Innovative Strategies to Synergize Investments in Health Care Systems

Can Cancer (and TB) Care Protect against Pandemics?

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Innovations for Tackling Tuberculosis in the Time of COVID-19

NASEM Forum on Microbial Threats

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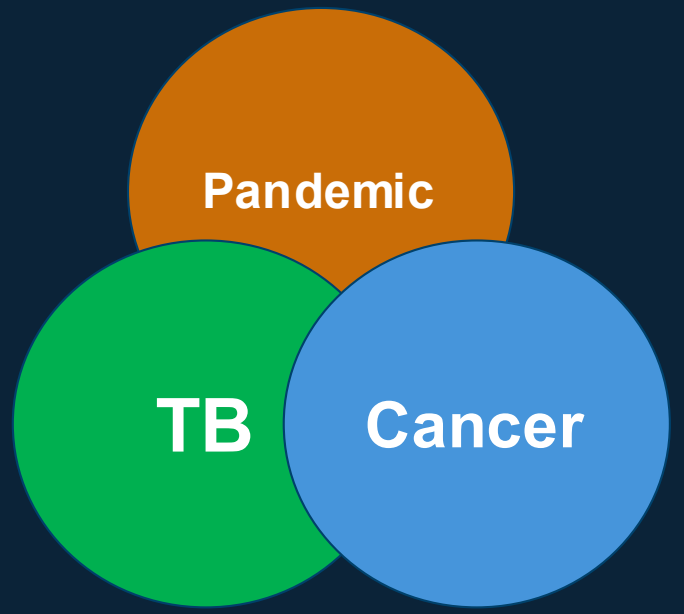
Can Cancer & TB Care Protect against Pandemics?

OVERVIEW

- Leverage Synergies – TB and COVID and Cancer (1+1+1 = 6)
  - Molecular to the Macro
  - Space, Staff and Stuff across the Systems
  - Benefits to cost, capacities and capabilities
- Ensure Meaningful Measures and Accountabilities that are cross-cutting and challenge false dichotomies
  - Build credibility with donors and investors
  - Incentivize and reward innovation in flex competence
- Sustained Commitment – Leadership, Governance, Investment
  - Preparedness
- Conclusion



A Preparedness Framework

Adapted from Michael T. Osterholm (~2003)

Pandemic / Attack Occurs	Necessary Pandemic / Attack Preparedness	
+	+	A horrible scenario
+	-	The worst scenario*
-	+	2nd guessing
-	-	The dream outcome

US Government programs (BioShield, BARDA, PHEMCE) were designed to avoid the worst-case scenarios

