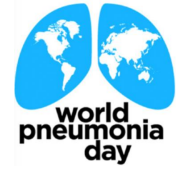


Pneumonia and the Pandemic: Challenges and Opportunities – A perspective from Lesotho

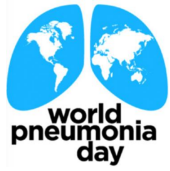
Dr. Eric D. McCollum, MD, MPH
Director, Global Program in Pediatric Respiratory Sciences
Associate Professor of Pediatrics
Eudowood Division of Pediatric Respiratory Sciences
Johns Hopkins University
@tinylungsglobal



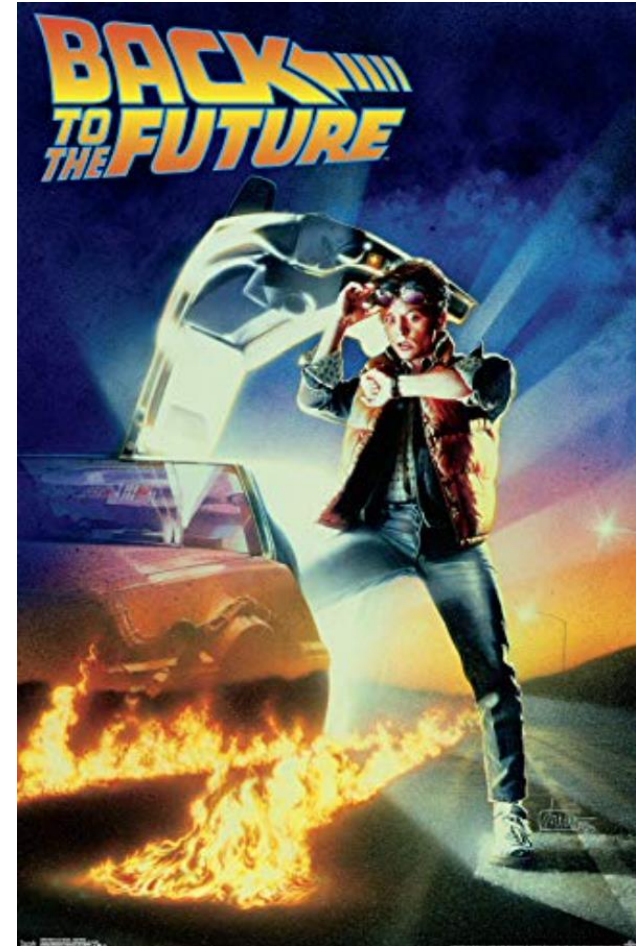


Objectives

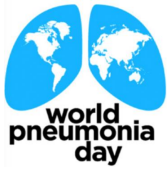
- Pre-pandemic – revisiting the child pneumonia context
- The pandemic – Lesotho perspective
- Post-pandemic – opportunities and challenges



Pre-pandemic...



