

The National Academies of
SCIENCES • ENGINEERING • MEDICINE

COVID-19 in Africa: The Role of African Science Academies:

A Virtual Event of the National Academies of Sciences, Engineering, and Medicine



June 8, 2021, 9:30 – 11 am ET

Welcome!

Introduction

Matthew Mbasu, Program Officer,
National Academies of Sciences,
Engineering, and Medicine

Opening Remarks

Marcia McNutt, President, National
Academy of Sciences

For assistance during the workshop:

Hannah Goodtree Hgoodtree@nas.edu

Moderated Panel Session



Moderated by:

Keith Klugman

The Bill and Melinda Gates Foundation

NAM Member



Akinyinka Omigbodun FAS
THE NIGERIAN ACADEMY OF SCIENCE



Partnership for Evidence-Based
Response to COVID-19

Finding the Balance: Public Health and Social Measures in Nigeria

What is the purpose of this report?

This report describes findings from a telephone survey with 1,318 people conducted in February 2021. The survey examined how people respond to public health and social measures (PHSMs) to prevent COVID-19. The sample is representative of households with access to a landline or cell phone, but does not include people without access to phones. As phone penetration varies by country, findings should be interpreted with caution.

Survey data are analyzed alongside epidemiological, mobility, and media data. Triangulating these data sources offers valuable context to better understand the acceptability, impact and effectiveness of PHSMs.

This is the third survey and analysis conducted since the pandemic began (see the [first](#) and [second](#) reports).



National COVID-19 Data Snapshot on 26 February 2021

Total reported cases	155,076
Cumulative incidence rate per 100,000 people	77
Test positivity rate	8.7%
Proportion of people who test positive for COVID-19 among all people who took a test, averaged over 7 days	
Total confirmed COVID-19 deaths	1,902
Case fatality ratio	1.2%
Proportion of total reported deaths among all people reported as testing positive for COVID-19	



COVID-19 in Africa: The Role of the African Academies

Akinyinka Omigbodun FAS

THE NIGERIAN ACADEMY OF SCIENCE

**Disseminating Evidence-Based Policy
Briefs on COVID-19 in West Africa**



THE NIGERIAN ACADEMY OF SCIENCE (NAS)



- Uniquely positioned to bring scientific knowledge to bear on the policies & strategic direction of the nation
- Dedicated to the development and advancement of science, technology & innovation in Nigeria
- Promoting the growth, acquisition and dissemination of scientific knowledge in Nigeria and beyond
- Facilitating the use of new knowledge in the solution of major problems of national interest.



COVID-19 Contributions by Fellows

- A cursory search on PubMed on the contributions of Fellows of the Nigerian Academy of Science to the scientific literature on COVID-19 from March 2020 to June 2021 revealed 37 publications, with contributions from 10 Fellows
- The number published by each Fellow ranged from 1 to 10, with a median of 4.
- Subjects covered by the publications included diagnostics, patient care and health system issues, as well as societal responses.



Thematic Distribution of Articles

Thematic Group of Publication	Number of Publications
Health Systems Issues	14
Improving Patient Care	6
Societal Response & Ethical Issues	6
Epidemiology & Transmission	4
Diagnostics	4
Protecting Health Workers	3



US NASEM & Academies of Science in Africa

- Working with the *Resolve To Save Lives* (RTSL) Consortium, US National Academies of Science, Engineering and Medicine (NASEM) collaborated with Science Academies in Africa to disseminate information about COVID-19 in order to improve response to the pandemic in Africa
- The Nigerian Academy of Science (NAS) is a key partner for these activities in West Africa, hosting dissemination webinars and policy dialogues in collaboration with other science academies in the sub-region between July 2020 and May 2021.

WEST AFRICA





Participating Academies

- Nigerian Academy of Science (NAS)
- Ghana Academy of Arts and Sciences (GAAS)
- Académie Nationale des Sciences et Techniques du Sénégal (ANSTS)
- Academie Nationale des Sciences, Arts et Lettres du Benin (ANSALB)
- Académie Nationale des Sciences du Burkina Faso (ANSBF)



Steering Committee

- Dr Sonny Kuku, FAS – Chair (NAS)
- Dr Dwomoa Adu, FGA - (GAAS)
- Prof. Mamadou Ndoye - (ANSTS)
- Prof. Hippolyte Agboton -(ANSALB)
- Prof. Pierre Innocent Guissou - (ANSBF)



Activities: Webinars

- Tuesday, 6th October, 2020 –
Non-Pharmaceutical Interventions (NPIs) in
COVID-19 containment in Africa
- Wednesday, 7th October, 2020 –
Essential Health Services Amid COVID-19 and
Future Epidemics
- Tuesday, 13th October, 2020 –
Technology for Healthcare During and Beyond
COVID-19
- Thursday, 15th October, 2020 –
COVID-19: Toward a New Normal



Activities: Dialogues & Workshops

Monday, 29th March, 2021 –

- **National Policy Dialogue**
- Combined in-person and virtual event
- Theme: *Strengthening Nigeria's Policy Response to Public Health Emergencies*
- Focus was better response to public health emergencies in Nigeria by strengthening the evidence-policy interface.