International Cancer Expert Corps

Catalytic and disruptive innovation to transform global cancer care…

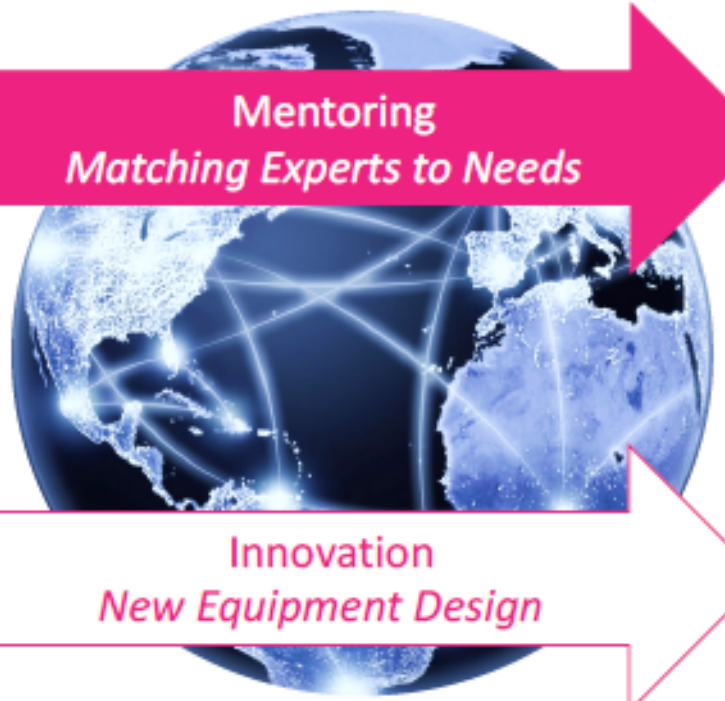
International Cancer Expert Corps

Partnering to transform global cancer care

The State of Things…

- Underserved populations lack access to cancer care experts
- Surge of interest in developed world to deliver high quality cancer care
- Current environment encourages depletion of talent, brain drain in low- and middle-income countries (LMICs)

- Radioactive Cobalt-60 machines present possible environmental and security risks and lack sophistication needed for modern radiotherapy
- No practical, accessible and affordable technology resources currently exist



ICEC Programs

- Promote expert mentoring through partnership program and matched funding to support participants
- Transform cancer care by partnering with local communities to build sustainable infrastructure and programs

- Serve as a convener to engage stakeholders to promote innovation in new technologies, such as radiation therapy equipment design

…reduces mortality and improves quality of life for people with cancer in LMICs and underserved regions worldwide

Achieving Flexible Competence: Bridging the investment dichotomy between infectious diseases and cancer

Global initiatives that independently address Infectious Diseases (IDs) and non-communicable diseases (NCDs) miss the opportunity to enhance capabilities for both missions.

Analysis

BMJ Global Health

Achieving flexible competence: bridging the investment dichotomy between infectious diseases and cancer

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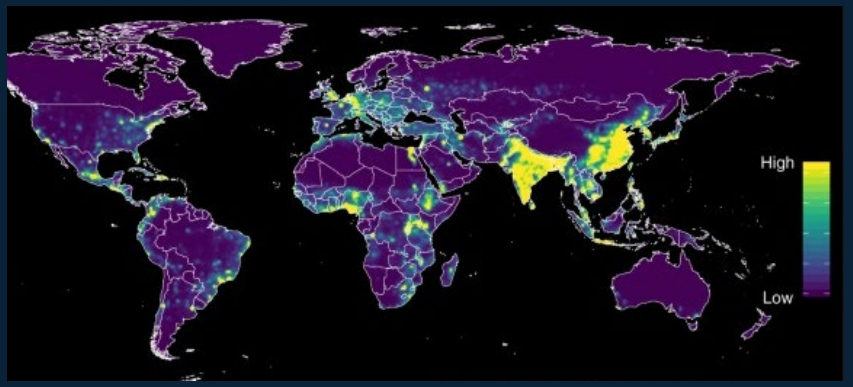
ABSTRACT

Today's global health challenges in underserved communities include the growing burden of cancer and other non-communicable diseases (NCDs); infectious diseases (IDs) with epidemic and pandemic potential such as COVID-19; and health effects from catastrophic 'all hazards' disasters including natural, industrial or terrorist incidents. Healthcare disparities in low-income and middle-income countries and in some rural areas in developed countries make it a challenge to mitigate these health, socioeconomic and political consequences on our globalised society. As with IDs, cancer requires rapid intervention and its effective medical management and prevention encompasses the other major NCDs. Furthermore, the technology and clinical capability for cancer care enables management of NCDs and IDs. Global health initiatives that call for action to address IDs and cancer often focus on each problem separately, or consider cancer care only a downstream investment to primary care, missing opportunities to leverage investments that could support broader capacity-building. From our experience in health disparities, disaster preparedness, government policy and healthcare systems we have initiated an approach we call *flex-competence* which emphasises a systems approach from the outset of program building that integrates investment among IDs, cancer, NCDs and disaster preparedness to improve overall healthcare for the local community. This approach builds on trusted partnerships, multi-level strategies and