<https://www.wantitall.co.za>

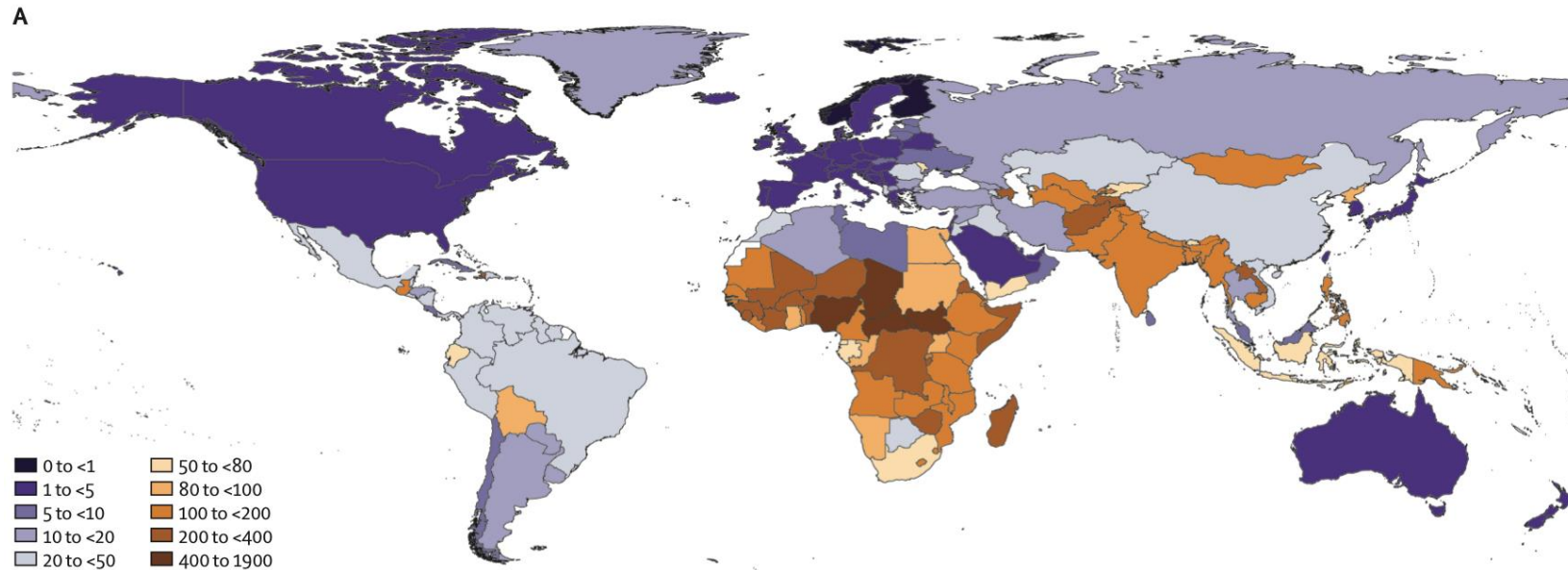


Global distribution of child pneumonia – mortality rate per 100,000

Quantifying risks and interventions that have affected the burden of lower respiratory infections