



# Understanding Child Health in the Context of COVID-19: *Experiences from Bangladesh, Pakistan, & Zambia*

April 23, 2020

# COVID-19 Pandemic

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Economist March 2020

# Origin of the nCoV-2019?



Bat virus?

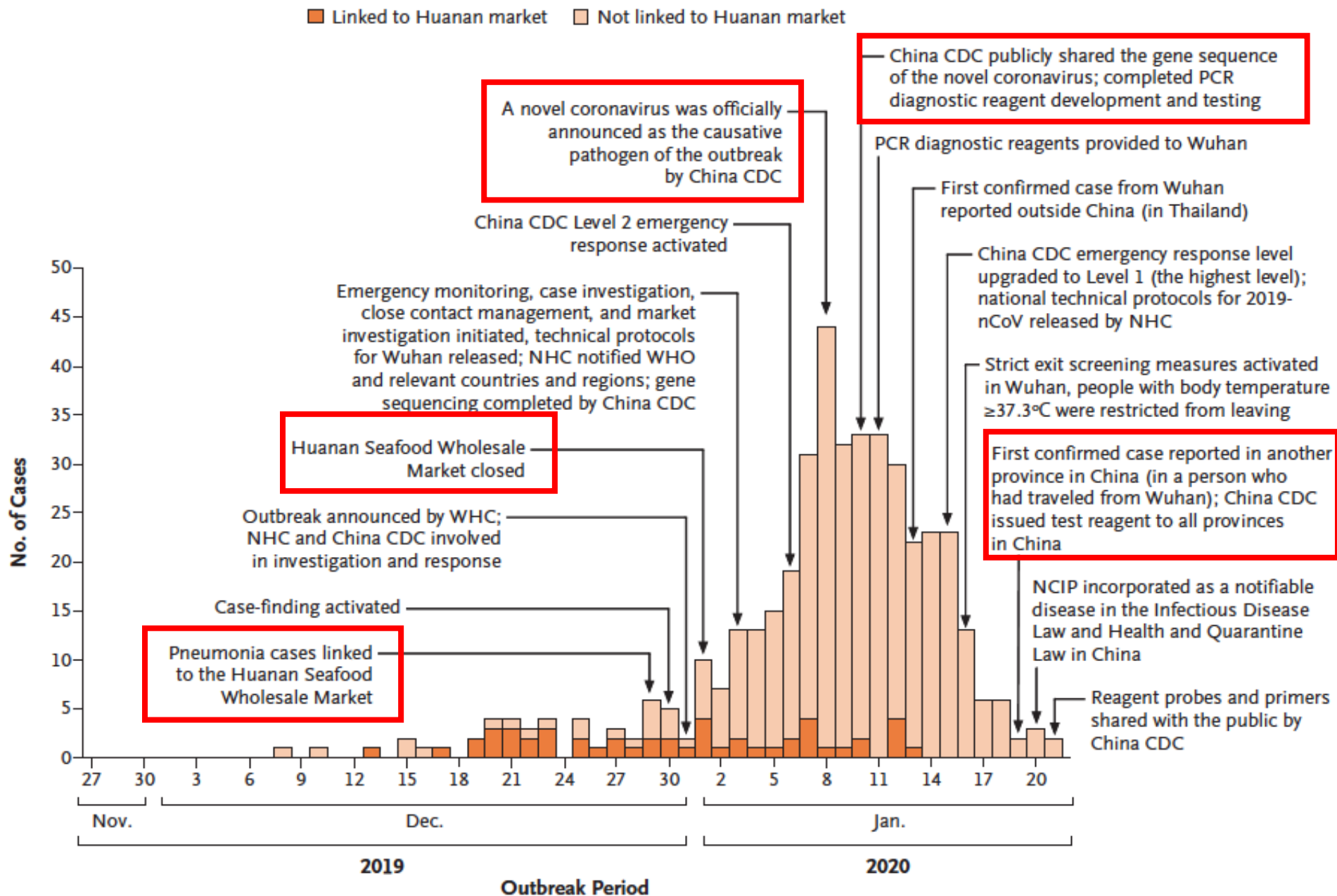
**Many species of bats harbor coronaviruses**

- 2017: a coronavirus 96% identical to the Wuhan coronavirus was identified in a horseshoe bat in Yunnan cave



**Did pangolins spread the China coronavirus to people?**

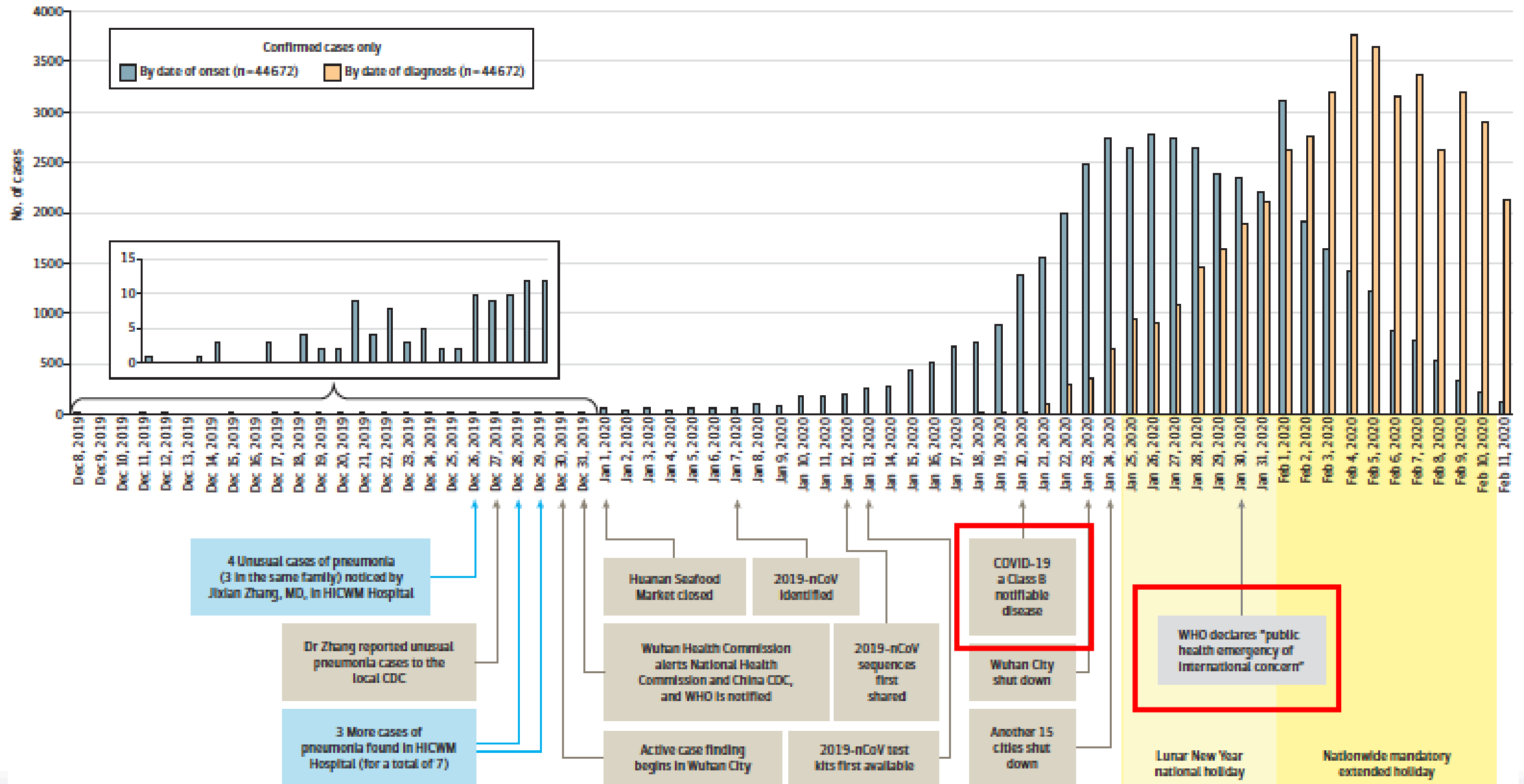
Genetic sequences of viruses isolated from the scaly animals are 99% similar to that of the circulating virus – but the work is yet to be formally published.



Qun Li et al.  
Early  
transmission  
dynamics in  
Wuhan, China  
of novel  
coronavirus-  
infected  
pneumonia.  
NEJM 2020

**Figure 1.** Onset of Illness among the First 425 Confirmed Cases of Novel Coronavirus (2019-nCoV)-Infected Pneumonia (NCIP) in Wuhan, China.

Figure 1. Epidemic Curve of the Confirmed Cases of Coronavirus Disease 2019 (COVID-19)





# WHO Situational Report

## April 22, 2020

- WHO risk assessment: global - very high
- US>Spain>Italy>China>Iran
- Globally – 2,471,136 confirmed cases (73,920 new)
  - 169,006 deaths (6058 new)

Figure 4. Epidemic curve of confirmed COVID-19, by date of report and WHO region through 22 April 2020