Activities: Dialogues & Workshops

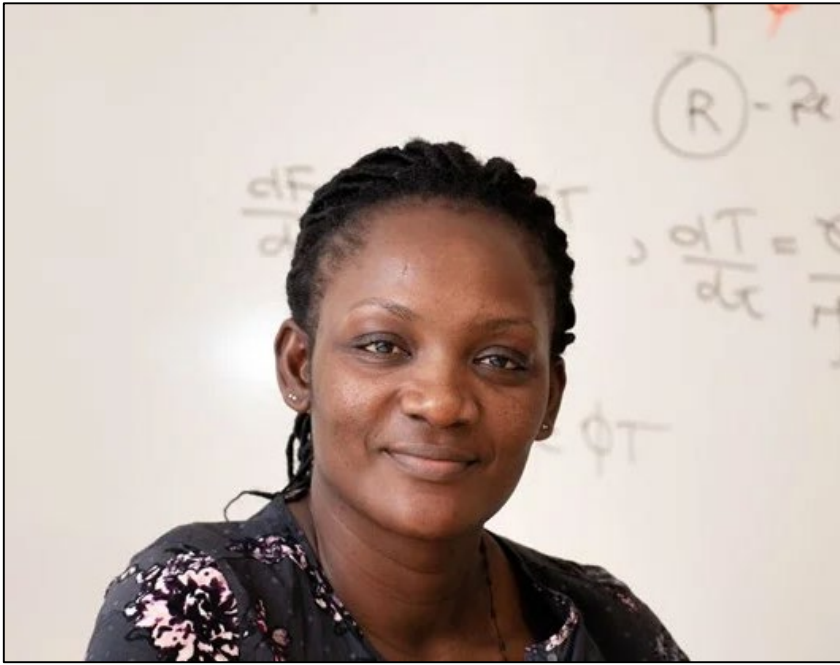
Thursday, 27th May, 2021 –

- **West African Regional Policy Workshop**
- In collaboration with the academies of Senegal, Ghana, and The Gambia
- Theme: *COVID-19 Response in West Africa: Strengthening Knowledge Sharing and Best Practices*
- Discussions on the social, political, and cultural aspects of COVID-19 interventions
- Also explored promotion of collaboration on response strategies to COVID-19 in West Africa



THANK YOU





Betty Nannyonga, PhD
THE UGANDA NATIONAL ACADEMY OF SCIENCES

 **PERC**

Partnership for Evidence-Based
Response to COVID-19

Finding the Balance: Public Health and Social Measures in Uganda

What is the purpose of this report?

This report describes findings from a telephone survey with 1,246 people conducted in February 2021. The survey examined how people respond to public health and social measures (PHSMs) to prevent COVID-19. The sample is representative of households with access to a landline or cell phone, but does not include people without access to phones. As phone penetration varies by country, findings should be interpreted with caution.

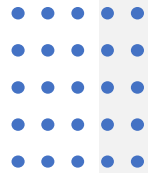
Survey data are analyzed alongside epidemiological, mobility, and media data. Triangulating these data sources offers valuable context to better understand the acceptability, impact and effectiveness of PHSMs.

This is the third survey and analysis conducted since the pandemic began (see the [first](#) and [second](#) reports).



National COVID-19 Data
Snapshot on 26 February 2021

Total reported cases	40,335
Cumulative incidence rate per 100,000 people	88
Test positivity rate	1.2%
Proportion of people who test positive for COVID-19 among all people who took a test, averaged over 7 days	
Total confirmed COVID-19 deaths	334
Case fatality ratio	0.8%
Proportion of total reported deaths among all people reported as testing positive for COVID-19	



COVID-19 in Africa: the Role of African Science Academies

The National Academies of Sciences, Engineering, and Medicine

Dr. Betty Kivumbi Nannyonga, Department of Mathematics,
College of Natural Sciences, Makerere University

June 08 2021



Objectives

To design a model that conformed with the strategies, mitigation measures and non pharmaceutical interventions (NPIs) to COVID-19 by the Ministry of Health (MOH) Uganda

To determine the growth factor and replication rate of COVID-19 in Uganda

To predict, project and forecast COVID-19 using the model and/or daily cases from the MOH

To estimate deaths, recoveries, bed capacity, vaccination percentages using MOH data

To predict coverage rates for NPIs required to reduce reproductive ratio to below unity

To estimate COVID-19 risk associated with age, gender, schools, bars, churches, and geographical location

Modelling approach

1

Design a model to predict cases using transmission factors governed by the cumulative number of cases and the implemented NPIs

