

A global perspective on tackling COVID-19 now and preventing further pandemics in the future



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RESEARCH

Open Access



Asymptomatic only at first sight: malaria infection among schoolchildren in highland Rwanda

Kevin C. Sift¹, Dominik Geus¹, Caritas Mukampunga², Jean Claude Mugisha², Felix Habarugira², Kira Fraundorfer³, Claude Bayingana², Jules Ndoli², Irene Umulisa⁴, Corine Karema^{4,5,6}, George von Samson-Himmelstjerna³, Toni Aebischer⁷, Peter Martus⁸, Augustin Sendegeya², Jean Bosco Gahutu² and Frank P. Mockenhaupt^{1*}

Results: Upon examination, the vast majority of children was asymptomatic (fever 2.7%). *Plasmodium* infection was detected in 22.4% (*Plasmodium falciparum*, 18.8%); 41% of these were submicroscopic. Independent predictors of infection included low altitude, higher age, preceding antimalarial treatment, and absence of electricity or a bicycle in the household. *Plasmodium* infection was associated with anaemia (mean haemoglobin difference of -1.2 g/dL; 95% CI, -0.8 to -1.5 g/dL), fever, underweight, clinically assessed malnutrition and histories of fever, tiredness, weakness, poor appetite, abdominal pain, and vomiting. With the exception of underweight, these conditions were also increased at submicroscopic infection.

Conclusion: Malaria infection is frequent among children attending school in southern highland Rwanda. Although seemingly asymptomatic in the vast majority of cases, infection is associated with a number of non-specific symptoms in the children's histories, in addition to the impact on anaemia. This argues for improved malaria surveillance and control activities among school children.

“Asymptomatic” Malaria: A Chronic and Debilitating Infection That Should Be Treated

Citation: Chen I, Clarke SE, Gosling R, Hamainza B, Killeen G, Magill A, et al. (2016) “Asymptomatic” Malaria: A Chronic and Debilitating Infection That Should Be Treated. PLoS Med 13(1): e1001942. doi:10.1371/journal.pmed.1001942

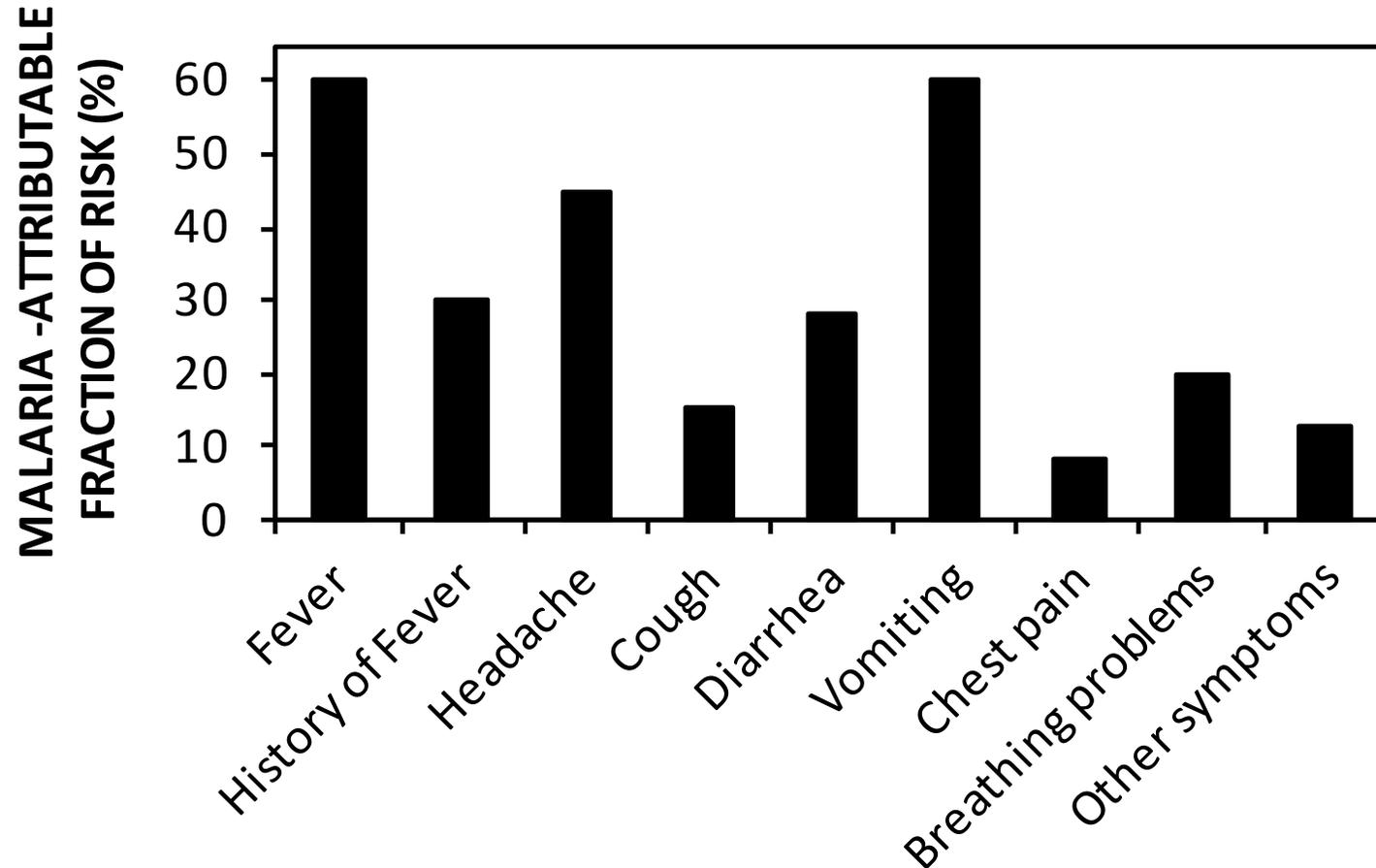


Figure 2. Fractions of risk for reported clinical symptoms which are attributable to malaria infection detected by Community Health Workers during active household visits (P<0.01 in all cases).

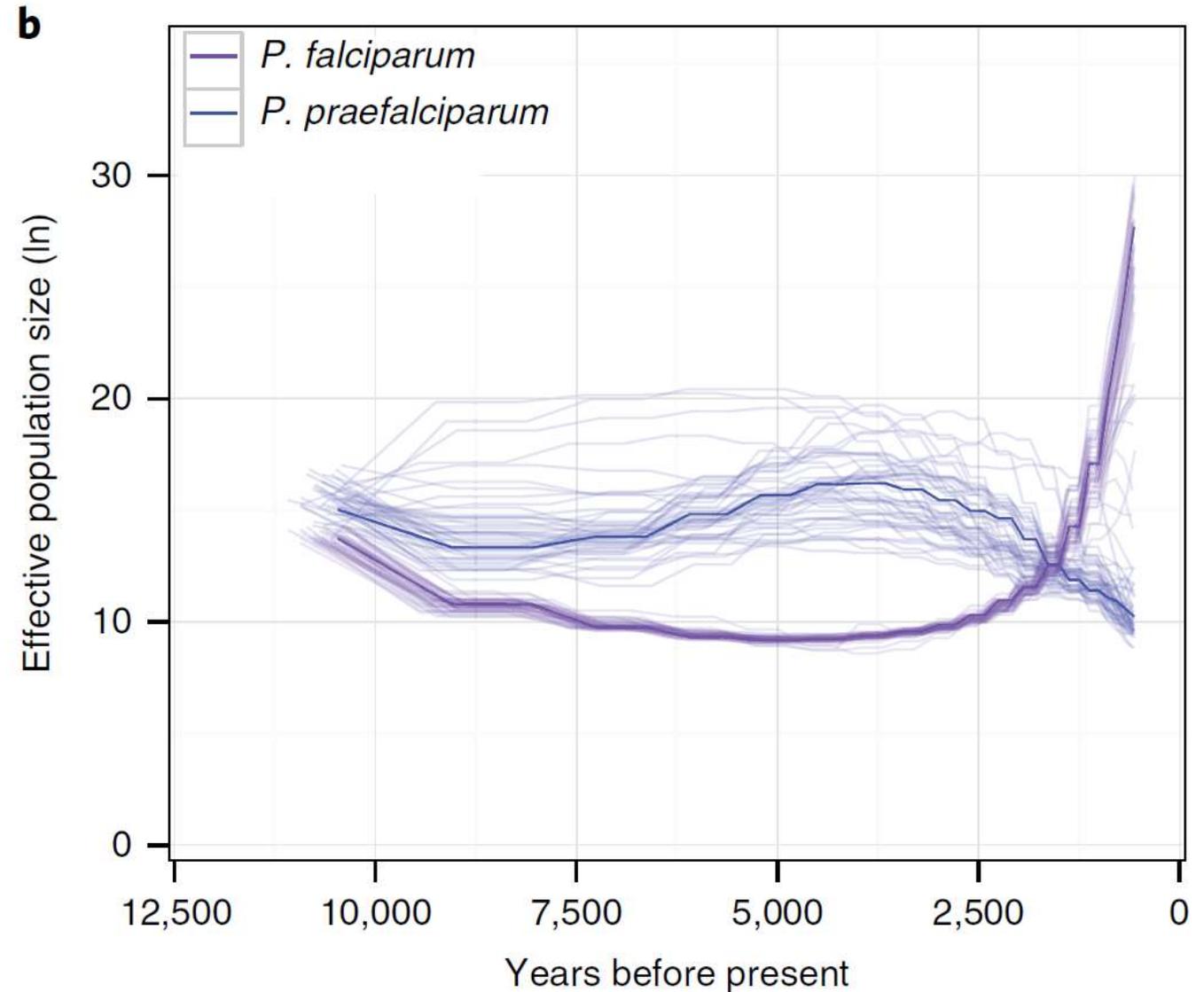
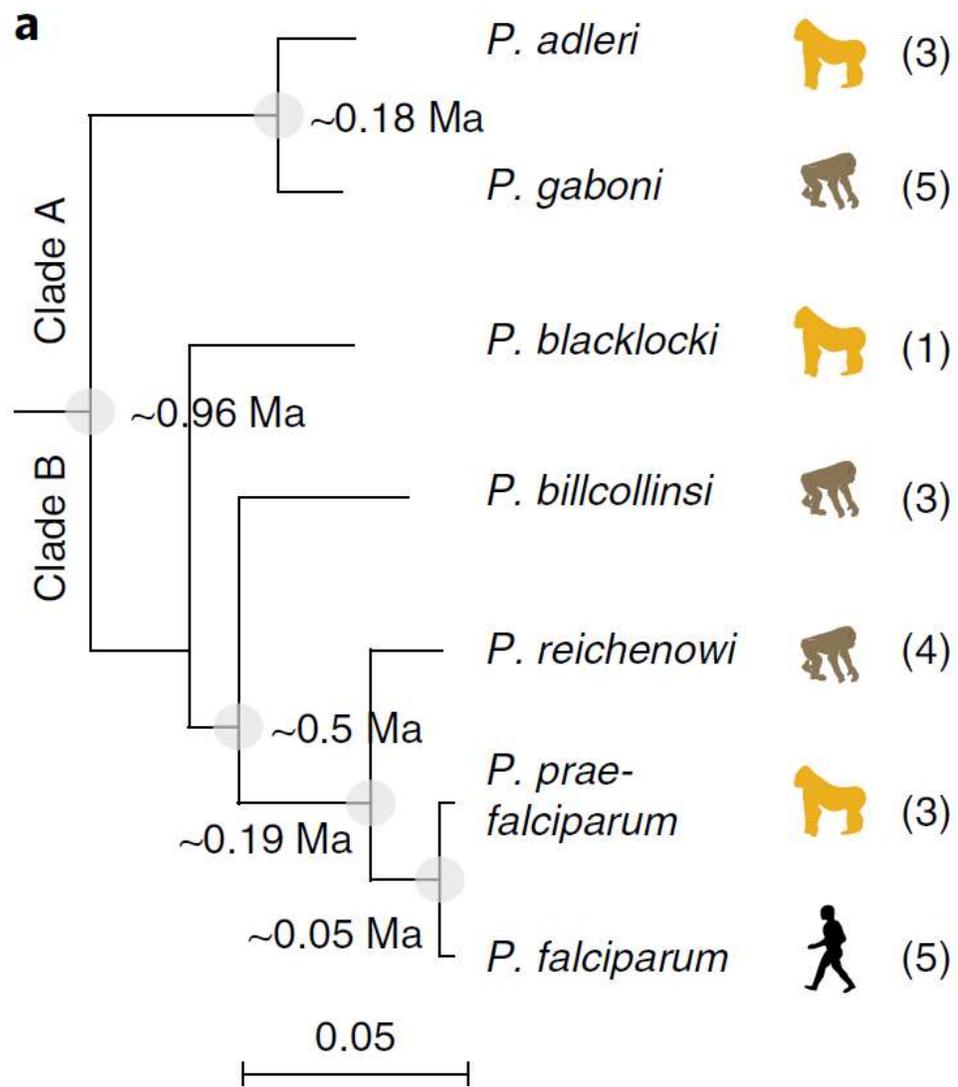
Eleven faces of coronavirus disease 2019

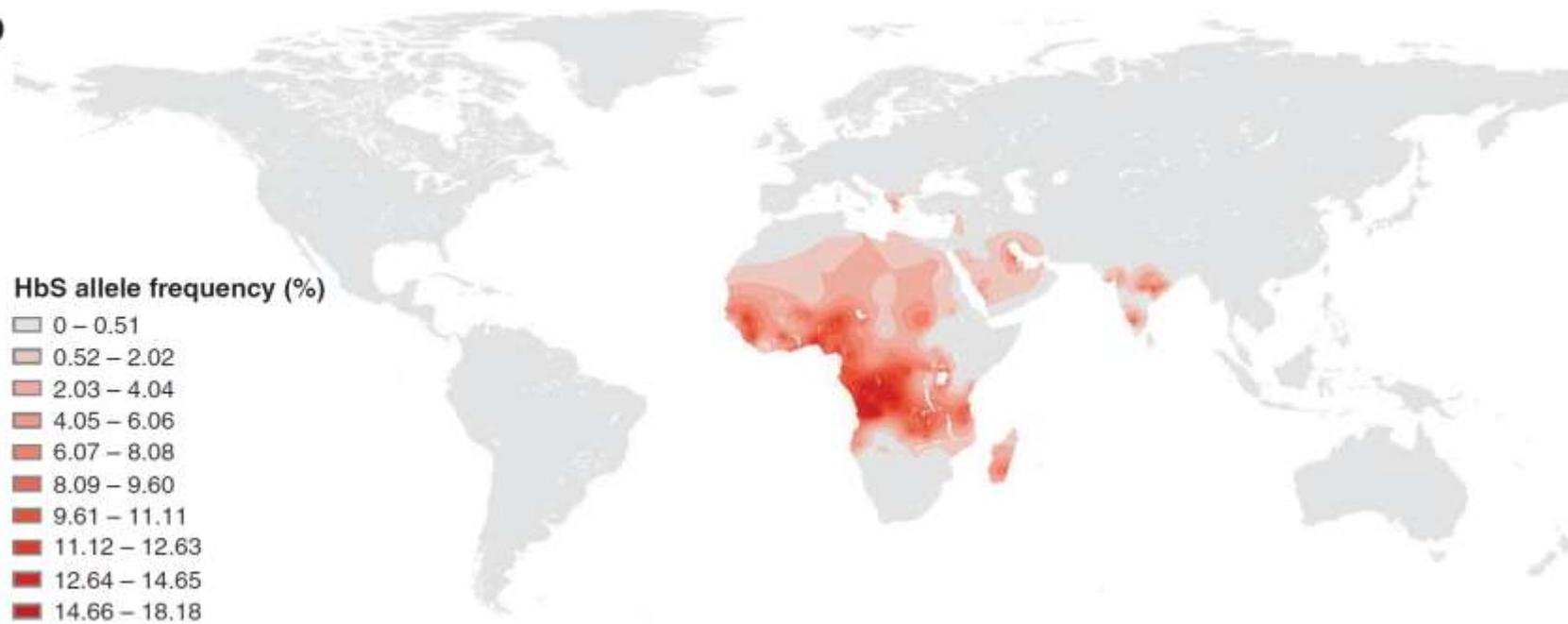
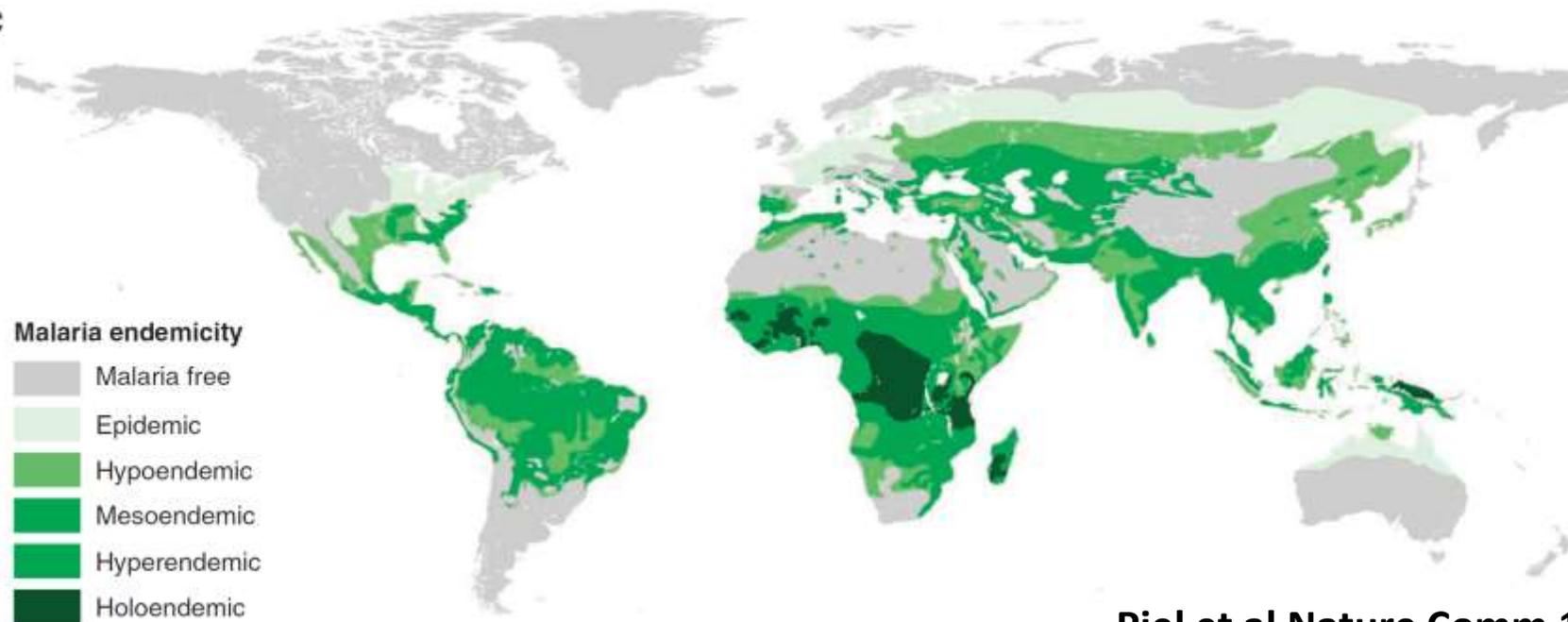
Xiang Dong¹  | Yi-yuan Cao² | Xiao-xia Lu³ | Jin-jin Zhang¹  | Hui Du³ |
You-qin Yan⁴ | Cezmi A. Akdis⁵  | Ya-dong Gao¹ 

Results: The clinical course of the eleven cases demonstrated the complexity of the COVID-19 profile with different clinical presentations. Clinical manifestations range from asymptomatic cases to patients with mild and severe symptoms, with or without pneumonia. Laboratory detection of the viral nucleic acid can yield false-negative results, and serological testing of virus-specific IgG and IgM antibodies should be used as an alternative for diagnosis. Patients with common allergic diseases did not develop distinct symptoms and severe courses. Cases with a pre-existing condition of chronic obstructive pulmonary disease or complicated with a secondary bacterial pneumonia were more severe.

Conclusion: All different clinical characteristics of COVID-19 should be taken into consideration to identify patients that need to be in strict quarantine for the efficient containment of the pandemic.

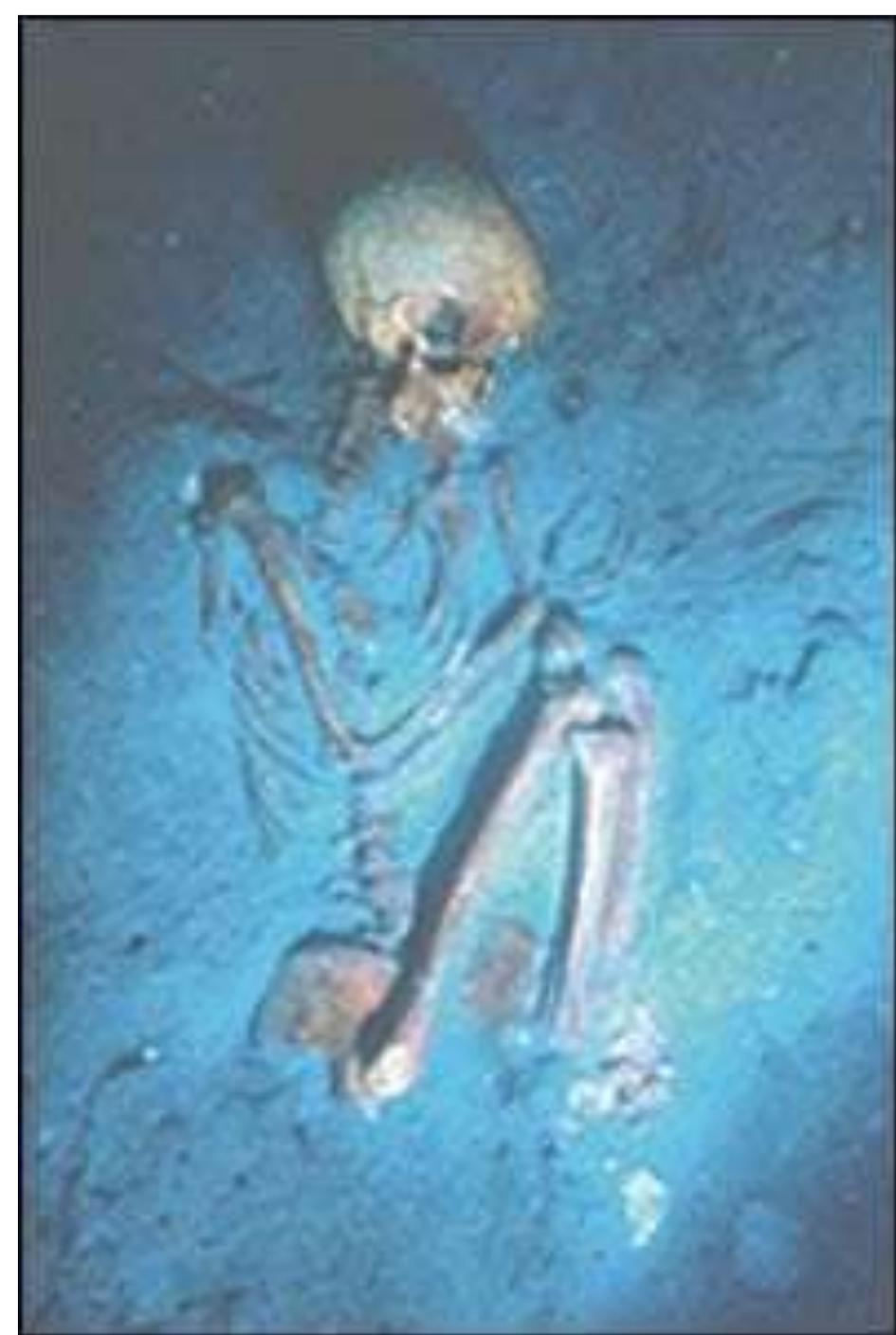
Genomes of all known members of a *Plasmodium* subgenus reveal paths to virulent human malaria



b**c**

EXTENDED TRANSMISSION OF FATAL BUT CHRONIC TUBERCULOSIS INFECTIONS



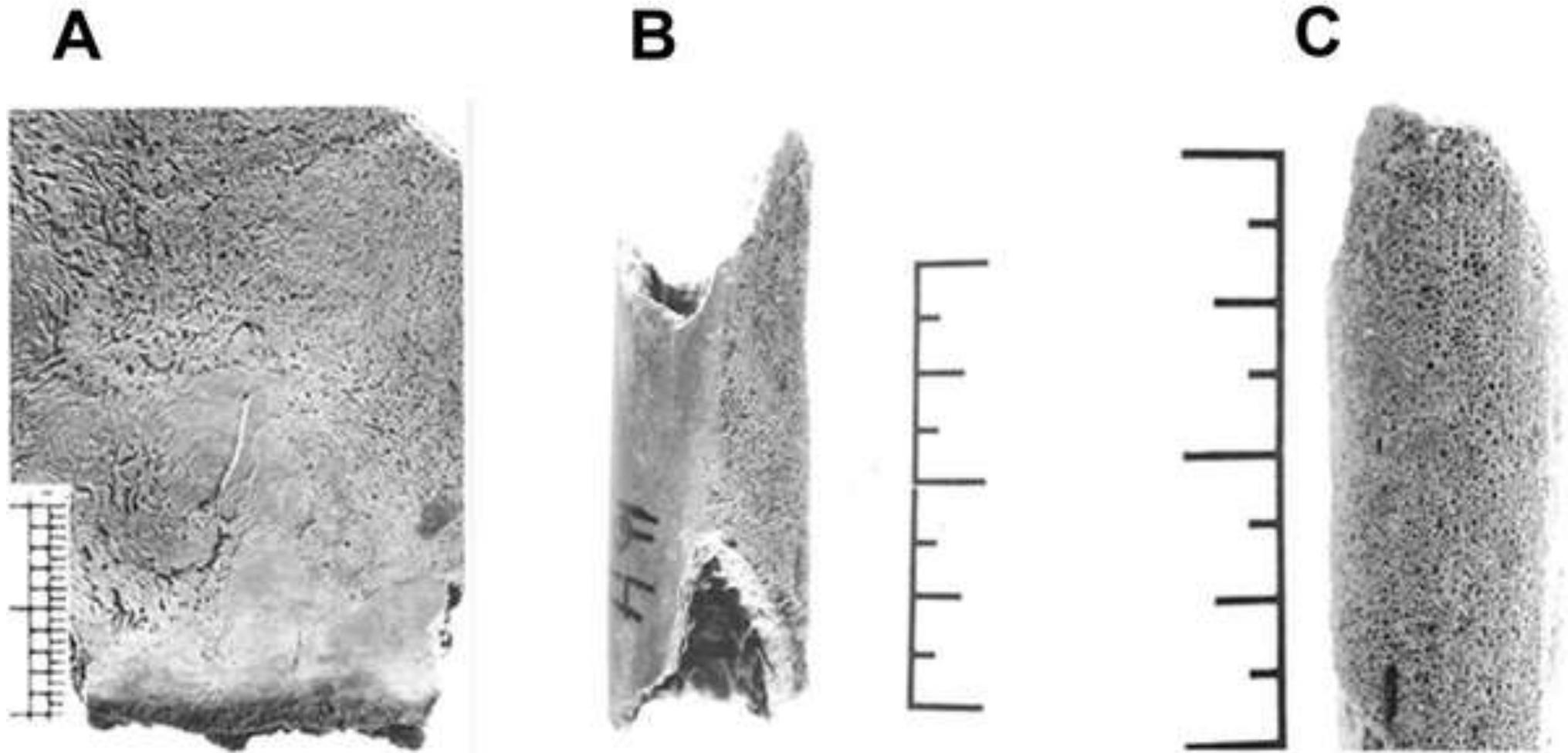


“It was not animals that infected humans, it was humans infecting humans”

**Dr Helen Donoghue,
University College London**

**Hershkovitz et al 2008
PLoS One 3: e3426**

Paleopathological lesions on Neolithic infant bones.