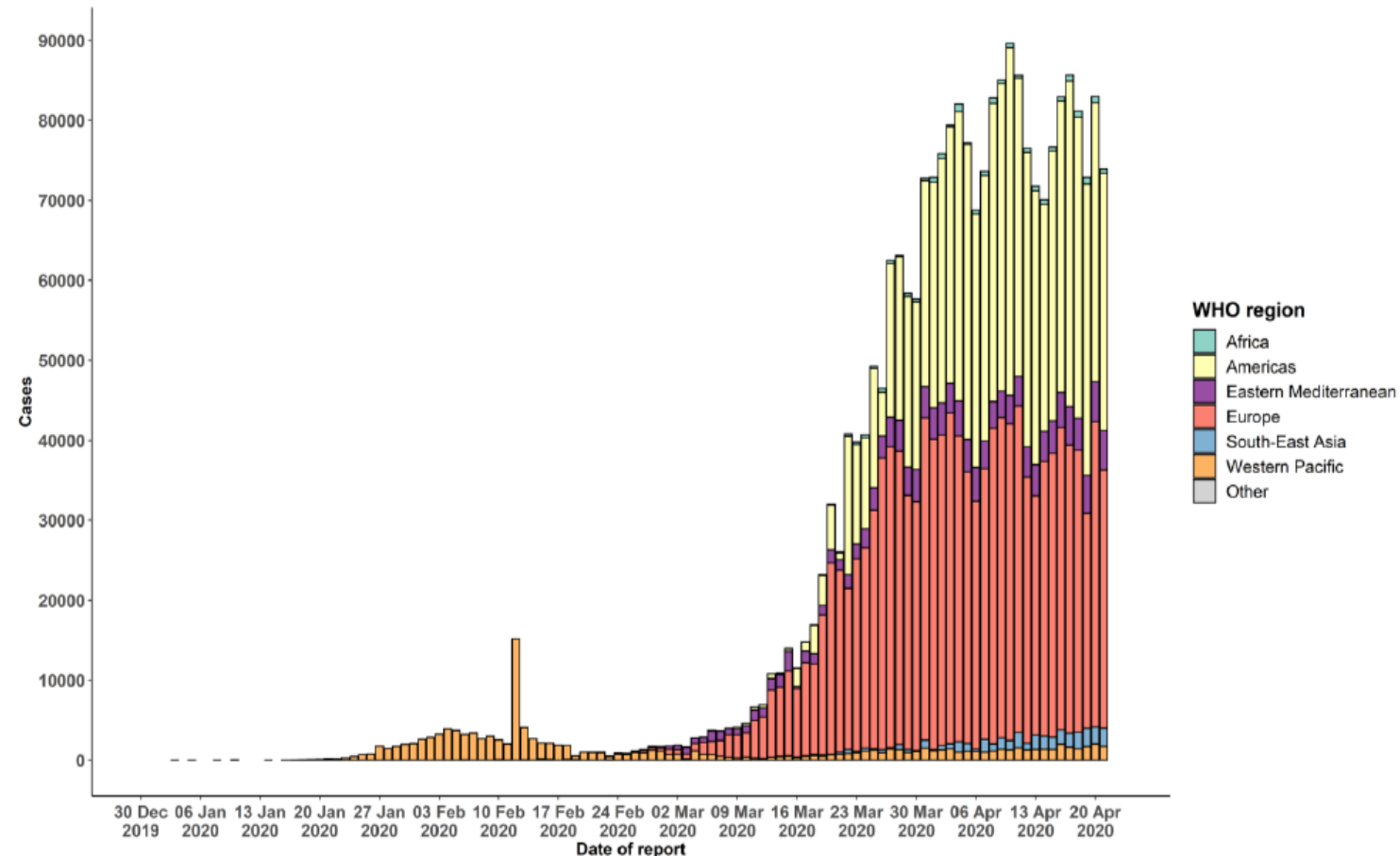
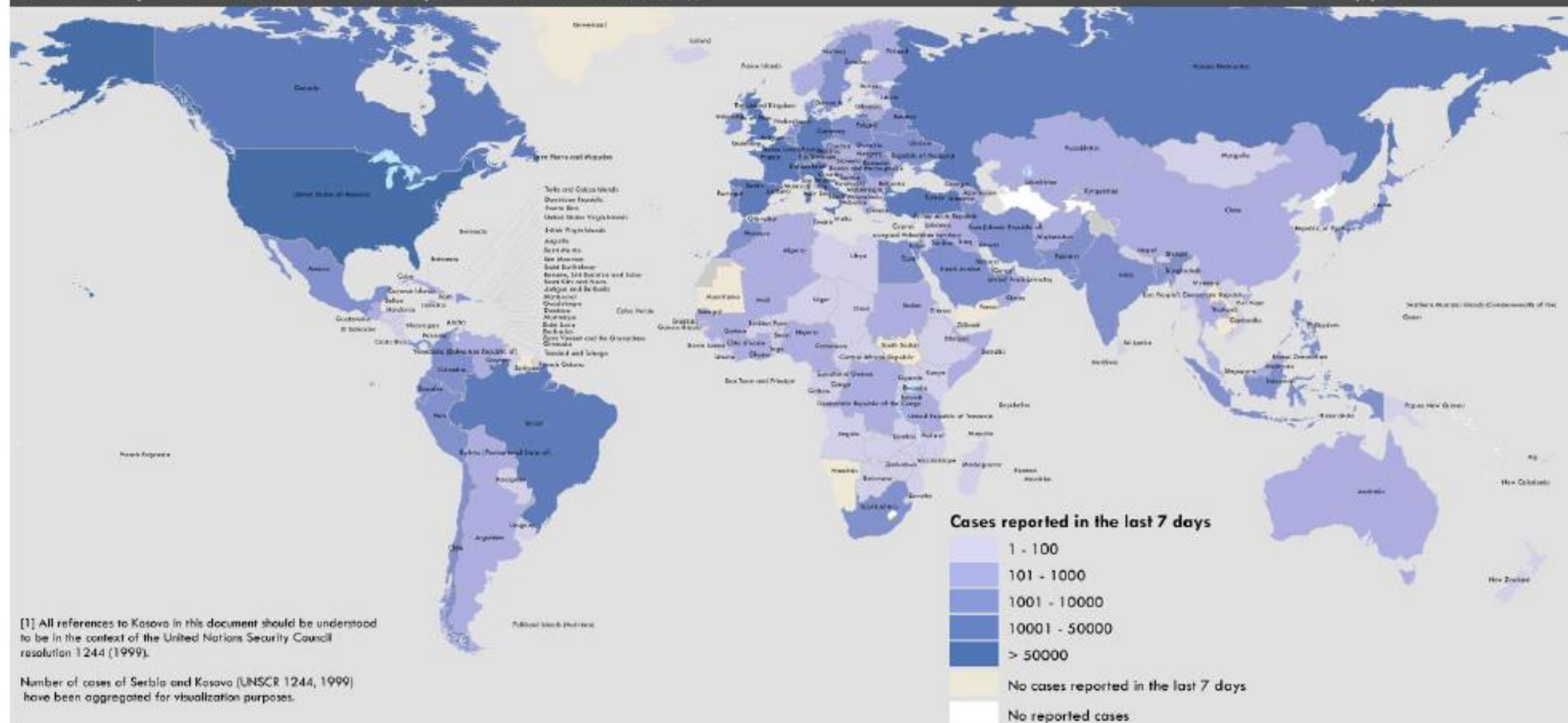


Figure 1. Countries, territories or areas with reported confirmed cases of COVID-19, 22 April 2020

## Countries, areas or territories with COVID-19 cases reported in the last 7 days

(From 16 April 2020, 10:00AM to 22 April 2020, 10:00AM (CEST))



[1] All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999).

Number of cases of Serbia and Kosovo (UNSCR 1244, 1999) have been aggregated for visualization purposes.

Data Source: World Health Organization  
Map Production: WHO Health Emergencies Programme

Not applicable

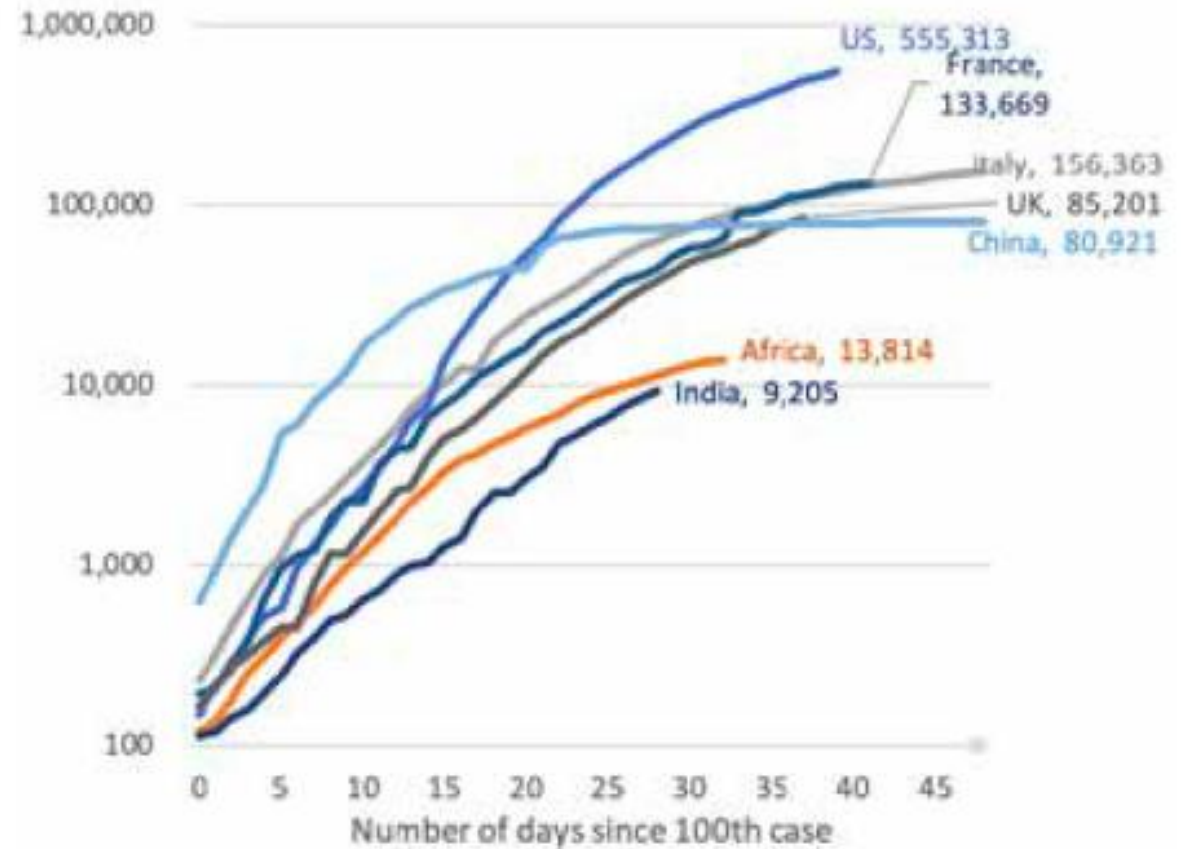
0 2,500 5,000 km  
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The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