among children younger than 5 years: an analysis for the Global Burden of Disease Study 2017

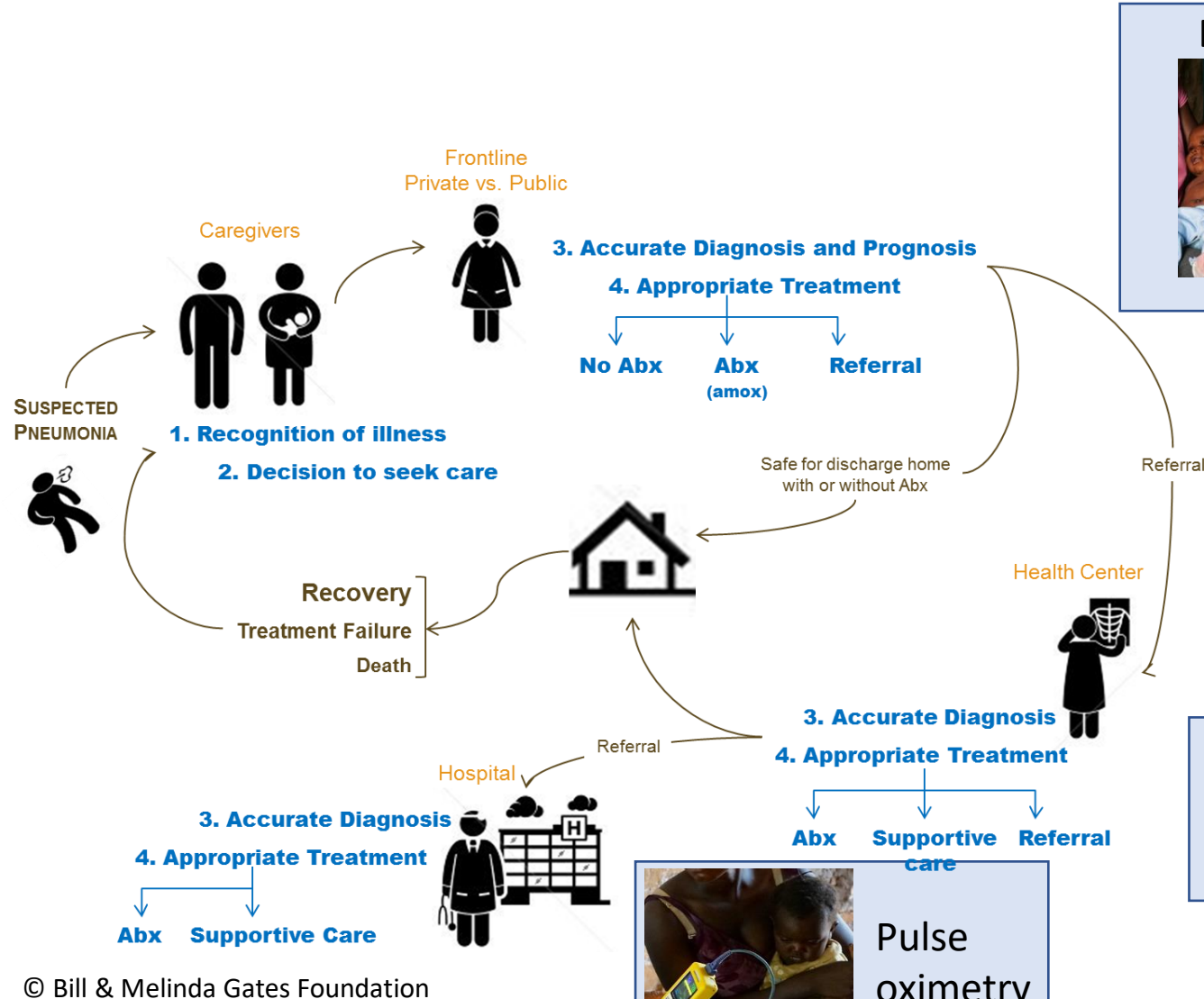
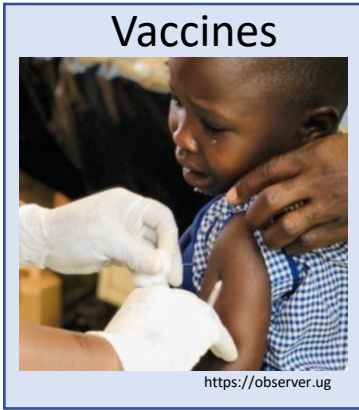
*GBD 2017 Lower Respiratory Infections Collaborators**

