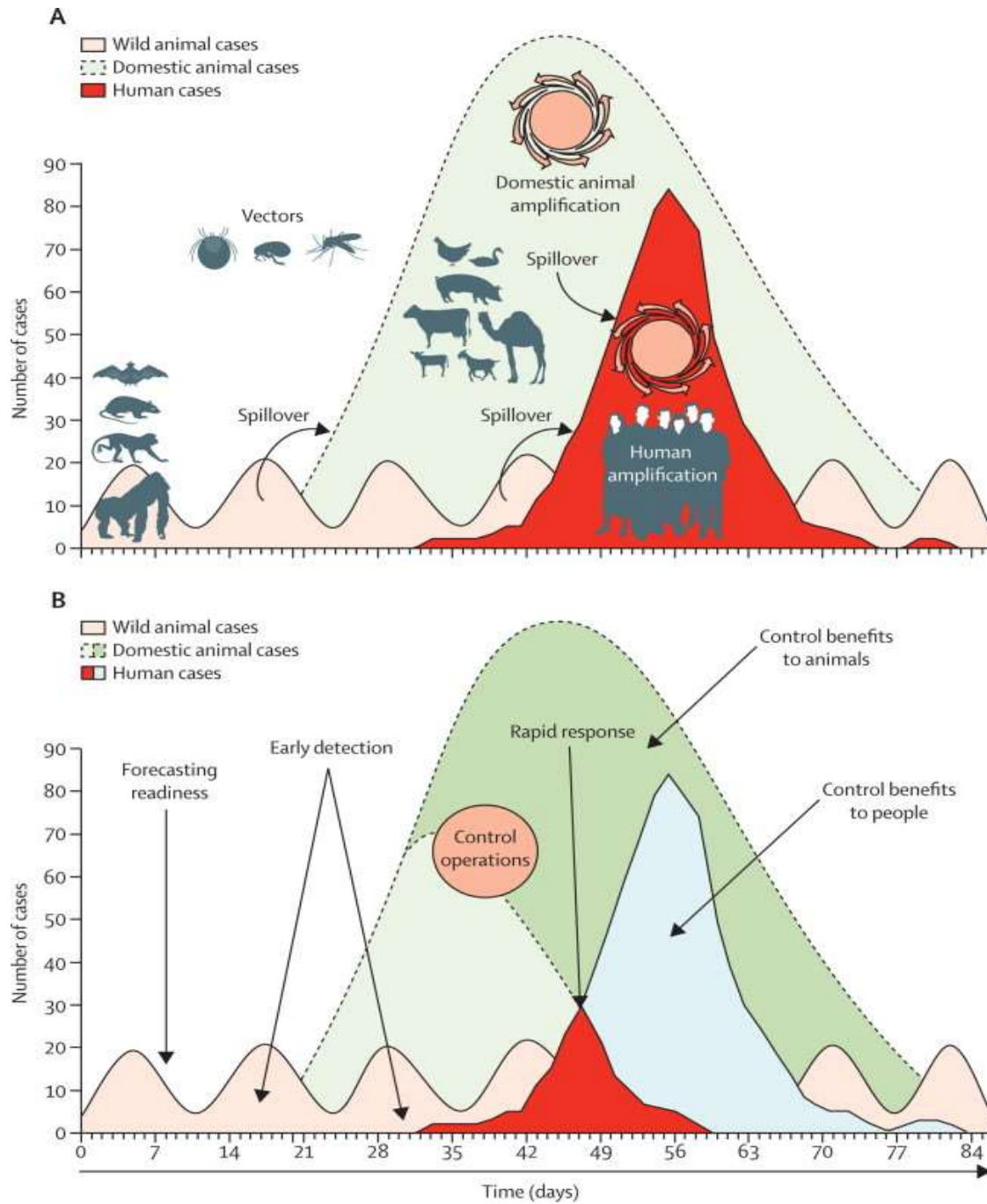
ZIKA VIRUS
ALERT

Images sourced from the internet

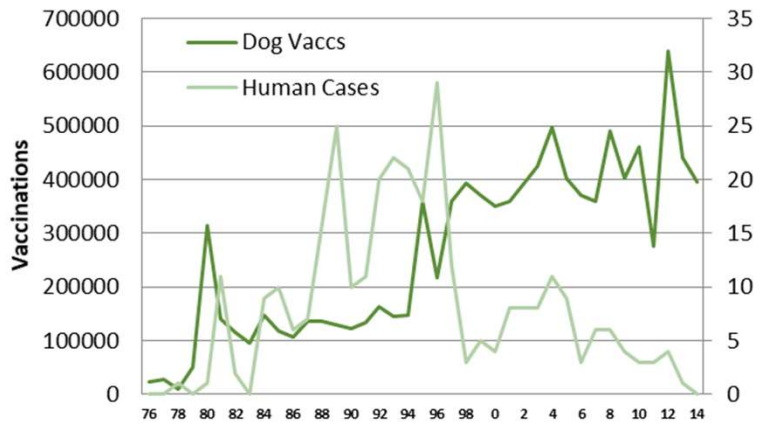


50%
of the world's
population is at
risk of malaria