# Global Trajectory of COVID-19 in Africa and India vs. High-Income Countries

## COVID-19 in Africa United Nations

**Figure 1.1** Days since 100th case: Africa's infection trajectory vs comparators



**Source:** Based on data from Johns Hopkins University and Africa CDC, 12 April 2020



# Enhancing capacity for COVID-19 diagnostics in Bangladesh

Child Health Research Foundation, Bangladesh

Prof. Samir K Saha and Dr. Senjuti Saha

23 April 2020

Child Health Task Force Webinar

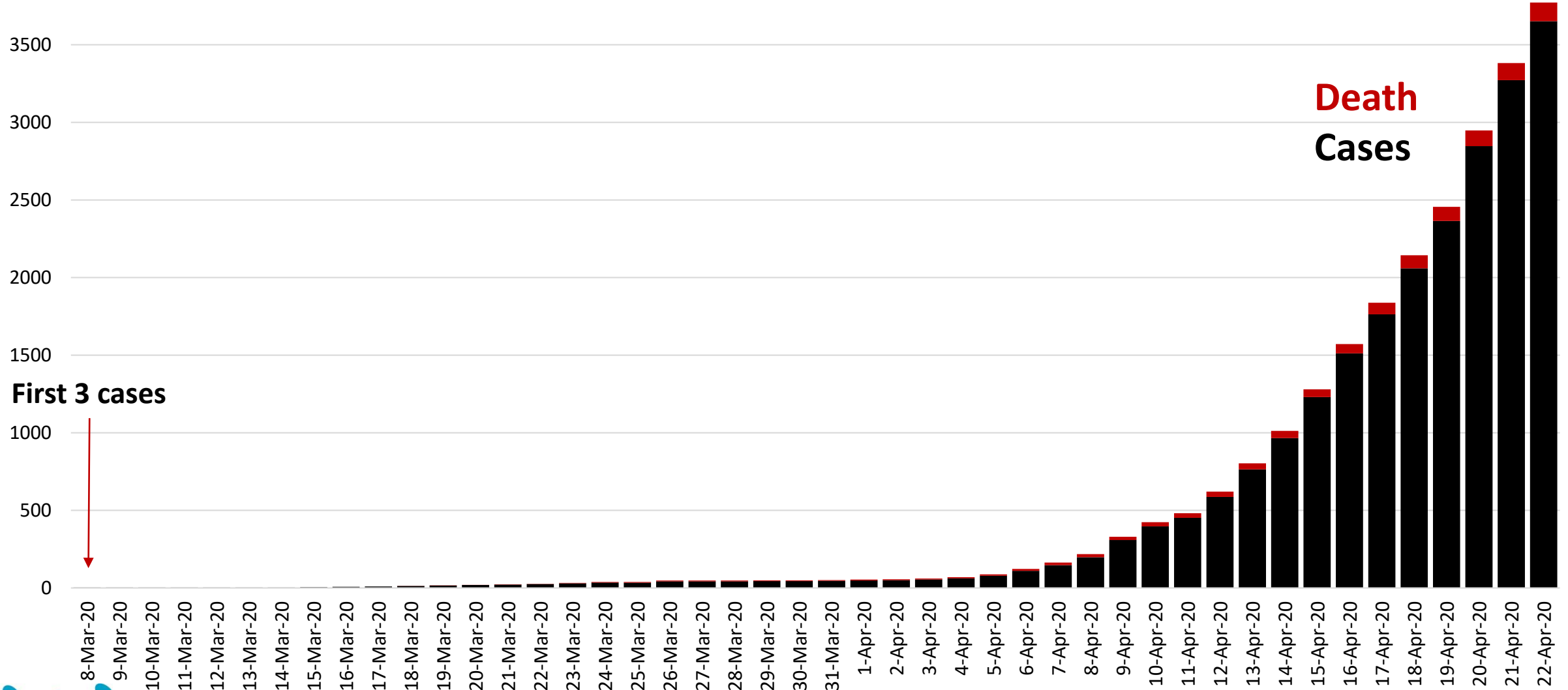


Child Health Research Foundation

*Prevent Infections, Save Lives*

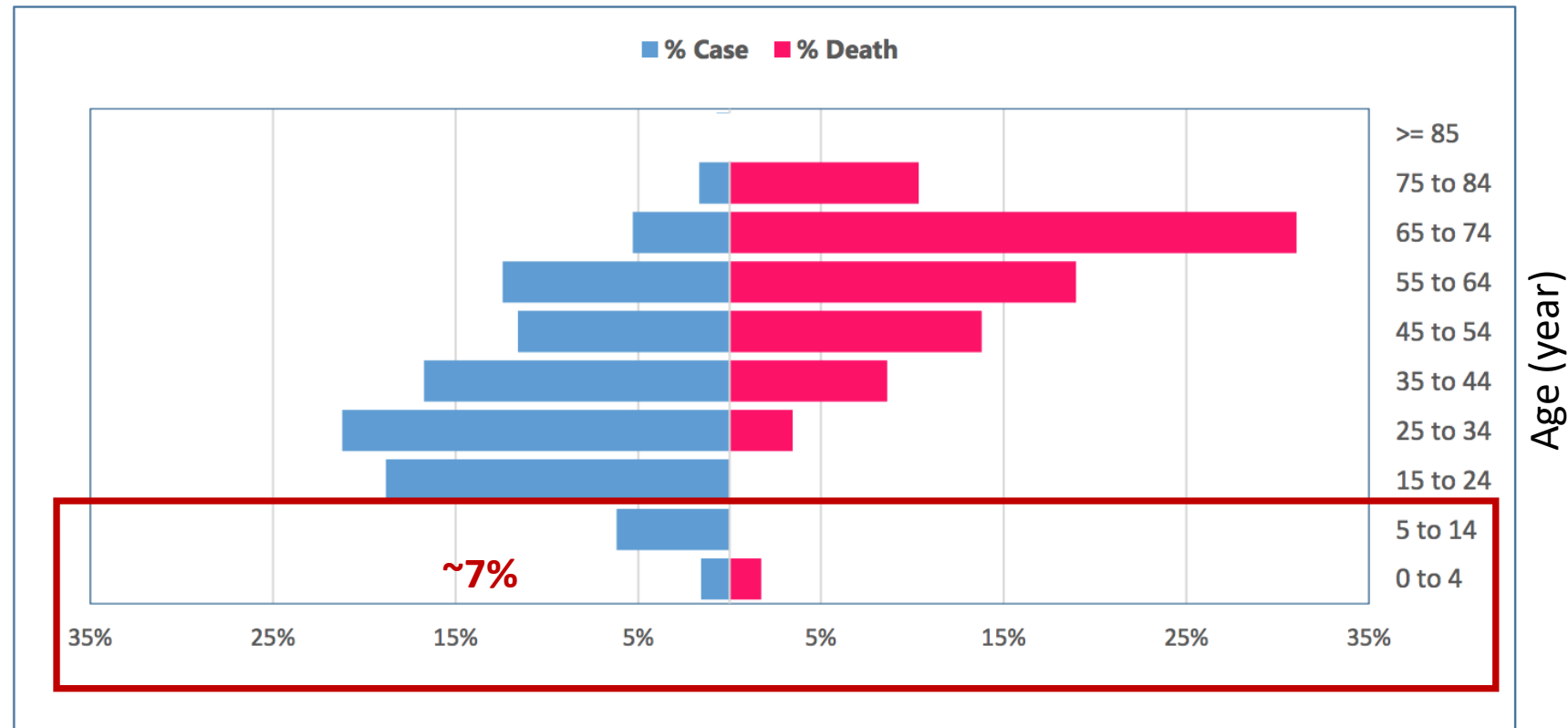
# COVID-19 in Bangladesh

3,772 cases, 120 deaths



# Age distribution of COVID-19 cases in Bangladesh

*The figure below is showing age distribution of reported confirmed COVID-19 cases (n=1,902), including deaths (n=58), Bangladesh.*



# Gaps in knowledge

- Like many other places, there is a general assumption that children are “resistant” to COVID-19
- No data on
  - symptoms
  - duration of illness
  - hospitalization
  - contact history
  - risk factors (comorbidities, nutritional status)
- No data on asymptomatic carriage



# Child Health Research Foundation in Bangladesh

The objectives of our semi-national surveillance are:

- to describe epidemiology and estimate burden of vaccine-preventable disease
  - Meningitis, sepsis, pneumonia, diarrhea
- to establish a platform to measure vaccine needs and impact
- to characterize circulating bacterial and viral types – AMR, serotypes, etc