*Lancet Infect Dis 2020;
20: 60–79*

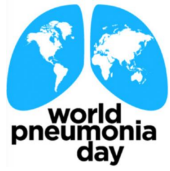


Main drivers of mortality (child factors) – Young age, HIV, malnutrition, hypoxemia

Child pneumonia care pathway in LMICs



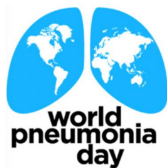
© Bill & Melinda Gates Foundation



The pandemic...



https://www.who.int/health-topics/coronavirus#tab=tab_1



COVID-19 and children...

BMJ Global Health **Protecting children in low-income and middle-income countries from COVID-19**

Cochrane Library
Cochrane Database of Systematic Reviews

Measures implemented in the school setting to contain the COVID-19 pandemic (Review)

Tropical Medicine and Infectious Disease

Article
Epidemiology of COVID-19 in Individuals under 18 Years Old in Cartagena, Colombia: An Ecological Study of the First 14 Months of the Pandemic



THE JOURNAL OF PEDIATRICS • www.jpeds.com **ORIGINAL ARTICLES**

Pediatric Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2): Clinical Presentation, Infectivity, and Immune Responses

The Journal of Infectious Diseases

MAJOR ARTICLE

VIROLOGIC FEATURES OF SEVERE ACUTE RESPIRATORY SYNDROME CORONAVIRUS 2 INFECTION IN CHILDREN

IDSa **hivma** **OXFORD**

frontiers | Frontiers in Pediatrics

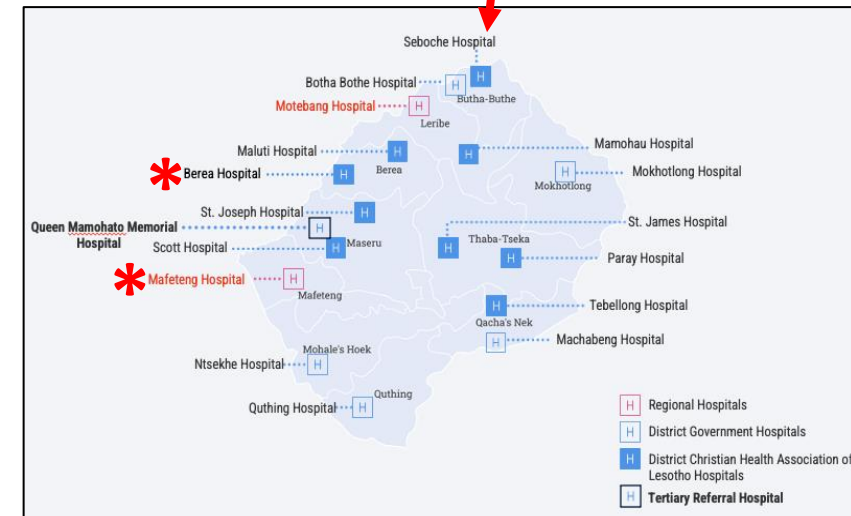
Disruptions to routine childhood vaccinations in low- and middle-income countries during the COVID-19 pandemic: A systematic review