2

Forecast using cumulative cases as reported daily

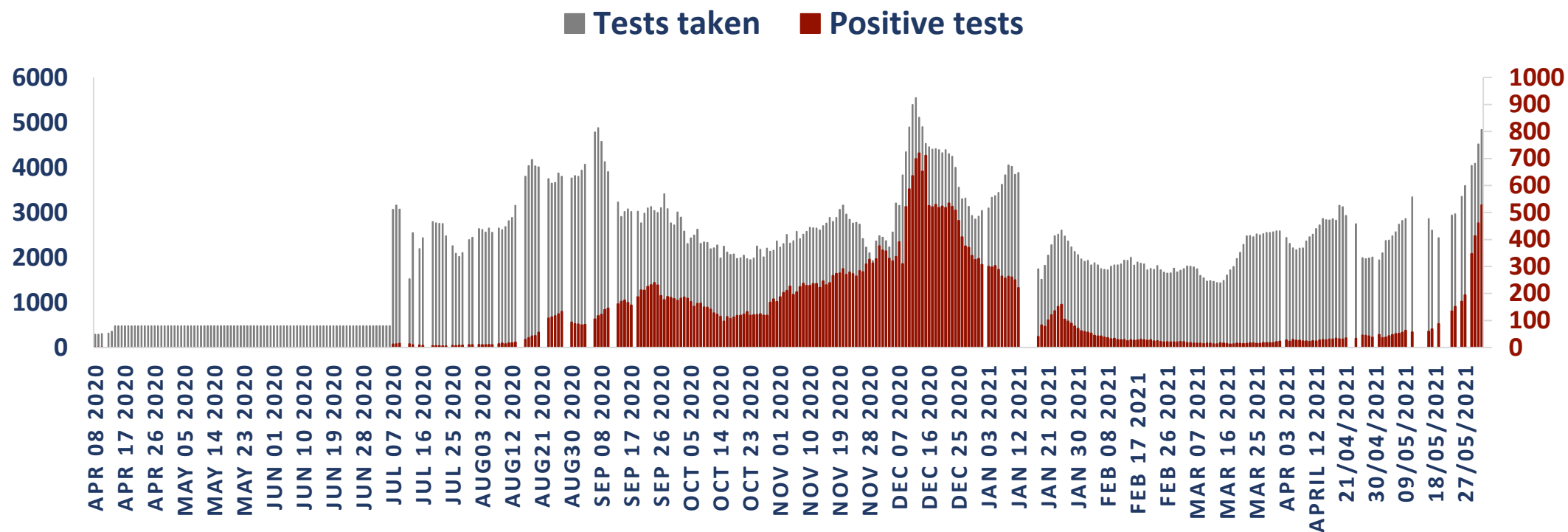
3

Estimate costs for implementing the NPIs

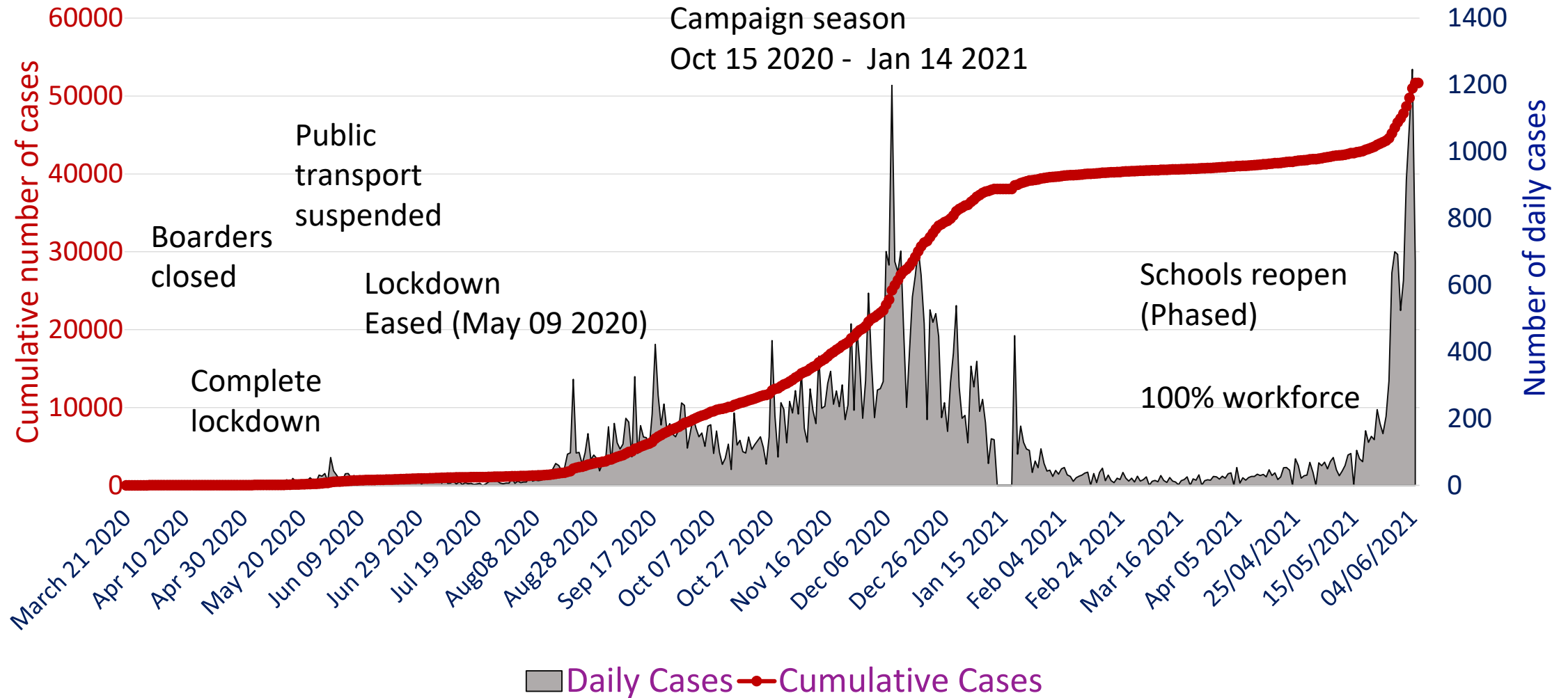
4