Child Health Research Foundation

*Prevent Infections, Save Lives*

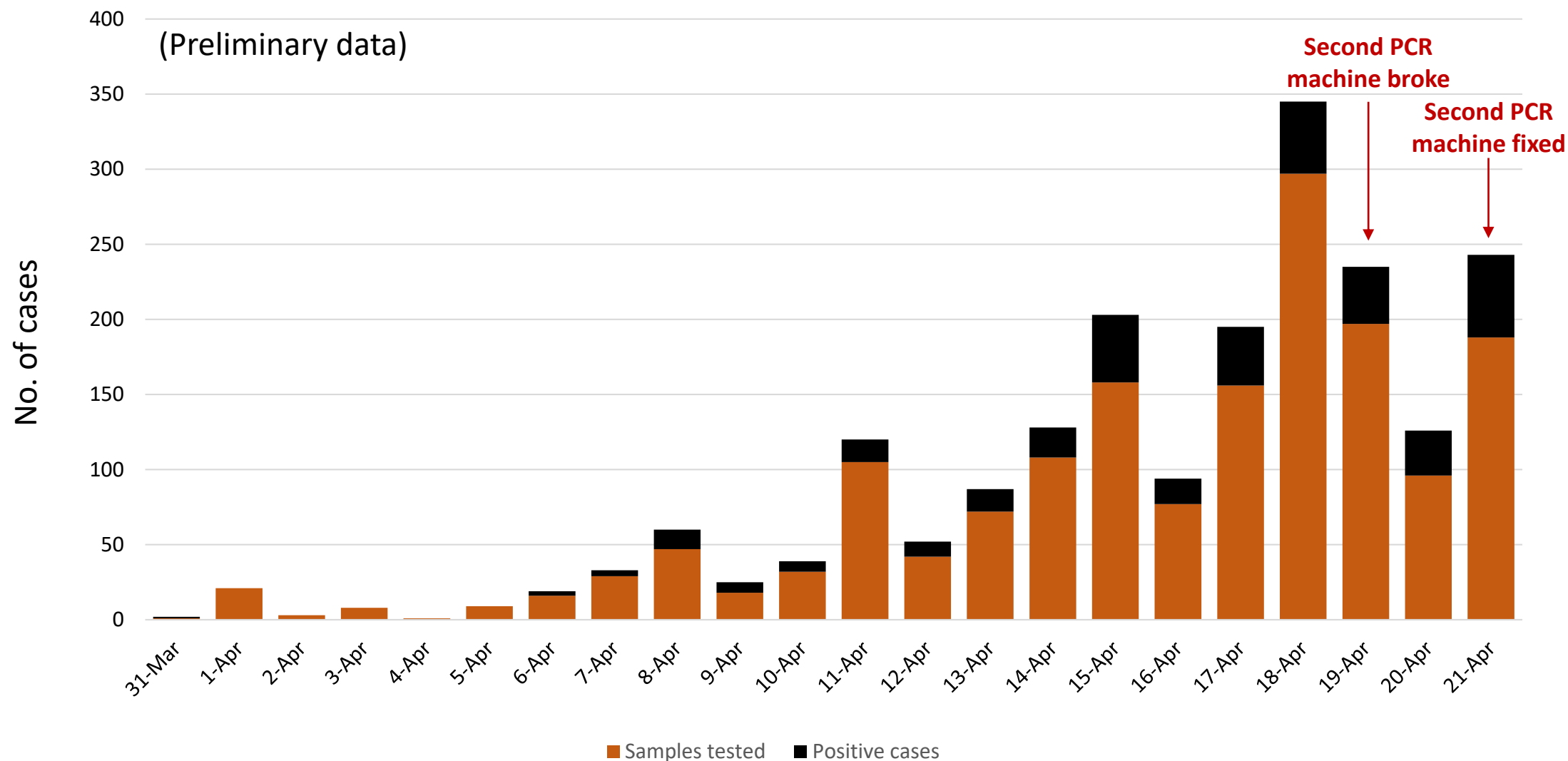
World Health Organization  
IB-VPD sentinel sites

# CHRF's journey during the COVID-19 era – in progress

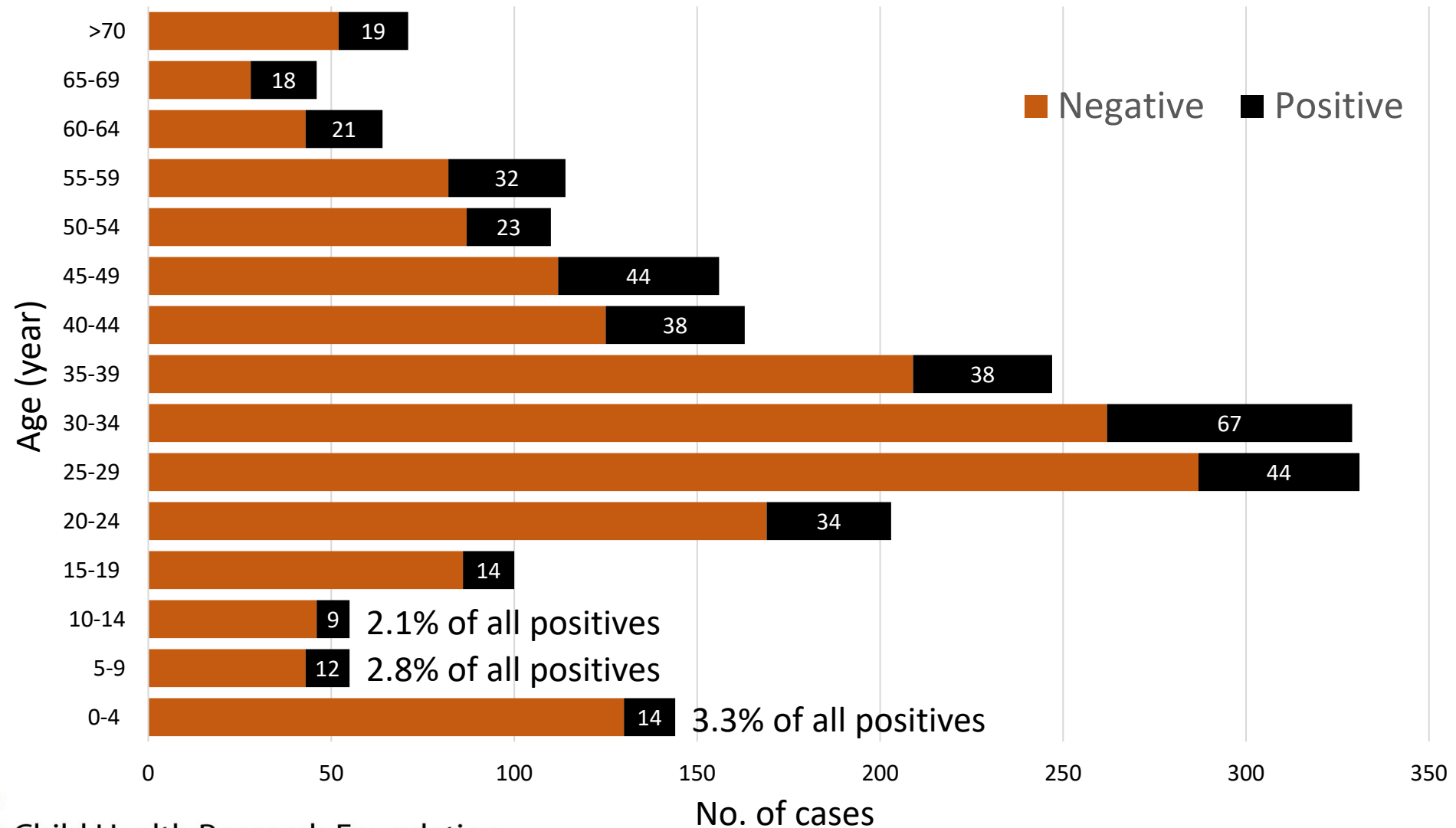
- March 24 – Gov. of Bangladesh requested that we prepare to serve as a COVID-19 diagnostic lab
- March 24 – 29 – We converted our primary research lab into COVID-19 diagnostic lab
- March 29 – Official letter from GoB to become a COVID-19 lab
  - COVID-19 testing starts
- April 02 – 6 phone lines were set up for suspect COVID-19 patients and report delivery/guidance
- Currently
  - Test ~250/day (*7% of Bangladesh COVID-19 data*)
  - Provide onsite and offsite trainings to hospital on biosafety (PPE use), sample collection and transportation
  - Provide collection logistics (tubes, media/RNA shield/flocked swab) for swab collection



# Overview of samples tested to date



# Age distribution of CHRF COVID-19 +/- cases





# Future plans (funded by the Bill and Melinda Gates Foundation)

**Objective: To collect data on hospitalization, severity and long-term outcome of pediatric COVID-19 patients admitted in the two largest children's hospitals in Bangladesh**

- Immediate-future plans
  - From 24 April, sample collection forms for symptoms and duration will be filled in majority of the collection sites
  - For children admitted in our hospital, we will conduct daily follow-up
  - From 26 April, we are starting a phone follow-up for pediatric cases prospectively
    - Data on comorbidity, duration of illness, contact history, hospitalization
    - Follow-up calls will continue to gather data on outcome up to 90 days following test results



Child Health Research Foundation

*Prevent Infections, Save Lives*

# We shall overcome



# COVID-19 in Pakistan

## Pediatric Perspective

### Global Child Health Task Force

Dr. Asad Ali

Professor, Pediatric infectious Diseases

&

Dr. Faisal Mahmood

Section Head, Adult Infectious Diseases

AGA KHAN UNIVERSITY

KARACHI, PAKISTAN



Government of Pakistan

Official Portal: [www.covid.gov.pk](http://www.covid.gov.pk)