Lesotho

- Population of 2.1 million, land-locked, mountainous, one of highest HIV prevalence globally (25%) (half of adults >40 years)
- First SARS-CoV-2 confirmed case May 13, 2020
- 10 administrative districts each with at least one secondary-level hospital
 - Physician led
 - **Lacks high care**
 - COVID isolation wards established at all district-level hospitals
- **2 district hospitals** designated as COVID Treatment Centers
 - Both with COVID-19 isolation wards
- Queen Mamohato Memorial Hospital (QMMH/Tsepong)
 - National tertiary care hospital in capital city of Maseru
 - Only government hospital with level 3 ICU (capacity to use mechanical ventilation)
 - Admitting COVID-19 patients from mid-2021, restricted access to ICU



<https://www.adventuretoafrika.com>



<https://data.worldbank.org>

Trainings

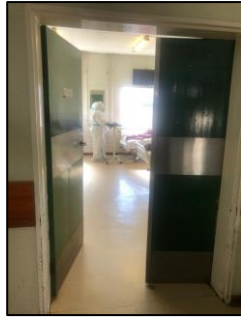


Infrastructure

High Care Unit



Patient care & Advanced Respiratory Care

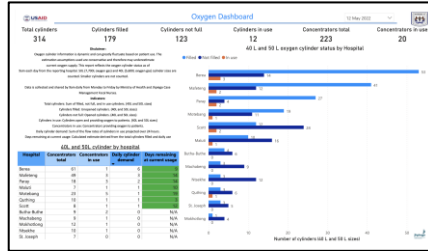


PSA Oxygen Plant



Tools

National Oxygen Dashboard

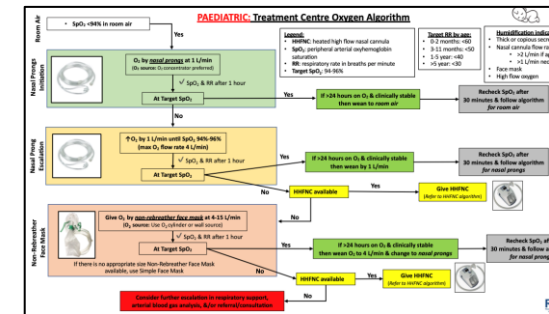


Case Forms

Human Resources



Algorithms & Guidelines



Kingdom of Lesotho
Ministry of Health

Coronavirus Disease – 2019 (COVID-19)
Screening, Testing, Clinical Management, and Prevention of COVID-19

GUIDELINES FOR CLINICIANS

UPDATE: 27th July 2021

COVID-19 and children in Lesotho

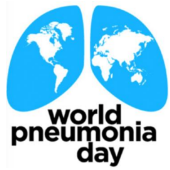


Table 1. Children at Treatment Centers: May 2020 – April 2022

Age (in years)	N=1,448 % (n)
≥15	99% (1,430)
<15	1% (18)

Table 2. Children at Treatment Centers: May 2020 – April 2022

Characteristics		N=18
SARS-CoV-2 PCR status, % (n)	Positive	11% (2)
	Unknown	22% (4)
	Negative	67% (12)
Age in years	Median (IQR)	7 (2-12)
Sex, % (n)	Females	44% (8)
HIV-status, % (n)	Infected	22% (4)
Hypoxemia, % (n)	SpO ₂ <94%	44% (8)
Respiratory support, % (n)	Oxygen	39% (7)
	High flow	11% (2)
Outcome, % (n)	Death	22% (4)



Child bronchiolitis during the pandemic...

European Journal of Pediatrics (2021) 180:1969–1973
<https://doi.org/10.1007/s00431-021-03968-6>

SHORT COMMUNICATION



Bronchiolitis in COVID-19 times: a nearly absent disease?