Cost utility analysis, Cost effective analysis, Optimization

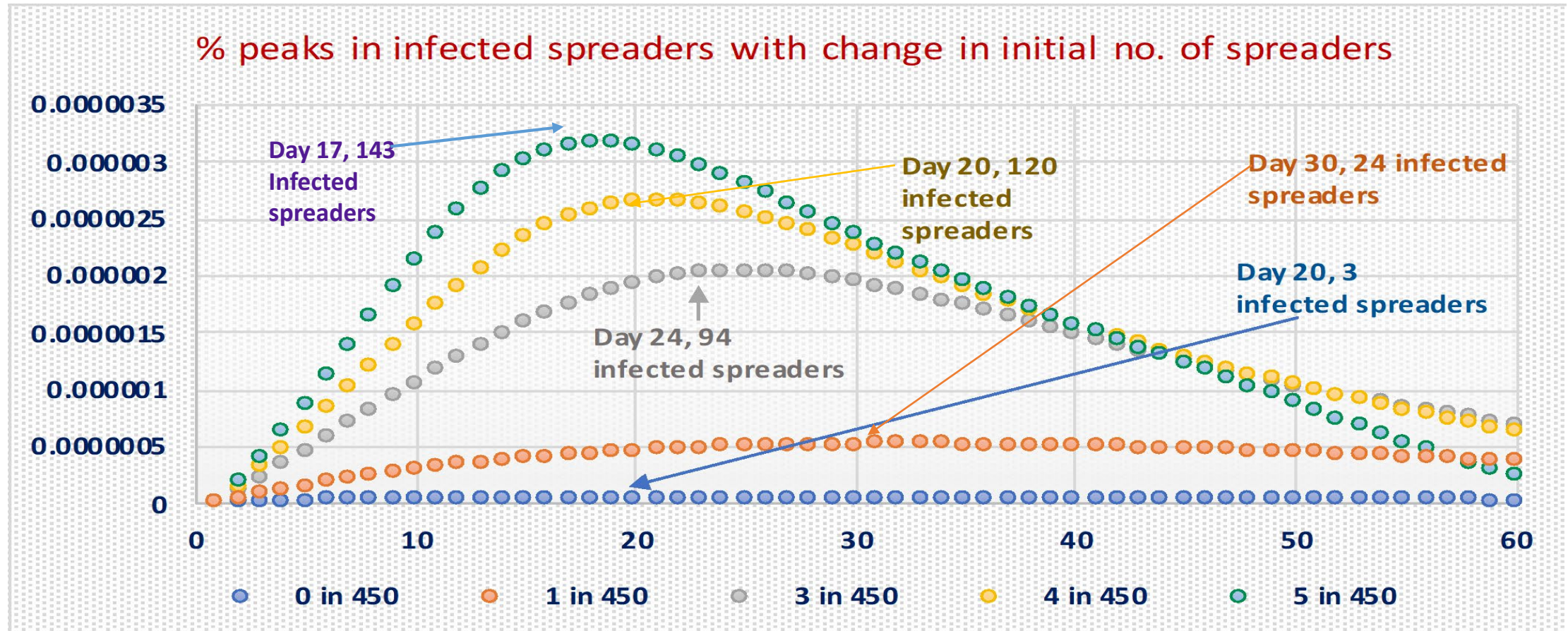
COVID-19 testing



Current Epi-curve



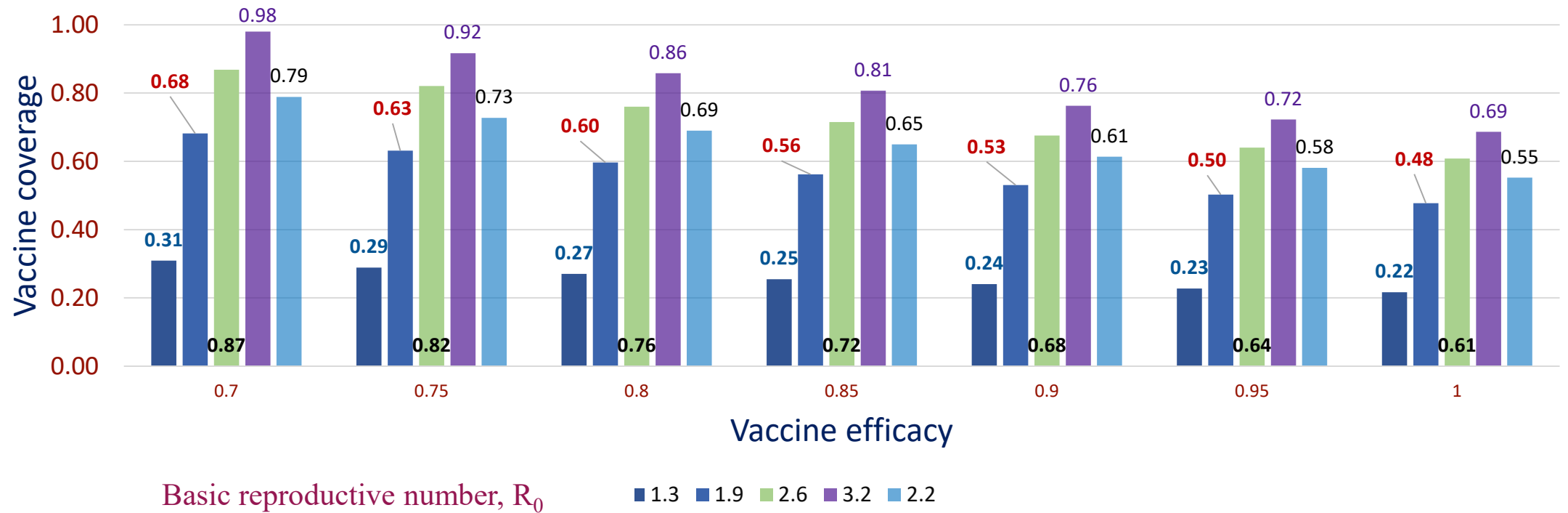
Effect of misinformation on disease progression