Summary box

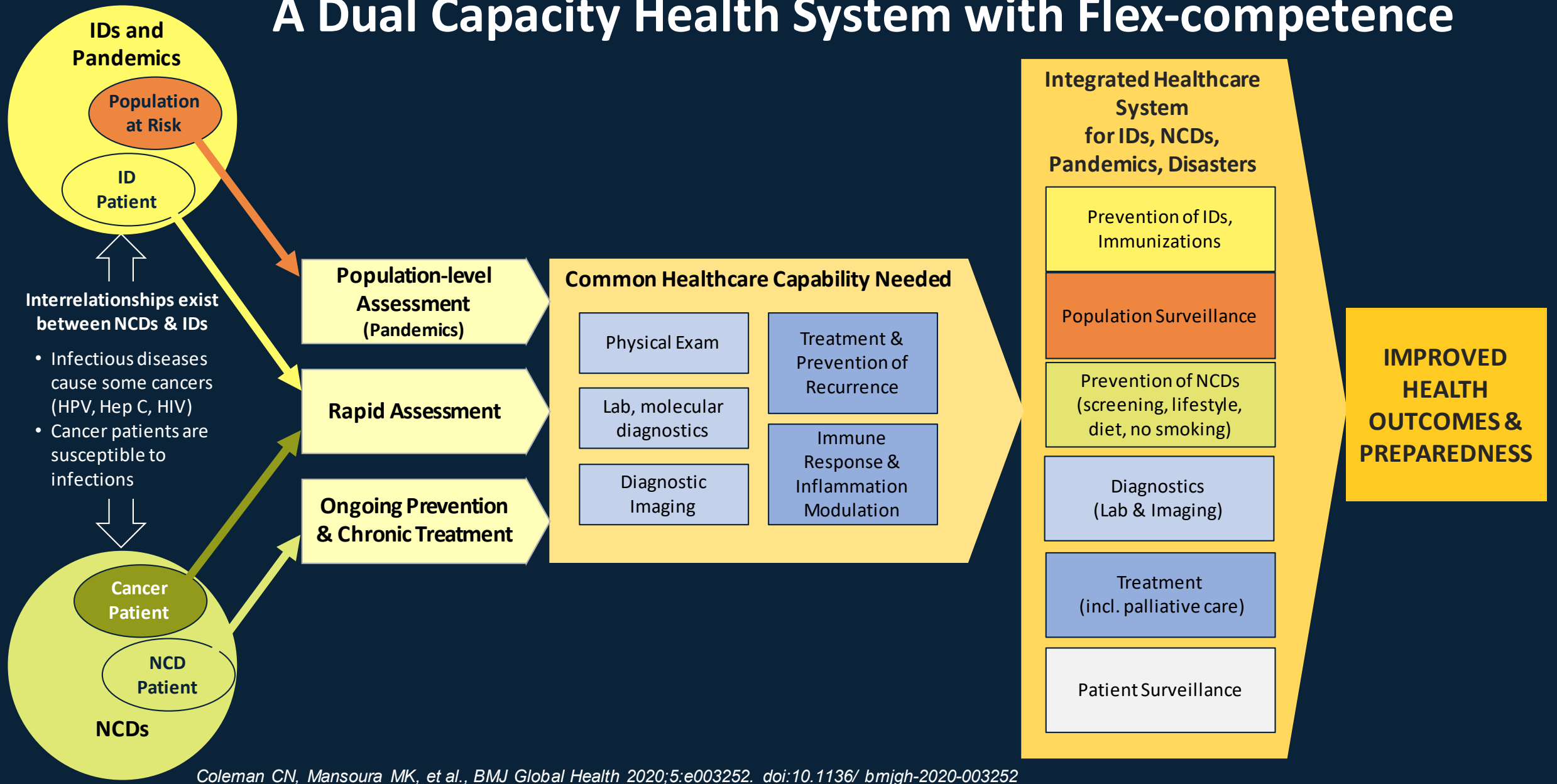
- In low-income and middle-income countries, continued investment is needed to address infectious diseases (IDs) and more is needed for non-communicable diseases (NCDs), which are the leading cause of death.
- The aetiological relationship between IDs and cancer is increasingly common (eg, Human papilloma virus (HPV) and cervical cancer and hepatitis C and liver cancer) with many healthcare service needs in common.
- Catastrophic incidents including natural disasters, terrorism and pandemics, such as COVID-19, require sustainable healthcare infrastructure to meet sudden surge capacity.
- Global initiatives that address IDs, NCDs and disaster preparedness separately miss the opportunity to support all-hazards capacity-building.
- Cancer care is an ideal entry point to other NCDs as it requires immediate intervention like IDs and attention to the other NCDs and IDs.
- An approach that provides an integrated health system using the *flex-competence* model described in this paper will support routine care for NCDs, including cancer while being able to rapidly adapt to changing needs as presented by IDs and other catastrophic incidents.