Daan Van Brusselen^{1,2,3} · Katrien De Troeyer⁴ · Eva ter Haar⁵ · Ann Vander Auwera¹ · Katleen Poschet¹ · Sascha Van Nuijs¹ · An Bael^{6,7} · Kim Stobbelaar^{8,9} · Stijn Verhulst^{8,9} · Bruno Van Herendael^{2,10} · Philippe Willems^{2,10} · Melissa Vermeulen¹¹ · Jeroen De Man¹² · Nathalie Bossuyt¹¹ · Koen Vanden Driessche^{8,13}

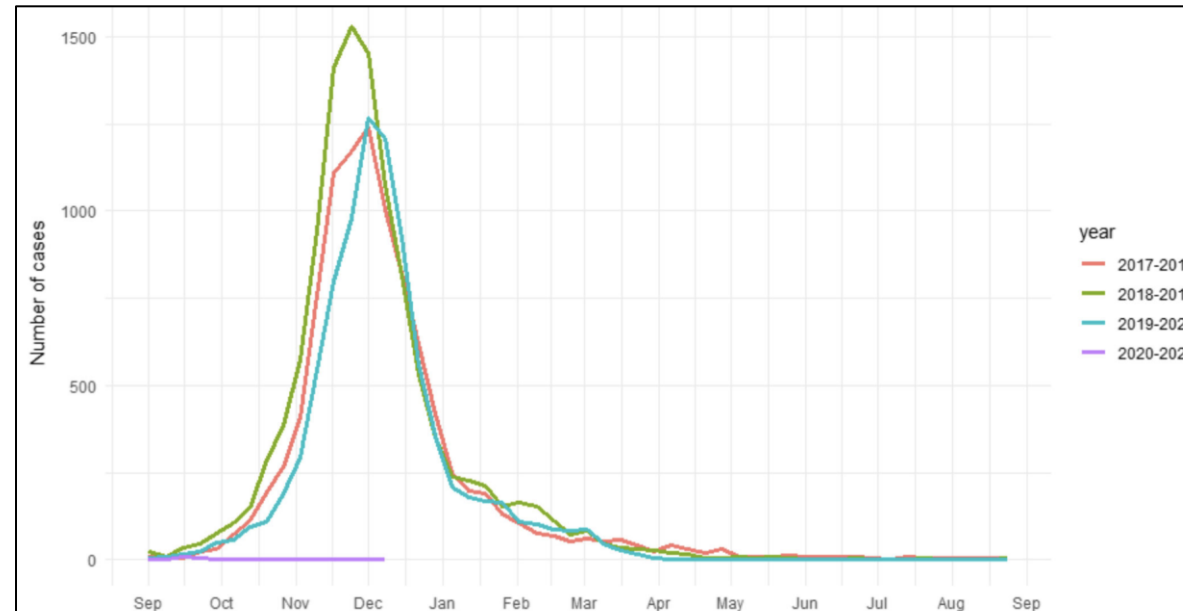
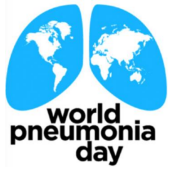
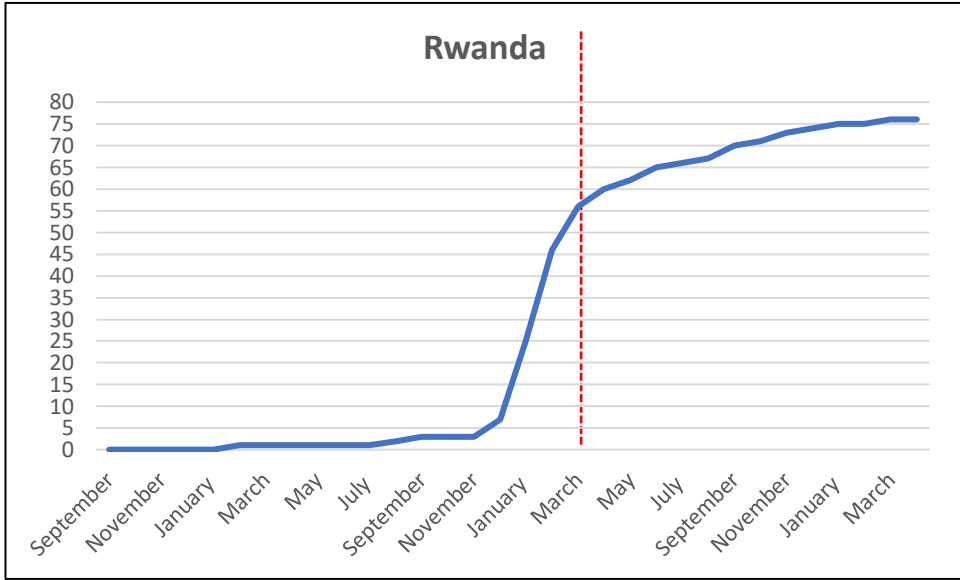