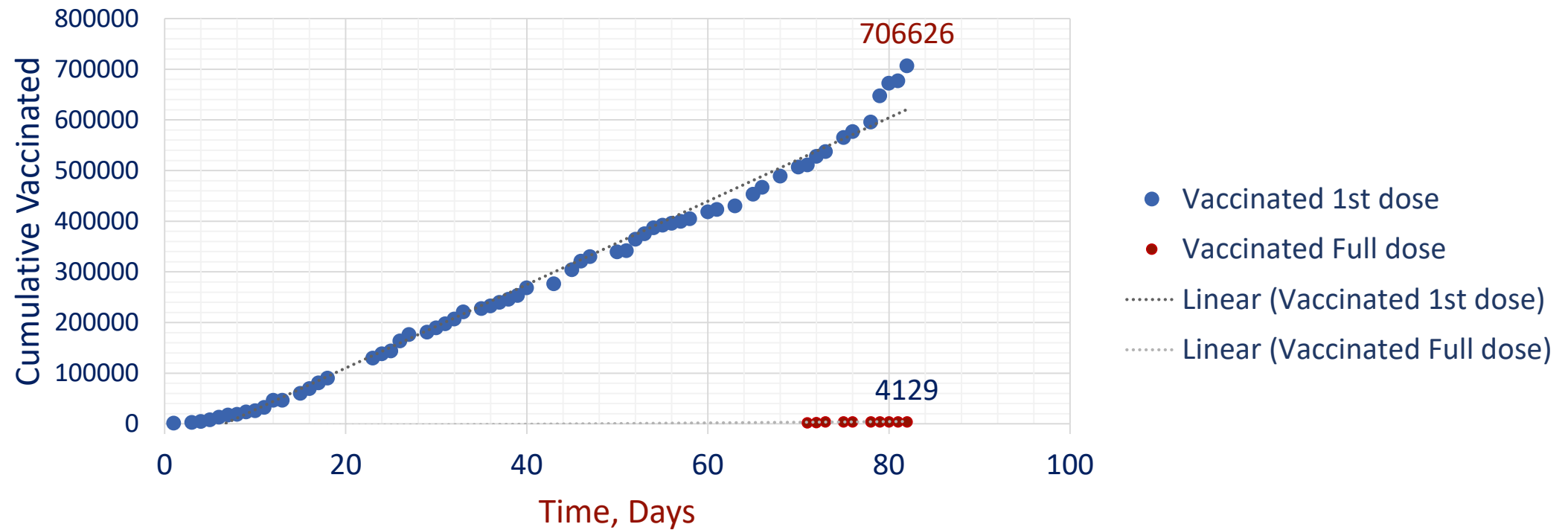
Mitigation coverages needed to control COVID-19

Mitigation (Detection rate 5 days), number of contacts = 30	% coverage	No. of secondary infections R_0	Coverage to reduce R_0 to less than 1 (Thresholds)
Used as standalone			
Face masks	30%	1.46	60%
Washing hands 6 times a day/sanitizing	26%	2.02	70%
Social distancing	10%	1.88	60%
Used in combination			
Face masks & Washing hands 6 times a day/sanitizing	30%, 26%	1.46	50%, 30%
Social distancing & Washing hands 6 times a day/sanitizing	10%, 26%	1.88	50%, 40%
Face masks & Social distancing	30%, 10%	1.32	60%, 50%
Used simultaneously			
Face masks & Washing hands 6 times a day/sanitizing & Social distancing	30%, 26%, 10%	1.32	50%, 30%, 50%