A. Endocranial surface of the infant showing marked engravings (*serpens endocrania symmetrica*, SES), which indicate chronic respiratory malfunction, and are usually associated with tuberculosis. **B.** Fragment of long bone of the infant. Note the intensive bone remodeling (hypertrophic osteoarthropathy, HOA) at the surface on the right side. **C.** Higher magnification of the HOA on the infant bone



The critically endangered Crested Honeycreeper, locally known as the Akohekohe, is projected to lose more than 90 percent of its range. Photo: Robby Kohley

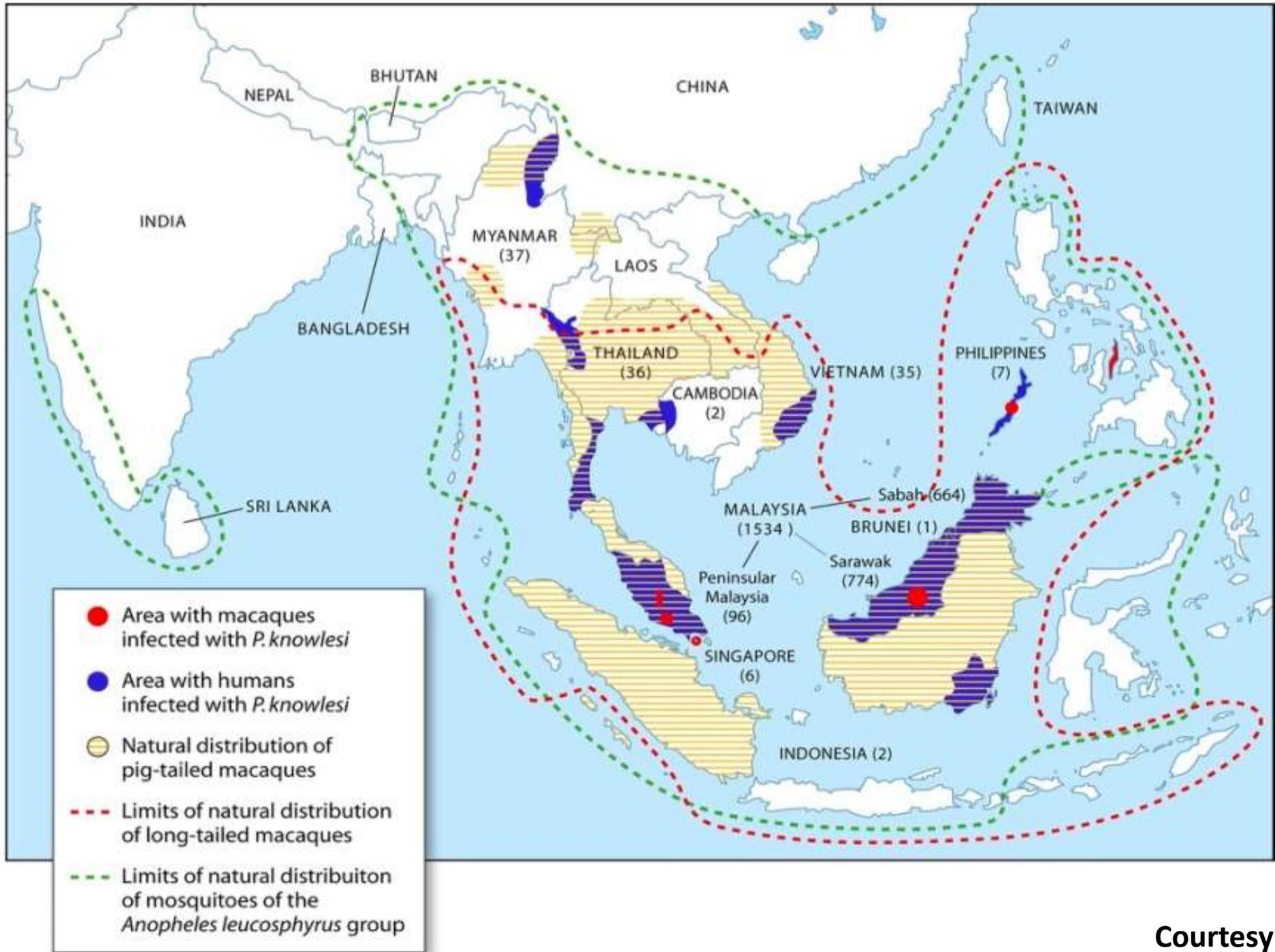
Longleat Safari Park penguins die in malaria outbreak

BBC

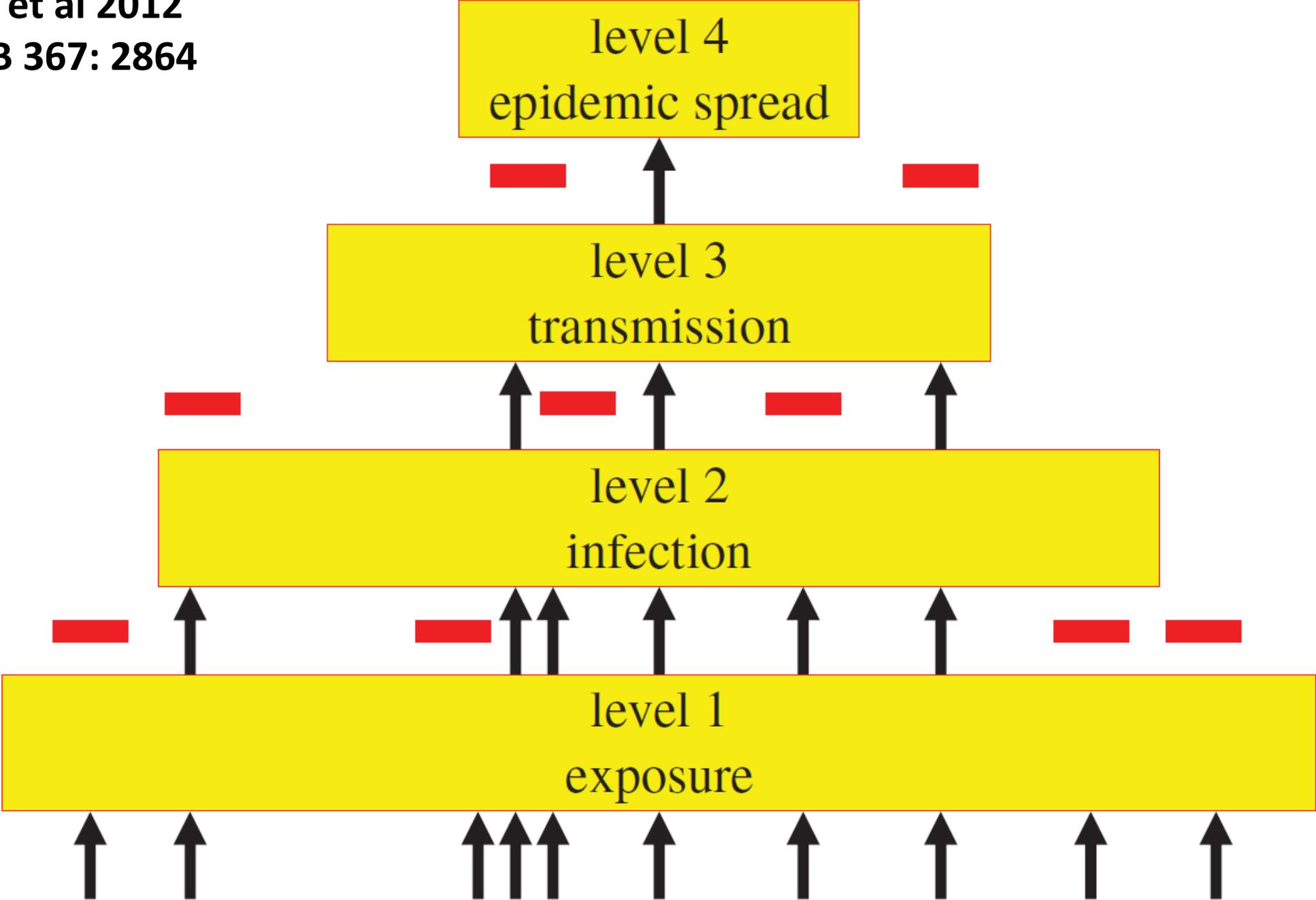
 Sign in

NEWS



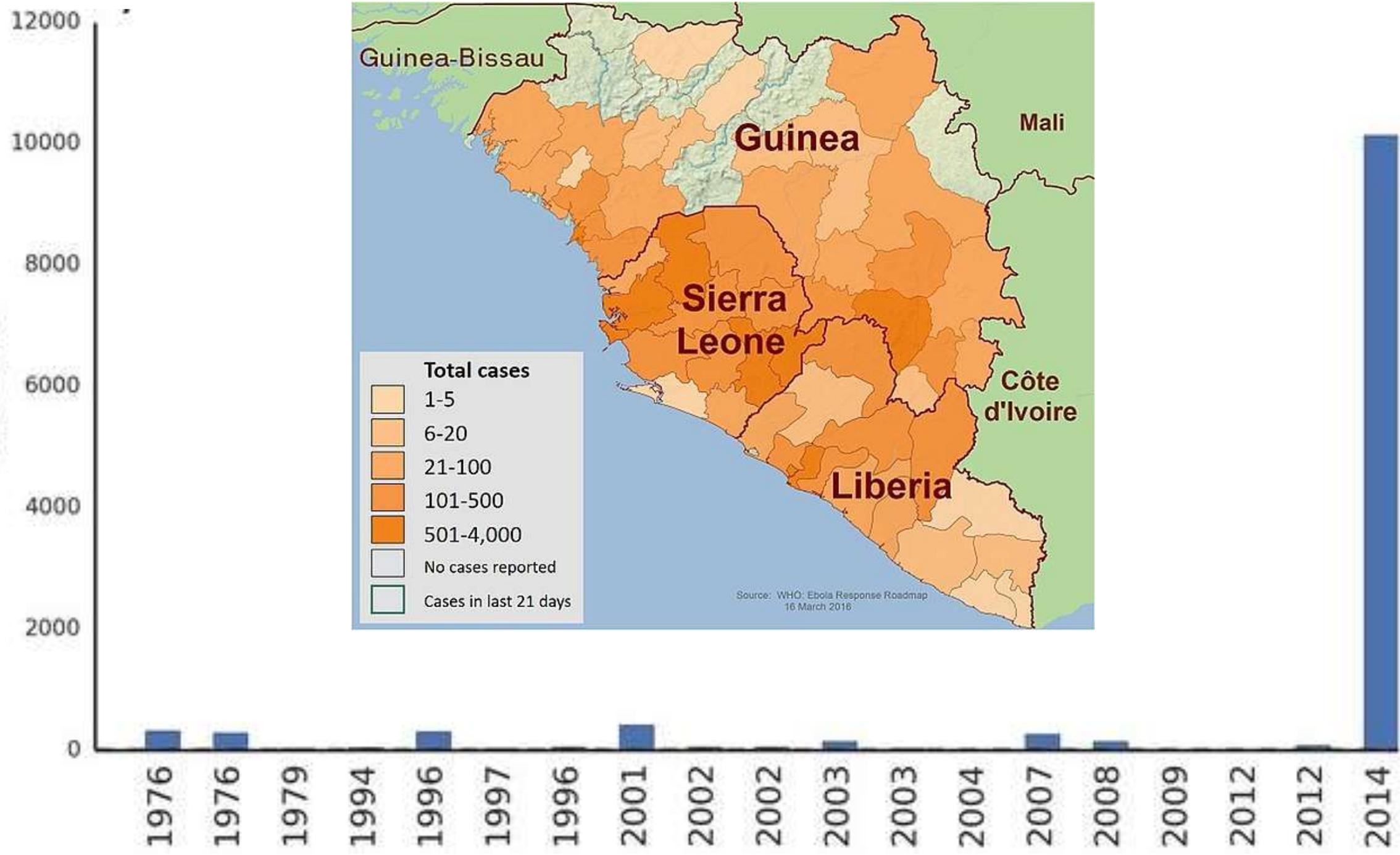


Courtesy of Heather Ferguson

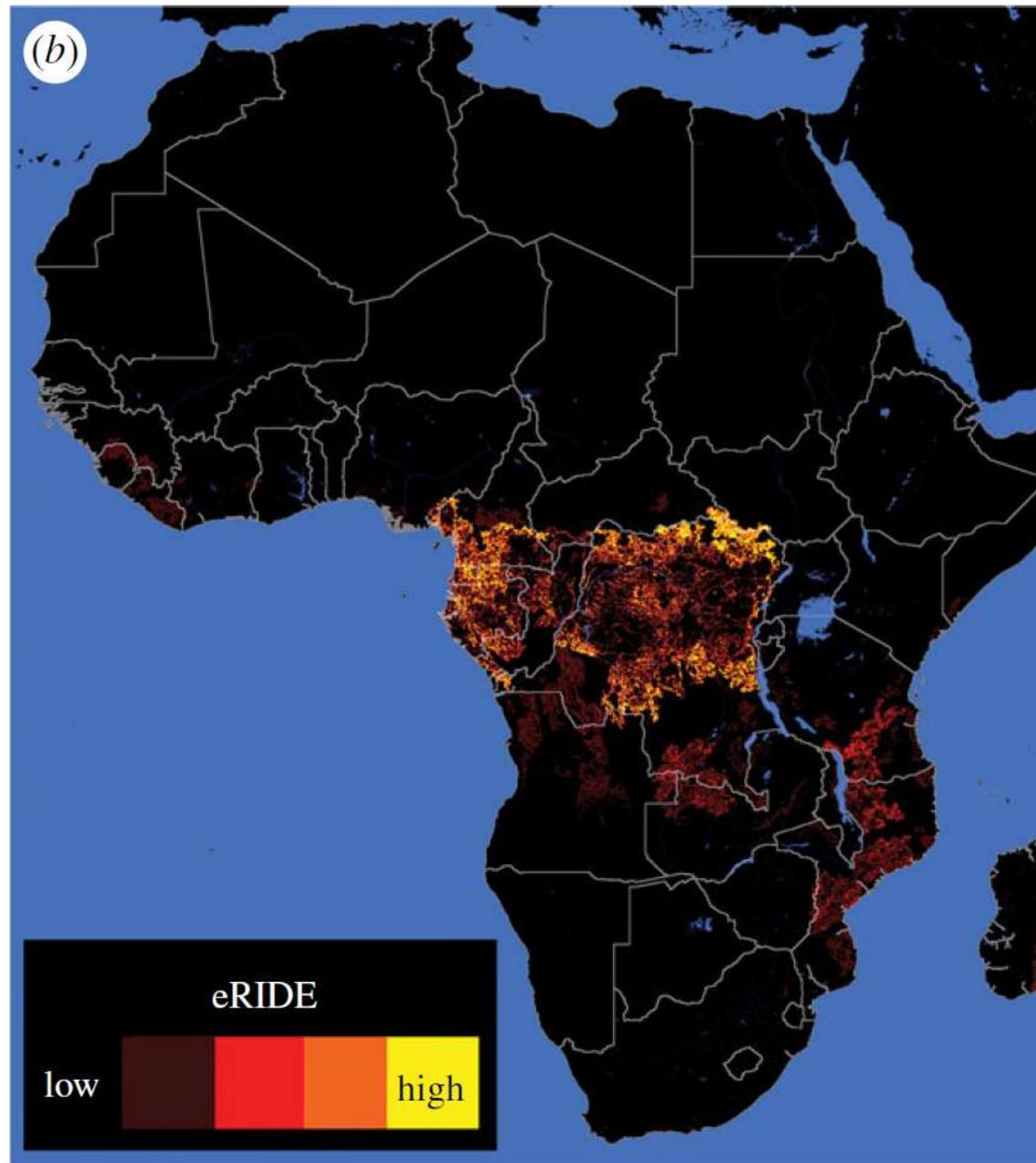
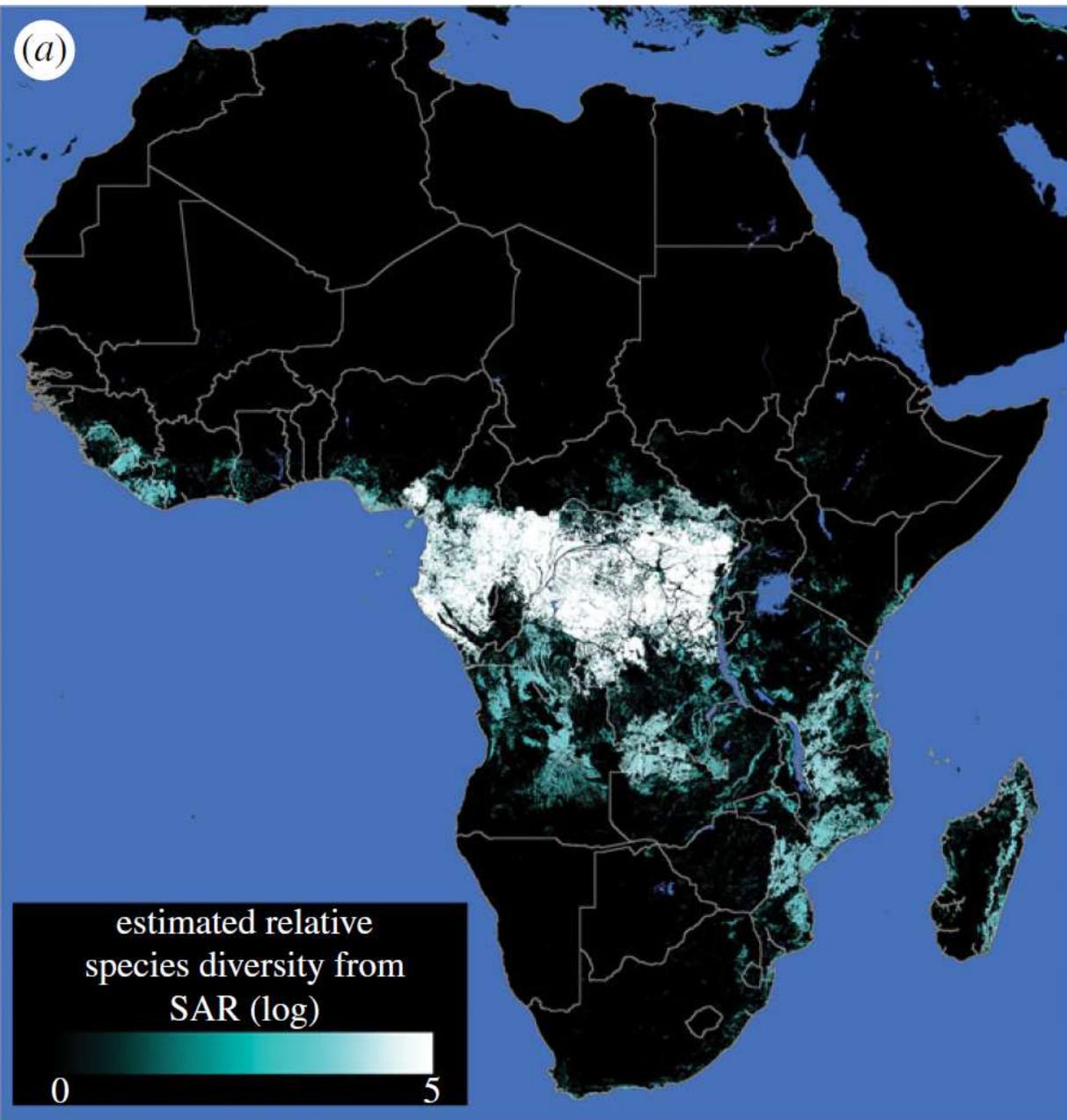




Case counts



Wilkinson et al 2019 Habitat fragmentation, biodiversity loss and the risk of novel infectious disease emergence

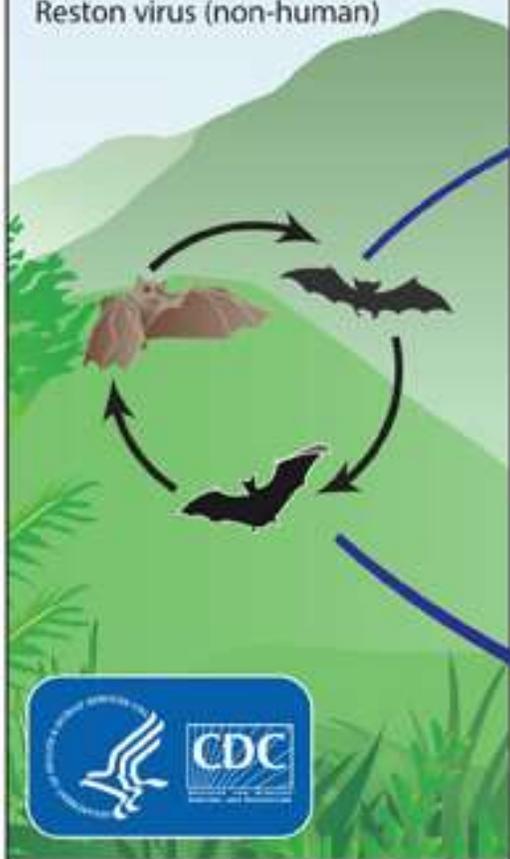


Enzootic Cycle

New evidence strongly implicates bats as the reservoir hosts for ebolaviruses, though the means of local enzootic maintenance and transmission of the virus within bat populations remain unknown.

Ebolaviruses:

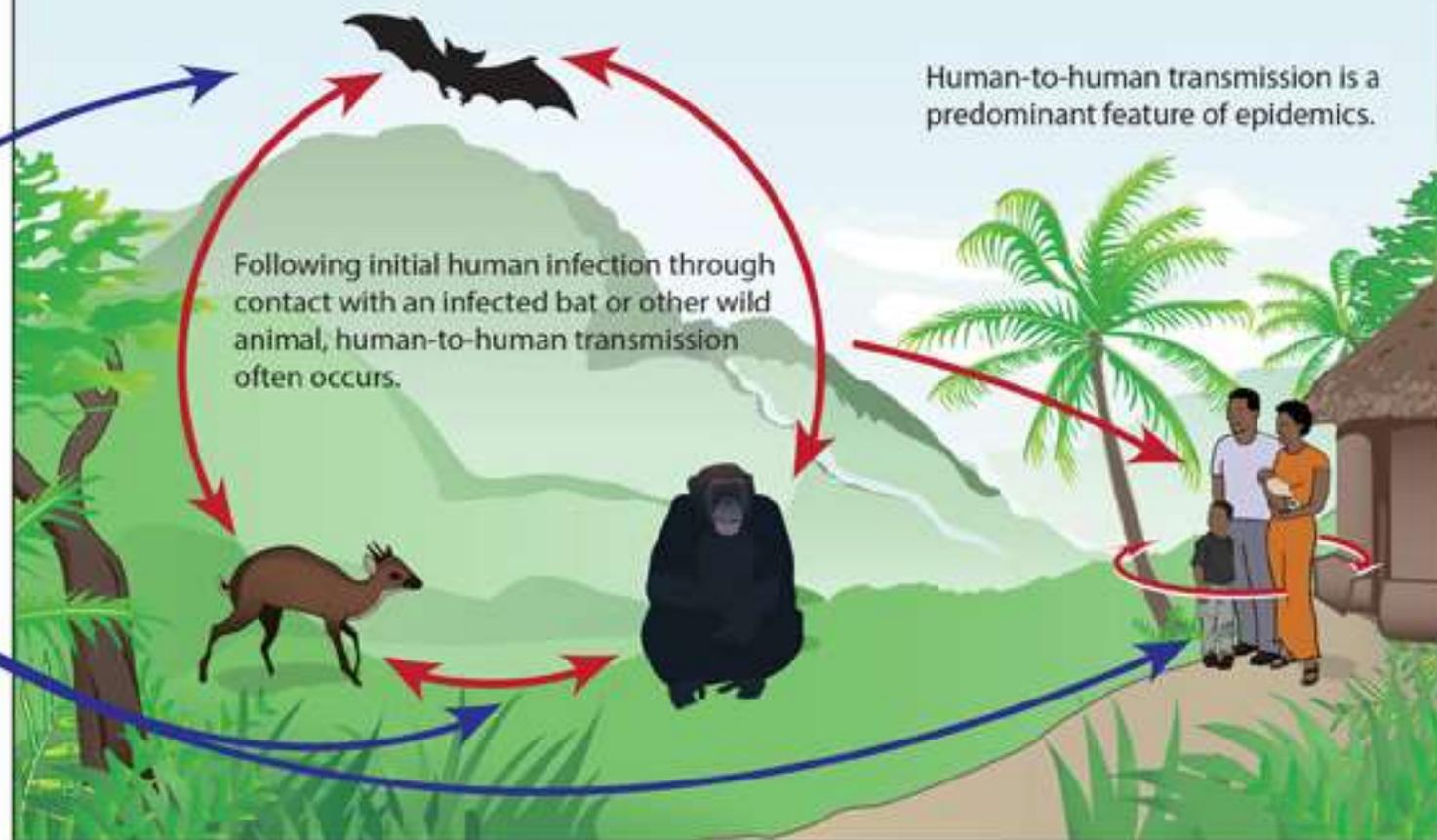
Ebola virus (formerly Zaire virus)
Sudan virus
Taï Forest virus
Bundibugyo virus
Reston virus (non-human)



Epizootic Cycle

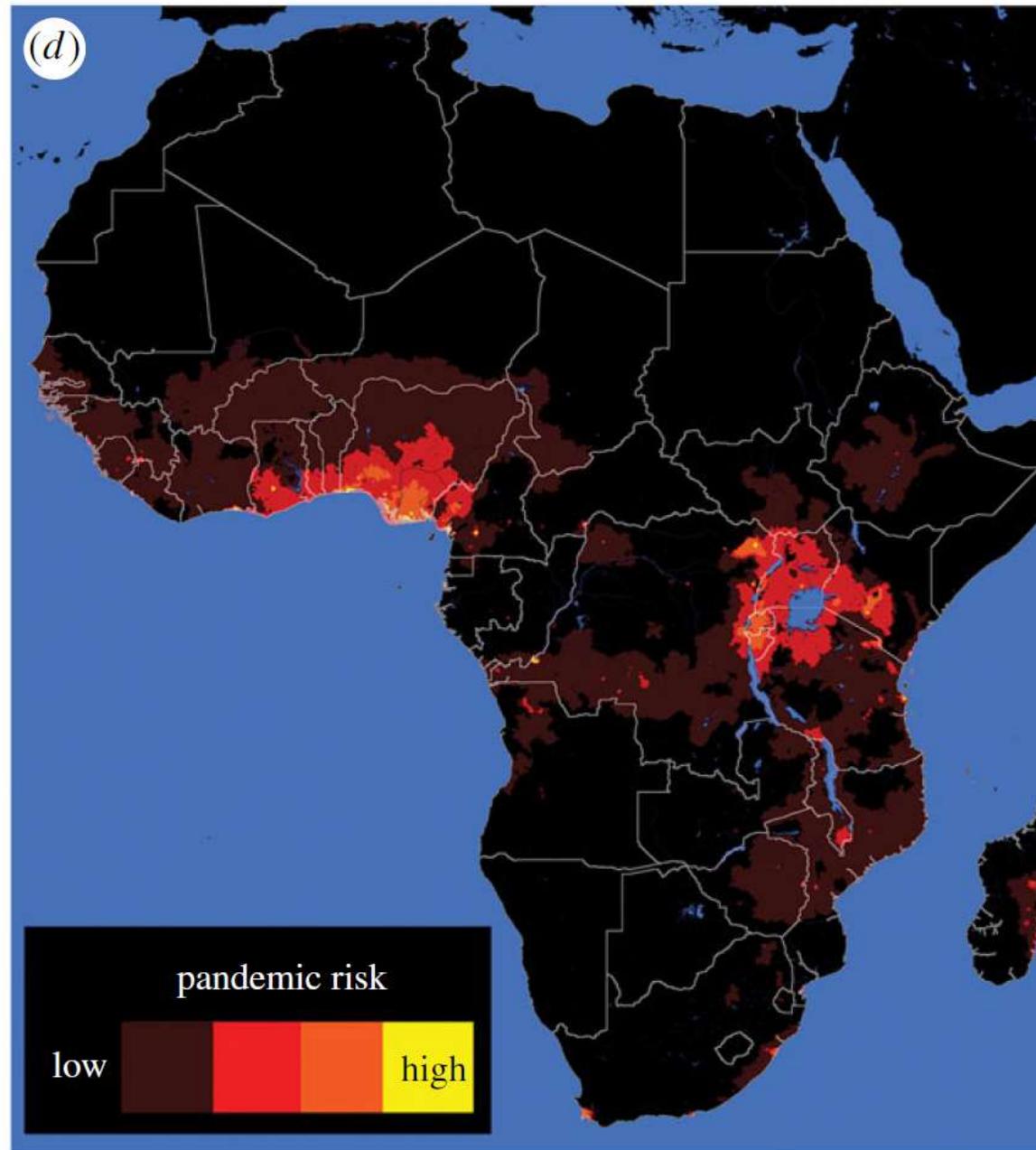
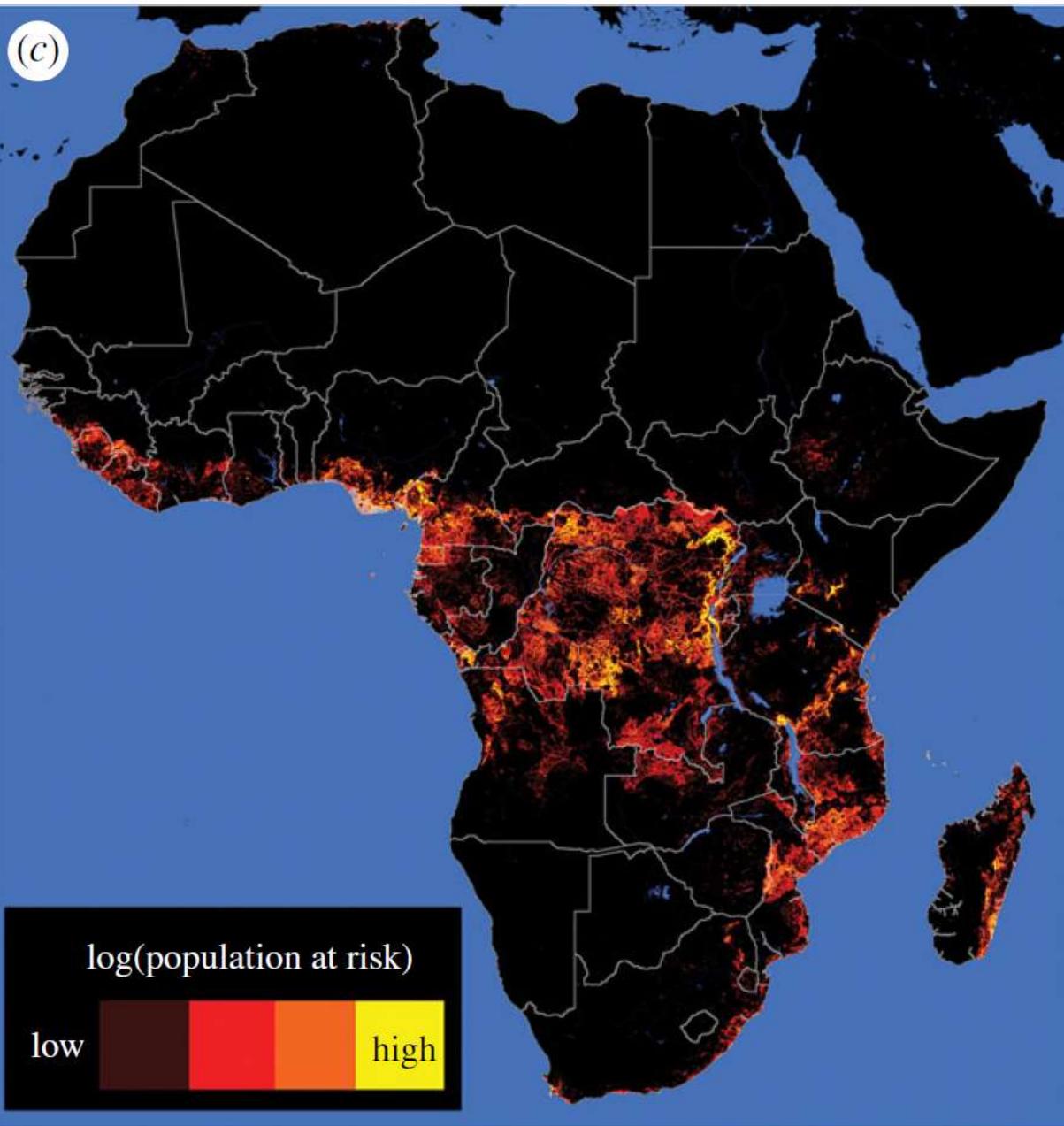
Epizootics caused by ebolaviruses appear sporadically, producing high mortality among non-human primates and duikers and may precede human outbreaks. Epidemics caused by ebolaviruses produce acute disease among

humans, with the exception of Reston virus which does not produce detectable disease in humans. Little is known about how the virus first passes to humans, triggering waves of human-to-human transmission, and an epidemic.