Jan 1, 2020 - Apr 23, 2020

Last updated on

23 Apr, 2020 - 08:39 am (GMT+5)

## COVID-19 Dashboard

Confirmed Cases

10,513



Active Cases

7,952



Deaths

224



2.1%

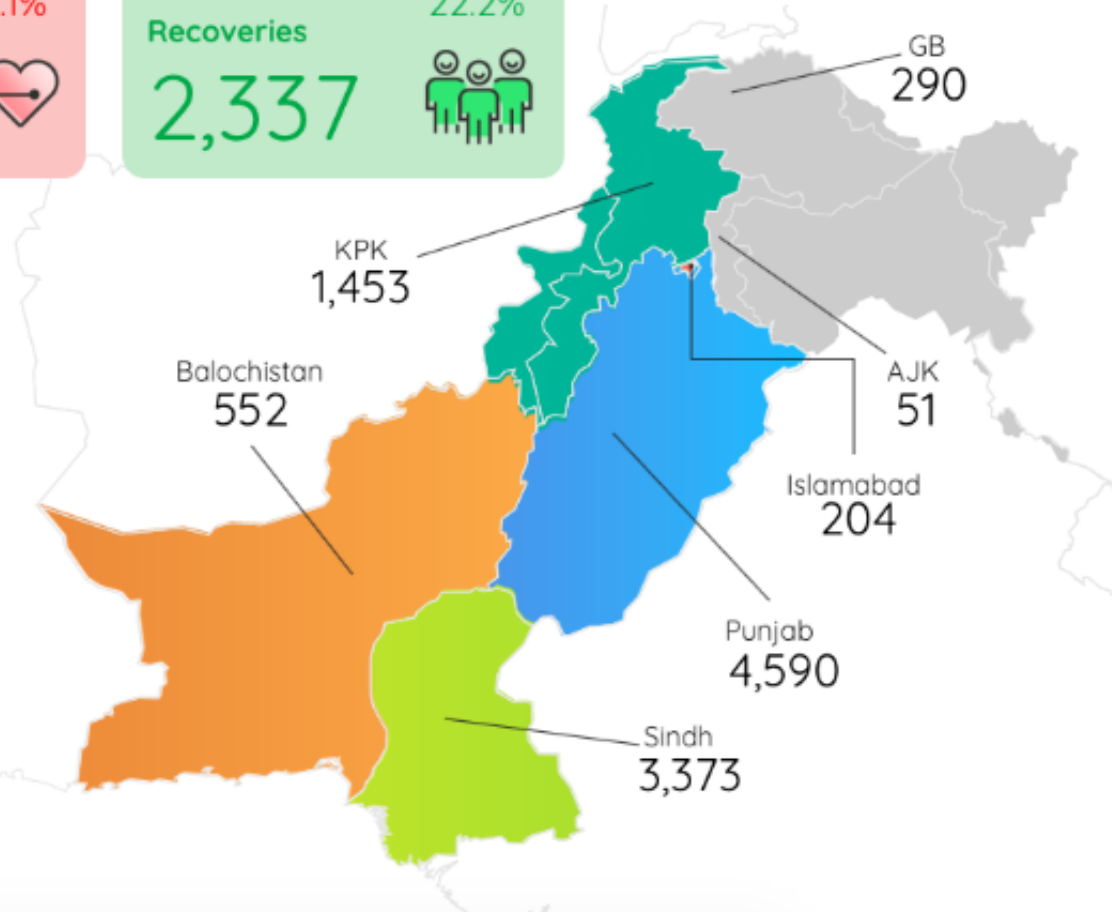
Recoveries

2,337



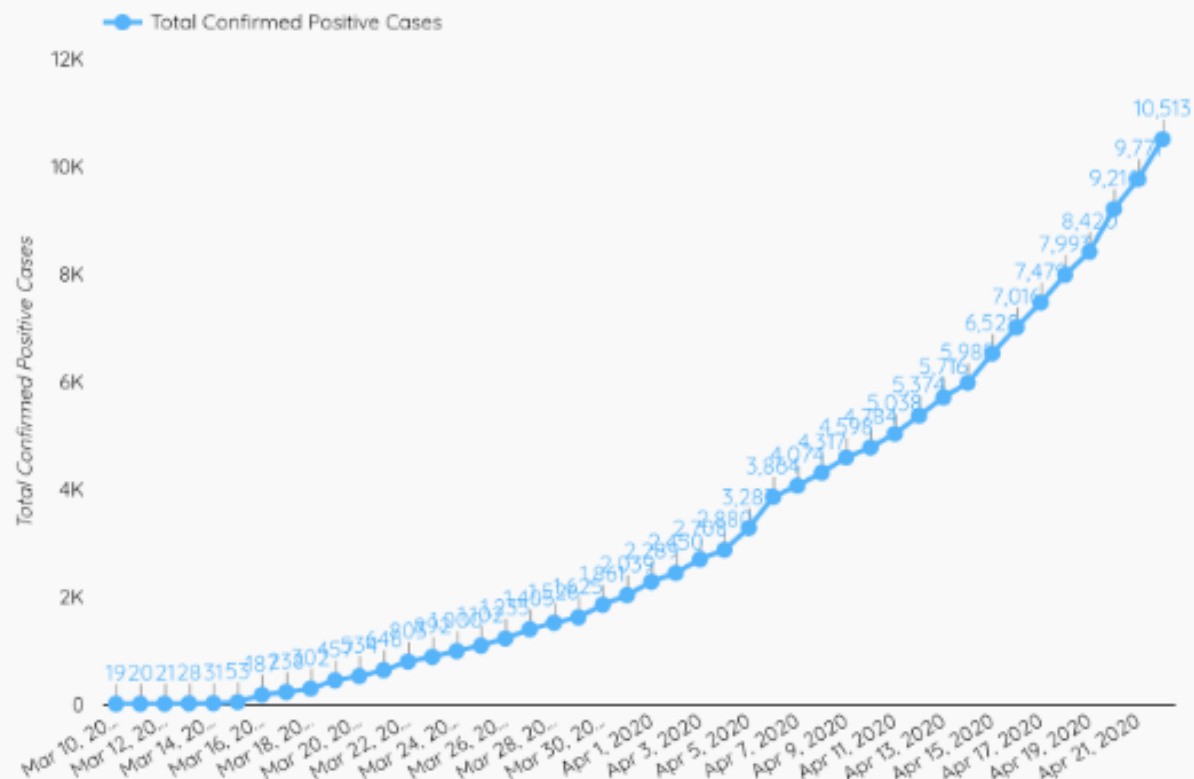
22.2%

	Confirmed Cases	Active Cases	Deaths	Recoveries
AJK	51	28	0	23
Balochistan	552	376	8	168
GB	290	86	3	201
Islamabad	204	175	3	26
KPK	1,453	956	83	414
Punjab	4,590	3,742	58	790
Sindh	3,373	2,589	69	715



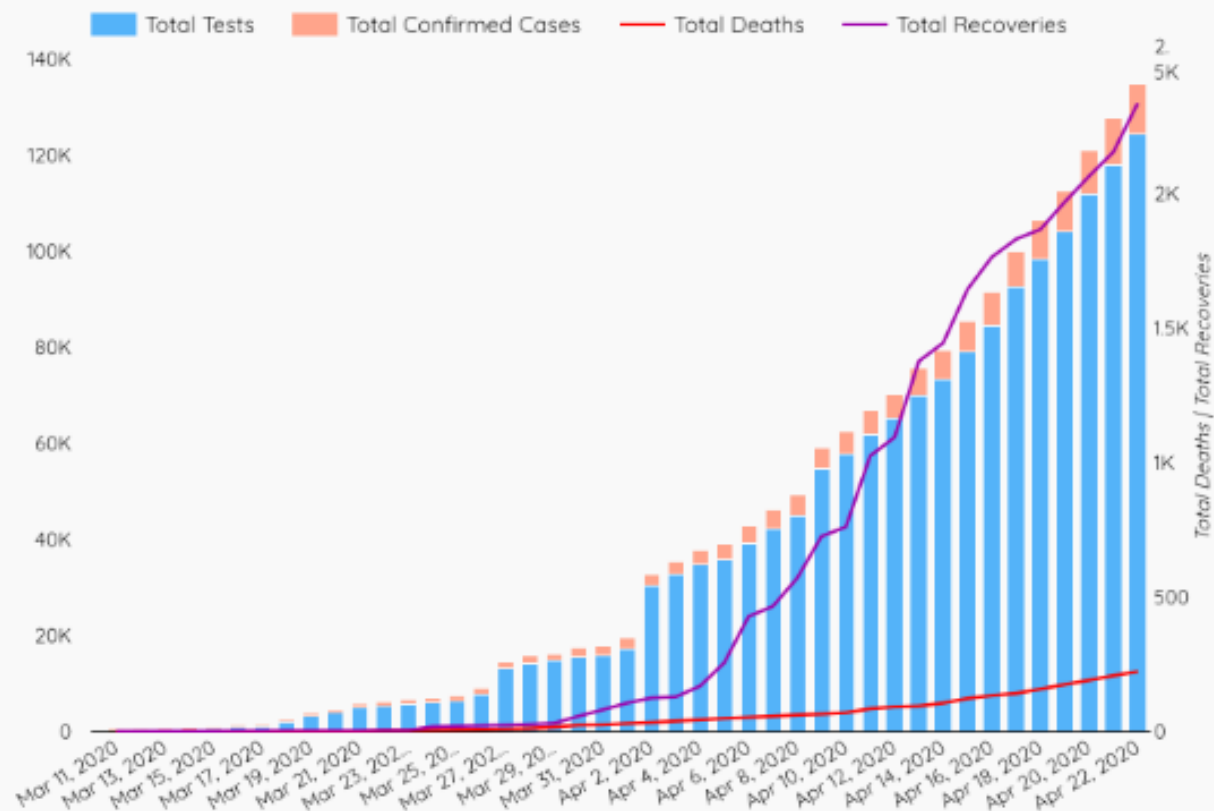


### COVID-19 Cases in Pakistan



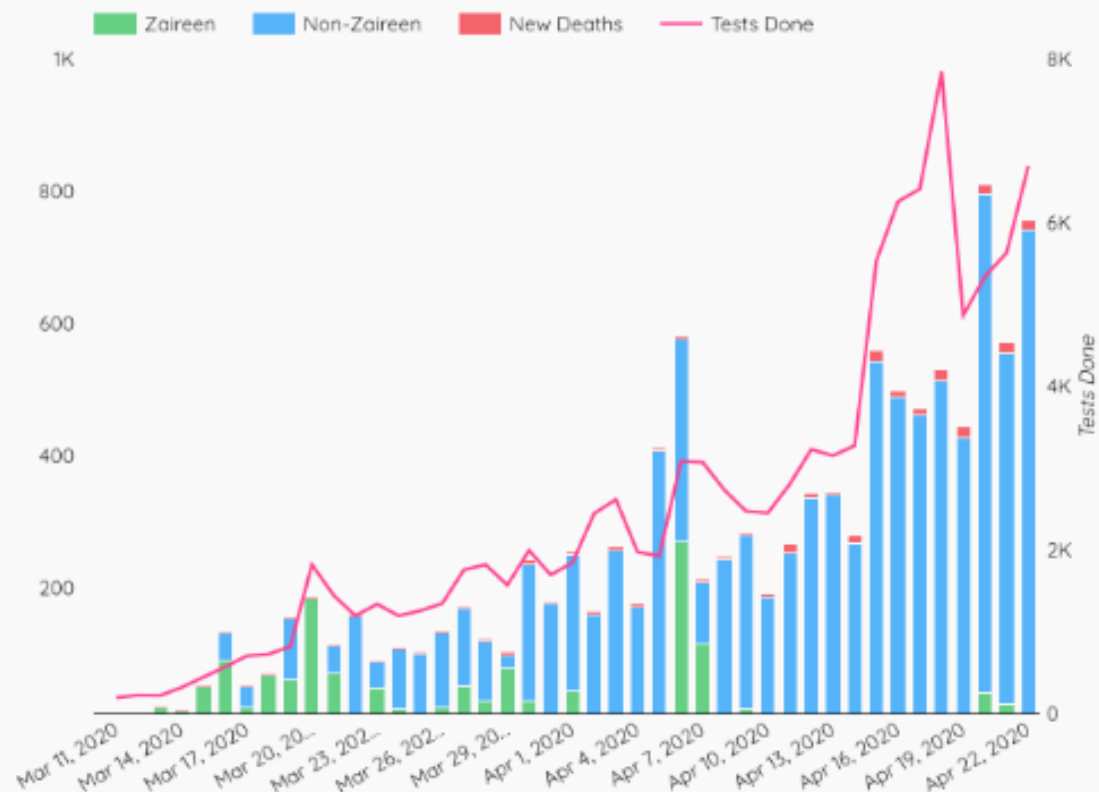
NEW !