Vaccination scenarios



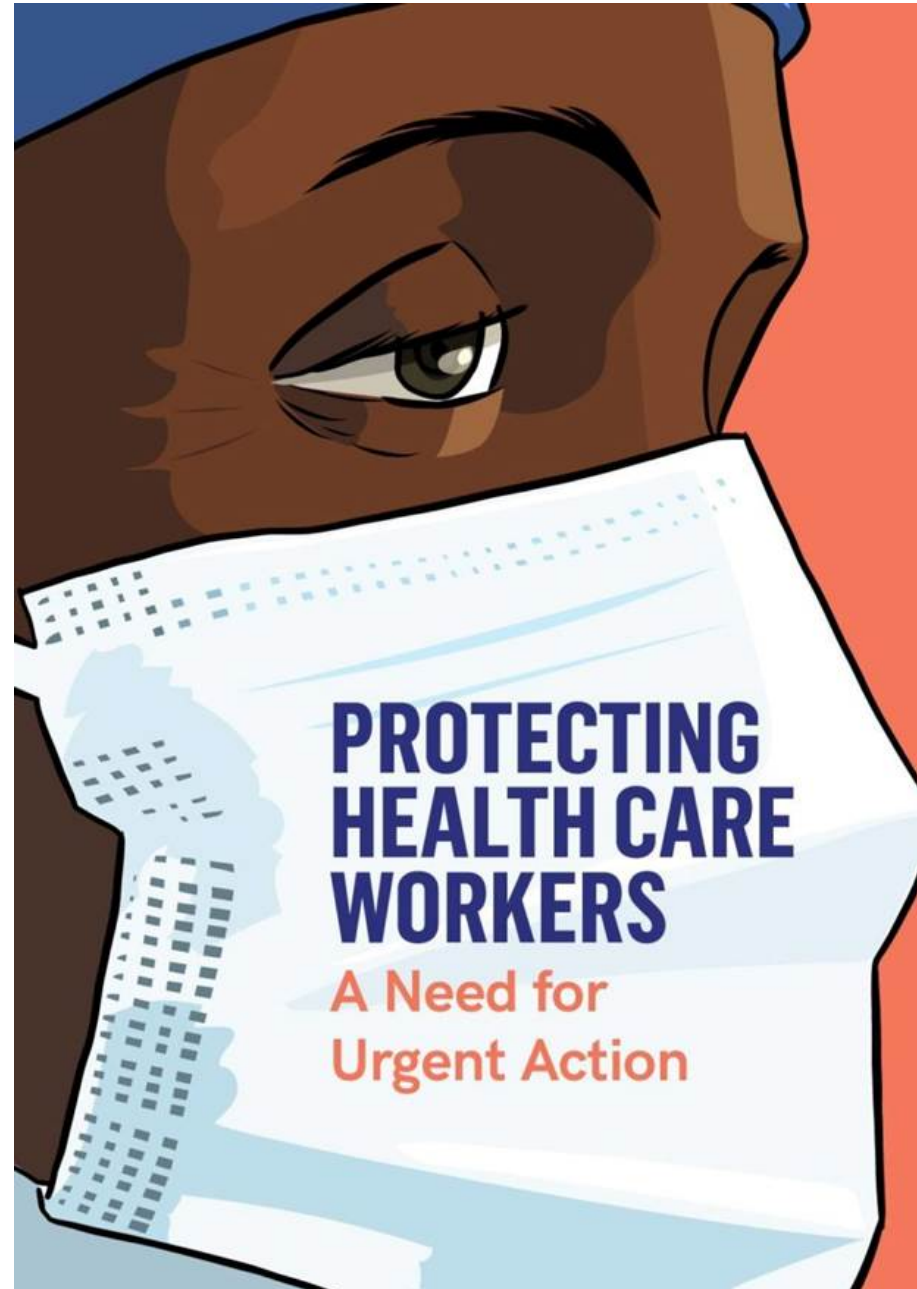
Vaccinated individuals





Damen Haile Mariam

ETHIOPIAN ACADEMY OF SCIENCES

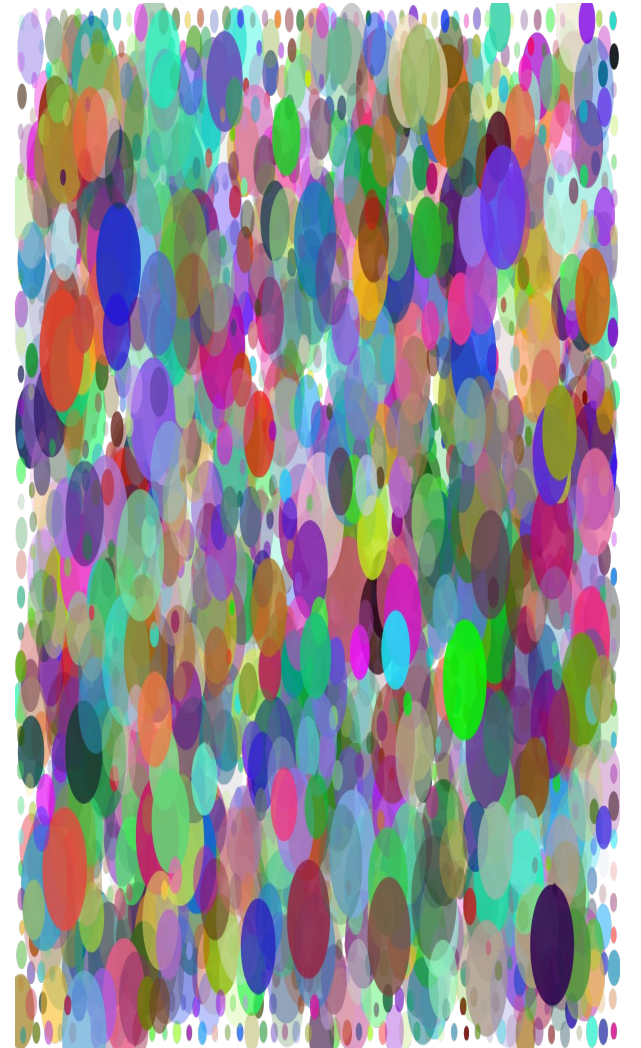


*Evidence-based Response **to** COVID-19*

**Collaborative Activities
between EAS
& US NAS**

Background

- ❑ The Ethiopian Academy of Sciences (EAS) **is collaborating** with the US National Academy of Sciences (US NAS)
- ❑ Technical and financial support for
 - ❑ Accessing,
 - ❑ Synthesizing, and
 - ❑ Disseminating policy briefs on
- ❑ Evidence-based response to COVID-19.



Objectives

The collaborative activities were aimed at:

- ❑ Informing policy decisions in Ethiopia that balance the benefit of public health measures for reducing transmission with other priorities, including economic and social impacts
- ❑ Producing a consensus **study** report and reinvigorating the government's response to COVID-19 with regard to the state of IPC and WASH in Ethiopia and for protecting frontline health**care** workers



Methods

Project 1

The EAS Organized:

- ☐ An-ad hoc Steering Committee to coordinate the collaborative activities,
- ☐ Online sessions for the webinars for disseminating the synthesized policy briefs.
- ☐ The Steering Committee had convened a few times and deliberated on the assignment and discussed the modalities of policy briefing.



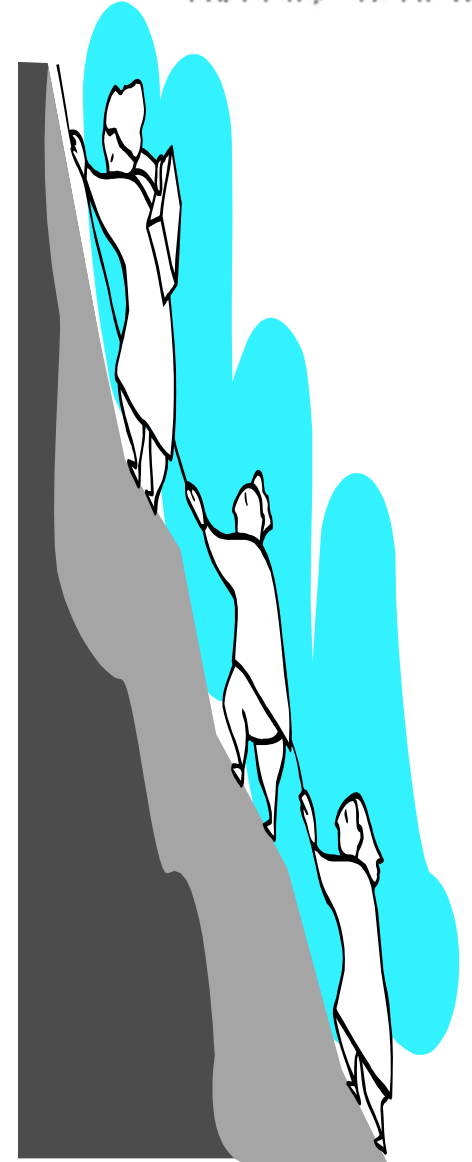
Data Collection

- ❑ Highlights, briefs and syntheses of documents from the website were shared by the United States National Academy of Sciences (US NAS) and the Resolve to Save Lives (RTSL) group.
- ❑ Documents were critically appraised, synthesized and customized to the Ethiopian context before they were used for dissemination through online webinars.
- ❑ The US NAS facilitated the access of the various documents by colleagues from the EAS, and also provided financial support for running the collaborative activities.