Fig. 1 Weekly number of laboratory-confirmed RSV tests reported by the sentinel network of laboratories, seasons 2017-2020, Belgium (Sciensano)

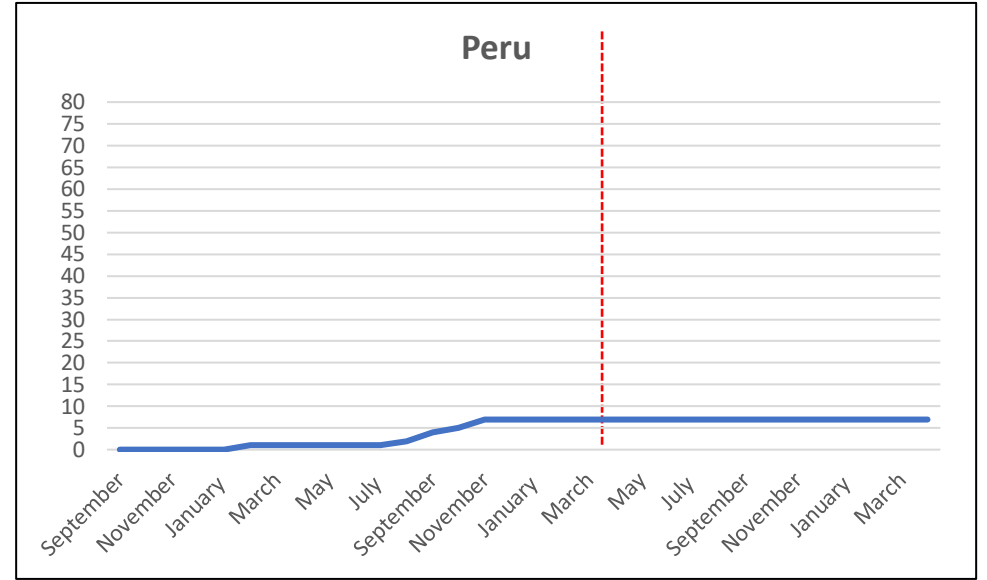


HAPIN Trial – Severe pneumonia

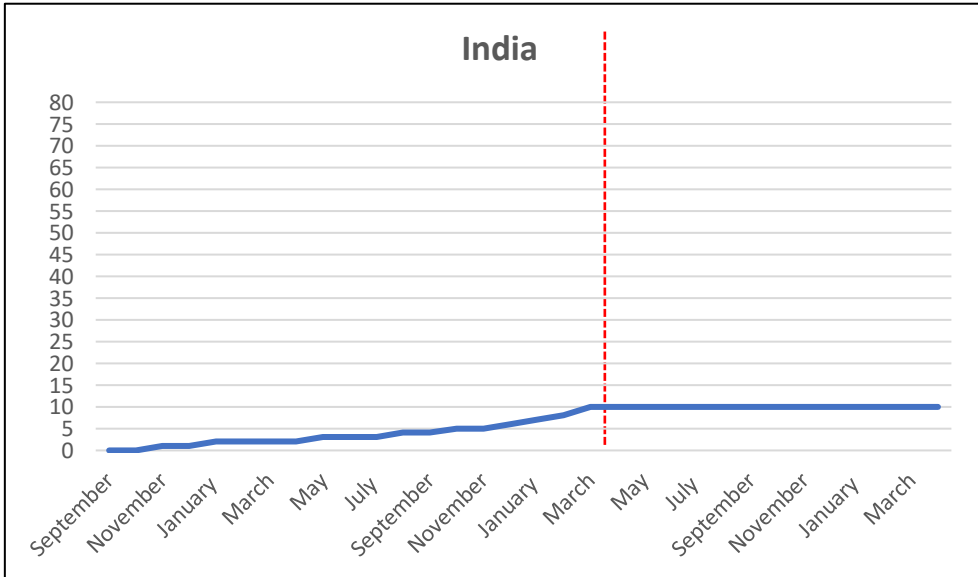
Cases



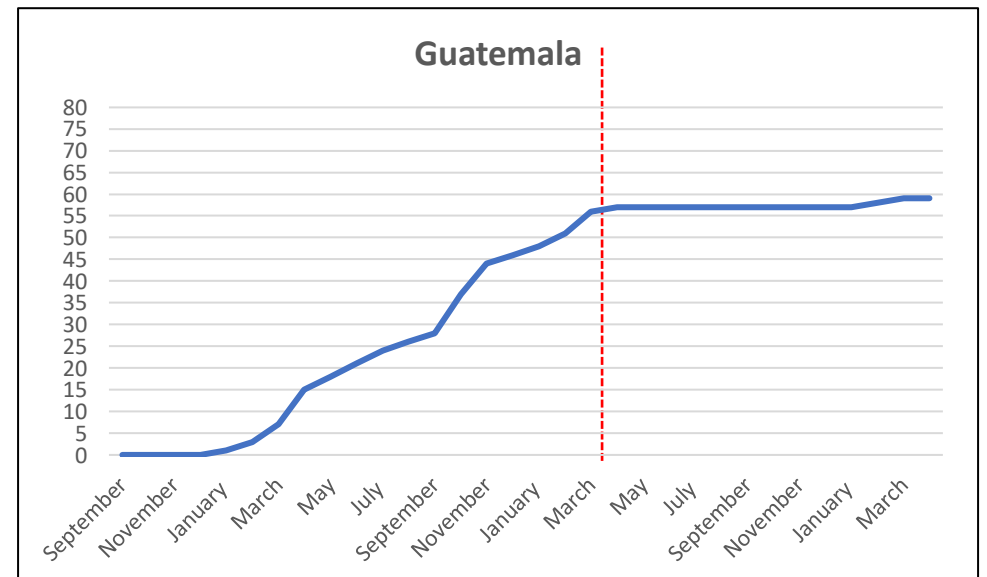
Cases

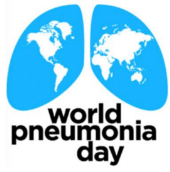


Cases



Cases

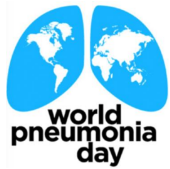




Post-pandemic...