Wilkinson et al 2019 Habitat fragmentation, biodiversity loss and the risk of novel infectious disease emergence



Research

Human viruses: discovery and emergence

Mark Woolhouse*, Fiona Scott, Zoe Hudson, Richard Howey
and Margo Chase-Topping

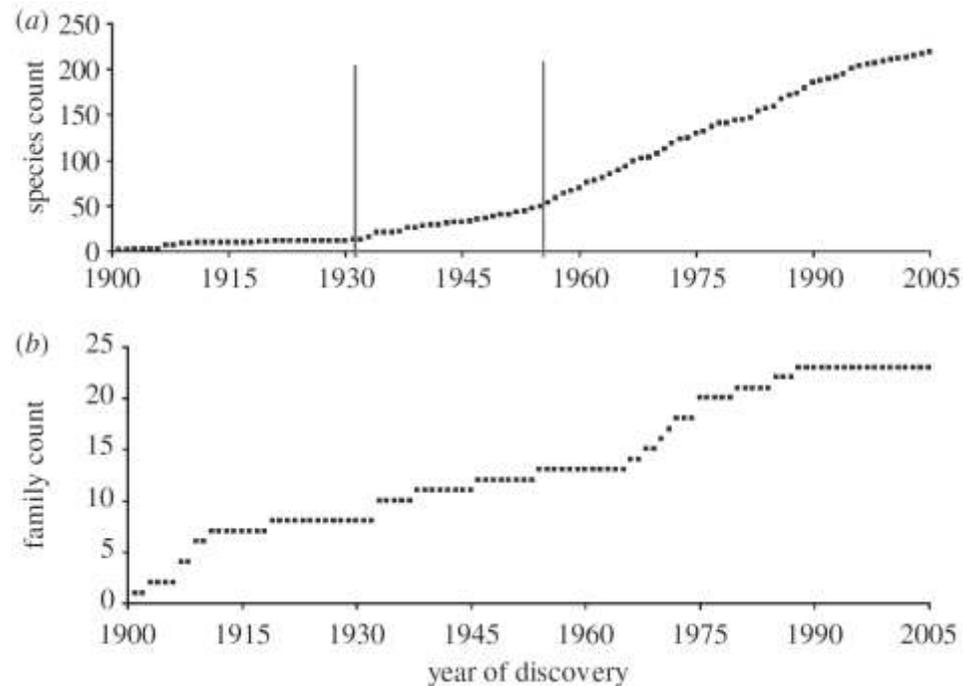
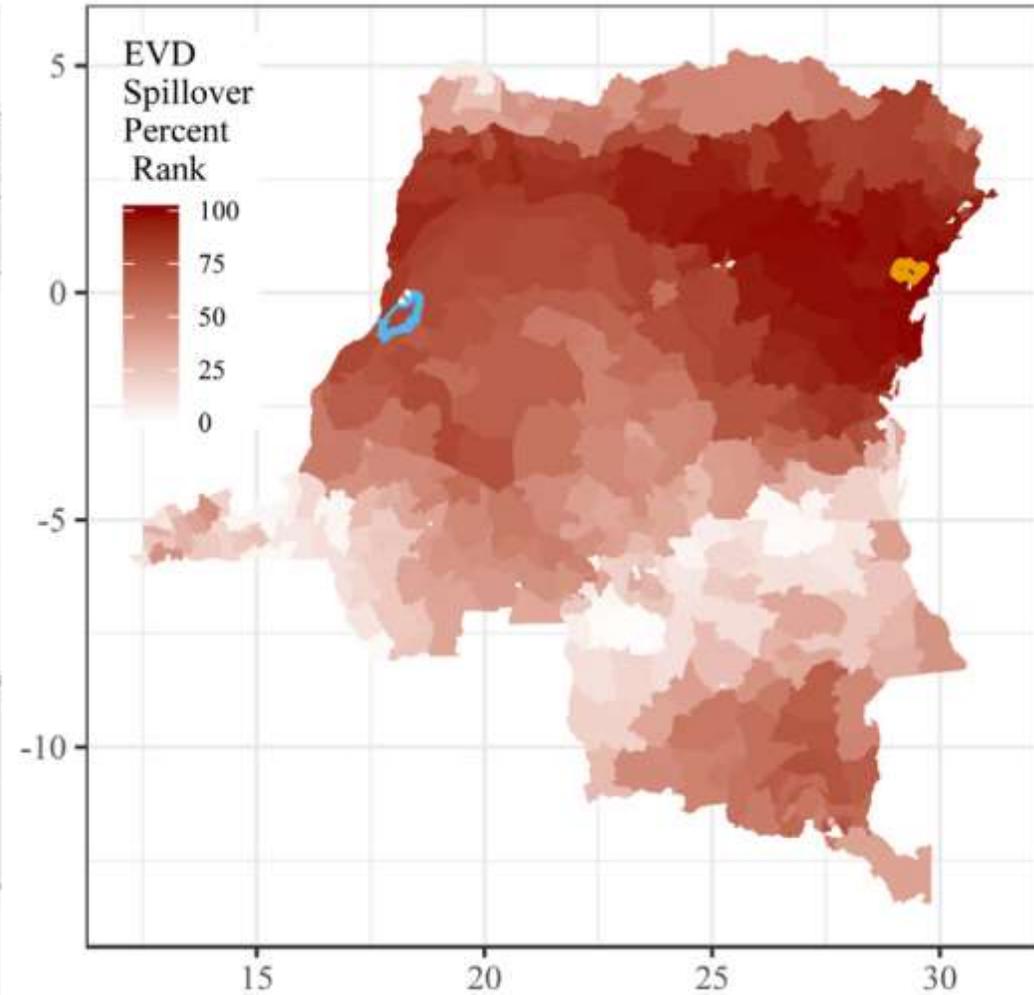
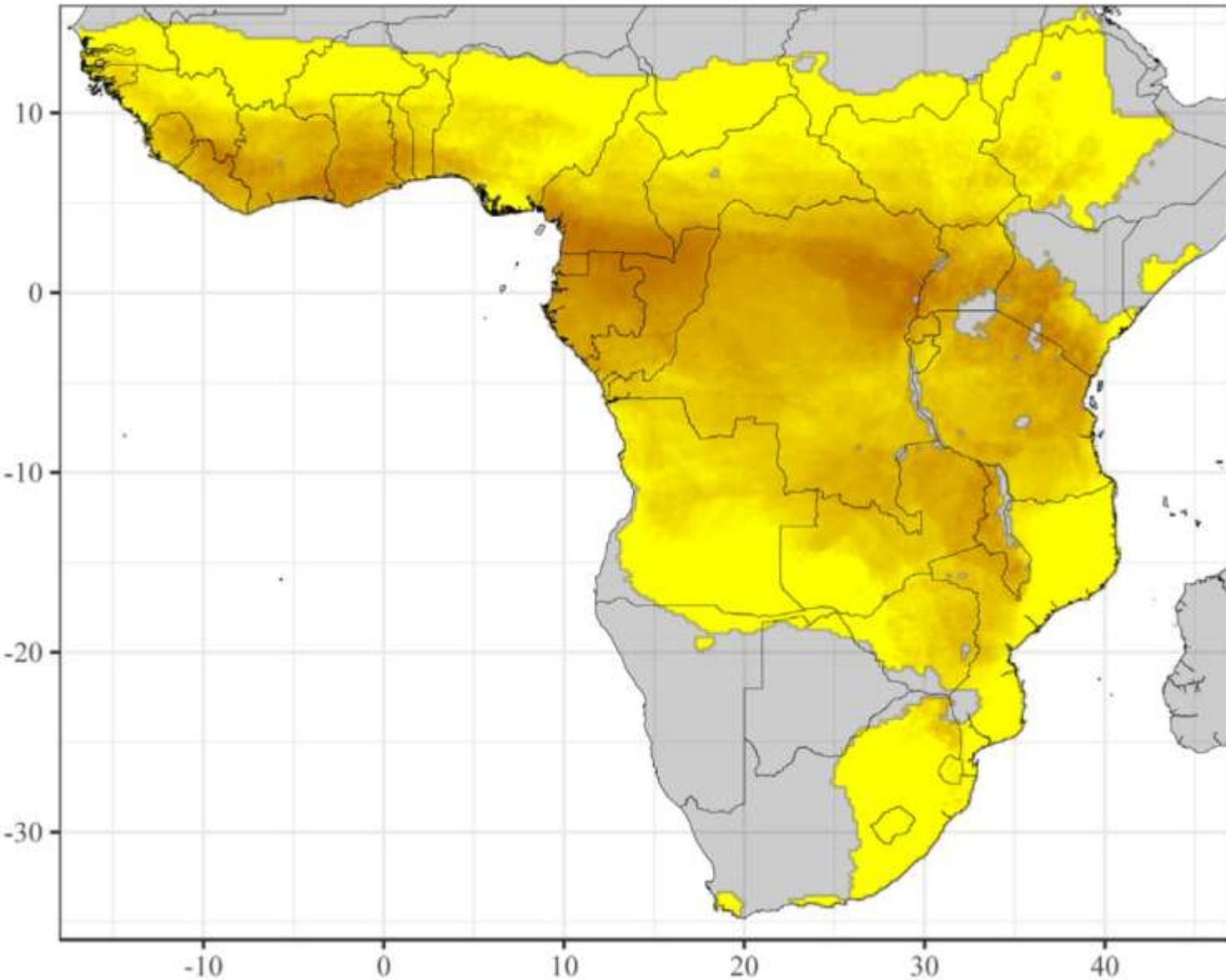


Table 2. Examples of putative new human virus species reported from 2005 to 2009 [11–24].

virus name	family
human bocavirus	Parvoviridae
parvovirus 4	Parvoviridae
KI polyomavirus	Polyomaviridae
Melaka virus	Reoviridae
WU polyomavirus	Polyomaviridae
astrovirus MLB1	Astroviridae
Bundibugyo ebolavirus	Filoviridae
human bocavirus 2	Parvoviridae
human cosaviruses A-D	Picornaviridae
human cosavirus E1	Picornaviridae
astrovirus VA1	Astroviridae
human papilloma virus 116	Papillomaviridae
klassevirus	Picornaviridae
Lujo virus	Arenaviridae

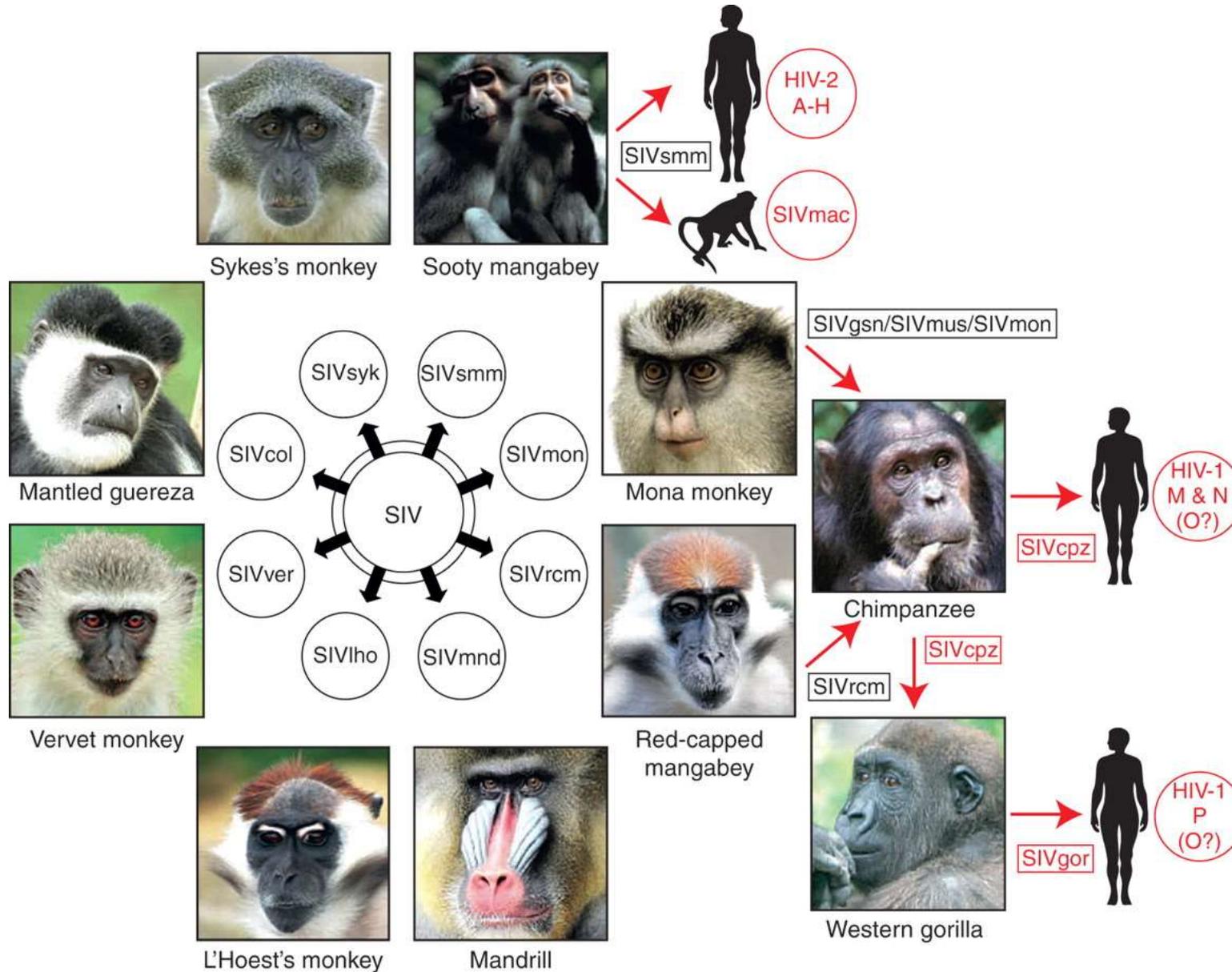


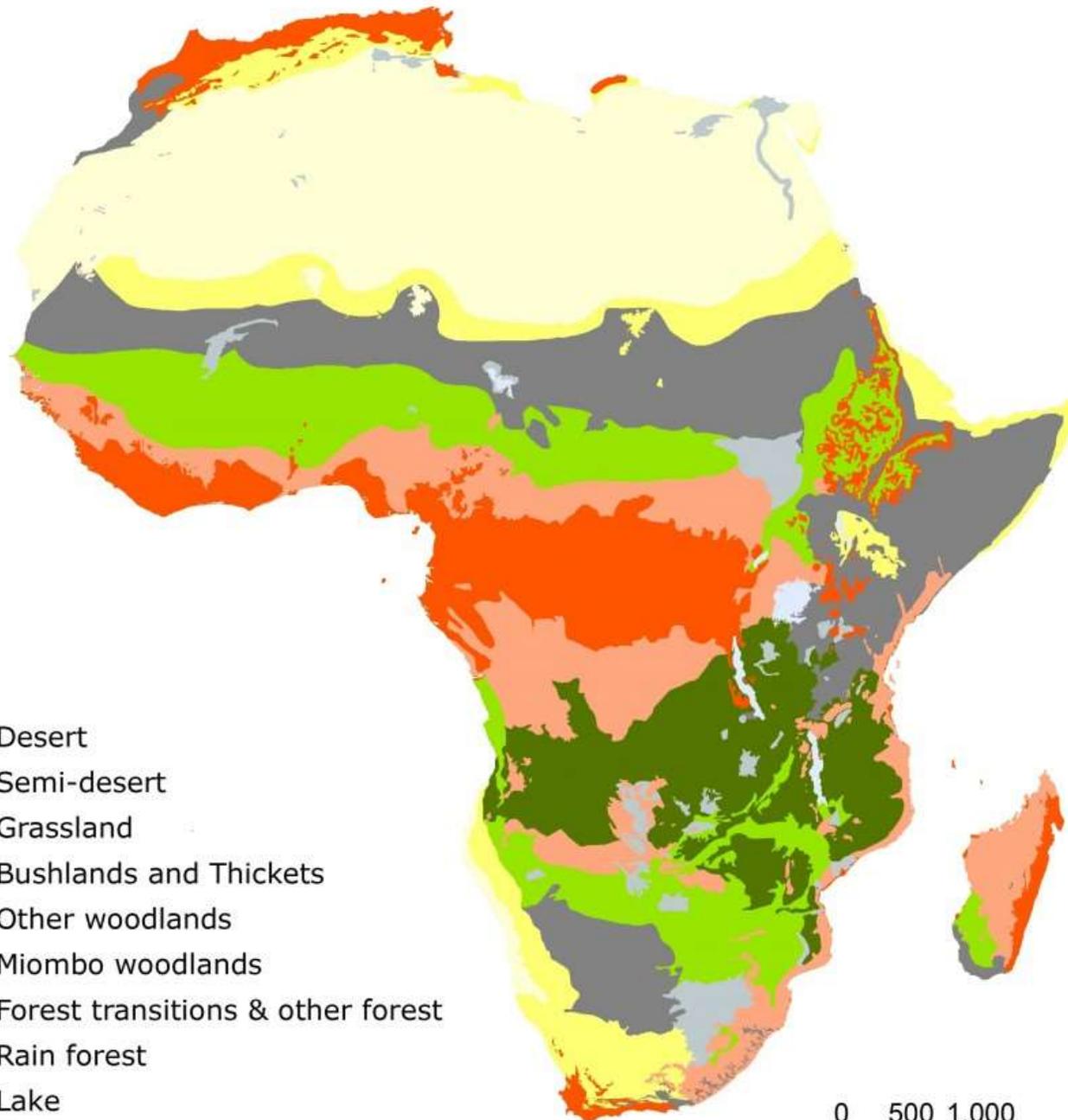
Predicting Ebola virus disease risk and the role of African bat birthing



C. Reed Hranac, et al.
Epidemics 29 (2019) 100366

Origins of human AIDS viruses.

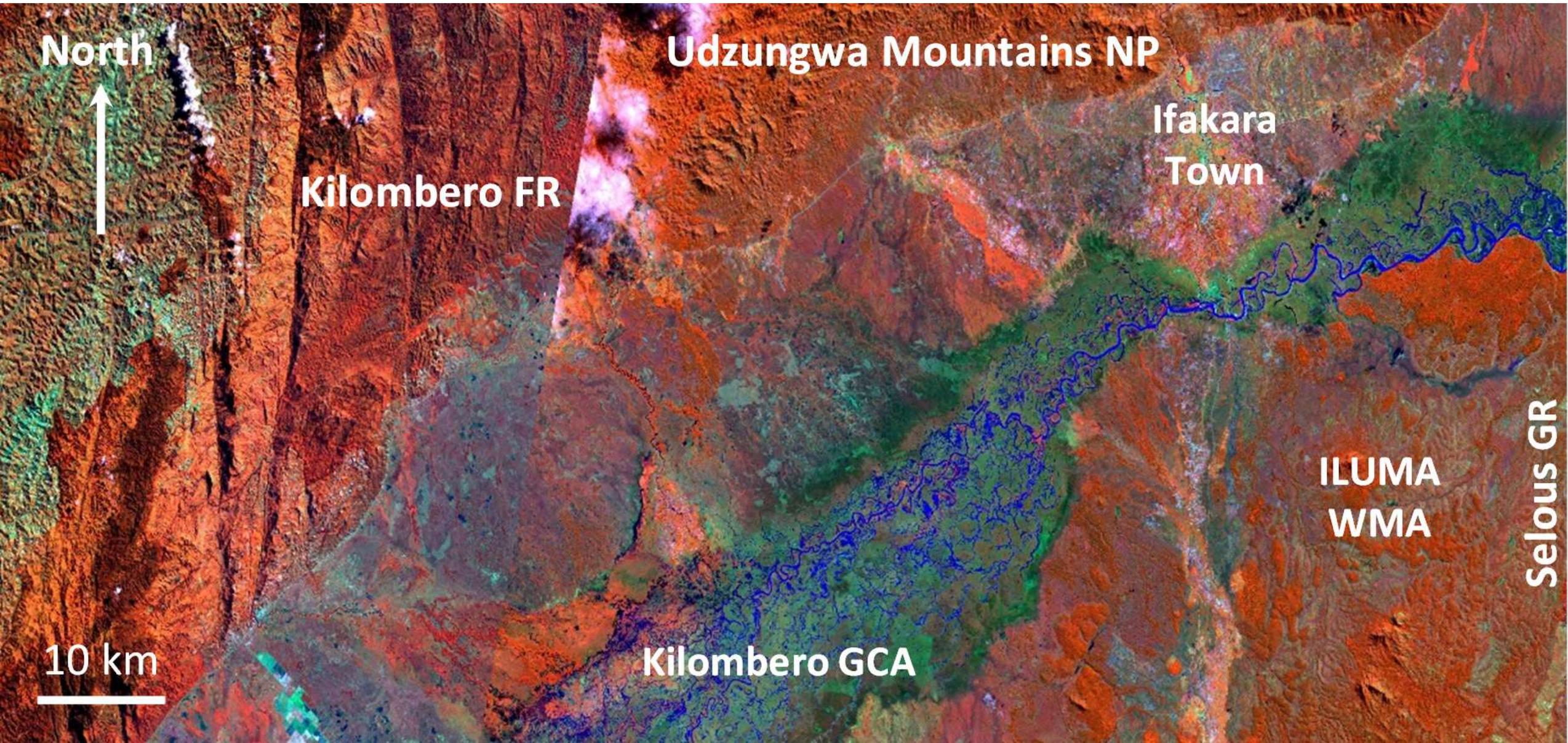




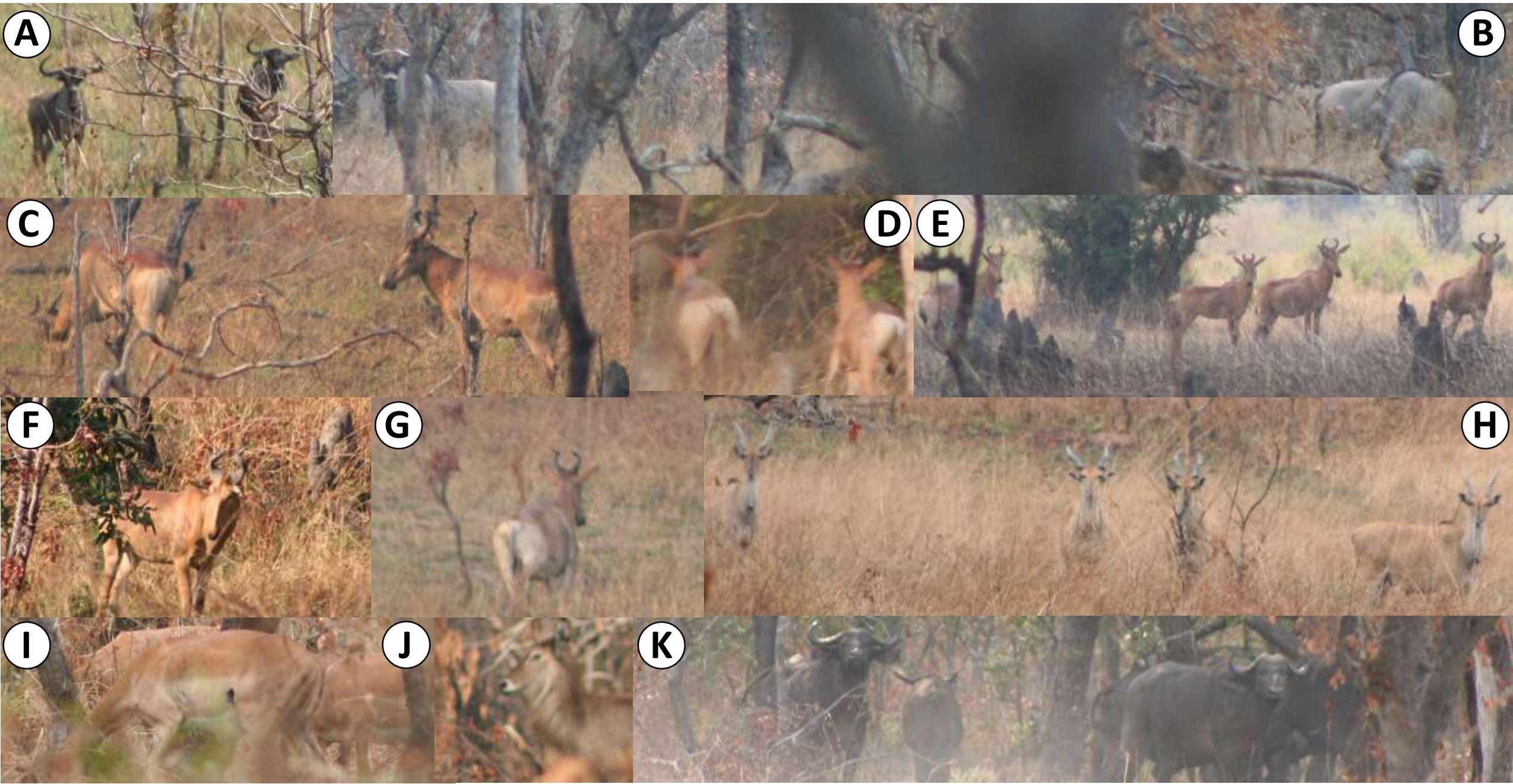
-  Desert
-  Semi-desert
-  Grassland
-  Bushlands and Thickets
-  Other woodlands
-  Miombo woodlands
-  Forest transitions & other forest
-  Rain forest
-  Lake