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Dog Vaccinations Impact Human Cases?

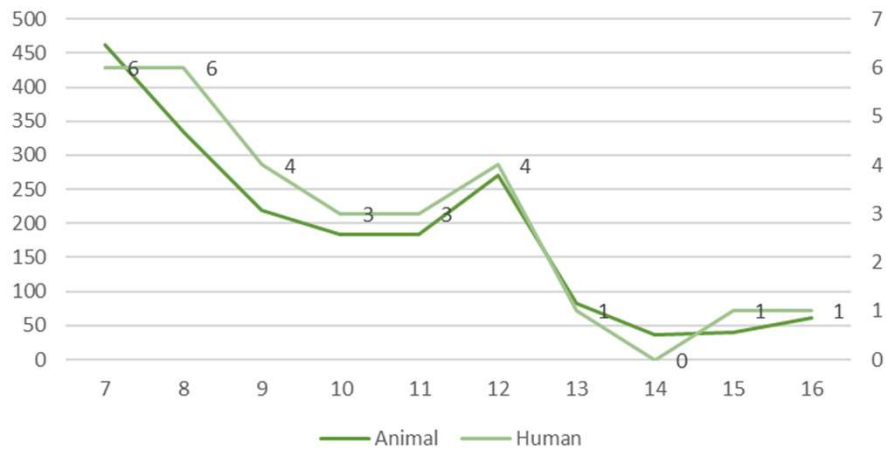


**DOG RABIES =
HUMAN RABIES**

**MOST IMPORTANT
INTERVENTION:**

DOG VACCINATION!