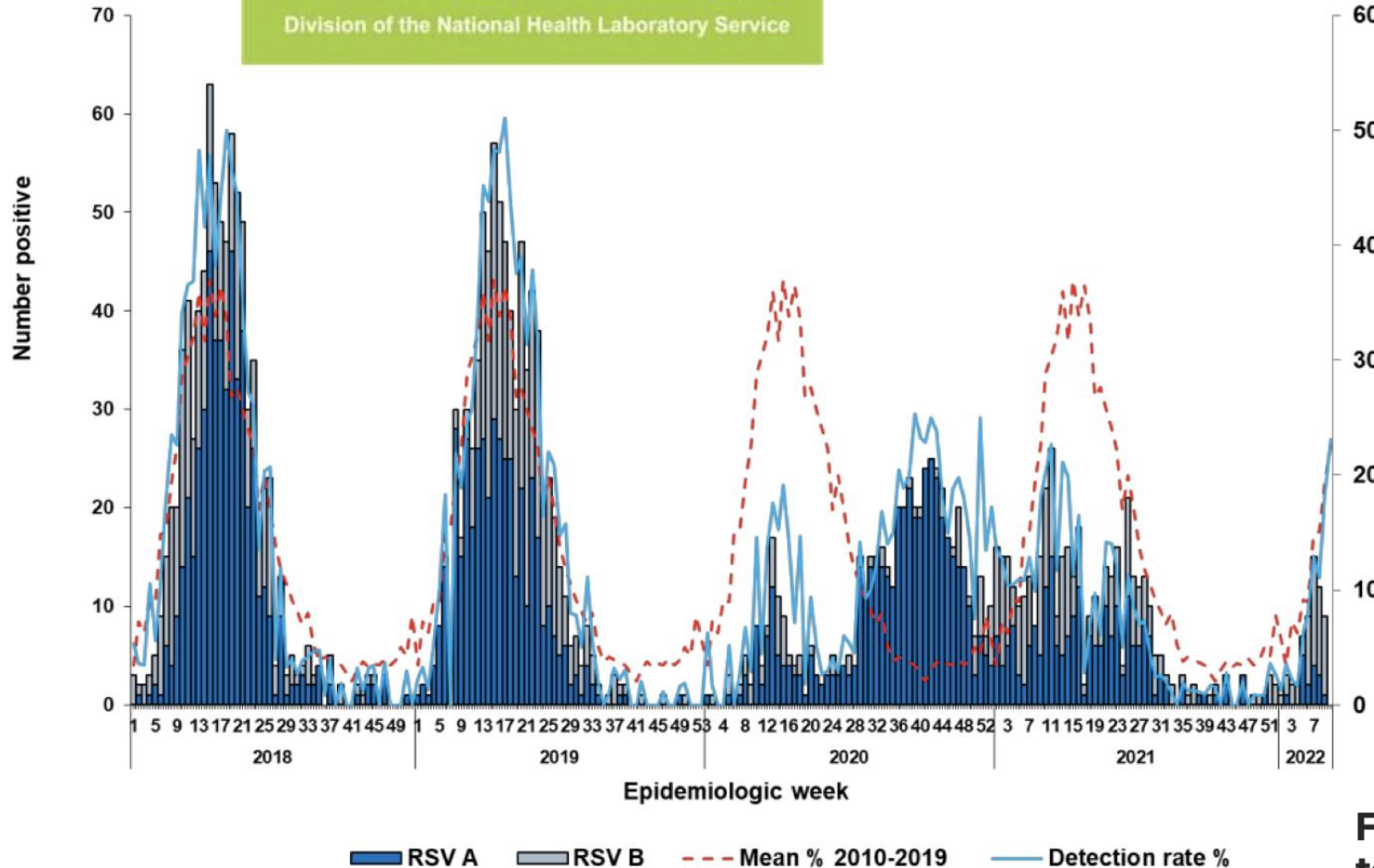
<https://www.tripadvisor.com>



More disease, more severe disease?



South Africa



SCIENTIFIC AMERICAN

EPIDEMIOLOGY

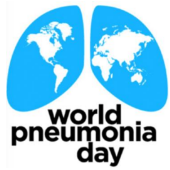
RSV Is Surging: What We Know about This Common and Surprisingly Dangerous Virus



Flu, RSV, other viruses surging in young kids, catching doctors 'off guard'




Flu and other respiratory virus activity continues to ramp up across the US



Child pneumonia care pathway in LMICs – opportunities and challenges


Vaccines – mRNA technology



<https://observer.ug>

Pulse oximetry
<https://openoximetry.org>

Frontline
Private vs. Public

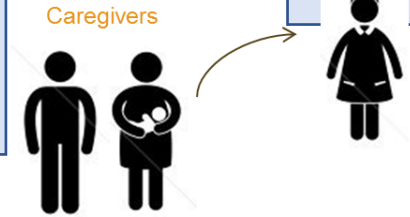


Diagnostics & Surveillance systems

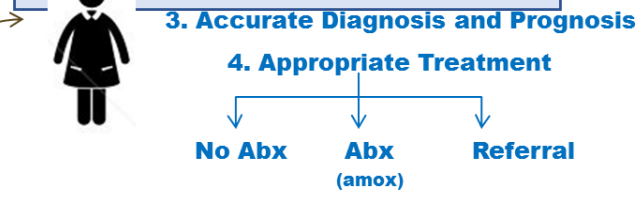


<https://www.unicef.org>

SUSPECTED PNEUMONIA



1. Recognition of illness
2. Decision to seek care



Safe for discharge home with or without Abx



Recovery
Treatment Failure
Death



Dispersible tablets




<https://www.idstewardship.com> <https://www.unicef.org>

Referral systems




Pulse oximetry




3. Accurate Diagnosis
4. Appropriate Treatment

- Abx
- Supportive Care
- Referral

Pulse oximetry



Oxygen systems



High Care Unit
USAID RISE

Photo credit: EDM

© Bill & Melinda Gates Foundation



Child Pneumonia Working Group



Thank you!

Dr. Rebecca Nantanda
rnantanda@gmail.com

Dr. Matthew Kelly
matthew.kelly@duke.edu

Dr. Eric McCollum
emccoll3@jhmi.edu

@tinylungsglobal