THE KILOMBERO VALLEY ECOSYSTEM IN SOUTHERN TANZANIA



WILD BOVIDS LIVING AT THE INTERFACE BETWEEN DOMESTICATED AND CONSERVED HABITATS



COMMONALITIES BETWEEN REFUGEES AND POACHERS

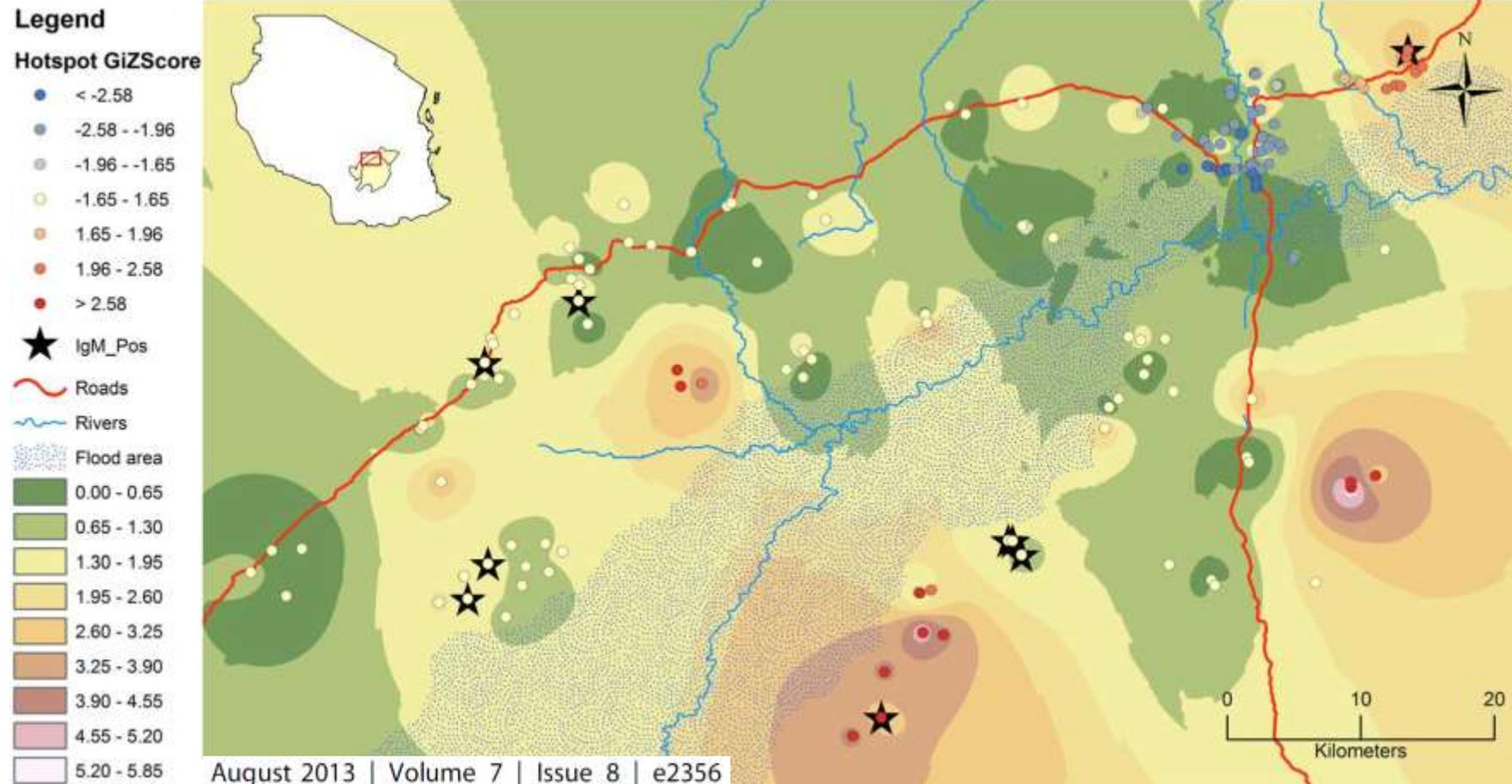


BOTH ARE HIGHLY VULNERABLE TO VECTOR-BORNE DISEASES

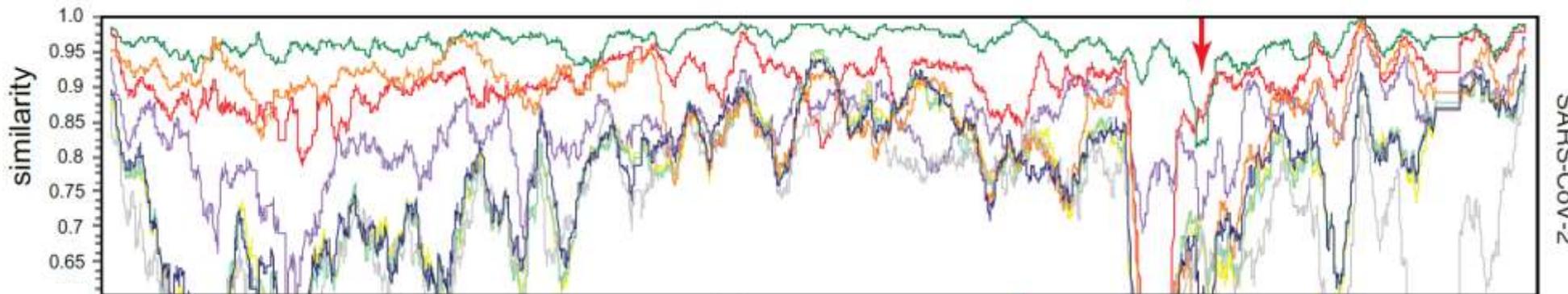
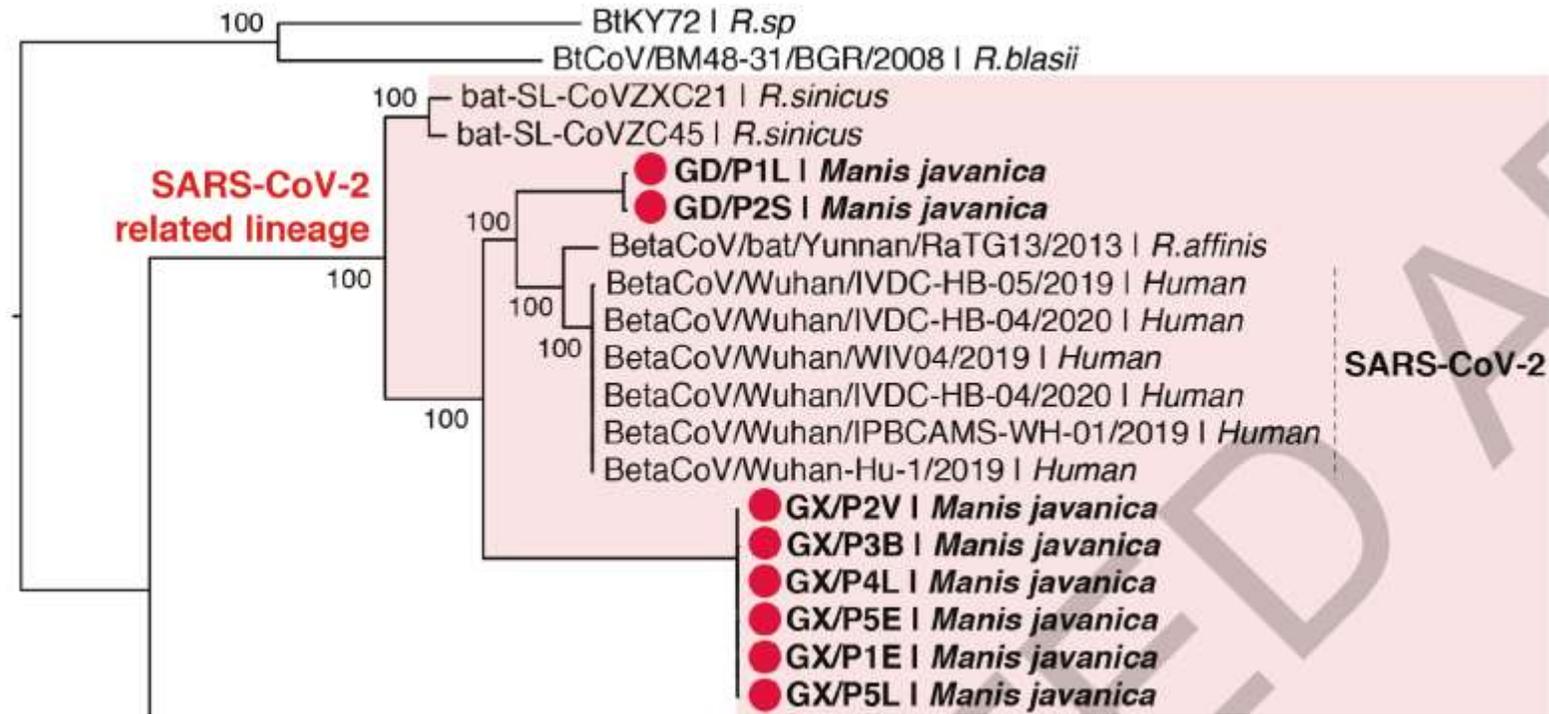
Inter-epidemic Transmission of Rift Valley Fever in Livestock in the Kilombero River Valley, Tanzania: A Cross-Sectional Survey

Robert D. Sumaye^{1,2,3*}, Eveline Geubbels¹, Edgar Mbeyela¹, Dirk Berkvens³

¹Ifakara Health Institute, Ifakara, Tanzania, ²Department of Infectious and Parasitic Diseases, Faculty of Veterinary Medicine, University of Liege, Liege, Belgium, ³Department of Biomedical Sciences, Institute of Tropical Medicine, Antwerp, Belgium



Accelerated Article Preview



What do COVID-19 and malaria have in common?

CHALLENGES

Need to deal with:

- Predominantly only mildly symptomatic or “asymptomatic”, so non-obvious
- Nevertheless, severe and often rapidly fatal in a substantial minority
- Long silent lag between start of outbreak and observable surge in severe cases
- Imperfect diagnostic tests
- Practical and financial limits to spatial, temporal and demographic scales of testing feasible
- Imperfect surveillance systems which can only ever pick up a fraction of all infections

IMPLICATIONS AND SOLUTIONS

Prioritize the 6 Ps:

- Prevention *versus* cure, even if a wonder drug like chloroquine is available
- Presumptive blanket coverage of entire populations *versus* targeting those known to be infected or at higher risk.
- Pre-emptive versus reactive interventions that prevent outbreaks before they begin
- Prospectively define criteria for WHO certification of local elimination
- Protect your borders but nevertheless...
- Promote international cooperation

Life & Times

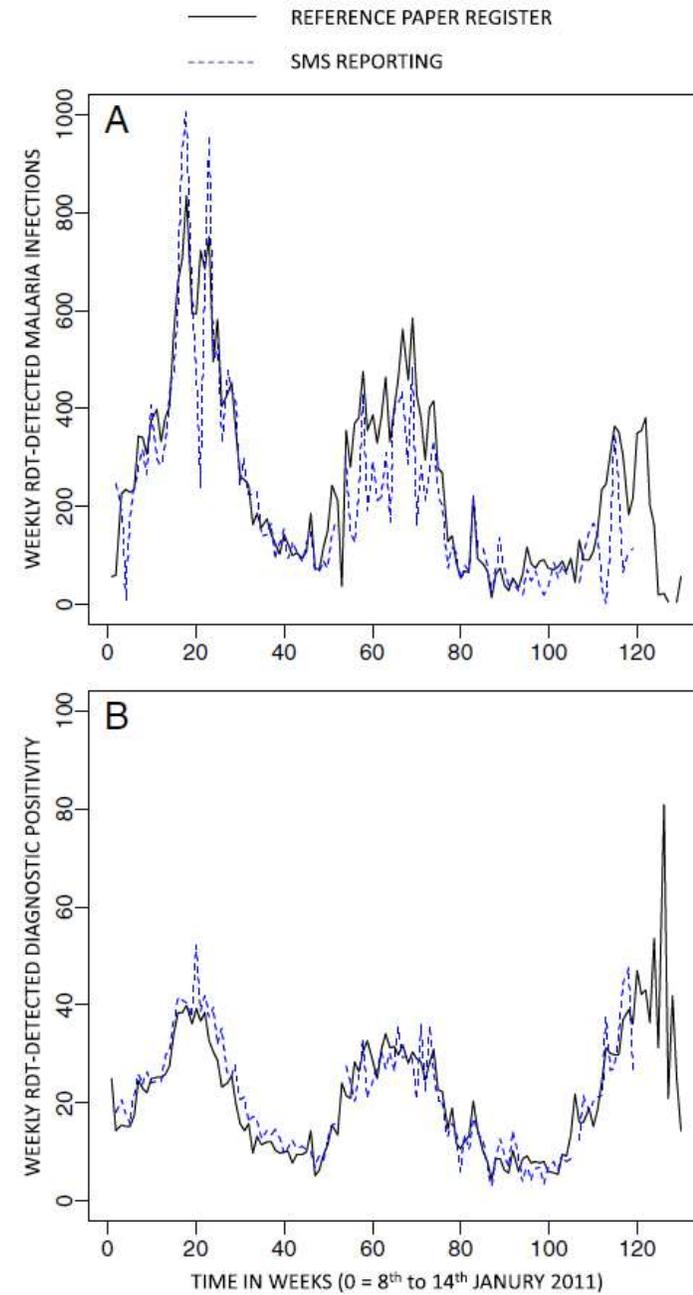
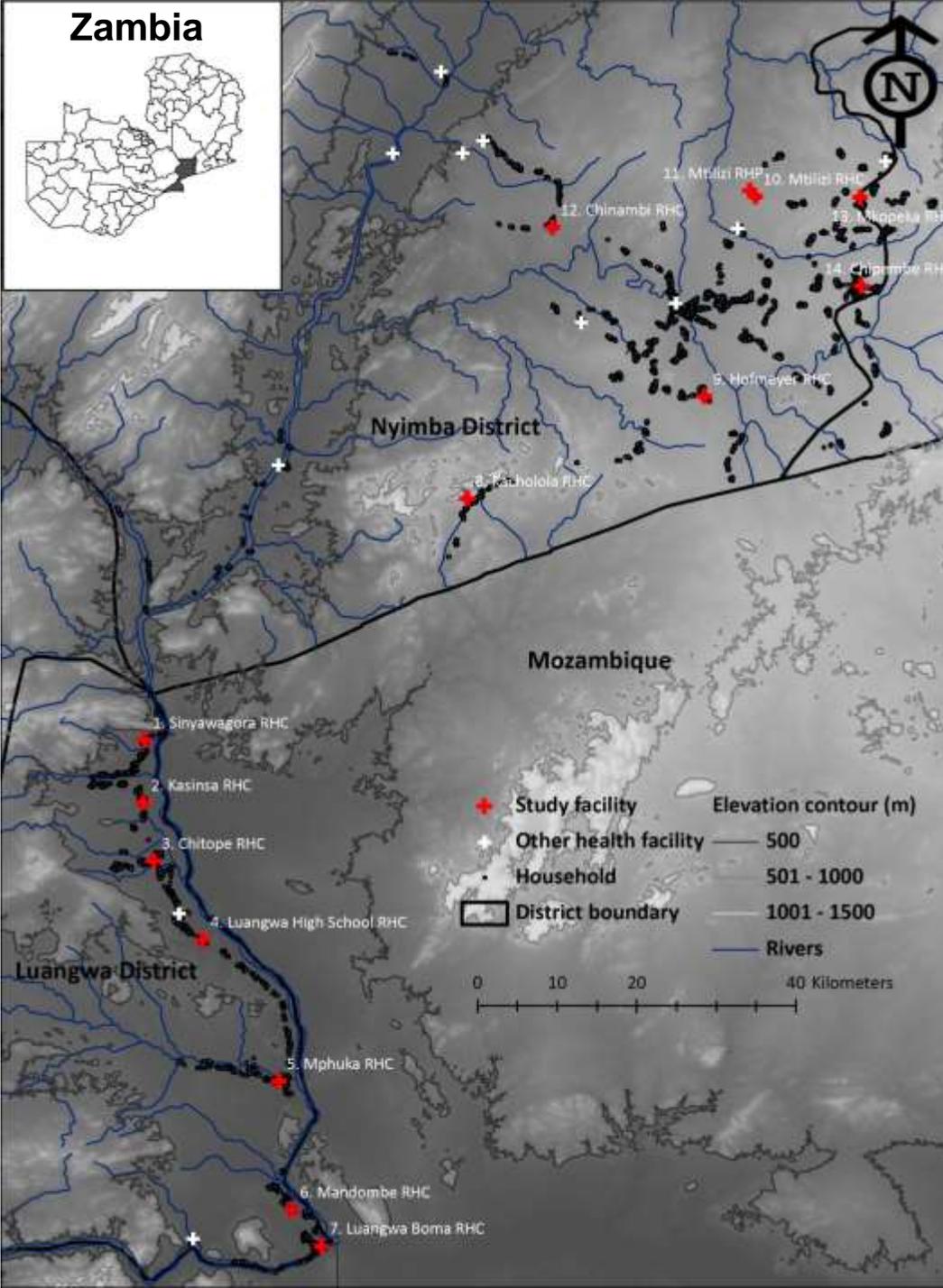
The last British malaria outbreak



British Journal of General Practice, April 2020





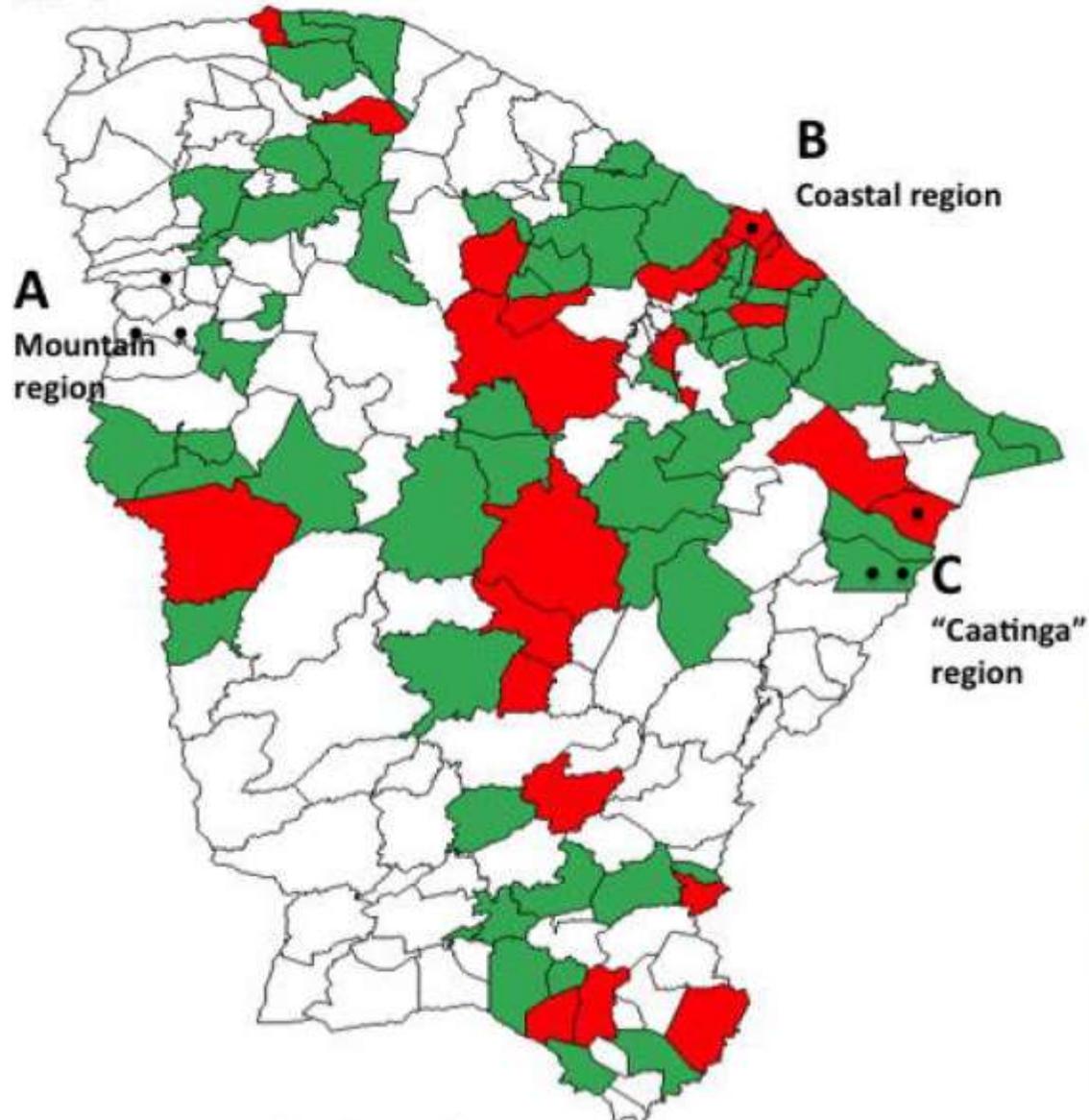


Hamainza et al 2014 Malaria Journal 13: 430

Hamainza et al 2014 Malaria Journal 13: 489

NEW ZOONOTIC RESERVOIRS OF ZIKA IN NEOTROPICAL PRIMATES

1A



A

Mountain
region

B

Coastal region

C

"Caatinga"
region

1B



1C

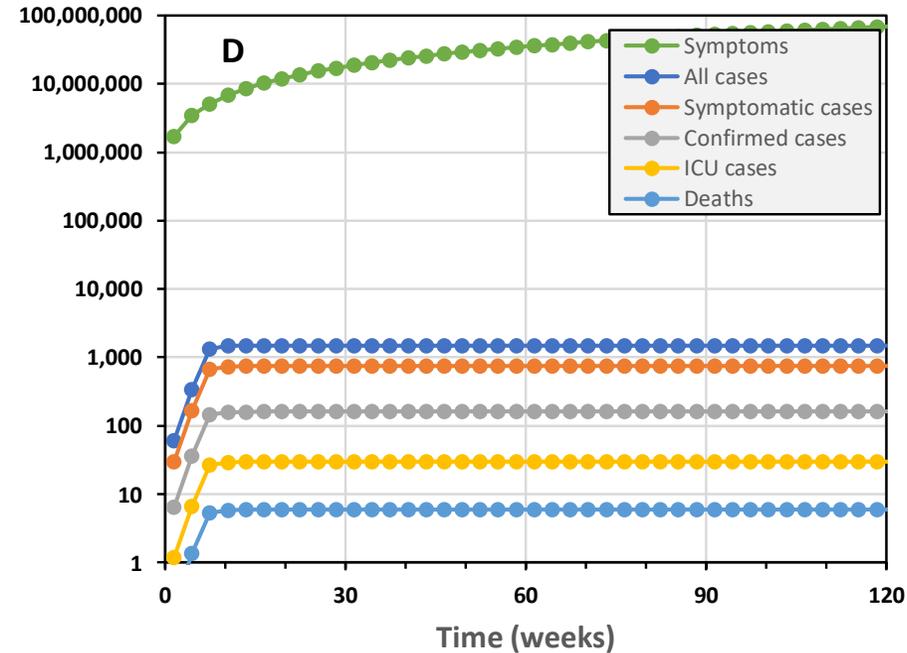
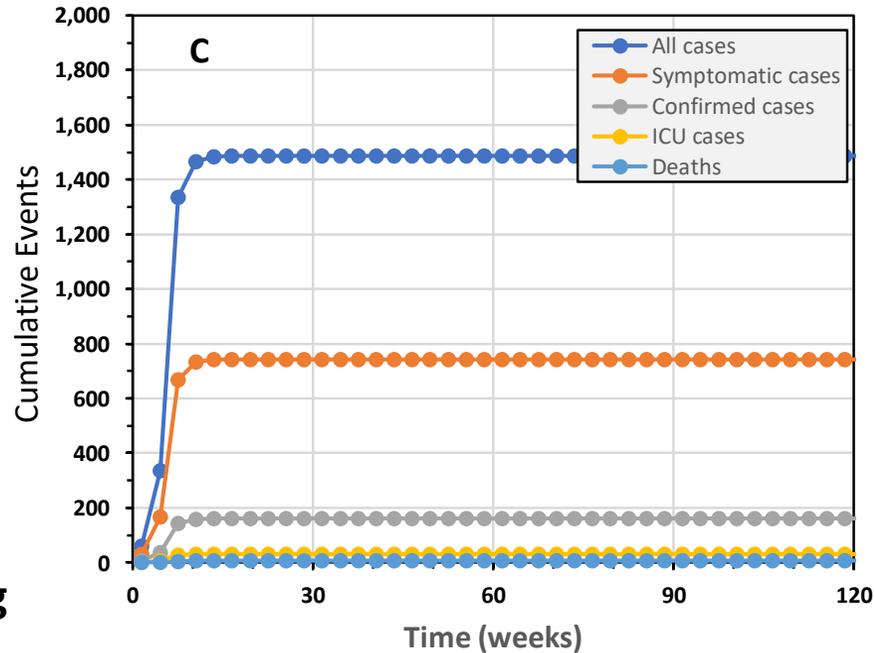
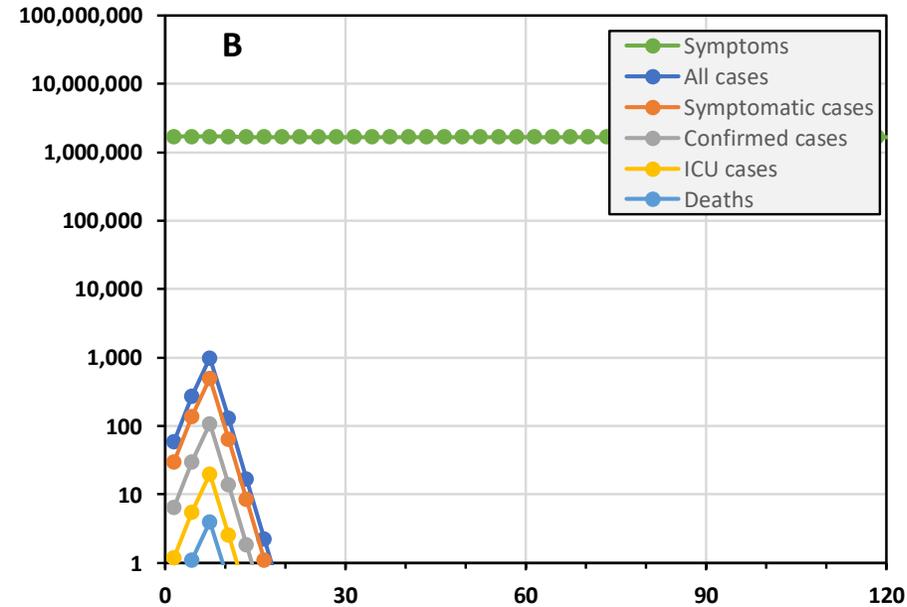
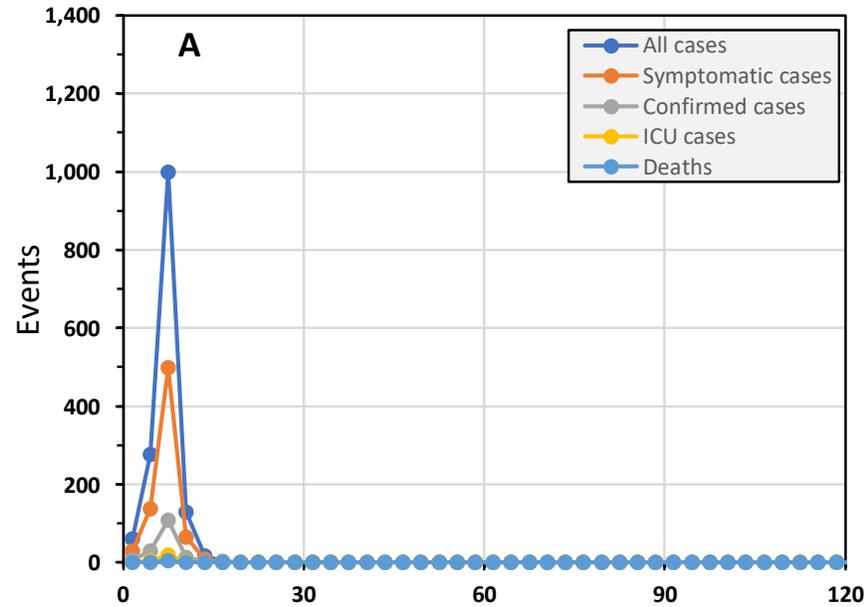


Source: Secretary of Health, Ceará State, Brazil, 2016

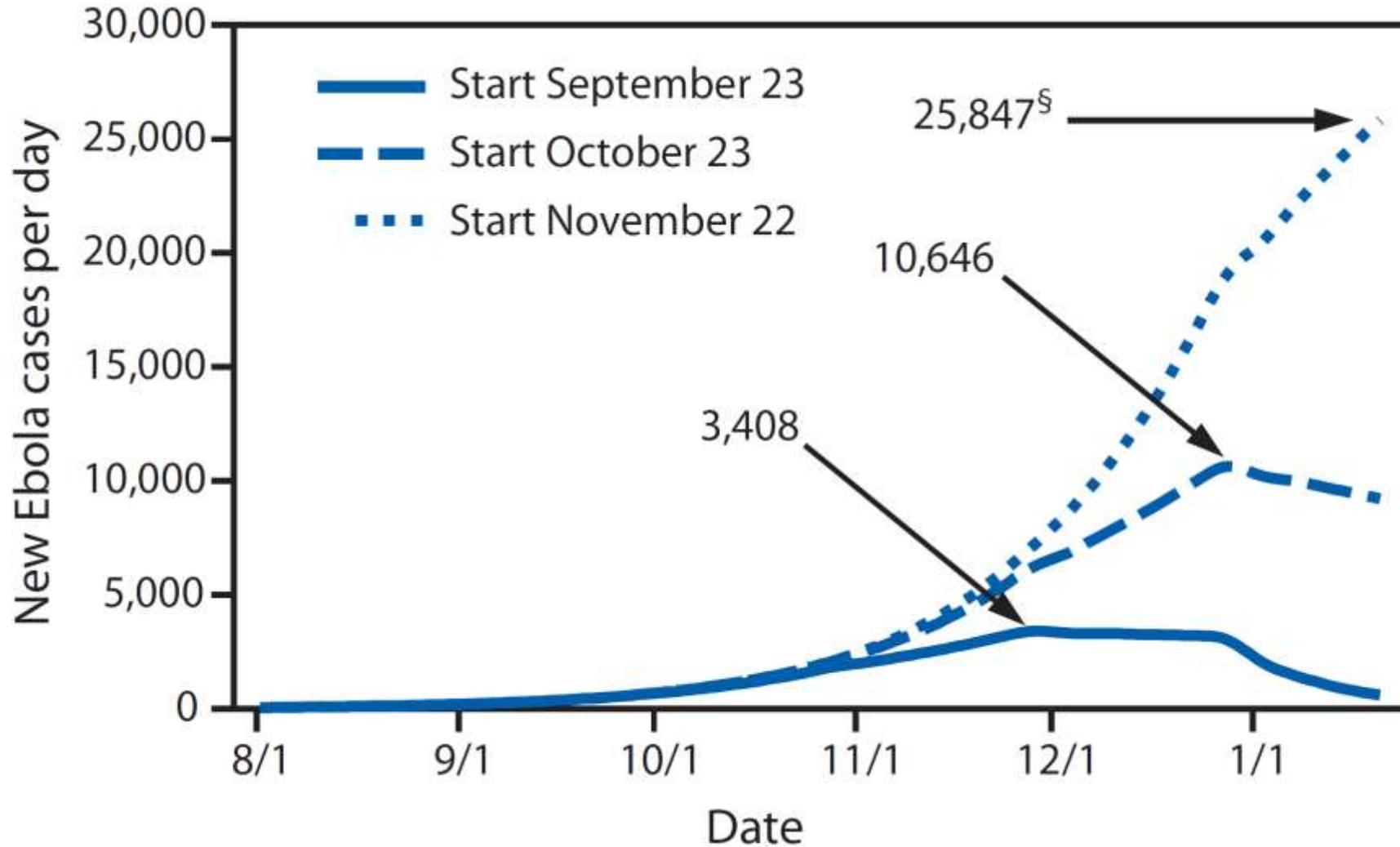
Source: Center on Rabies Research



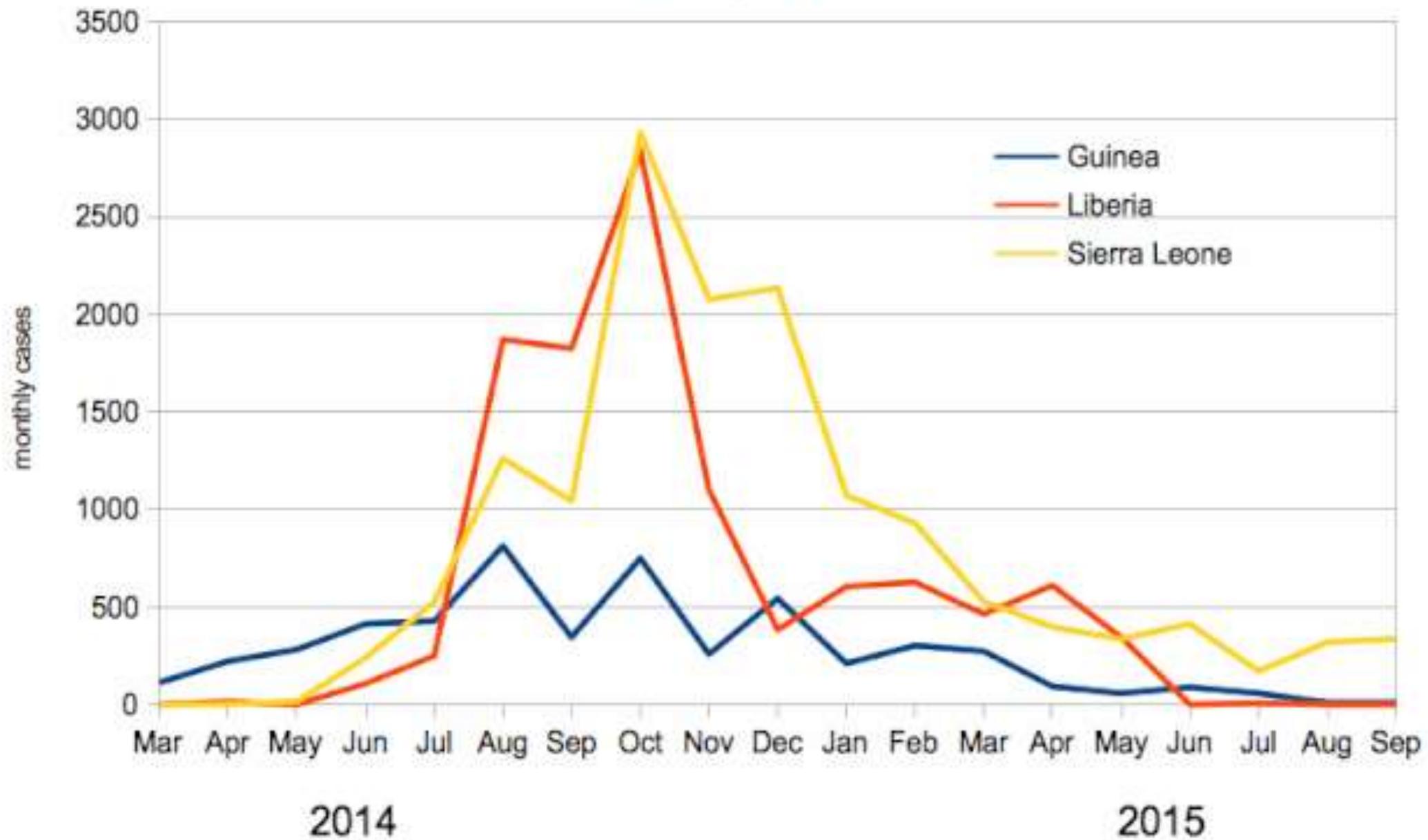
Predicted successful national containment and elimination through prompt, rigorous lockdown plus rigorous contact tracing and isolation, and then sustained with complete containment of imported cases