- Geographic alignment in hotspots (IDs) and disease burden (NCDs)
- Both require early detection and rapid response
- Convergent, adaptable medical care capacity-building is cost-effective
- Similar etiology and systemic responses
  - Infectious agents
  - Immunology
  - Inflammation



Coleman CN, Mansoura MK, et al., BMJ Global Health 2020;5:e003252. doi:10.1136/ bmjgh-2020-003252

A Dual Capacity Health System with Flex-competence



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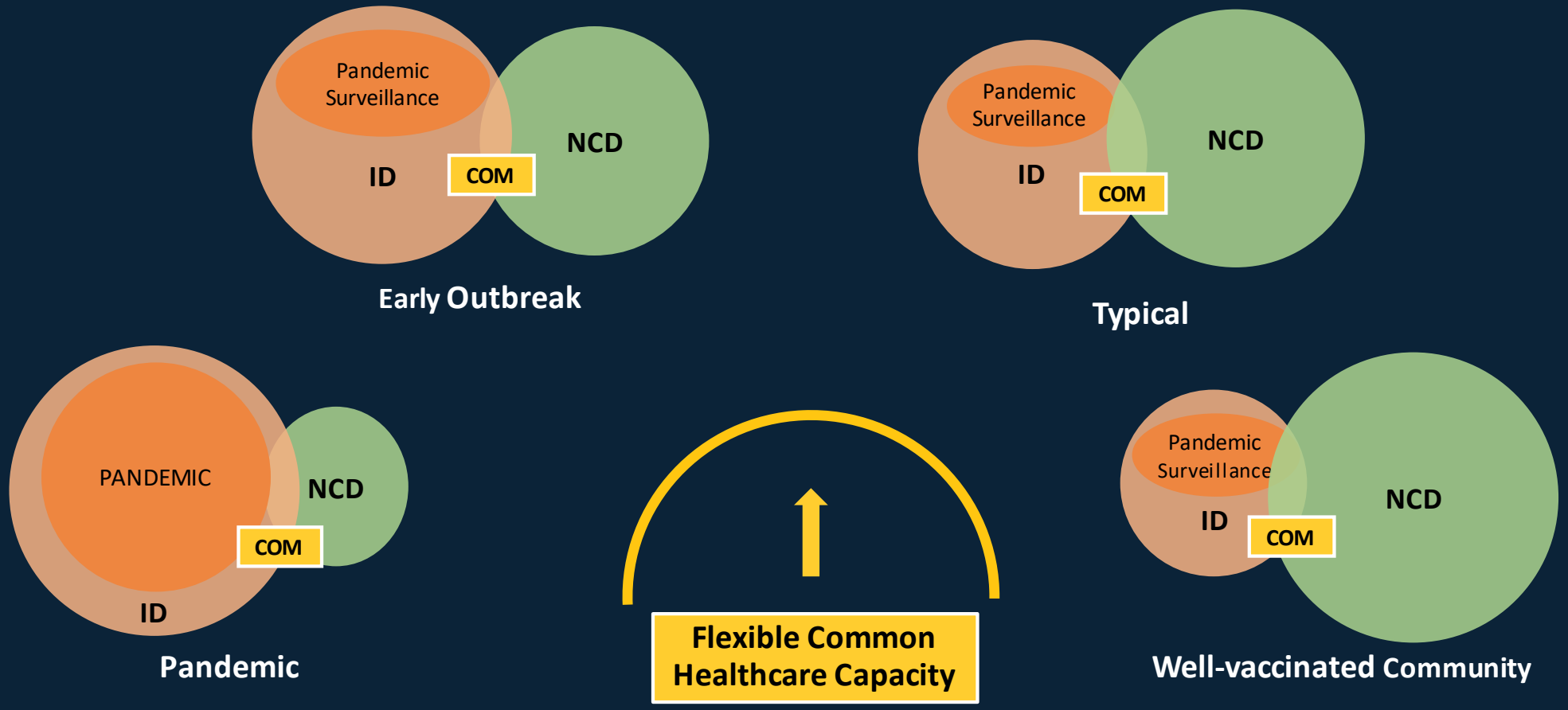
Flex-competence – Healthcare System's Adaptability to Changing Needs