Finding the balance: Public Health and Social Measures in Ethiopia

- ❑ Presented on September 18, 2020 by Professor Alemayehu Worku, EAS Fellow and Co-Chair of the ad-hoc Steering Committee.
- ❑ About a dozen of participants (members of professional associations, health and education sectors leadership, as well as the focal person from the US NAS and the President of EAS) participated in this webinar.
- ❑ The slides from the presentation were shared with stakeholders within FMOH, EPHI, FMOE, AAU, as well to health professional associations in addition to being posted on the EAS website (<https://eas-et.org/index.php/node/488>)



The Coronavirus Pandemic and the Socio-economic & Political Order in Ethiopia –

- ❑ Presented on October 22, 2020 by Prof. Getnet Tadele, EAS Fellow and member of the ad-hoc Coordinating Committee
- ❑ About a dozen participants from the EAS (including the President), the College of Health Sciences at Addis Ababa University, and from health professional associations participated in the webinar
- ❑ Discussion was very lively, and summary of the presentation shared to ministries of health and education

Project 2: Consensus study Report on the State of WASH & IPC within PHC Facilities in Ethiopia

- ❑ The consensus **study** report looked at the policies, guidelines, and practices with regard to infection prevention (**IPC**) & control and water, sanitation, & hygiene (WASH) within primary health care facilities in Ethiopia.
- ❑ The overall objectives of the report **were** to:
 - ❑ To improve the implementation of IPC and WASH among healthcare workers in PHC facilities;
 - ❑ To improve the monitoring of IPC and WASH among healthcare workers in PHC facilities.

Consensus Report on the State of WASH & IPC within Primary Health Care Facilities in Ethiopia.

❑ The methods used in producing this consensus report included:

❑ An initial brainstorming session with experts in IPC and WASH;

❑ **Consultative** meetings with the experts to reach consensus on state of IPC and WASH in PHC facilities.

❑ At the consultative meetings presentations were made by the experts on WHO IPC and WASH guidelines (using WHO resources) and the state of IPC and WASH in PHC Facilities.

❑ The presentations included:

❑ Review of the literature on policies, guidelines, as well as practices on status of IPC and WASH in Ethiopia;

❑ Case studies were also presented regarding the state of IPC and WASH in health facilities as well as in some institutions.

Values Noted & Potential Next Steps



Values Noted

- ☐ All the synthesis presentations and the consensus **study** report have improved the insights of participants on the current situation of COVID-19 in Ethiopia as well as its impacts on social, behavioral, economic, and political dimensions in the country.

Potential Next Steps

- ☐ The EAS will share with policy makers the consensus **study report**
- ☐ The EAS will continue with this culture of synthesizing evidence for producing and disseminating policy briefs on COVID-19 as well as other important issues.

Acknowledgement

The Support of US NAS and RTSL is greatly acknowledged

Thank You !!!



Phyllis Kalele
ACADEMY OF SCIENCE OF SOUTH AFRICA

Finding the Balance: Public Health and Social Measures in South Africa

What is the purpose of this report?

This report describes findings from a telephone survey with 1,639 people conducted in February 2021. The survey examined how people respond to public health and social measures (PHSMs) to prevent COVID-19. The sample is representative of households with access to a landline or cell phone, but does not include people without access to phones. As phone penetration varies by country, findings should be interpreted with caution.

Survey data are analysed alongside epidemiological, mobility, and media data. Triangulating these data sources offers valuable context to better understand the acceptability, impact and effectiveness of PHSMs.

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National COVID-19 Data Snapshot on 26 February 2021

Total reported cases	1,510,778
Cumulative incidence rate per 100,000 people	2,600
Test positivity rate	5.3%
Proportion of people who test positive for COVID-19 among all people who took a test, averaged over 7 days	
Total confirmed COVID-19 deaths	49,784
Case fatality ratio	3.3%
Proportion of total reported deaths among all people reported as testing positive for COVID-19	

Dissemination of Policy Briefs on COVID-19 Non-Pharmaceutical Interventions in the Southern African Development Community (SADC) Region

*Applying scientific thinking
in the service of society*

Partner Academies

- Botswana Academy of Sciences
- Mauritius Academy of Science and Technology
- Kingdom of eSwatini Academy of Sciences
- Zambia Academy of Sciences
- Zimbabwe Academy of Sciences
- South African Young Academy of Sciences
- Zimbabwe Young Academy of Science
- Mauritius Young Academy (Initiating)
- Democratic Republic of Congo Young Academy (Initiating)



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Key Project Impacts and Outcomes



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Science Diplomacy in Action



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Science Advice Capacity Enhancement



ZIMBABWE ACADEMY OF SCIENCES DRAFT POLICY BRIEFS

Use of traditional medicine

- Strong focus locally on the use of herbs
- Consideration of the impact on Indigenous Knowledge Systems and Intellectual Property policies

Socio-Economic & Political impact of COVID-19

- Interrogation of the effectiveness of lockdown conditions as some were disregarded
- Strategies to sustain livelihoods under COVID-19 lockdown conditions
- Assessment of the political aspects of COVID-19