Estimated impact of delaying intervention* on daily number of Ebola cases,



West Africa Ebola epidemic cases



Ebola: Then and Now - What a difference a year has made

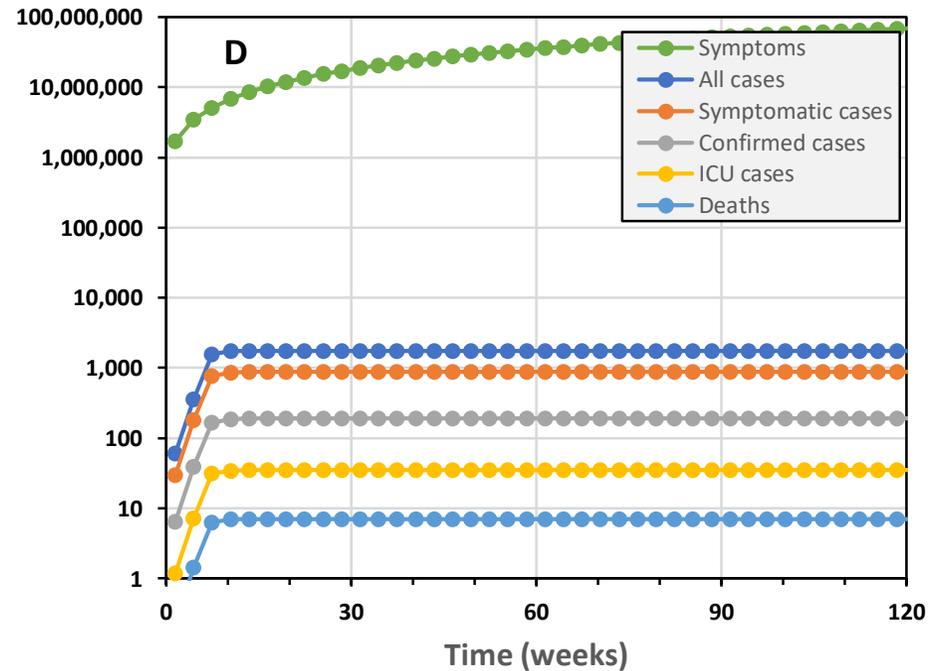
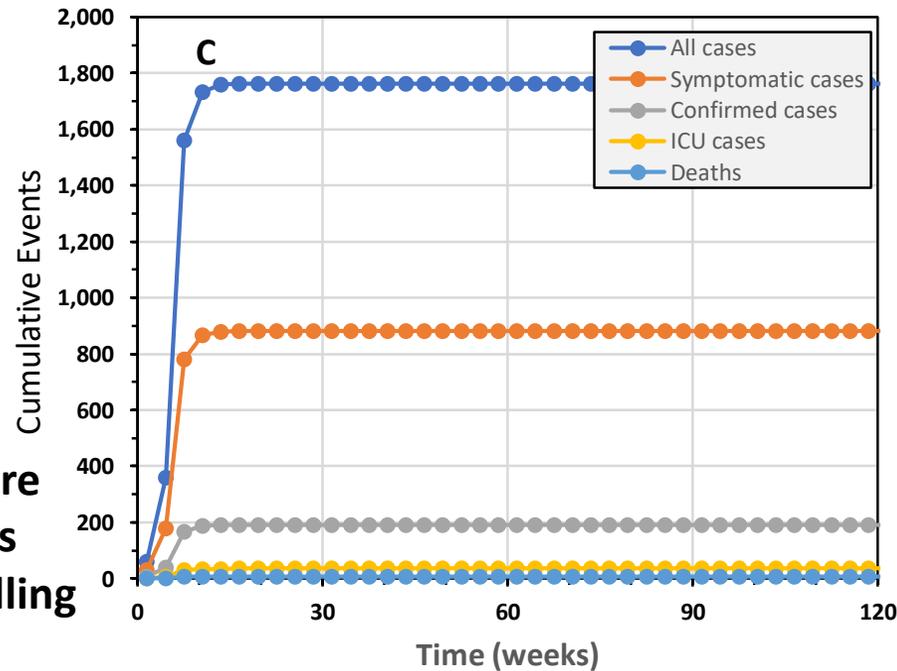
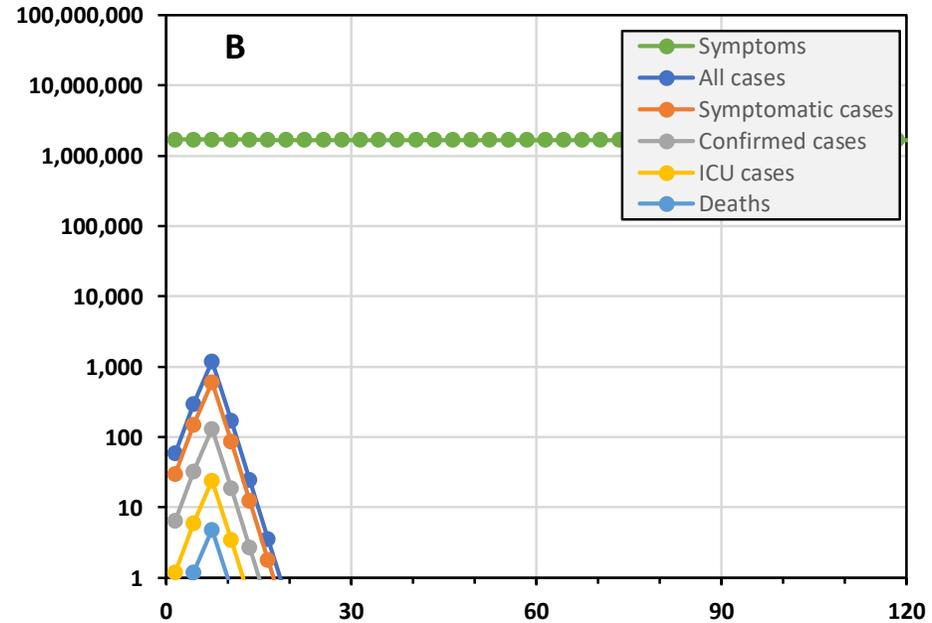
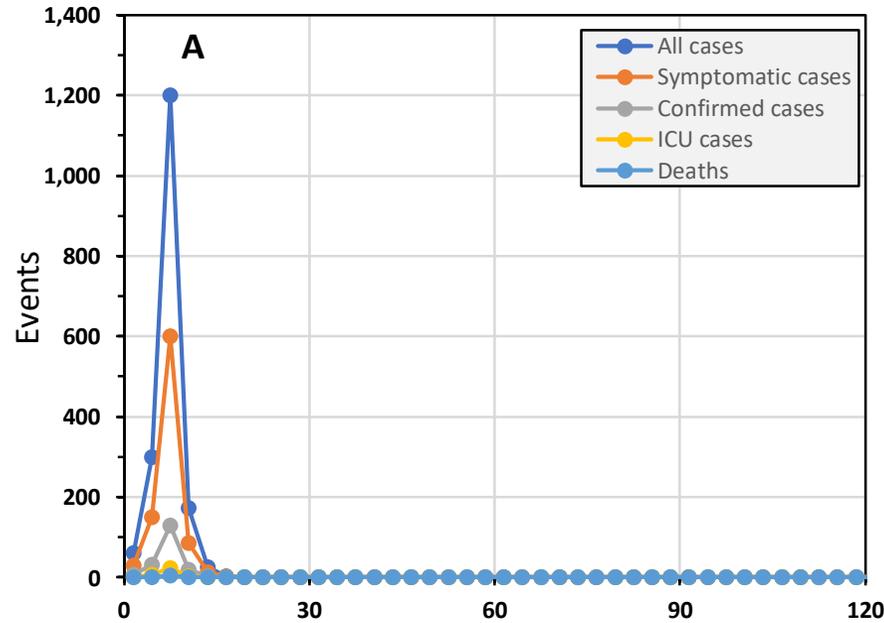
Updated January 2016

One year ago, the West African Ebola outbreak was generating so many new cases and had spread to so many countries that the world was terrified. Many feared that the Ebola virus was the pathogen that would overwhelm humanity.

Now, one year later that terror has been replaced by confidence that strong leadership, adaptation of the response to cultures and environments and innovation have turned the tide. WHO is supporting the governments of Guinea, Liberia and Sierra Leone to make sure they have strong surveillance systems, rapid response capacity and effective survivor care and screening in place to detect and respond to new cases.

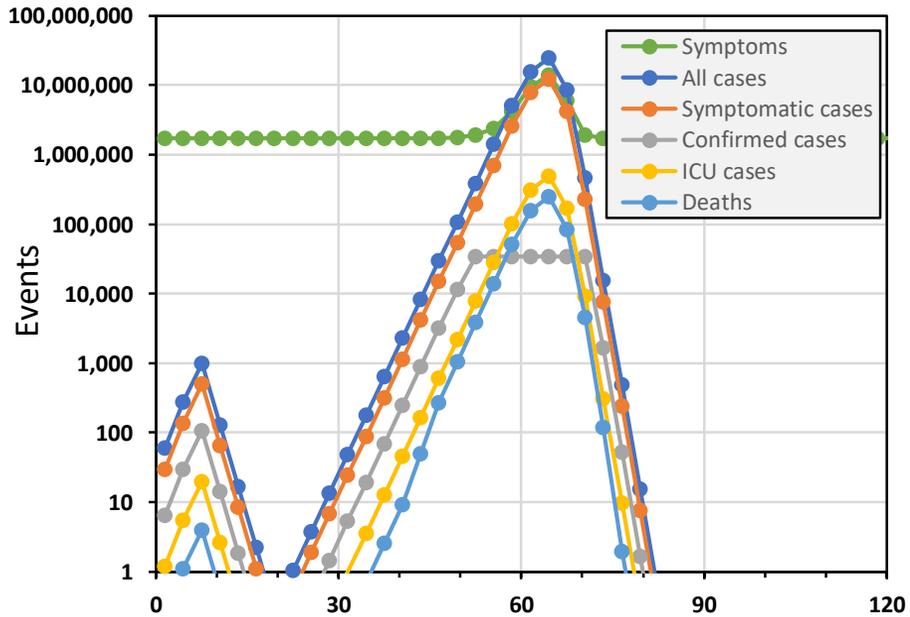


Predicted successful national containment and elimination through prompt, rigorous lockdown, and then sustained with complete containment of imported cases, despite lack of contact tracing and isolation

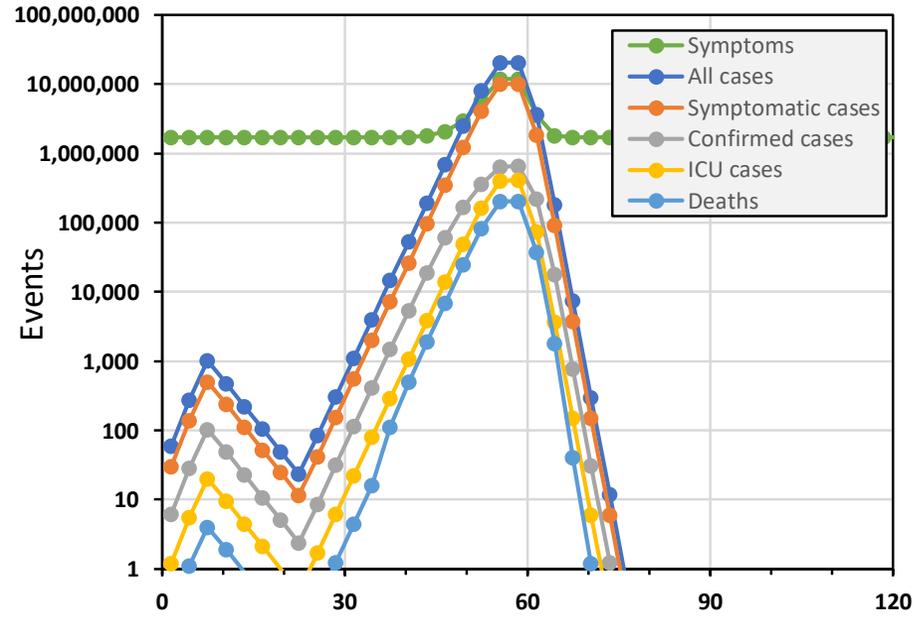




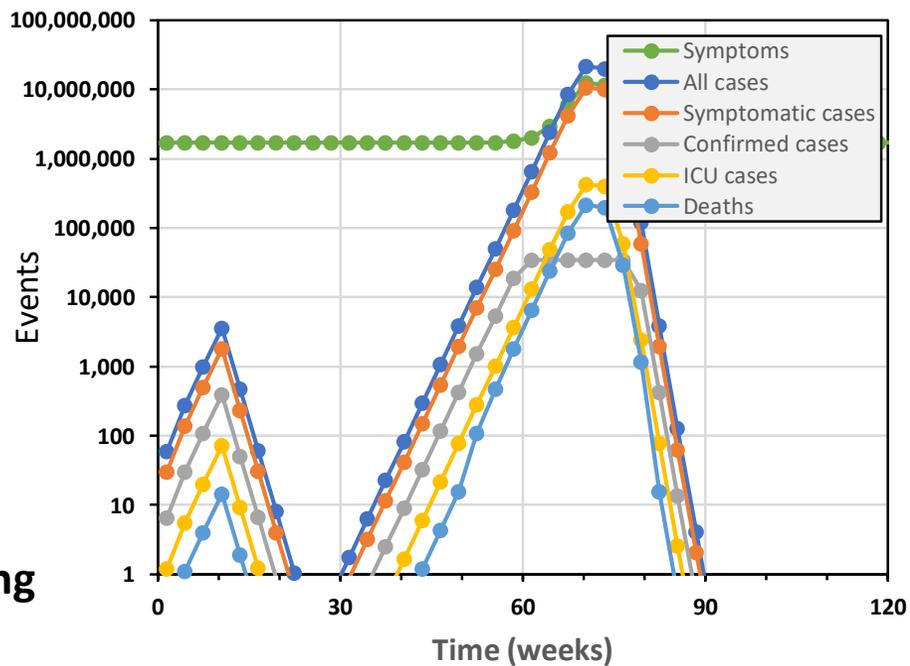
Lock down shortened



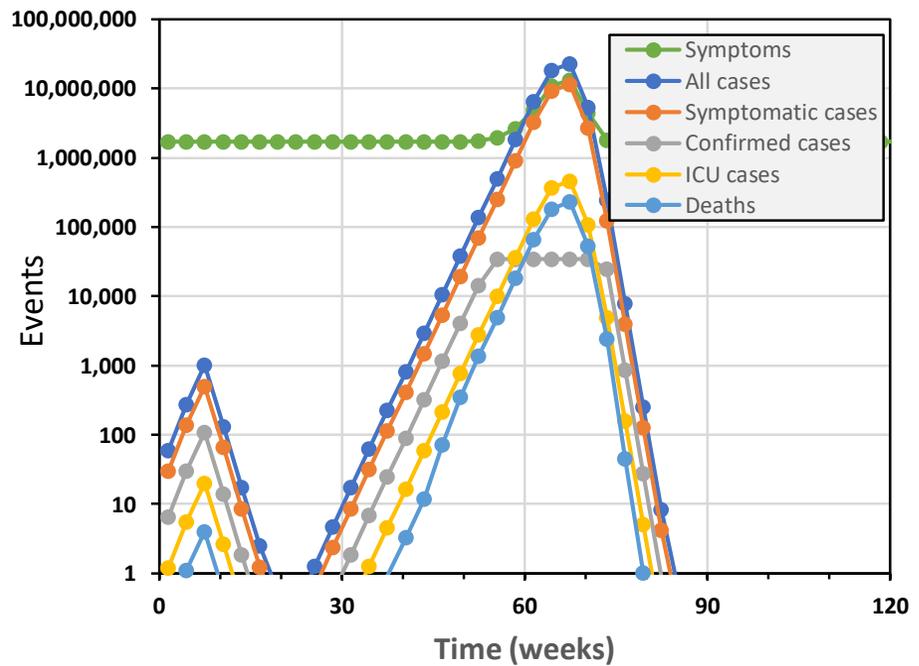
Less rigorous lock down



Delayed lock down

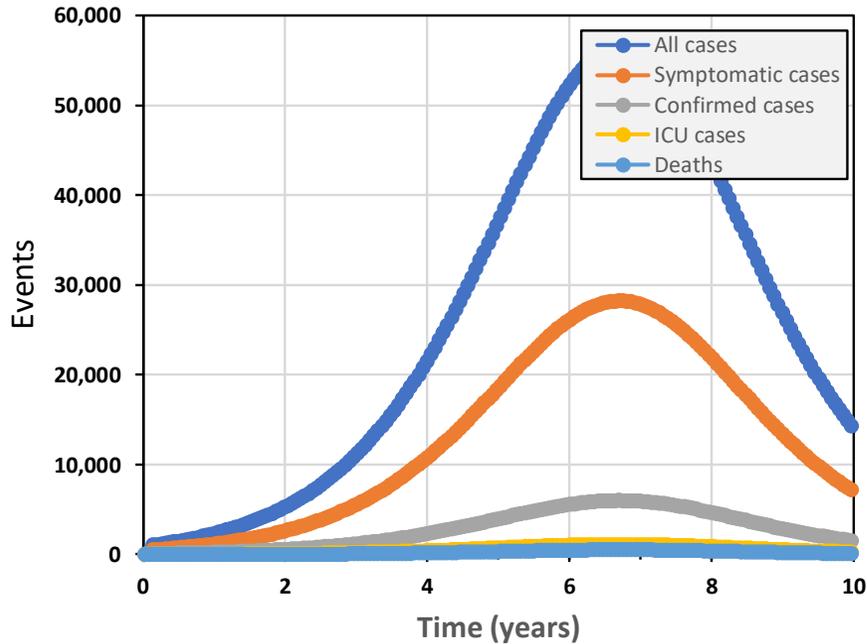


Imperfect importation containment

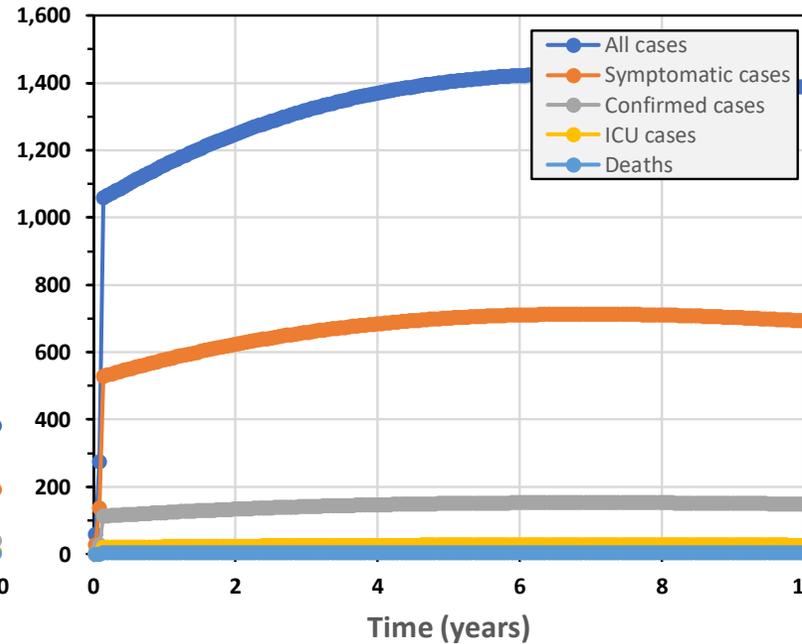


THE MIRAGE OF STRATEGIES TO “FLATTEN THE CURVE”

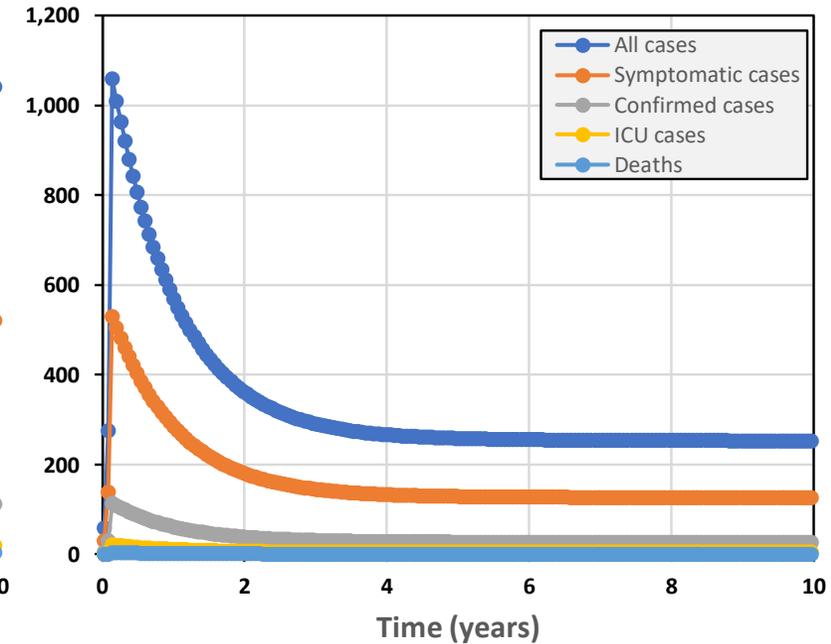
68% lock down coverage and effectiveness



69% lock down coverage and effectiveness

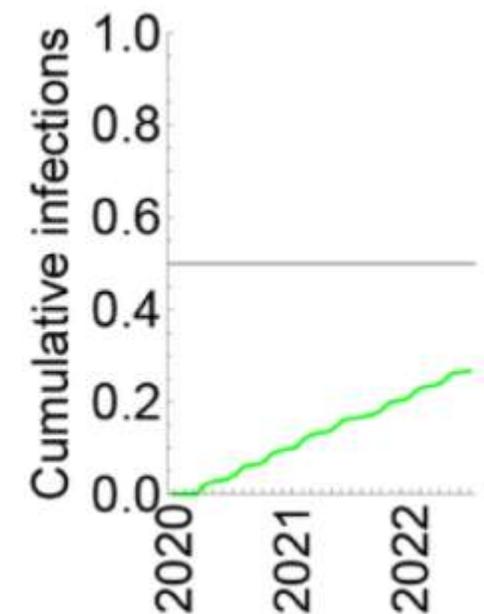
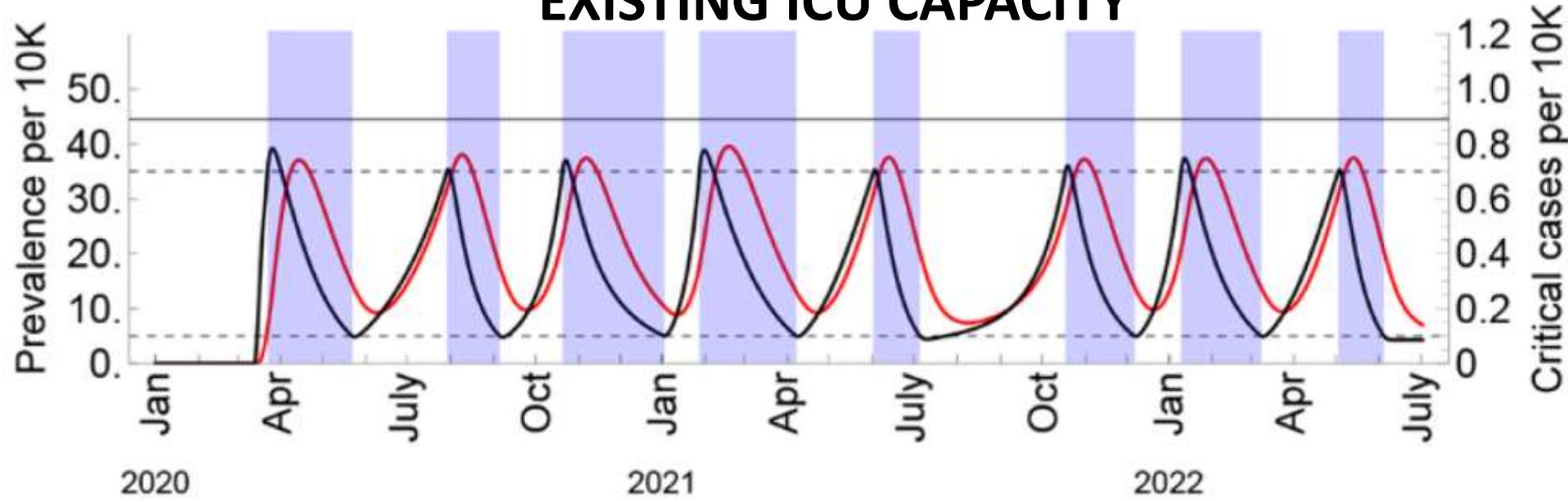