## COVID-19 | Overview



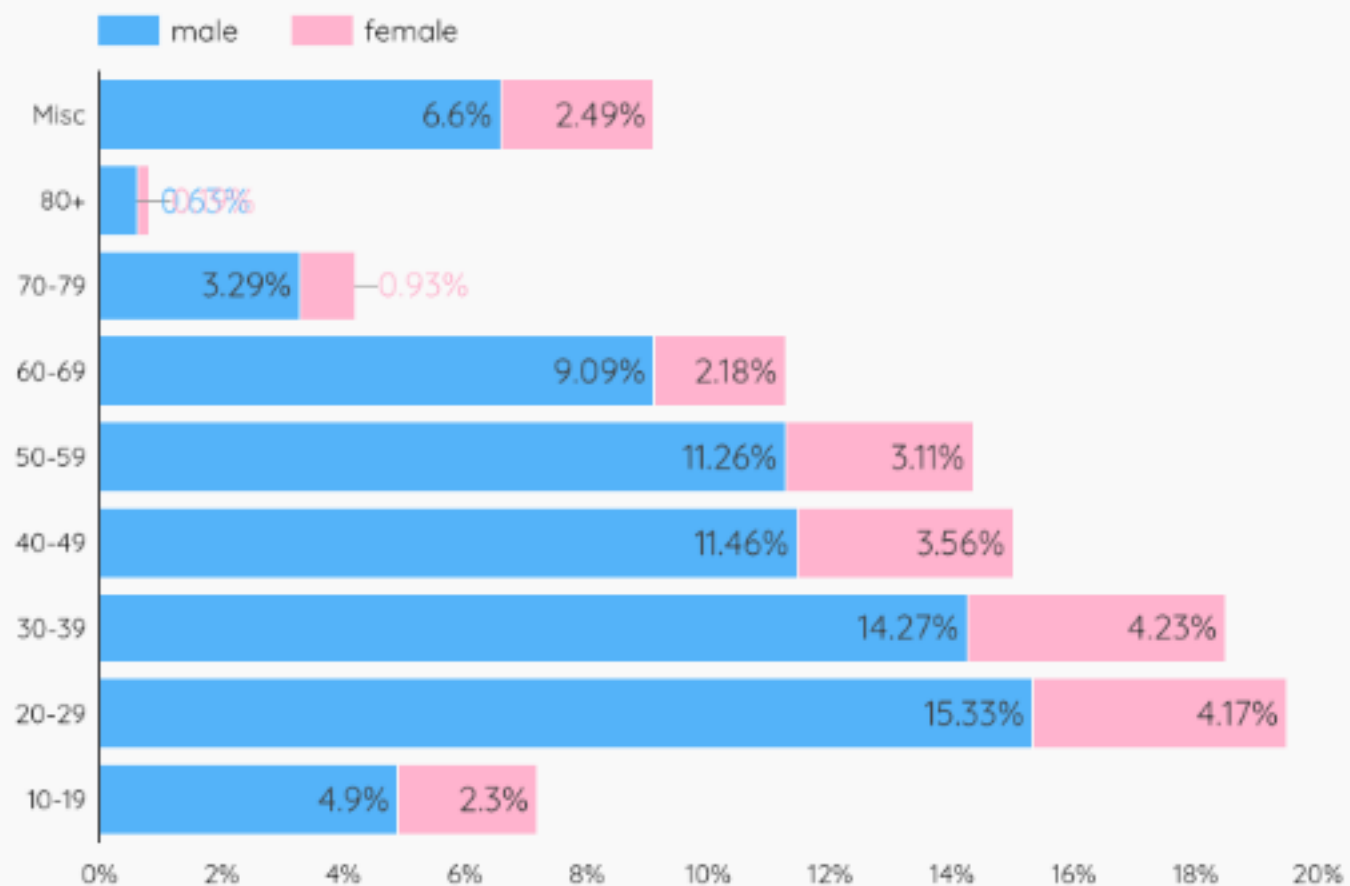
NEW !

## COVID-19 | Daily Tests, Zaireen & Non-Zaireen Distribution



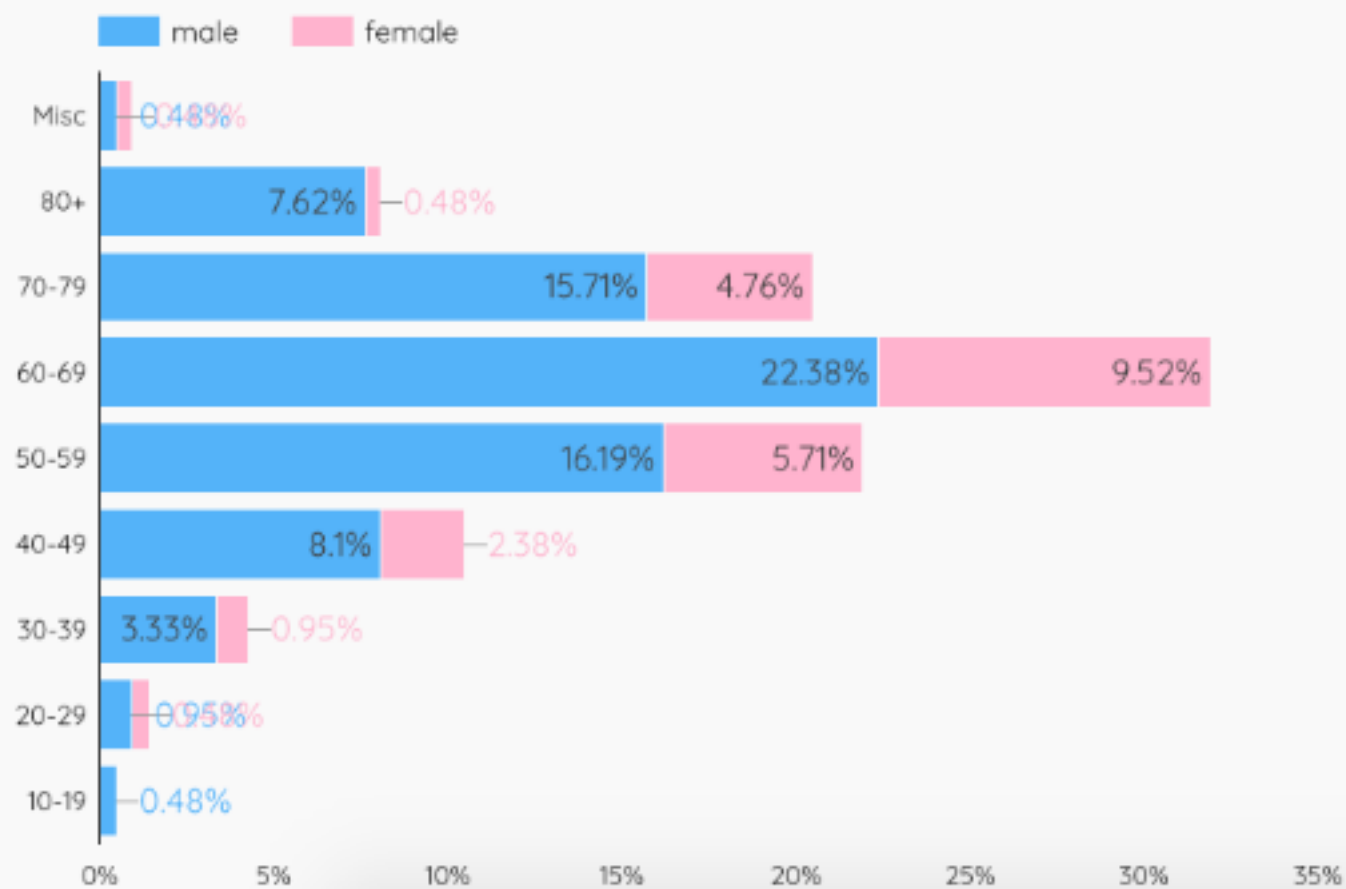
NEW !

## COVID-19 | Demographic (%)



NEW !

## COVID-19 | Demographic Deceased (%)





# Challenges/Opportunities

- Limited infrastructure if the disease turns more virulent in children
- Community pediatricians remain at high risk – Need revised Standard Operating Procedures in busy outpatient clinics
- Children as a portal of community transmission, even if the disease is relatively less severe
- Inclusion of children in the vaccine trials.