Enables leaders to deputize system resources that have been tested and evaluated



KEY: The size of the circle indicates where emphasis lies and where resources are being shifted. The relative size of the circles represents the amount of effort required during the specific operational focus conditions. **COM** indicates common resources for all settings, including diagnostic imaging, laboratories, telemedicine, and others.

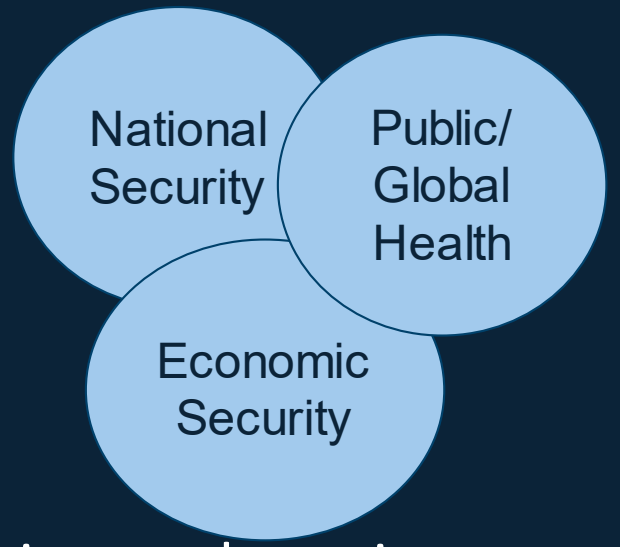
Coleman CN, Mansoura MK, et al., BMJ Global Health 2020;5:e003252. doi:10.1136/ bmjgh-2020-003252

Essential Features for a Flex Competent System

Sector	Metrics
Capacity and capability	• Expanded facilities for routine care • Program development (e.g., prevention, treatment) • Staff expertise • Global quality standards • Sustainable funding
Multi-level planning for rapid response	• Regional planning for rapid decision-making to change resource deployment and focus, with trigger and systems for access to global resources • Management structure and communication systems to support adaptation of plans and implementation • Data systems
Healthcare system competence to be adaptable and flexible	• Rapid management and staff ability to change systems and focus • Staff training/cross-training; interactive educational programs • Ready online access to educational resources for unanticipated/urgent needs (e.g. REMM)
Global resource access	• Readiness assessments to meet standards • Supply chain networks • Access to expertise from HICs for technical assistance, staff mentorship (e.g., ICEC) • Standardized data reporting

Coleman CN, Mansoura MK, et al., BMJ Global Health 2020;5:e003252. doi:10.1136/ bmjgh-2020-003252