70% lock down coverage and effectiveness

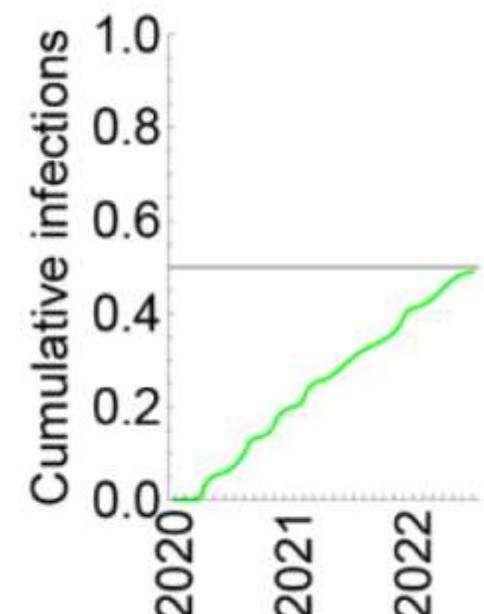
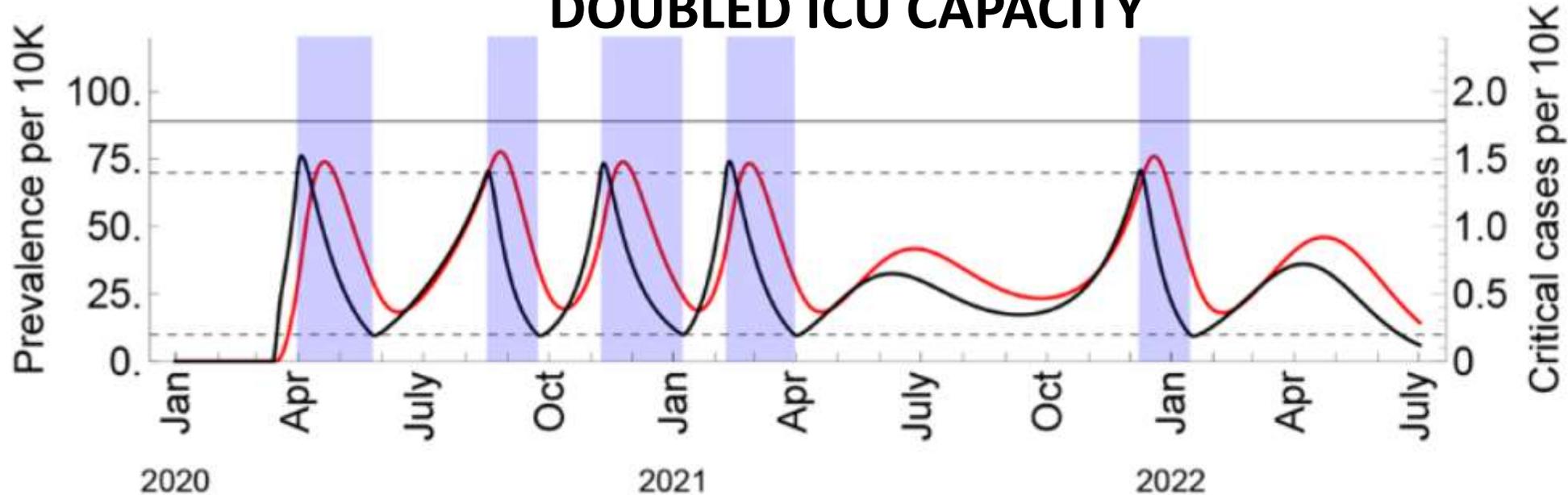


**LIKE DRIVING A FERRARI A MILLION KILOMETERS ALONG
AN ICY MOUNTAIN ROAD WITH NO BRAKES, A FAILING
CLUTCH AND A LOOSE STEERING WHEEL**

EXISTING ICU CAPACITY

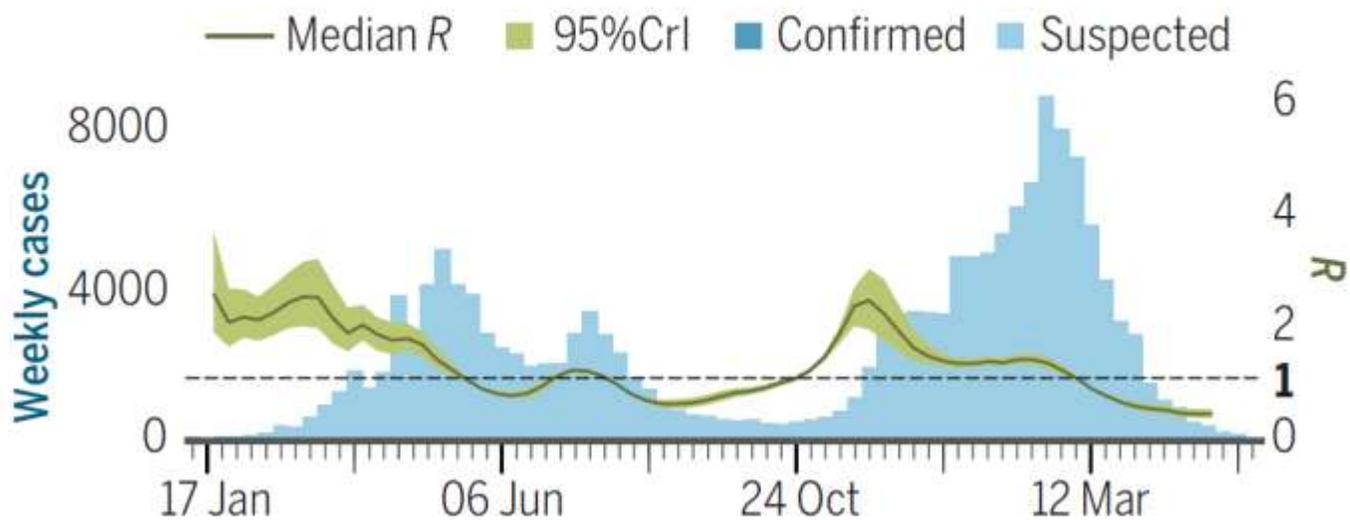


DOUBLED ICU CAPACITY

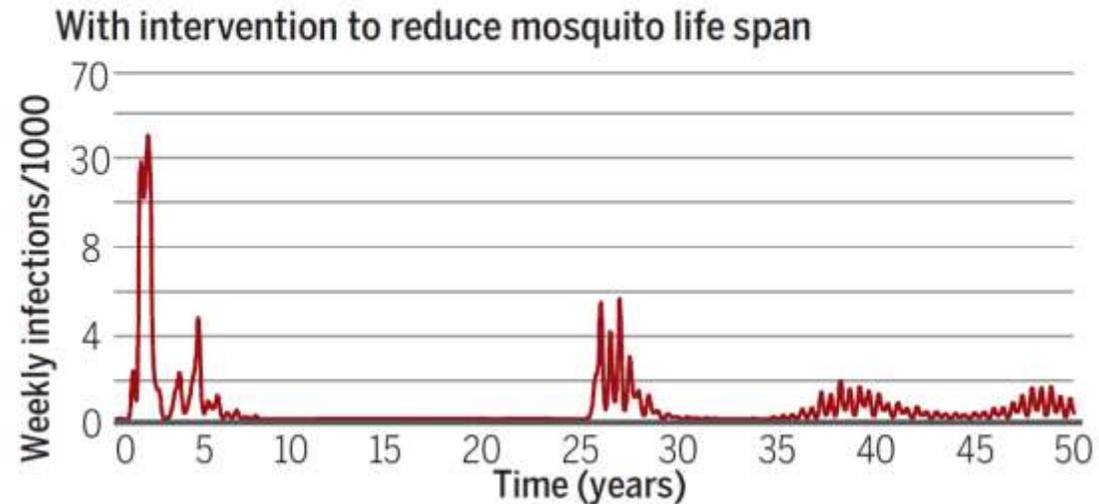
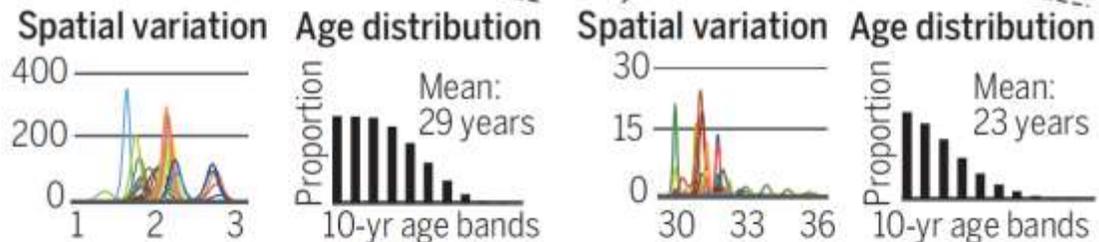
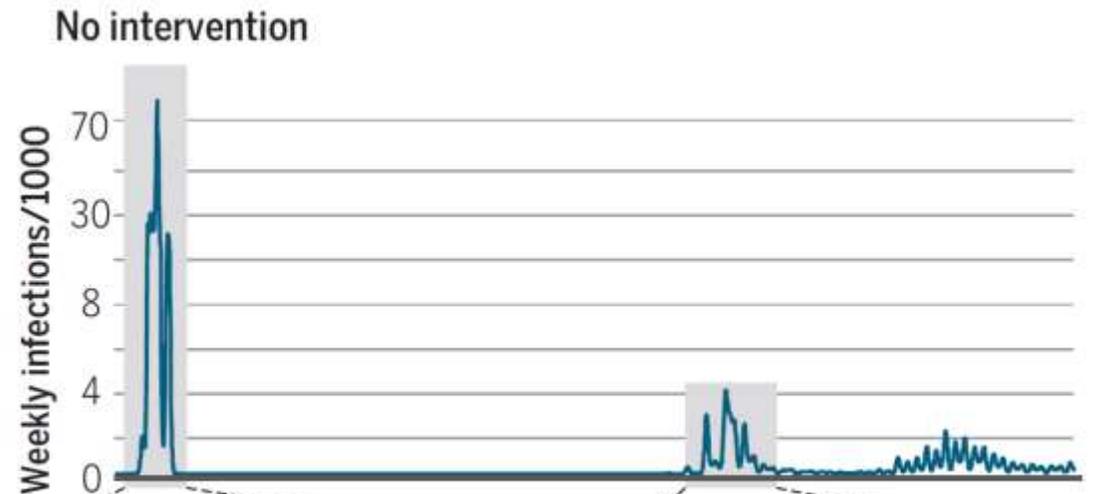


Countering the Zika epidemic in Latin America

Zika surveillance data and estimated R , Brazil



Zika epidemic simulations

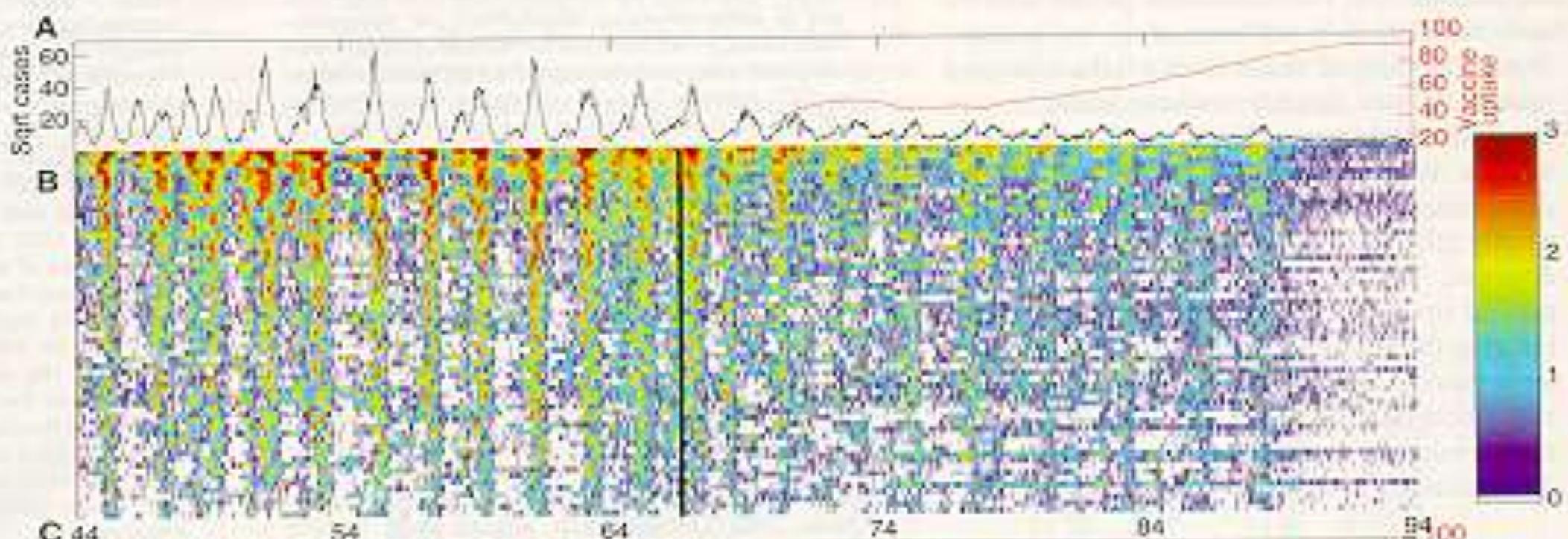


Reappearance of Chikungunya, Formerly Called Dengue, in the Americas

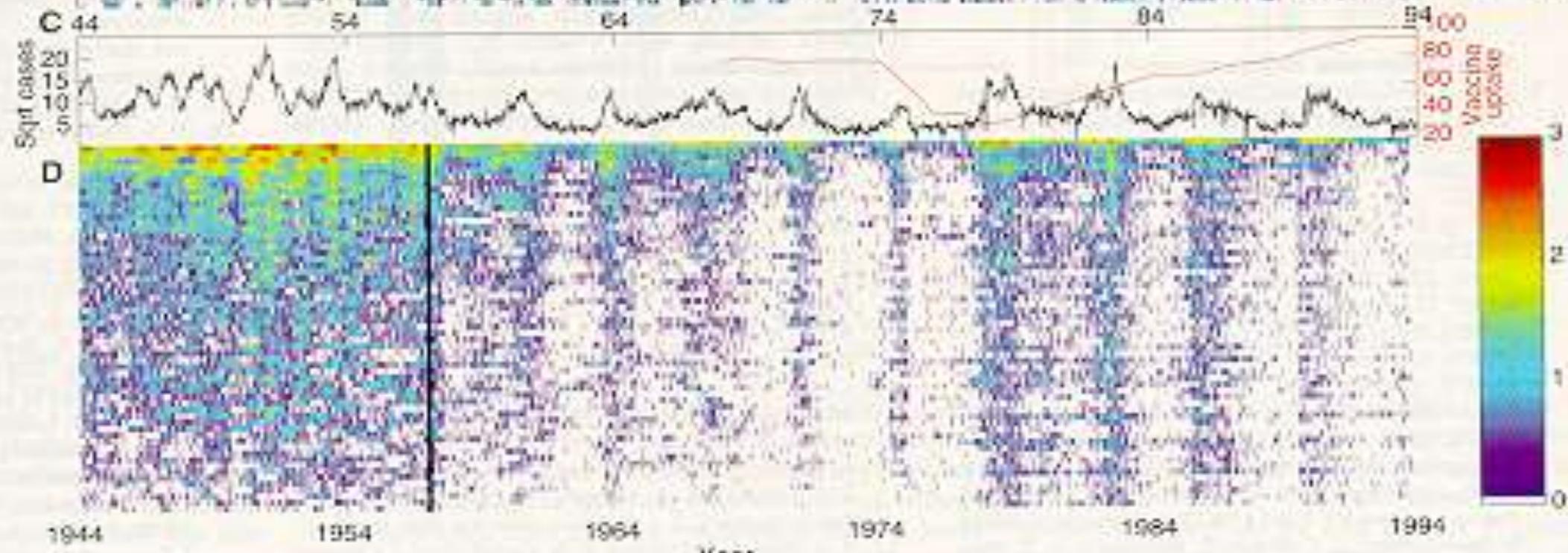
Scott B. Halstead

After an absence of ≈ 200 years, chikungunya returned to the American tropics in 2013. The virus is maintained in a complex African zoonotic cycle but escapes into an urban cycle at 40- to 50-year intervals, causing global pandemics. In 1823, classical chikungunya, a viral exanthem in humans, occurred on Zanzibar, and in 1827, it arrived in the Caribbean and spread to North and South America. In Zanzibar, the disease was known as *kidenga pepo*, Swahili for a sudden cramp-like seizure caused by an evil spirit; in Cuba, it was known as dengue, a Spanish homonym of *denga*. During the eighteenth century, dengue (present-day chikungunya) was distinguished from breakbone fever (present-day dengue), another febrile exanthem. In the twentieth century, experiments resulted in the recovery and naming of present-day dengue viruses. In 1952, chikungunya virus was recovered during an outbreak in Tanzania, but by then, the virus had lost its original name to present-day dengue viruses.

Measles



Whooping Cough



Rohani *et al.*
1999 Science
286:968-971



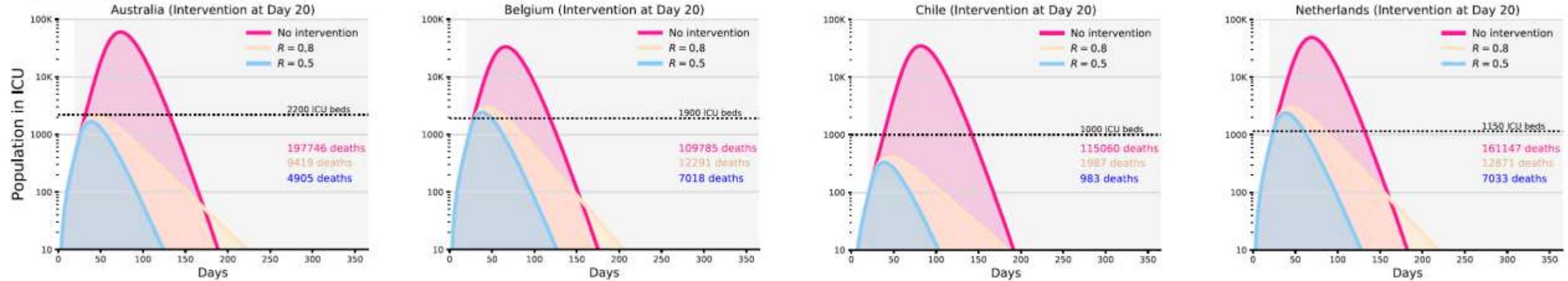
“A person on the disappearance of this fever would attempt to rise from bed, feeling not much loss of strength, and a consciousness of being able to move about and attend to a little to business; but how egregiously would he be mistaken when he assumed the upright posture! The joints felt as if fettered or ankylosed, and the advance of one foot or leg beyond the other, would cost more pain and effort than the purpose for which it may have been advanced was worth, —aye,—a thousand times told!”

Dumaresq PJ. An account of dengue, danga or dandy fever, as it occurred in New- Orleans, and in the person of the writer, communicated in a letter to one of the editors. *Boston Med Surg J.* 1828; 1: 497–502; <http://dx.doi.org/10.1056/NEJM182809230013201>

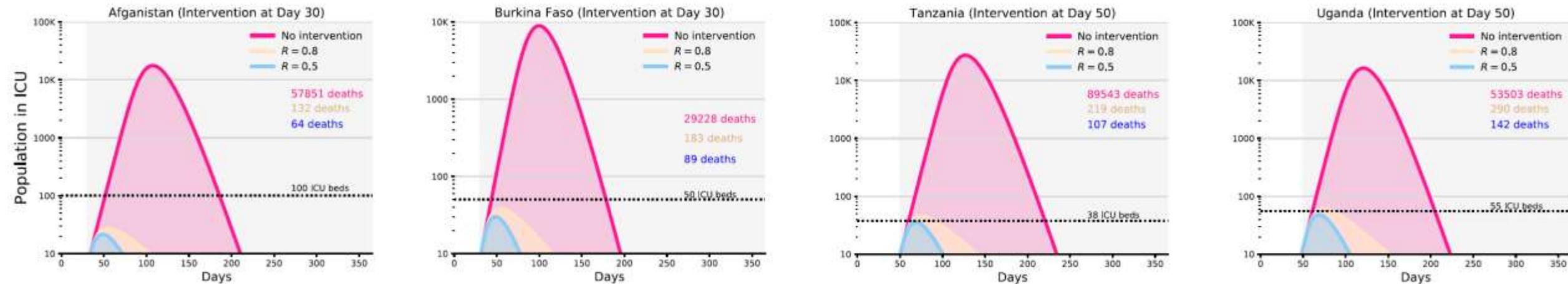
Dynamic interventions to control COVID-19 pandemic: a multivariate prediction modelling study comparing 16 worldwide countries