# Rise of COVID-19 in Africa



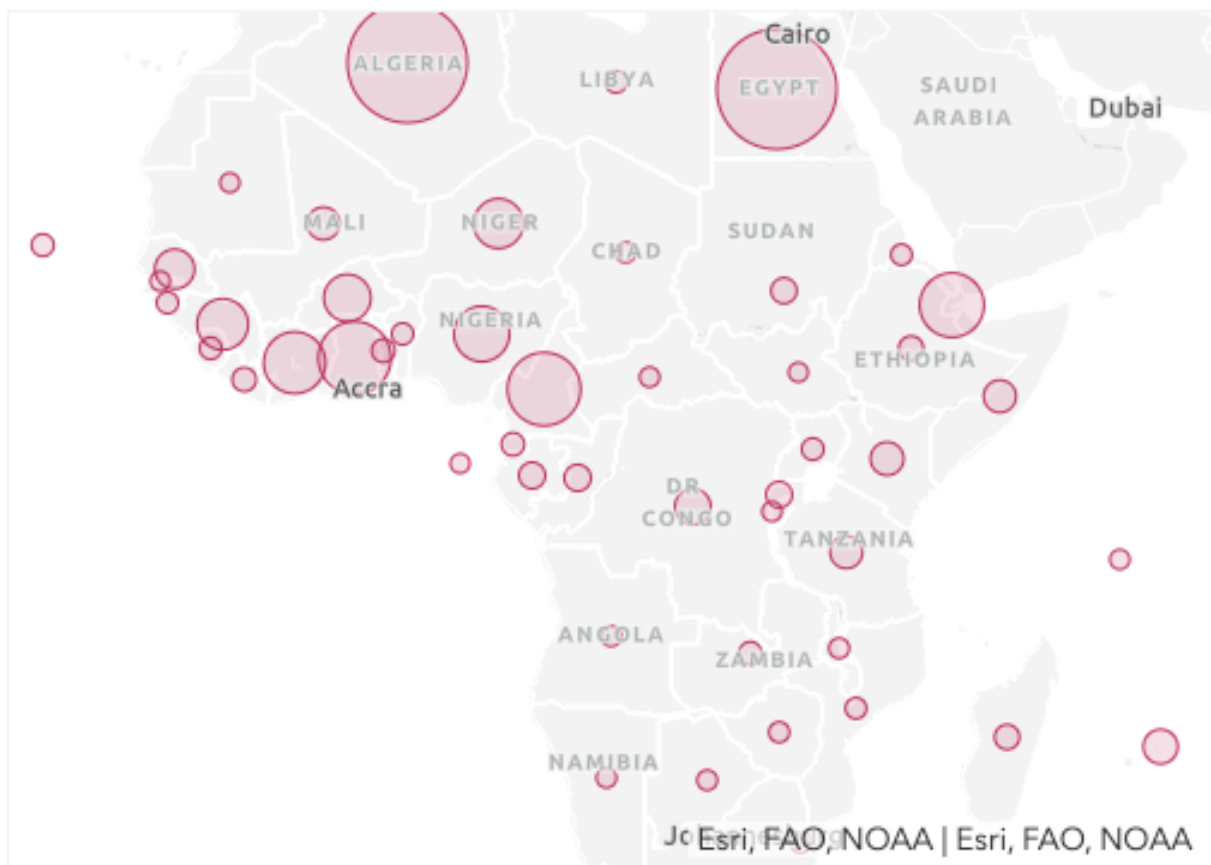
Africa CDC Dashboard

Region All

Cases  
**25,131**

Deaths  
**1,205**

Recoveries  
**6,576**

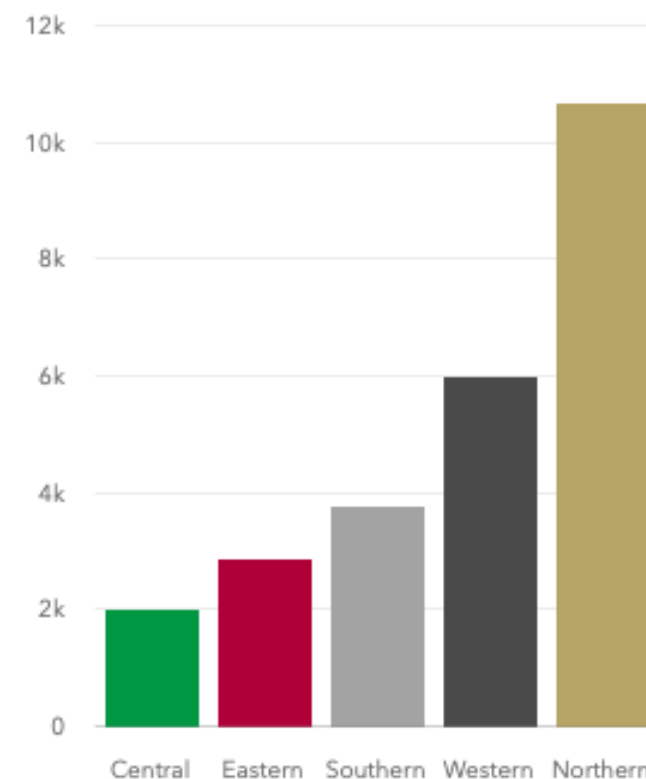


Map of Cumulative Cases

Map Legend

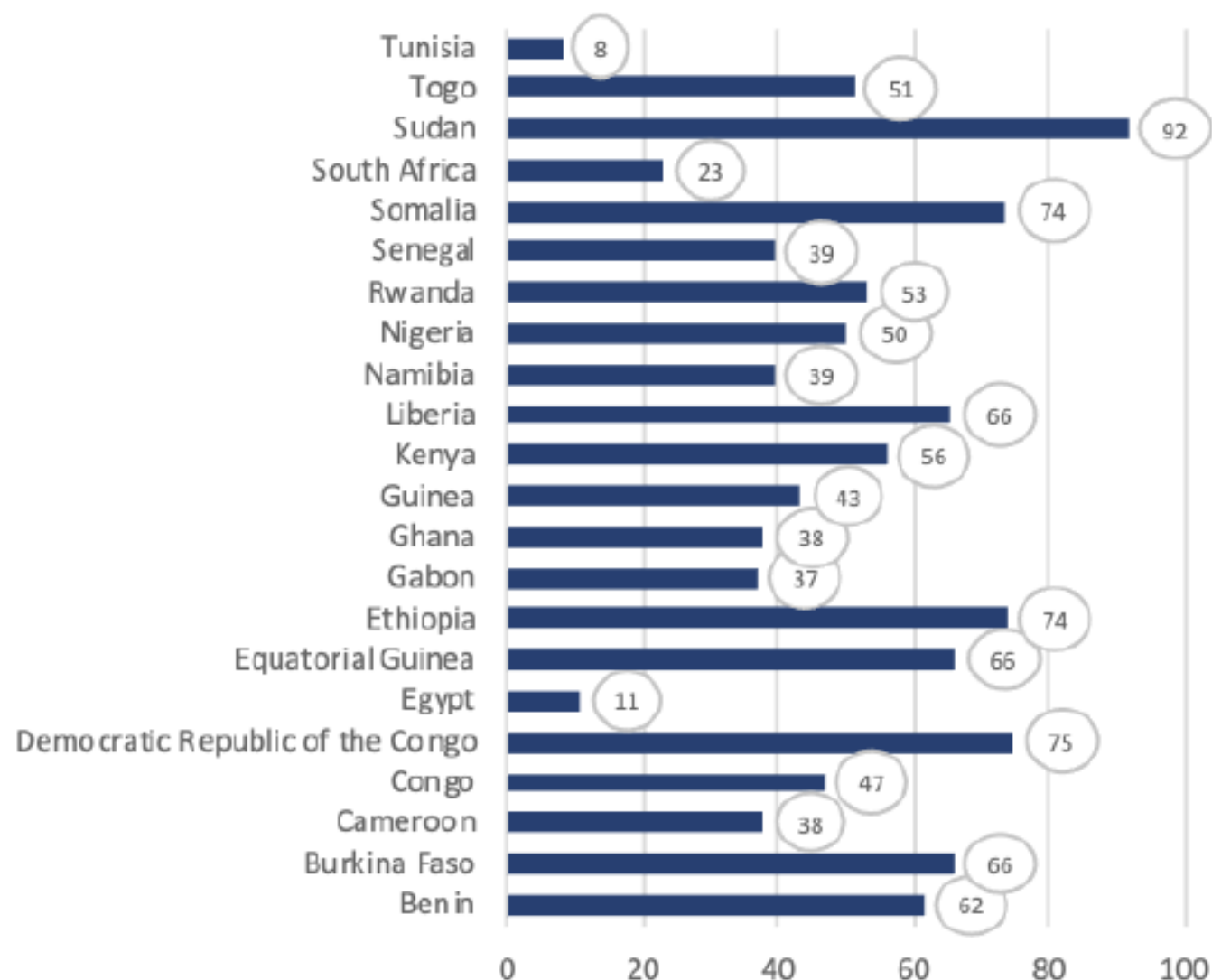
Citation

Esri, FAO, NOAA | Esri, FAO, NOAA



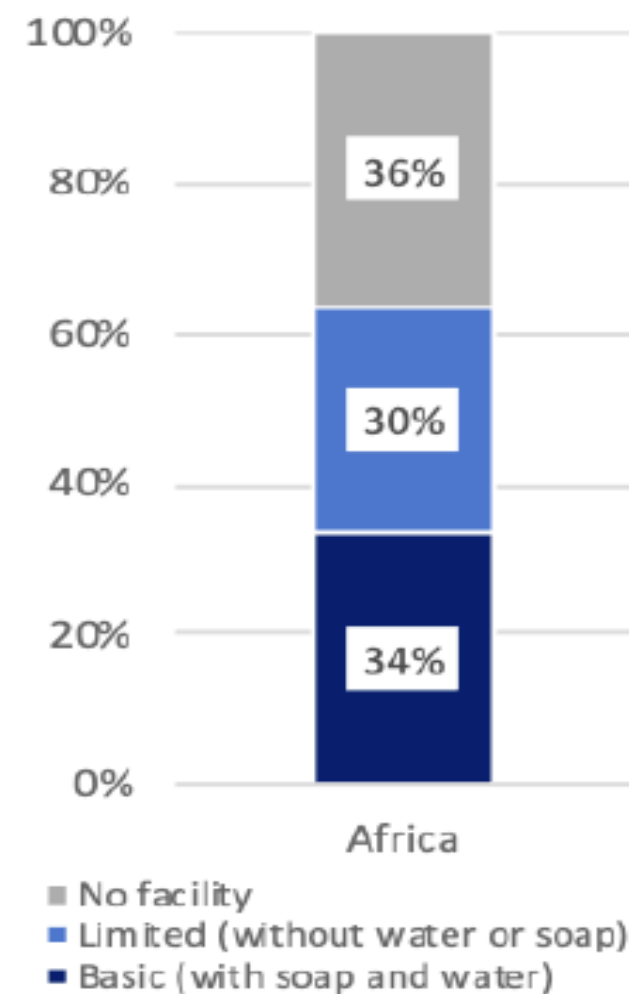
Cases by Region

**Figure 1.3** Proportion of urban population living in slums, percent



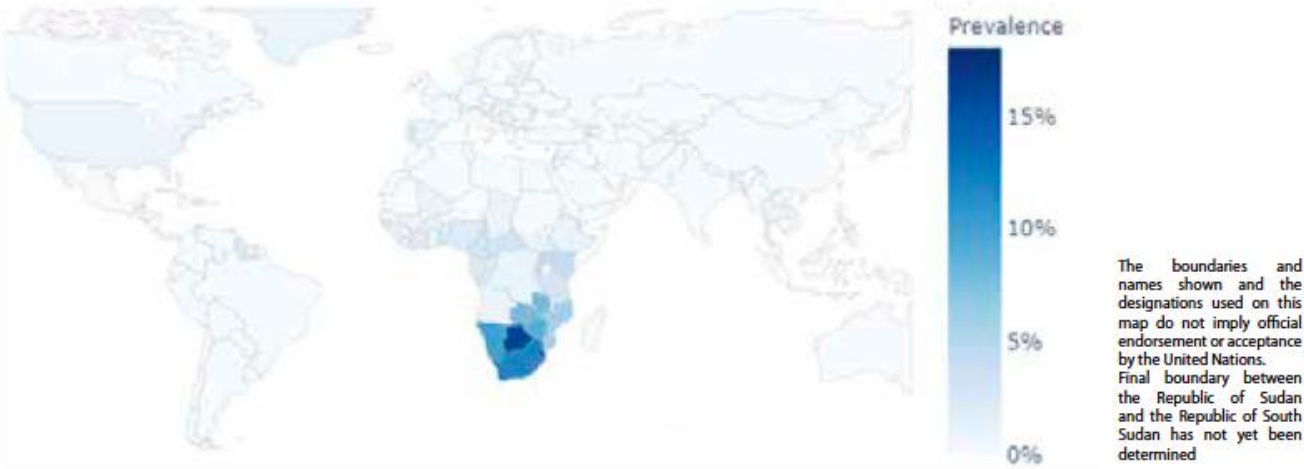
**Source:** Based on data from UN Habitat, 2016

**Figure 1.4** Access to household handwashing facilities



**Source:** Based on WASH data from WHO/UNICEF, 2017

**Figure 1.8** HIV/AIDS, prevalence

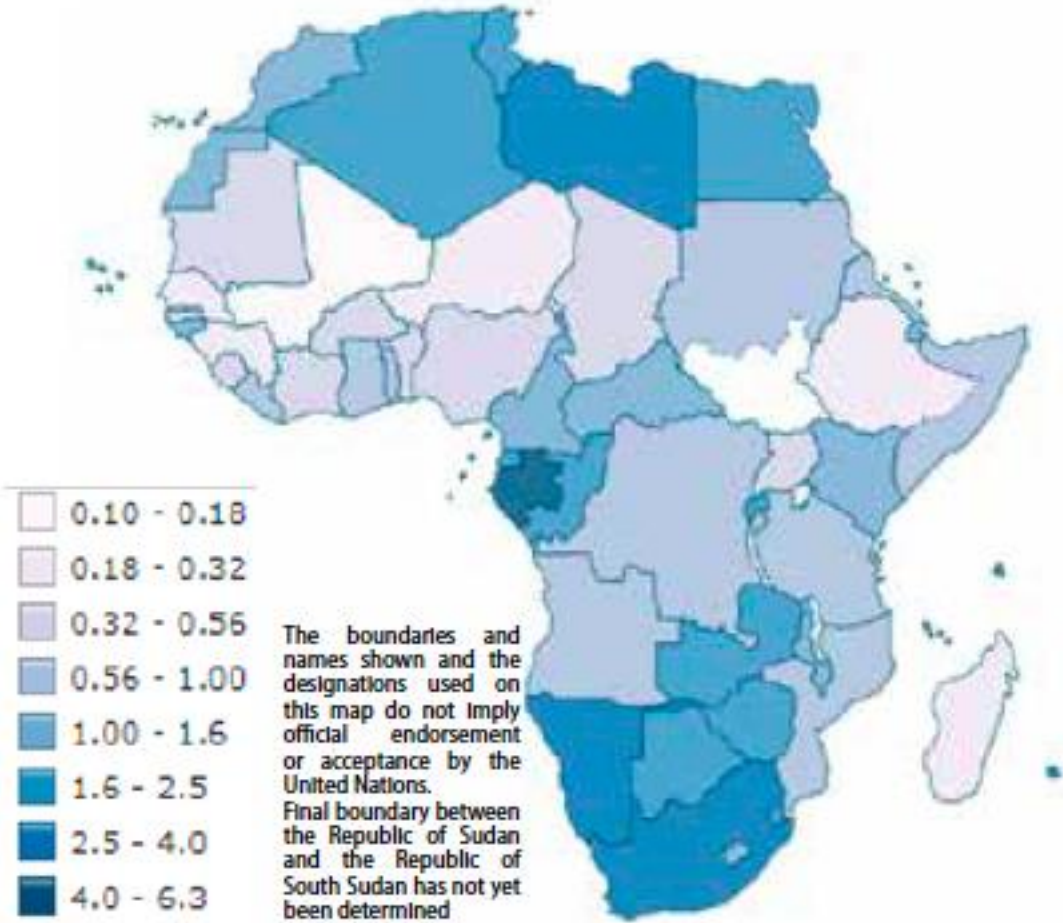


Source: Based on data from Global Burden of Disease Study, 2016

**Figure 1.6** Chronic respiratory diseases, prevalence



**Figure 1.9** With 1.8 average hospital beds per 1,000 people, hospital beds capacity across Africa is weak



Source: Index Mundi from World Health Organization, 2020

**Table 1.2** Cost of COVID-19 medical supply response (gap) across Africa, by pandemic scenario

	A - Unmitigated	B - Mitigation using moderate physical distancing	C - Suppression using intense physical distancing	D - Suppression using intense and early physical distancing