Industrialization Policy and Geographical Mapping

- Geographical mapping of COVID-19 confirmed cases, recoveries and deaths
- Analysis of risk factor and mitigation strategies in high-density vs low-density geographical spaces



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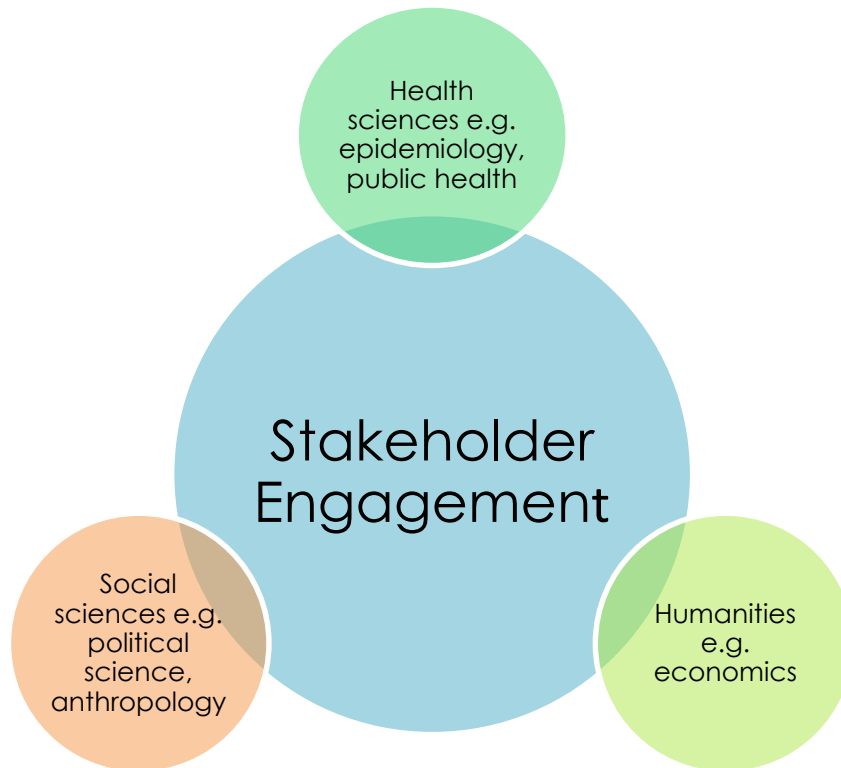
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Science Engagement



Multidisciplinary Interrogation of Policy Briefs

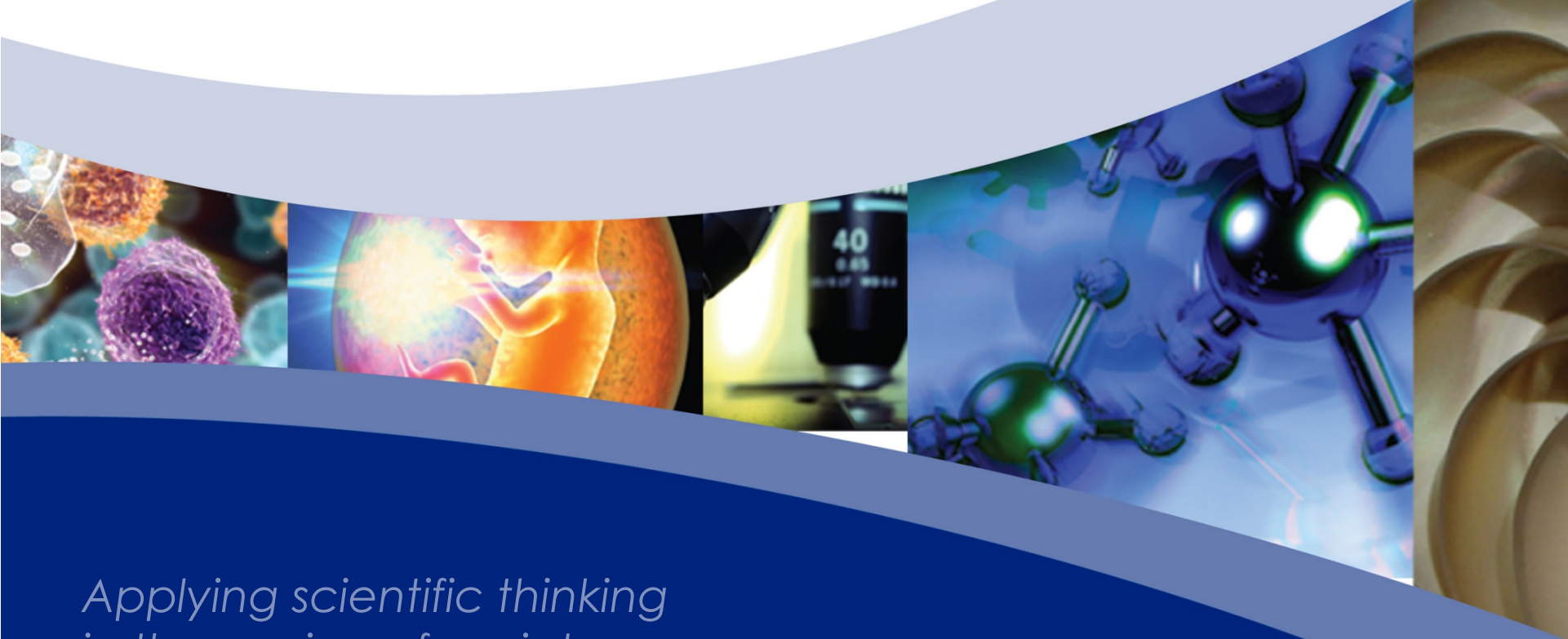




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in the service of society*

www.assaf.org.za

Closing Remarks



Presented by:
Tom Frieden
President and CEO
Resolve to Save Lives