The Global Dynamic Interventions Strategies for COVID-19 Collaborative Group

High-income countries

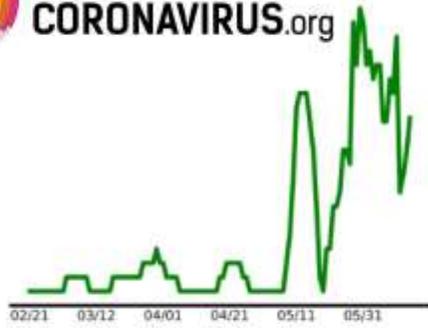


Low-income countries



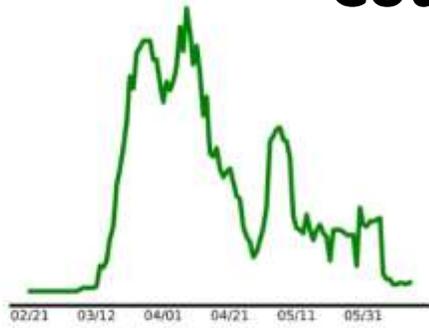


Countries beating Covid-19



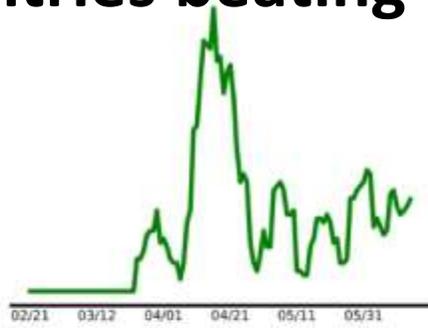
Bhutan

total cases: 66
recent new/day: 1



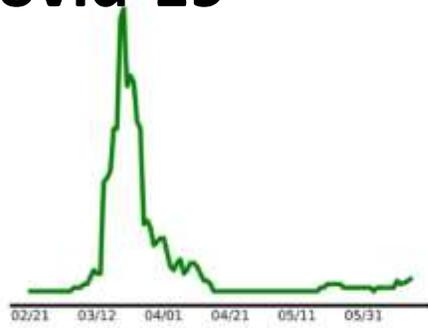
Burkina Faso

total cases: 894
recent new/day: 0



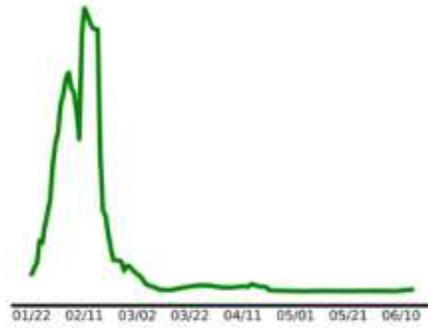
Burma

total cases: 261
recent new/day: 2



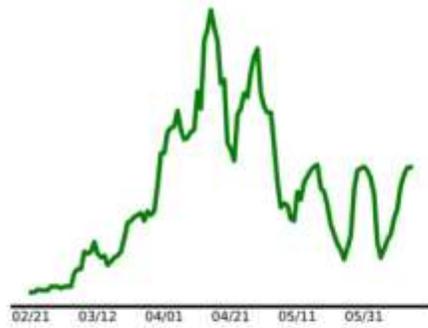
Cambodia

total cases: 127
recent new/day: 0



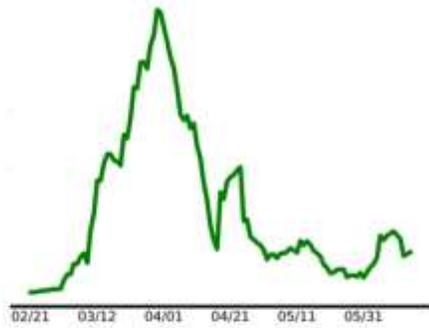
China

total cases: 83,787
recent new/day: 20



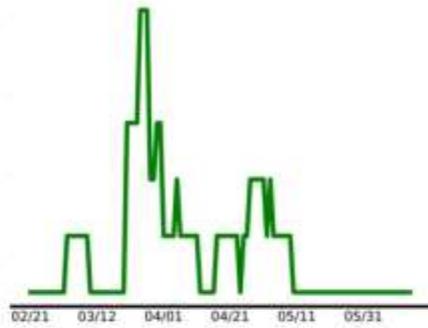
Georgia

total cases: 864
recent new/day: 7



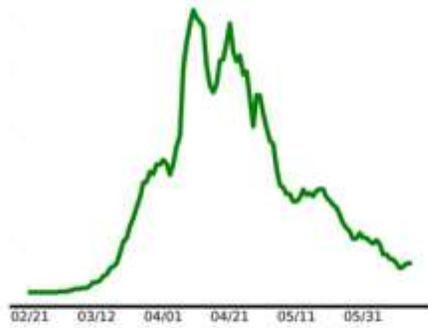
Greece

total cases: 3,121
recent new/day: 17



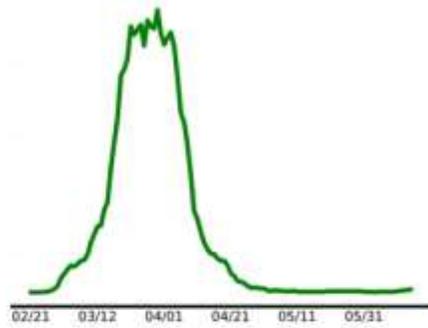
Holy See

total cases: 12
recent new/day: 0



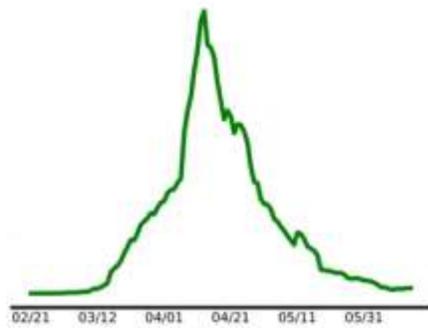
Hungary

total cases: 4,069
recent new/day: 8



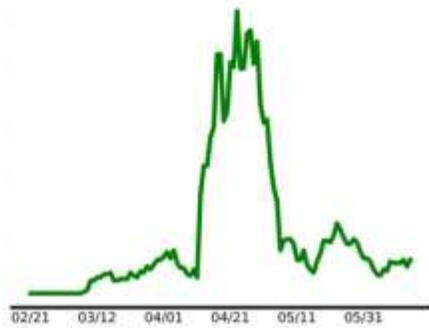
Iceland

total cases: 1,810
recent new/day: 0



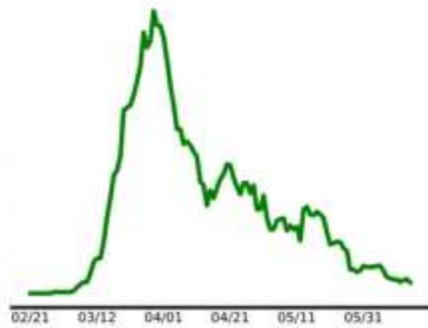
Ireland

total cases: 25,303
recent new/day: 14



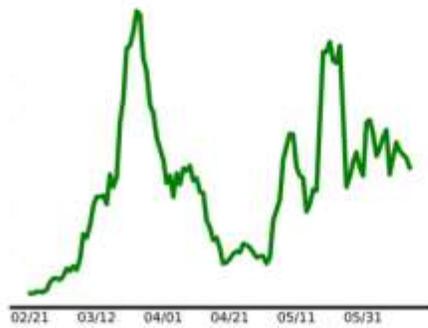
Jamaica

total cases: 617
recent new/day: 2



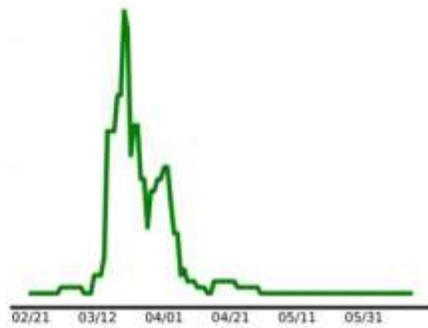
Latvia

total cases: 1,097
recent new/day: 1



Lebanon

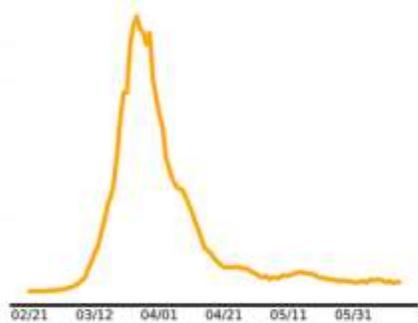
total cases: 1,445
recent new/day: 16



Liechtenstein

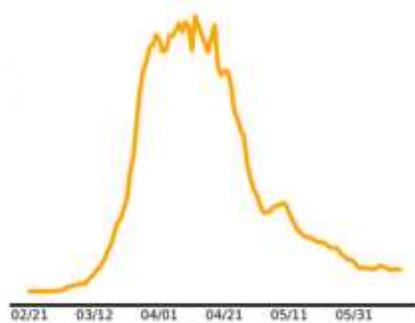
total cases: 82
recent new/day: 0

Countries that are nearly there



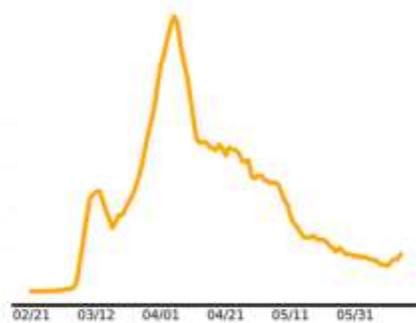
Austria

total cases: 17,109
recent new/day: 29



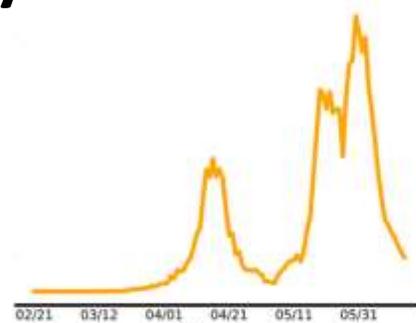
Belgium

total cases: 60,028
recent new/day: 114



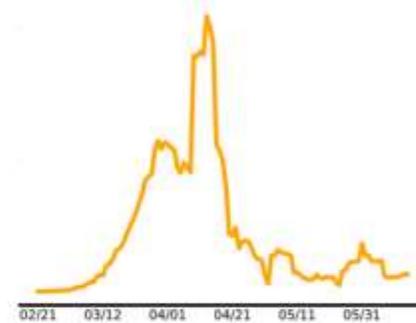
Denmark

total cases: 12,393
recent new/day: 35



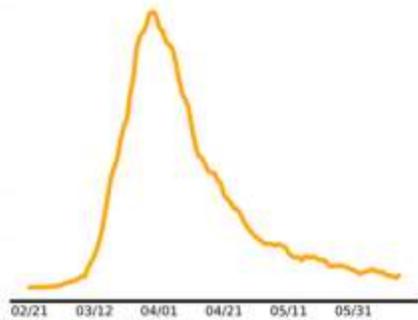
Djibouti

total cases: 4,465
recent new/day: 36



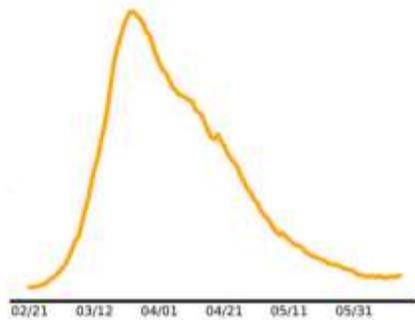
France

total cases: 198,567
recent new/day: 435



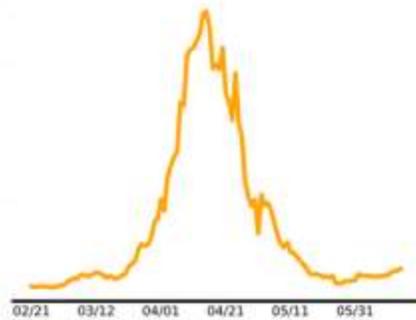
Germany

total cases: 187,502
recent new/day: 252



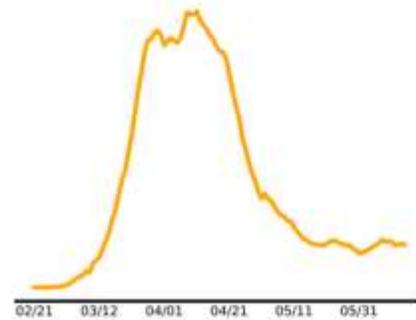
Italy

total cases: 236,969
recent new/day: 284



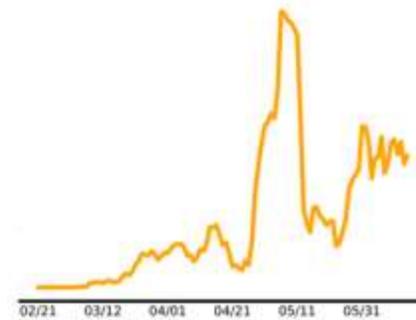
Japan

total cases: 17,264
recent new/day: 47



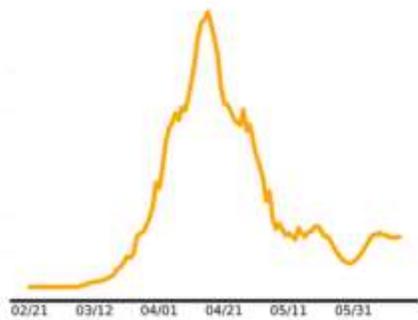
Netherlands

total cases: 48,990
recent new/day: 172



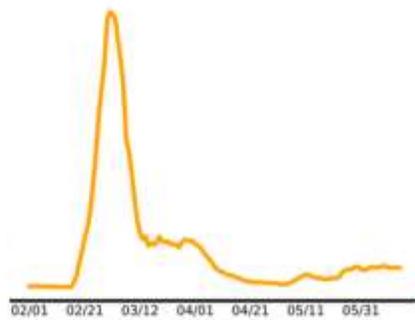
Paraguay

total cases: 1,289
recent new/day: 22



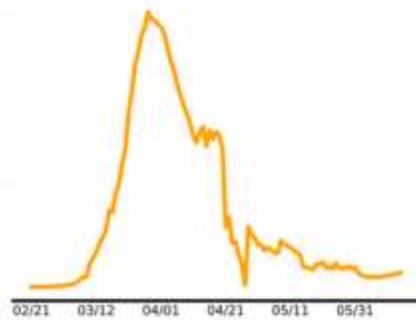
Serbia

total cases: 12,310
recent new/day: 69



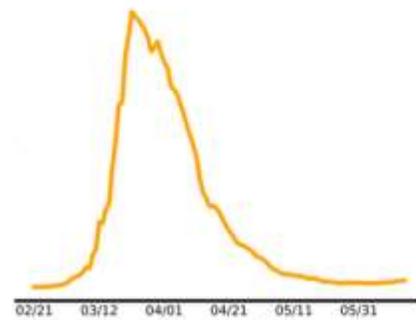
South Korea

total cases: 12,109
recent new/day: 43



Spain

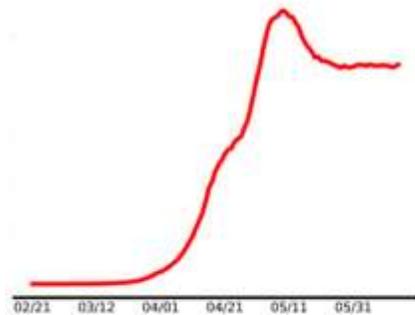
total cases: 243,926
recent new/day: 339



Switzerland

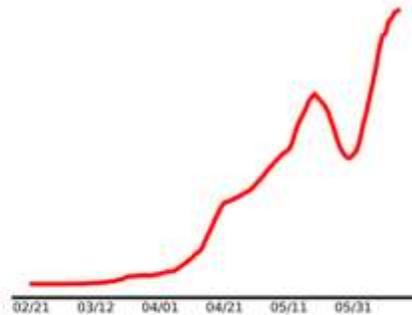
total cases: 31,117
recent new/day: 21

Countries that need to take action



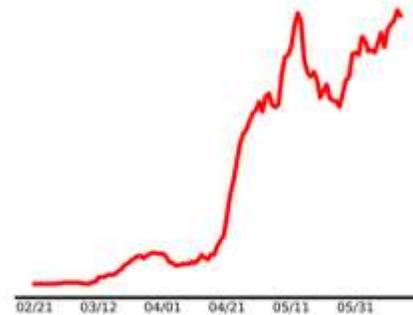
Russia

total cases: 528,265
recent new/day: 8,742



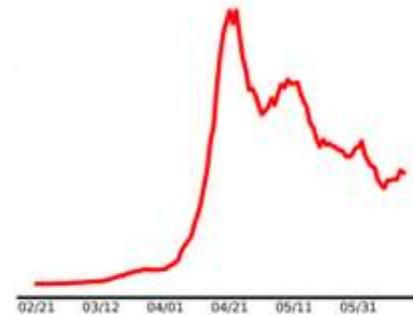
Saudi Arabia

total cases: 127,541
recent new/day: 3,661



Senegal

total cases: 5,090
recent new/day: 108



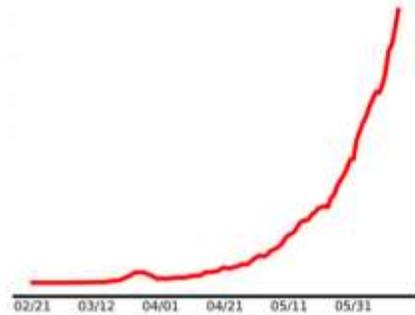
Singapore

total cases: 40,519
recent new/day: 384



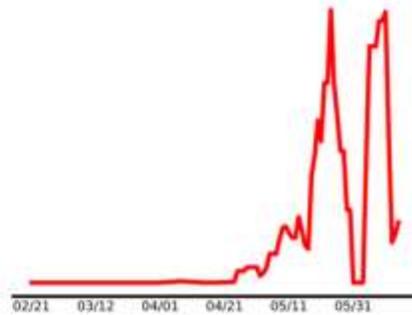
Somalia

total cases: 2,618
recent new/day: 40



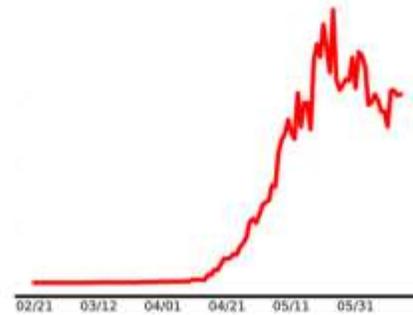
South Africa

total cases: 70,038
recent new/day: 3,107



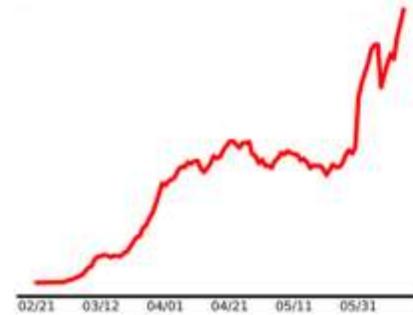
South Sudan

total cases: 1,693
recent new/day: 53



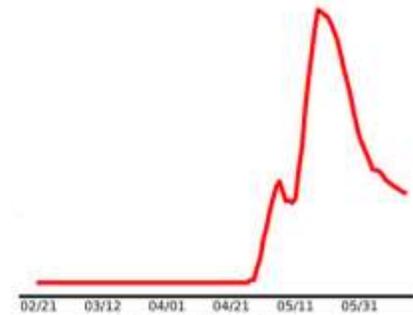
Sudan

total cases: 7,220
recent new/day: 162



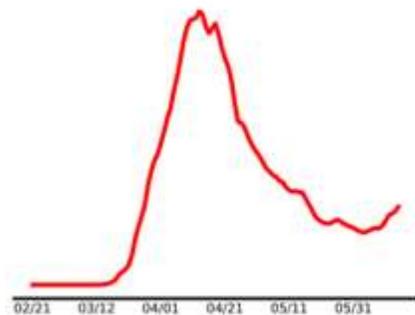
Sweden

total cases: 51,613
recent new/day: 983



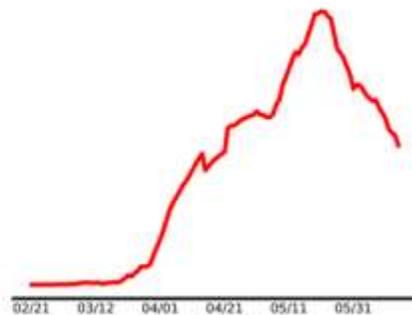
Tajikistan

total cases: 5,035
recent new/day: 72



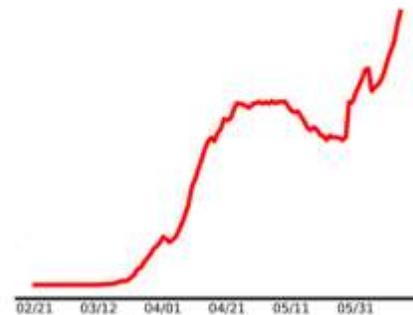
Turkey

total cases: 178,239
recent new/day: 1,158



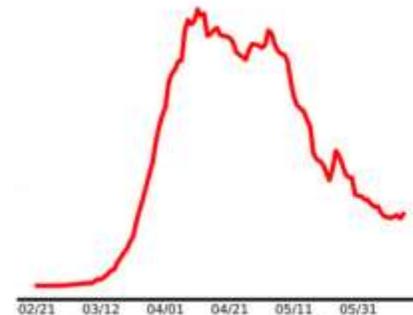
U.A.E.

total cases: 42,285
recent new/day: 498



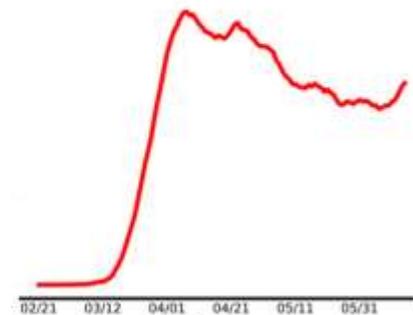
Ukraine

total cases: 31,851
recent new/day: 607



United Kingdom

total cases: 297,333
recent new/day: 1,388



US

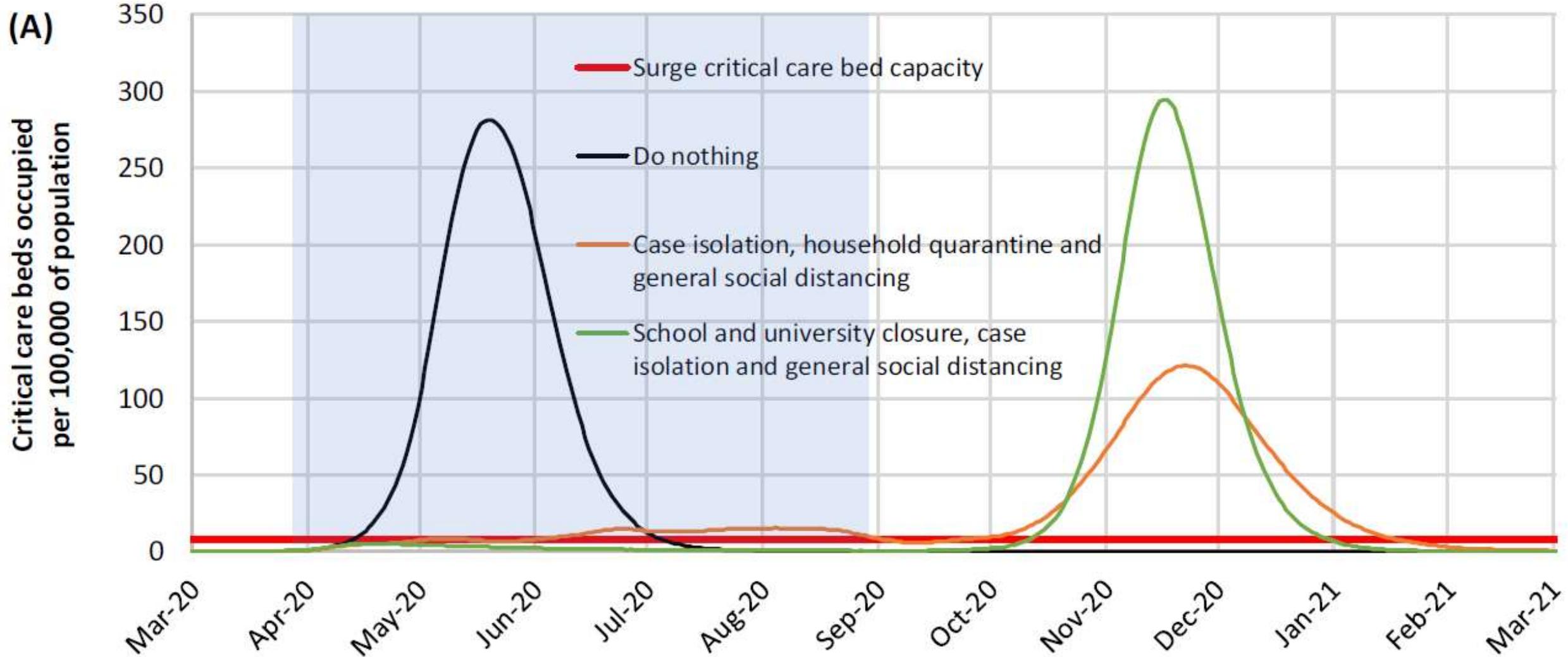
total cases: 2,094,043
recent new/day: 21,392





°WARNING
OBJECTS
IN MIRROR
MAY BEAR
% **NO** %
RELATION
TO REALITY

LOOK THE DEVIL IN THE EYE



Ferguson et al 16th March 2020

Where are the bodies? Missing remains mean no peace for grieving families in Ecuador





Political controversy

After the cholera epidemic had subsided, government officials replaced the Broad Street Pump Handle. They had responded only to the urgent threat posed to the population, and afterward they rejected Snow's theory. To accept his proposal would be indirectly accepting the oral-fecal method transmission of disease, which was too unpleasant for most of the public.

Public health officials today recognize the political struggles in which reformers often become entangled. During the Annual Pumphandle Lecture in England, members of the John Snow Society remove and then replace a pump handle to symbolize the continuing challenges that face public health advancements.

WHO ends Zika designation as international public health emergency

By [Gretchen Vogel](#) | Nov. 18, 2016 , 4:30 PM







House parties continue in Cork despite warnings and protests



Irish Examiner

Residents of Magazine Road & Surrounding Area Residents Association, Cork, observing social distancing last week, as they highlighted concerns about Covid-19 regulations being breached in the area by young people. Picture Denis Minihaane

Without unity, 'the worst is yet ahead of us': WHO coronavirus briefing



Director General of the World Health Organization (WHO) Tedros Adhanom Ghebreyesus.

Image: REUTERS/Denis Balibouse



WHO Director-General's opening remarks at the World Health Assembly



“My sisters and brothers”

“As you know, this year is the International Year of the Nurse and the Midwife. This Assembly was intended to be a moment of recognition for the incredible contribution that nurses and midwives make every day, in every country. The pandemic has robbed us of that opportunity. But it has only served to illustrate why nurses, midwives and all health workers are so important. Nurses and midwives have been on the frontlines of the fight against COVID-19, putting themselves in harm’s way. Many have made the ultimate sacrifice in service of humanity.”

“The pandemic has brought out the best – and worst – of humanity: Fortitude and fear; solidarity and suspicion; rapport and recrimination. This contagion exposes the fault lines, inequalities, injustices and contradictions of our modern world.

It has highlighted our strengths, and our vulnerabilities. Science has been hailed and scorned. Nations have come together as never before, and geopolitical divisions have been thrown into sharp relief. We have seen what is possible with cooperation, and what we risk without it.”

“And we have called consistently for the two essential ingredients for conquering this virus: national unity and global solidarity.”



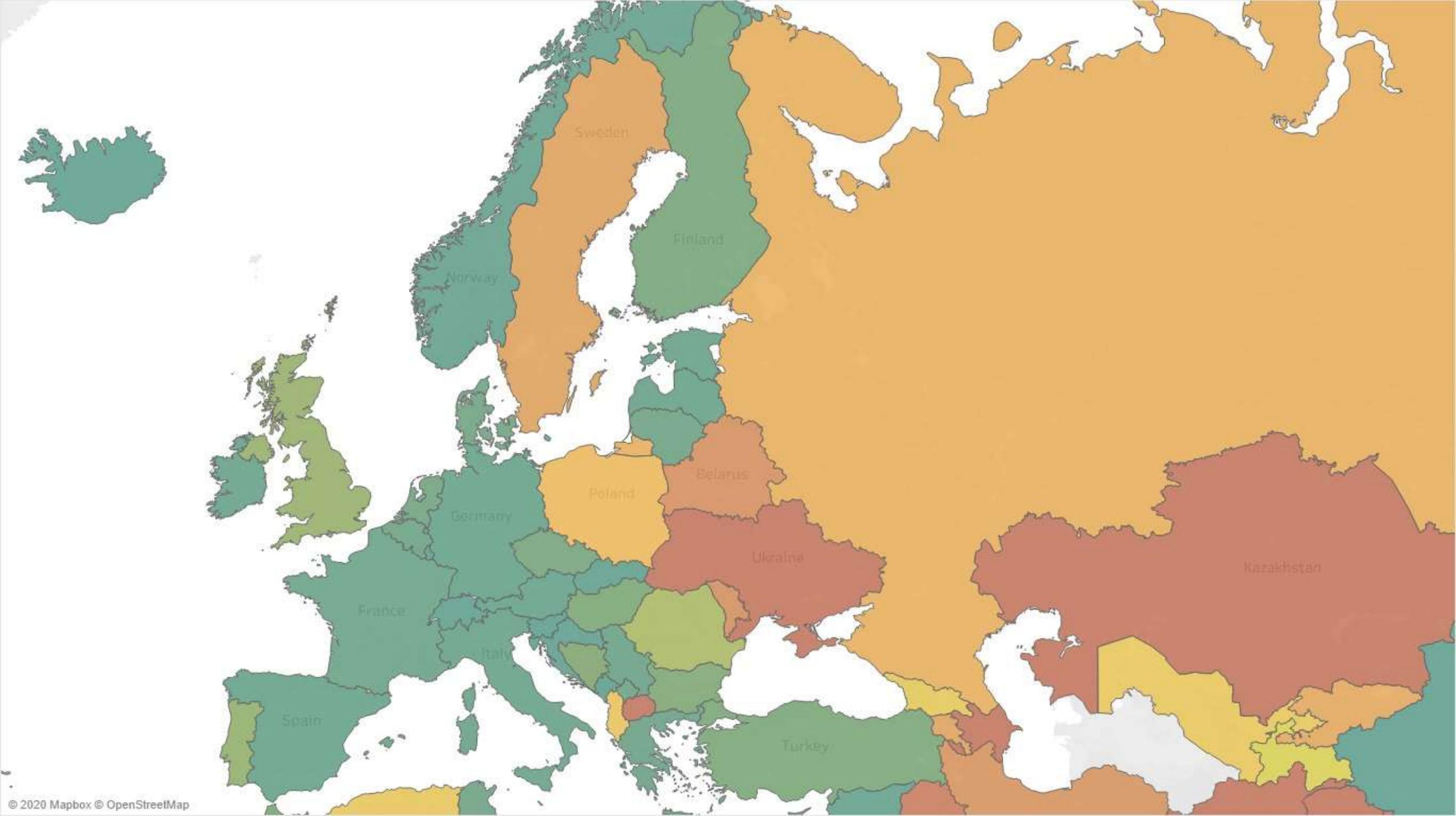


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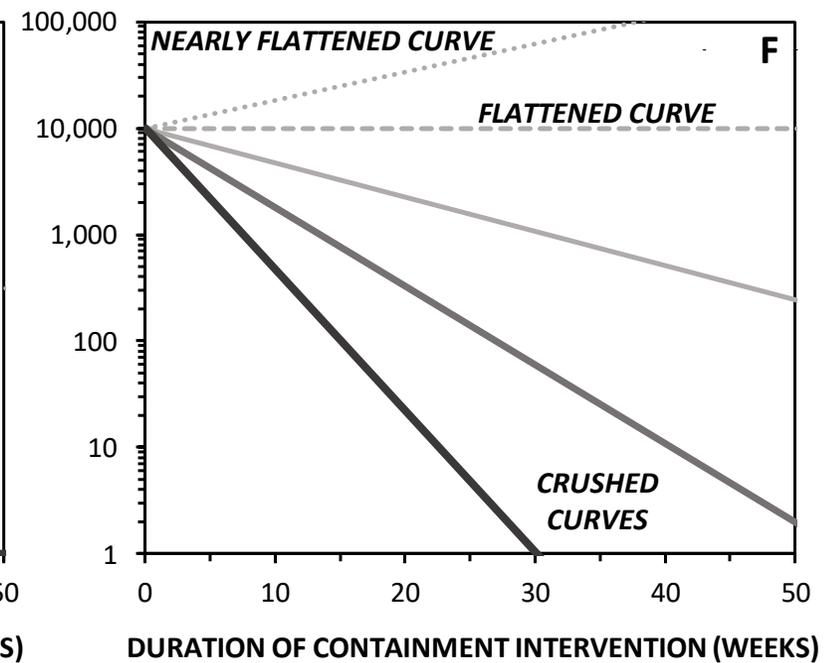
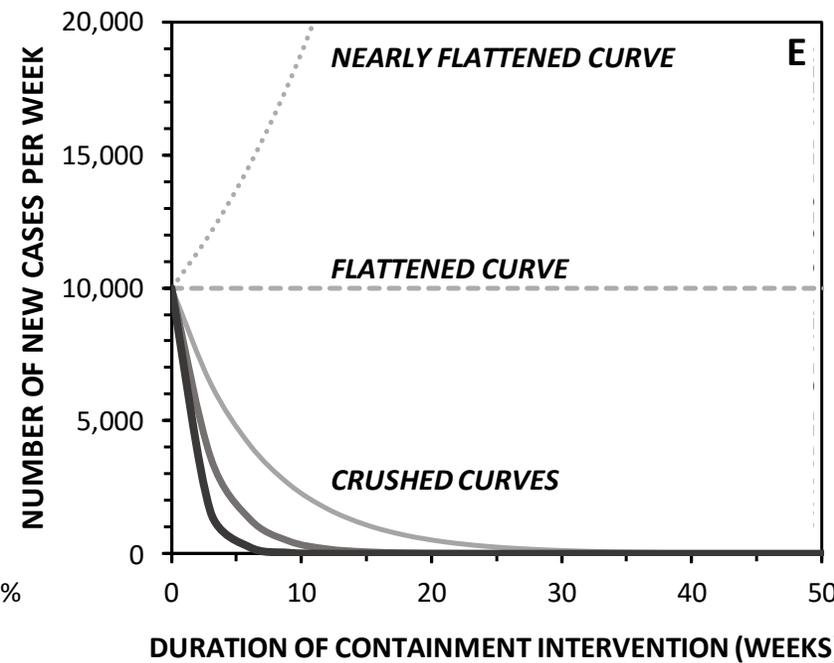
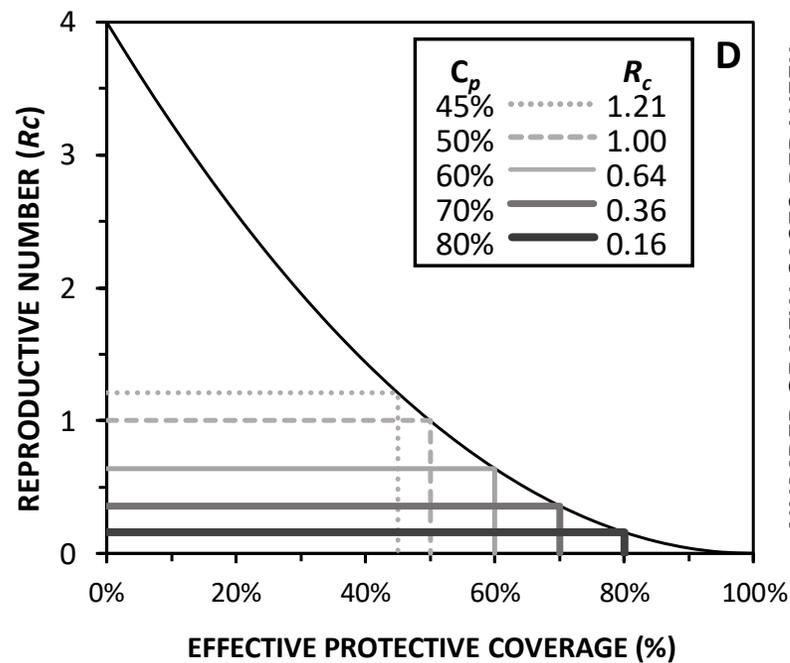
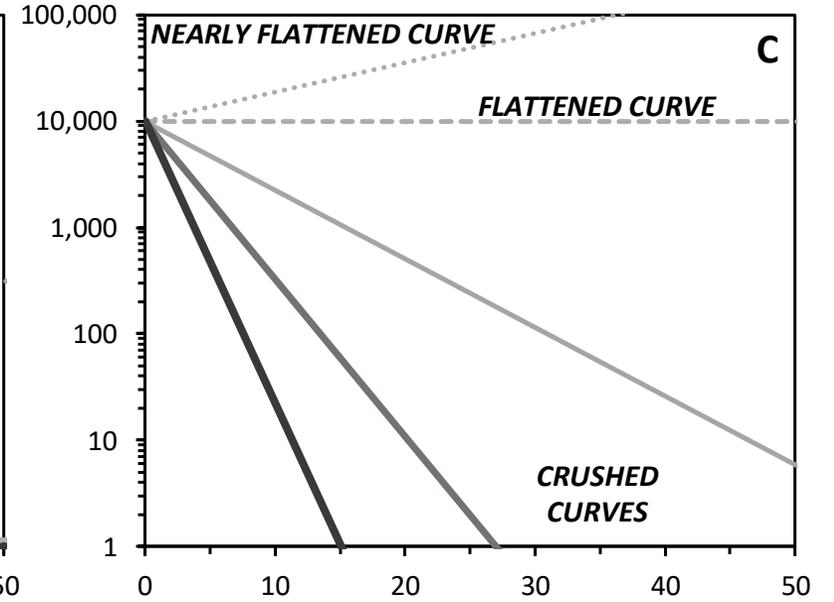
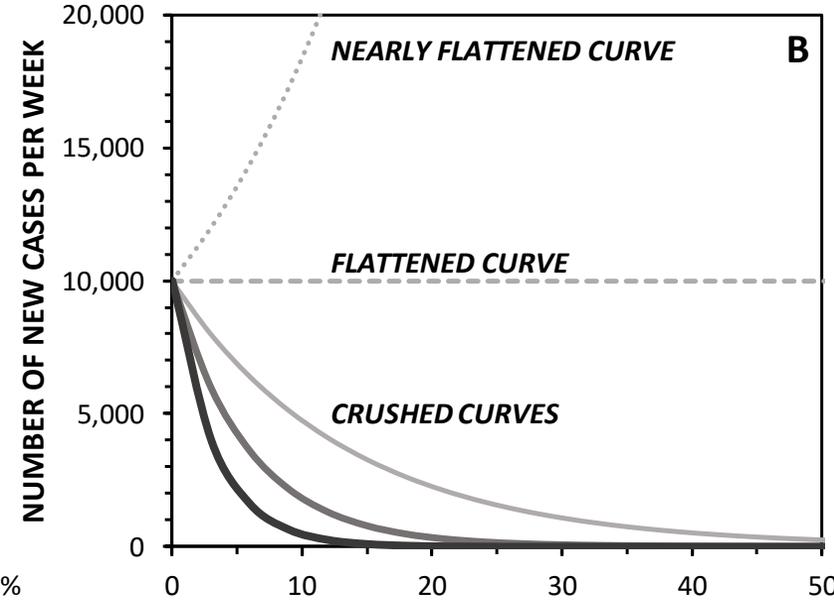
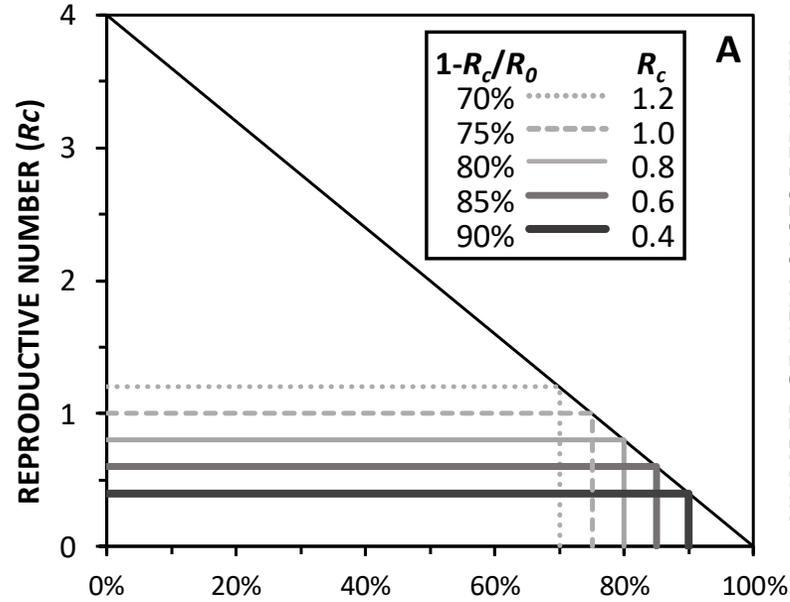