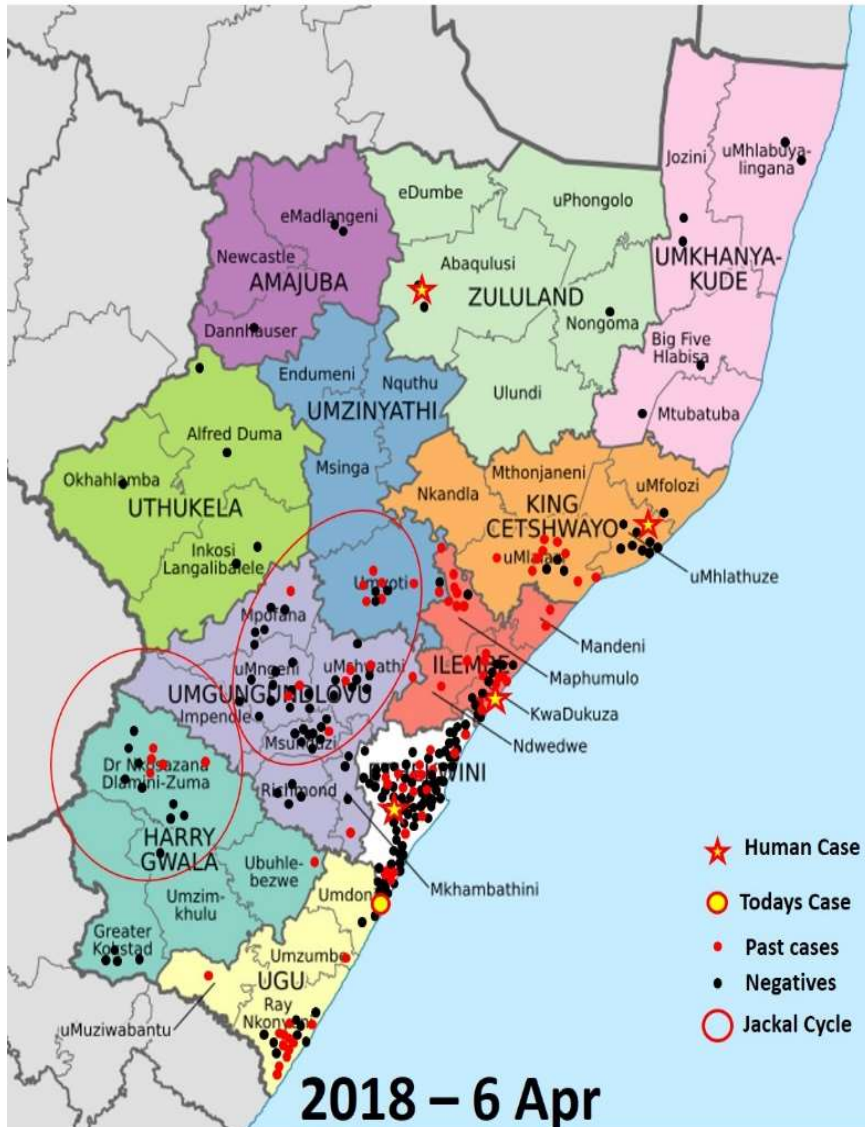
Animal and Human Rabies, KZN 2007-16



KwaZulu-Natal Rabies

1. Positive dog Scottsburg Ugu

CYCLES	
Canine	Jackal
66	17



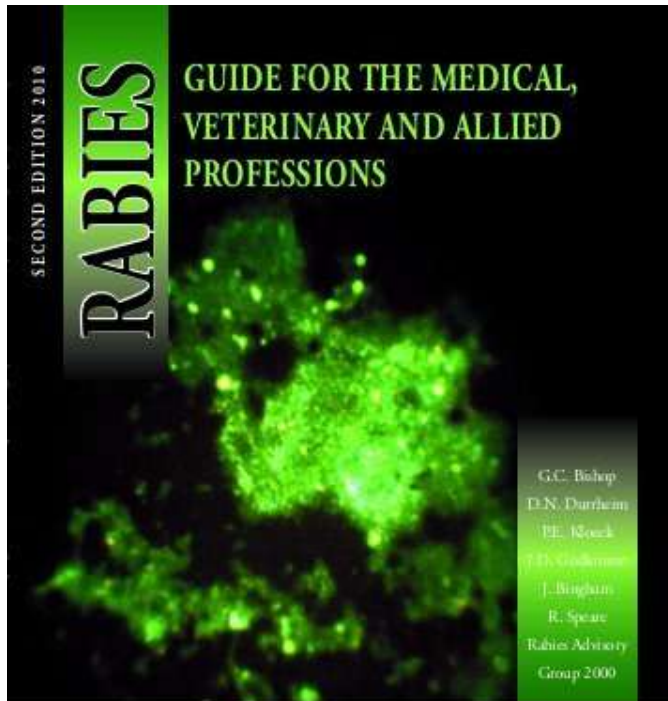
One health approach in data sharing
 Real time data sharing – emails/sms
 Data useful to inform public health interventions in real time
 Maps from Provincial Allerton Veterinary Laboratory



Laboratory confirmation of human rabies →

- **Intensified dog vaccination campaign**
- ↑ Community awareness
- Health care worker training
- Provision of rabies vaccine and immunoglobulin





- Multi-sectoral rabies advisory/action groups – national, provincial, district level
- Joint policies, guidelines



agriculture,
forestry & fisheries

Department:
Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