Cost of COVID-19 medical supply response (gap) across Africa, 2020 (\$ billion)	\$446	\$335	\$189	\$44
Africa's current health expenditure allocation, 2020 (\$ billion)	\$138.87	\$138.87	\$138.87	\$138.87
Projected percentage increase in required health spending (%)	321.16	240.89	136.09	31.83

**A:** Unmitigated (worst case) - no intervention

**B:** Mitigation using moderate social distancing - Optimal outcome when epidemic is mitigated through interventions to limit contacts in general population including social distancing (45% reduction in contact rate)

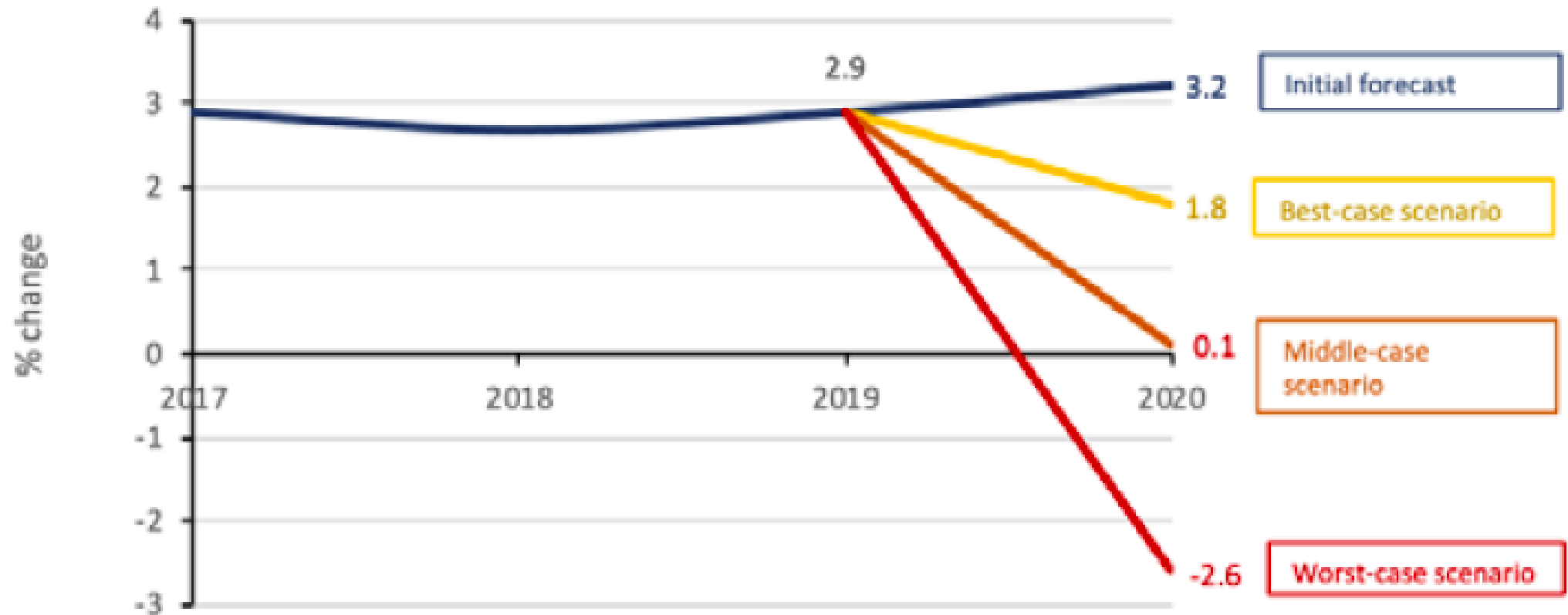
**C:** Suppression using intense social distancing (1.6) - Introduce intense social distancing measures that reduce the contact rate in the general population by 75% once 1.6 deaths per million per week trigger is reached

**D:** Suppression using intense social distancing (0.2) - Introduce intense social distancing measures that reduce the contact rate in the general population by 75% once 0.2 deaths per million per week trigger is reached

**Source:** ECA cost estimates using Imperial College demand figures and various sources for prices (see annex I below)

# Potential Impact on GDP in Africa

**Figure 2.1** Expected drop in growth from COVID-19 impact, ECA estimates



Source: ECA estimates, 2020