MAERSK

GROSS WT 71 850 LB 32 580 KG
PAYLOAD 52 837 LB 23 950 KG
TARE WT 8 821 LB 4 000 KG
CUBE 2 200 CBM 20 110 M³



Killeen (2020) Infectious Disease Modelling. Pushing past the tipping points in containment trajectories of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) epidemics (In press)

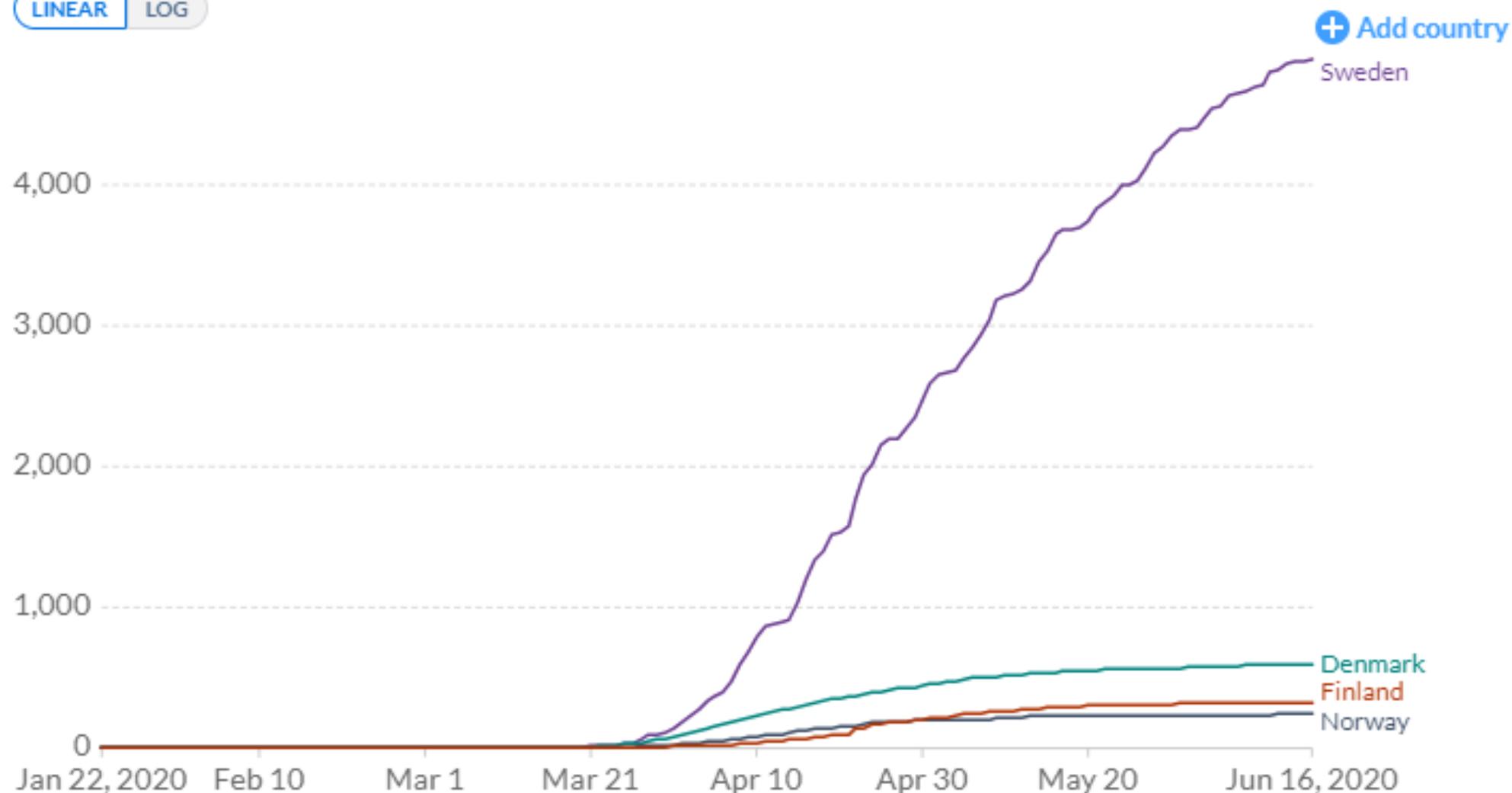


Total confirmed COVID-19 deaths

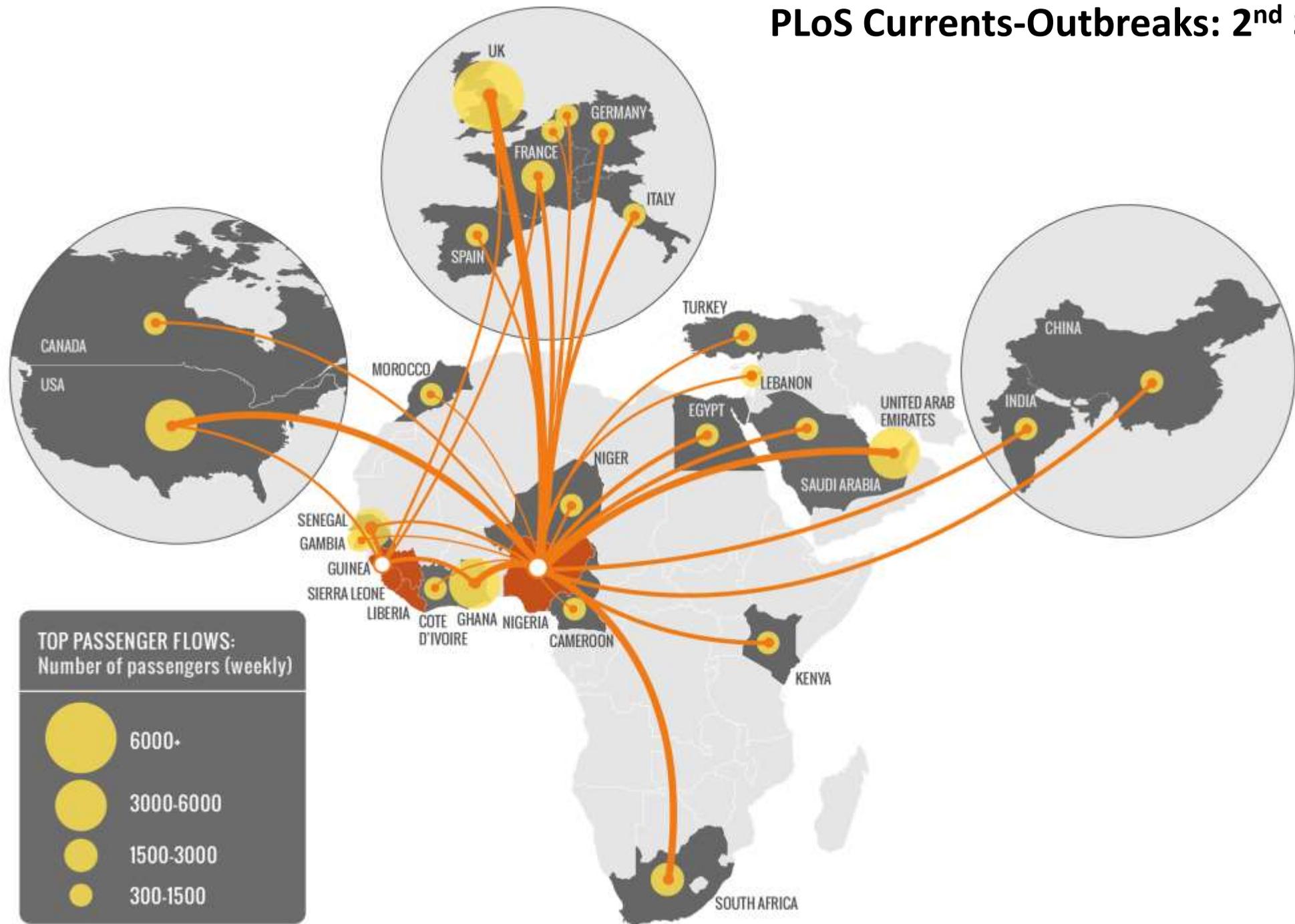
Limited testing and challenges in the attribution of the cause of death means that the number of confirmed deaths may not be an accurate count of the true number of deaths from COVID-19.

LINEAR

LOG









PRIORITIZING DISEASES FOR RESEARCH AND DEVELOPMENT IN EMERGENCY CONTEXTS

- Crimean-Congo haemorrhagic fever (CCHF)
- Ebola virus disease and Marburg virus disease
- Lassa fever
- Middle East respiratory syndrome coronavirus (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS)
- Nipah and henipaviral diseases
- Rift Valley fever (RVF)
- Zika
- **Disease X (Disease X represents the knowledge that a serious international epidemic could be caused by a pathogen currently unknown to cause human disease, and so the R&D Blueprint explicitly seeks to enable cross-cutting R&D preparedness that is also relevant for an unknown “Disease X” as far as possible)**



MARION
COTILLARD

MATT
DAMON

LAURENCE
FISHBURNE

JUDE
LAW

GWYNETH
PALTROW

KATE
WINSLET

NOTHING SPREADS LIKE FEAR

CONTAGION



COVID-19: protecting health-care workers



Worldwide, as millions of people stay at home to minimise transmission of severe acute respiratory syndrome coronavirus 2, health-care workers prepare to do the exact opposite. They will go to clinics and hospitals, putting themselves at high risk from COVID-2019. Figures from China's National Health Commission show that more than 3300 health-care workers have been infected as of early March and, according to local media, by the end of February at least 22 had died. In Italy, 20% of responding health-care workers were infected, and some have died. Reports from medical staff describe physical and mental exhaustion, the torment of difficult triage decisions, and the pain of losing patients and colleagues, all in addition to the infection risk.

As the pandemic accelerates, access to personal protective equipment (PPE) for health workers is a key concern. Medical staff are prioritised in many countries, but PPE shortages have been described in the most affected facilities. Some medical staff are waiting for equipment while already seeing patients who may be

infected or are supplied with equipment that might not meet requirements. Alongside concerns for their personal safety, health-care workers are anxious about passing the infection to their families. Health-care workers who care for elderly parents or young children will be drastically affected by school closures, social distancing policies, and disruption in the availability of food and other essentials.

Health-care systems globally could be operating at more than maximum capacity for many months. But health-care workers, unlike ventilators or wards, cannot be urgently manufactured or run at 100% occupancy for long periods. It is vital that governments see workers not simply as pawns to be deployed, but as human individuals. In the global response, the safety of health-care workers must be ensured. Adequate provision of PPE is just the first step; other practical measures must be considered, including cancelling non-essential events to prioritise resources; provision of food, rest, and family support; and psychological support. Presently, health-care workers are every country's most valuable resource. ■ [The Lancet](#)



For more on COVID-19 in Italy see [Online Health Policy](#) [https://doi.org/10.1016/S0140-6736\(20\)30627-9](https://doi.org/10.1016/S0140-6736(20)30627-9)



Ebola in DR Congo: getting the job done



With the world's focus on the coronavirus disease 2019 (COVID-19) outbreak, a good news story receiving far less attention is that of Semida Masika, the last person in DR Congo confirmed to have Ebola virus infection and discharged from care after her recovery on March 4. This important milestone is a remarkable achievement given the insecurity in DR Congo, which led to serious attacks on health-care facilities, workers, and patients, and a continual disabling of the outbreak response.

The 18-month Ebola outbreak in DR Congo has claimed 2264 lives and the number of cases exceeded 3000, making it the largest Ebola epidemic ever recorded after the west Africa outbreak of 2014–16. Unlike previous Ebola outbreaks, the national government took charge in coordinating the response, ably supported by WHO, donors, and other partners, including the African Centres for Disease Control and Prevention, which importantly allowed African experts rather than international experts to remain at the front and centre of the response. Another unique feature was the multidisciplinary approach to the outbreak, which included employing

more social scientists, applying new technologies, such as whole genome sequencing, and building community trust and engagement alongside a competent workforce for new surveillance and laboratory capacities. Having vaccines and treatments, plus the ability to conduct trials during the outbreak, was crucial and helped communities to have confidence in the health-care system.

Most urgent now is ensuring no new cases emerge in the 42-day period that must pass infection-free before declaring the outbreak over, and the immediate US\$20 million WHO needs to fund the remaining response. Concerns that COVID-19 will now steer attention away from the need to close the deal with Ebola control in DR Congo are real. Donors must step up and all teams must continue their resolve and commitment to not leave until the job is done. Furthermore, new capacities and regional mechanisms to coordinate efforts must be retained and properly funded after the outbreak ends so that the country's strengthened health-care system can serve its people far beyond Ebola. ■ [The Lancet](#)



As Ebola cases reach 3000 in DRC, WHO calls on all partners to fulfill promises to communities

“Our commitment to the people of the Democratic Republic of the Congo is that we will work alongside them to stop the Ebola outbreak,” said WHO Director-General Dr Tedros Adhanom Ghebreyesus. “Our commitment also means strengthening health systems to give them all the other things they need. Building strong systems is what will protect people, communities and the world.”

With a population of 80 million, the Democratic Republic of the Congo has more than 4 million displaced and is home to the world’s second largest food crisis with 13 million people food insecure. Since January 2019, there have been outbreaks of cholera (15,331 cases, 287 deaths), measles (161,397 cases, 3,117 deaths) and malaria, the leading cause of death in the DRC, which kills more than 48,000 people every year.





CAREERS

FUNDING European universities call for more money [p.321](#)

MINORITIES US agency aims to boost diverse faculty numbers [p.321](#)

NATUREJOBS For the latest career listings and advice www.naturejobs.com

Preparing researchers to manage traumatic research

23 Sep 2016 | 12:00 GMT | Posted by Jack Leeming | Category: Academia, Ask the expert, Communication, In the news, People Management, Postgraduate, Relationships, Report

Studying traumatic events comes with its own risks – the scientific establishment needs to be doing more to protect researchers, says Dale Dominey-Howes and Danielle Drozdowski.



MENTAL HEALTH

Caught in a trap

The pressures of a scientific career can take their toll on people's ability to cope.

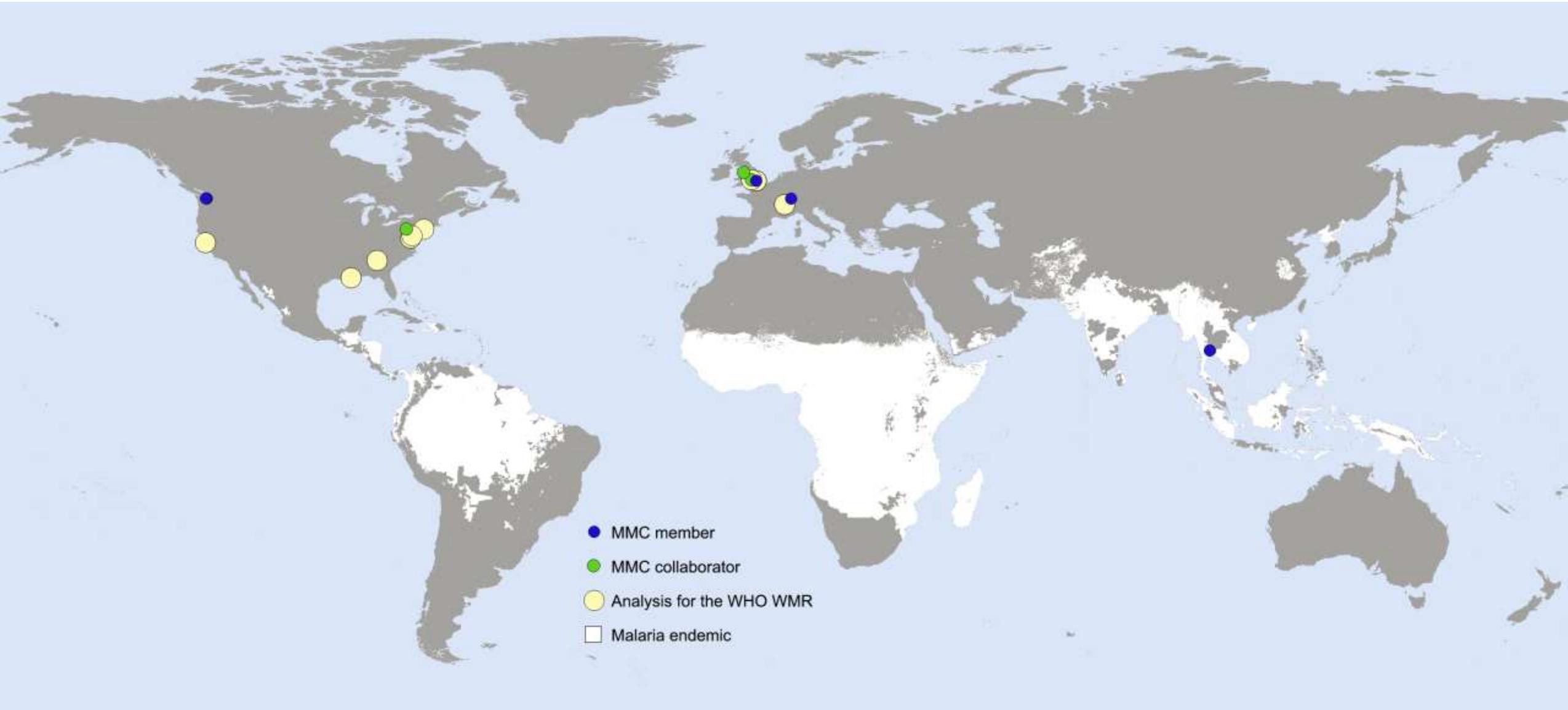


One of the authors interviews survivors a few days after the September 2009 South Pacific tsunami in the rubble of their communities in Samoa, as part of the UNESCO post-tsunami survey team reporting into the Prime Minister and King of Samoa. "It was a hard day for all of us," says Dale Dominey-Howes.

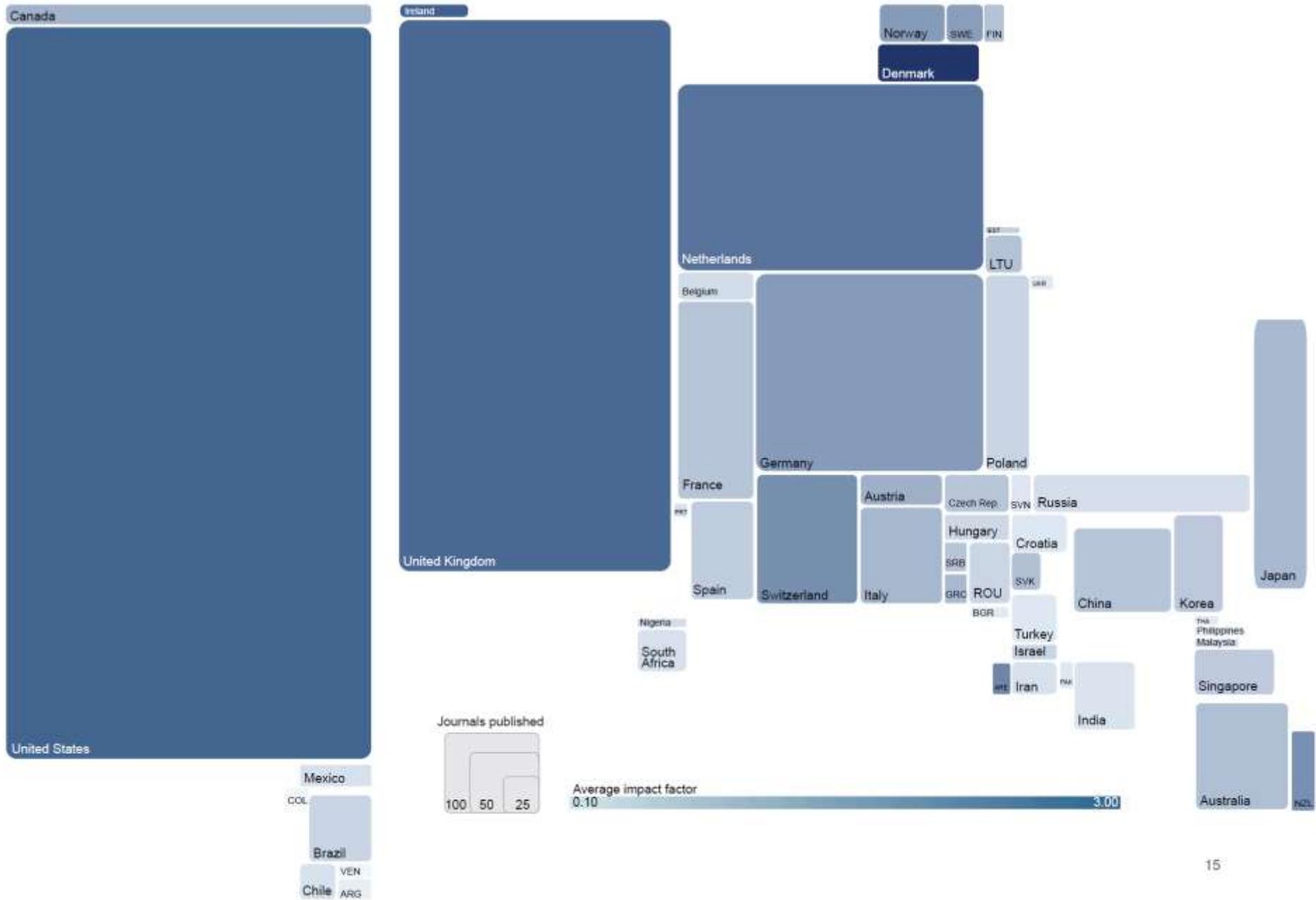




WHAT'S WRONG WITH THIS PICTURE?



Global geographic distribution of current members and collaborators in the Malaria Modelling Consortium (MMC), plus analytical contributors to the WHO 2015-2017 World Malaria Report (WHO-WMR), overlaid on malaria endemicity.



First Day of Issue
THE BIG SIX OF MALARIA



SIR RONALD ROSS



GIUSEPPE BASTIANELLI



CARLOS CHAGAS



BRITTON JACKSON



HOWARD J. HENSHAW



United Nations
ANTI-MALARIA
Postage Stamps

ISSUED IN COOPERATION WITH WORLD HEALTH ORGANIZATION
 ANTI-MALARIA CAMPAIGN

1962







BASED ON THE UNTOLD TRUE STORY

MEET THE WOMEN YOU DON'T KNOW,
BEHIND THE MISSION YOU DO.

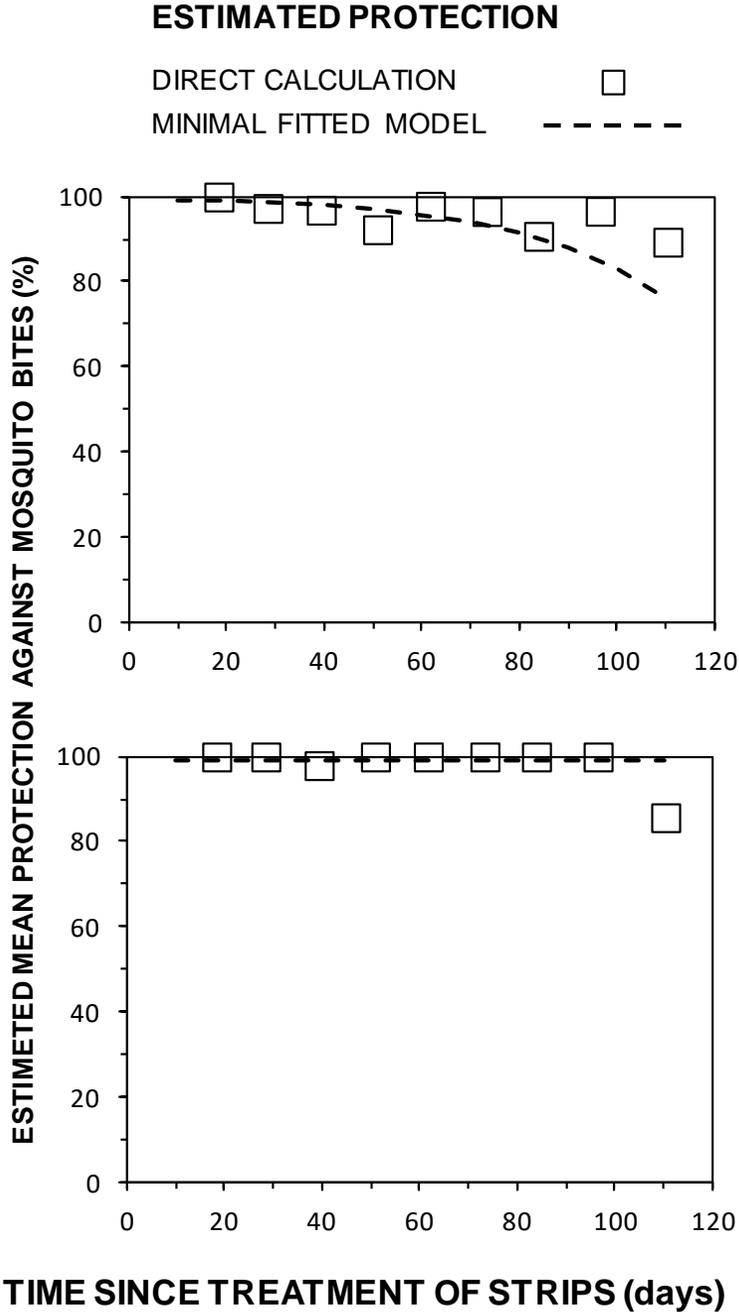
HIDDEN FIGURES

JANUARY 6, 2017

#HIDDENFIGURES

Sheila Ogoma, PhD

Ifakara Health Institute
United Republic of Tanzania





YOUNG SCIENTISTS TANZANIA

BG TANZANIA



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USAID
FROM THE AMERICAN PEOPLE



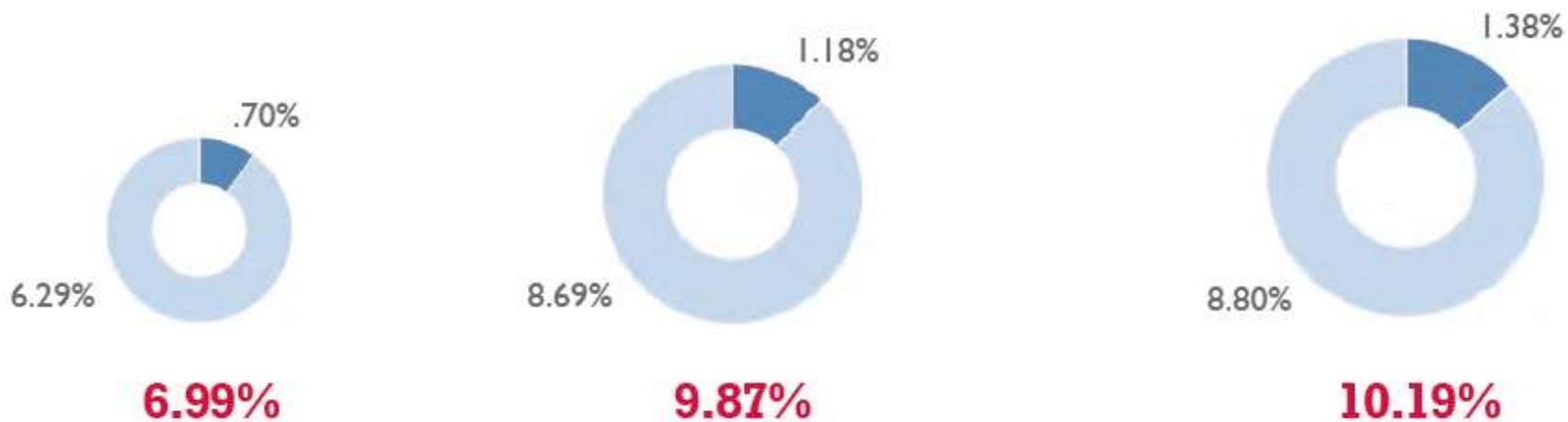
USAID
Forward
PROGRESS
REPORT
2013

■ HOST COUNTRY GOVERNMENT ■ LOCAL ORGANIZATIONS ■ TOTAL PERCENT OF MISSION FUNDING

2010

2011

2012



AFRICA

Trócaire in Honduras: Everyday crisis forces people into the hands of “coyotes”



Leticia Martínez, Cofamipro