Cautionary Tales – Collision of Cultures

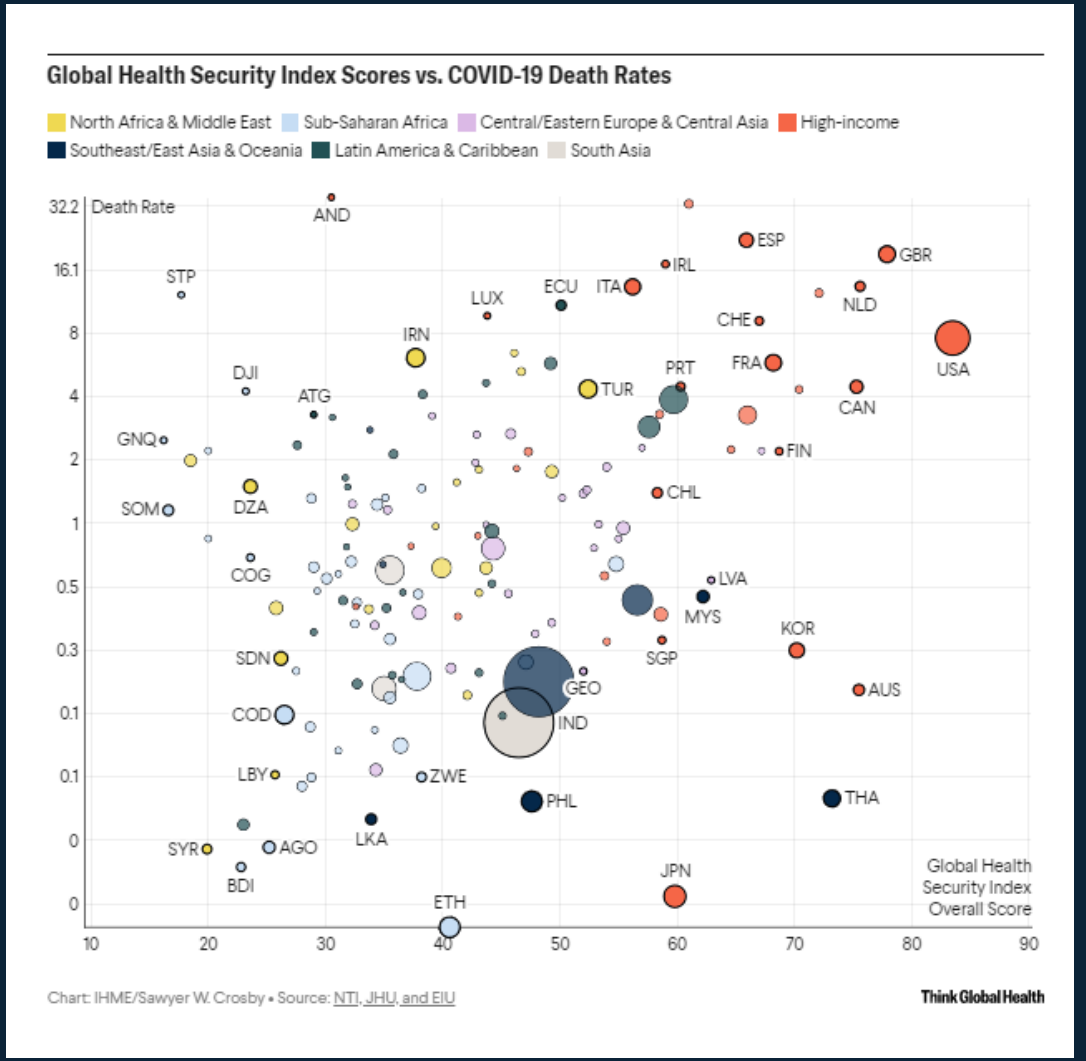


- The health community must temper its tribal convictions and convince powerful defense and foreign affairs communities to embrace relevant health issues in the first tier of policy and budget concerns
- Health professionals and organizations generally have little experience in crafting messages and issues that speak to the critical power players who have foreign policy, intelligence, and defense credentials. But it is not solely their fault. The security sector is not enthusiastic about being told that issues such as pandemics should be considered "front burner" security problems

Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science Volume 11, 2013

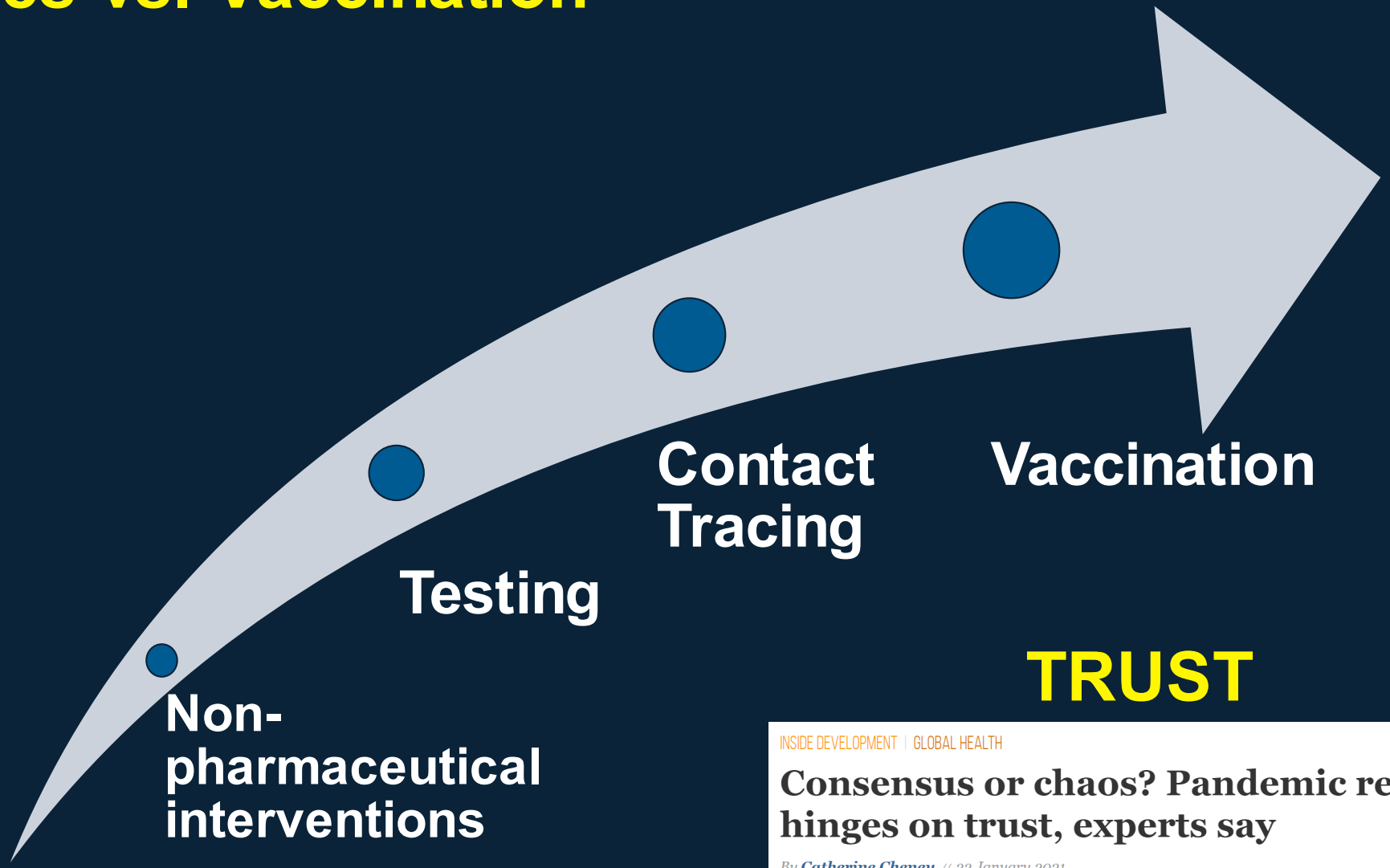
Cautionary Tale – What does preparedness look like?

"Meaningful Measures required for effective investment"



"All Bets Are Off for Measuring Pandemic Preparedness" Crosby, et al., June

Vaccines vs. Vaccination



TRUST

INSIDE DEVELOPMENT | GLOBAL HEALTH

Consensus or chaos? Pandemic response hinges on trust, experts say

By *Catherine Cheney* // *22 January 2021*

The Global Fund – Results Report 2021
Evidence of synergies

THE GLOBAL FUND

Results Report 2021 At a glance

44 million lives saved

Programs supported by the Global Fund partnership had saved 44 million lives as of the end of 2020. The number of deaths caused by AIDS, TB and malaria has been reduced by 46%[1] since 2002 in countries where the Global Fund invests. These achievements are due to tireless efforts by the diverse actors who comprise the Global Fund partnership – including governments, multilateral agencies, bilateral partners, civil society groups, people affected by the diseases, and the private sector. But over the last year the impact of the COVID-19 pandemic has been devastating. For the first time in the Global Fund's history, key HIV, TB and malaria programmatic results declined. To regain this lost ground and end HIV, TB and malaria, we must also fight COVID-19 – and we must urgently reinforce the systems for health needed to defeat today's pandemics and prepare for tomorrow's.

State of the fight

HIV

The Global Fund provides 25% of all international financing for HIV programs. AIDS-related deaths have dropped by 68% since the peak of the epidemic in 2004 in countries where we invest. Eight countries have surpassed the UNAIDS "90-90-90"[2] 2020 testing and treatment targets; however, most countries have missed this target. While more people are on treatment than ever before, the number of infections isn't dropping fast enough – and COVID-19 interrupted critical testing and prevention activities, particularly for key and vulnerable populations who are most at risk of contracting HIV.

Tuberculosis

The Global Fund provides 77% of all international financing for TB programs. TB deaths (excluding HIV-positive people) have dropped by 28% since 2002 in countries where we invest. Together with technical partners and implementing countries, we are finding more "missing" people with TB – people who go undiagnosed, untreated and unreported. But this progress was severely hit by COVID-19 in 2020. All TB testing and treatment results declined significantly compared to the previous year.

Malaria

The Global Fund provides 56% of all international financing for malaria programs. Malaria deaths have dropped by 45% since 2002 in countries where we invest. New innovations are emerging, including improved insecticide-treated nets and pilot projects of a new malaria vaccine for children. In the face of COVID-19, we successfully adapted malaria activities like mosquito net distributions and preventative therapy for children under 5; progress against malaria held largely steady, but did not advance.

Key results in 2020

- 21.9 million people on antiretroviral therapy for HIV – an 8.8% increase compared to 2019 despite COVID-19.
- 104 million people tested for HIV – a 22% decrease compared to 2019 due to COVID-19.
- 8.7 million people reached with HIV prevention services – an 11% decrease from 2019 due to COVID-19.
- 4.7 million people treated for TB – an 18% decrease compared to 2019 due to COVID-19.
- 101,000 people on treatm… drug-resistant TB … compared to … due to COVID-19.
- 194,000 children in contact with TB patients received preventative therapy – a 13% increase compared to 2019 despite COVID-19.
- 188 … from … crease compared … despite COVID-19.
- 259 million people were tested for malaria – a 4.3% decrease compared to 2019 due to COVID-19.
- 11.5 million pregnant women received preventive therapy – nearly the same as in 2019.

1. Data as of end-2020 for HIV, as of end-2019 for malaria and tuberculosis (2020 data not available at time of publishing)
2. https://www.unaids.org/en/resources/909090

194,000 children in contact with TB patients received preventative therapy – a 13% INCREASE compared to 2019 despite COVID-19

https://www.theglobalfund.org/media/11309/corporate_2021resultsreport_summary_en.pdf