Preparedness for Future Pandemics

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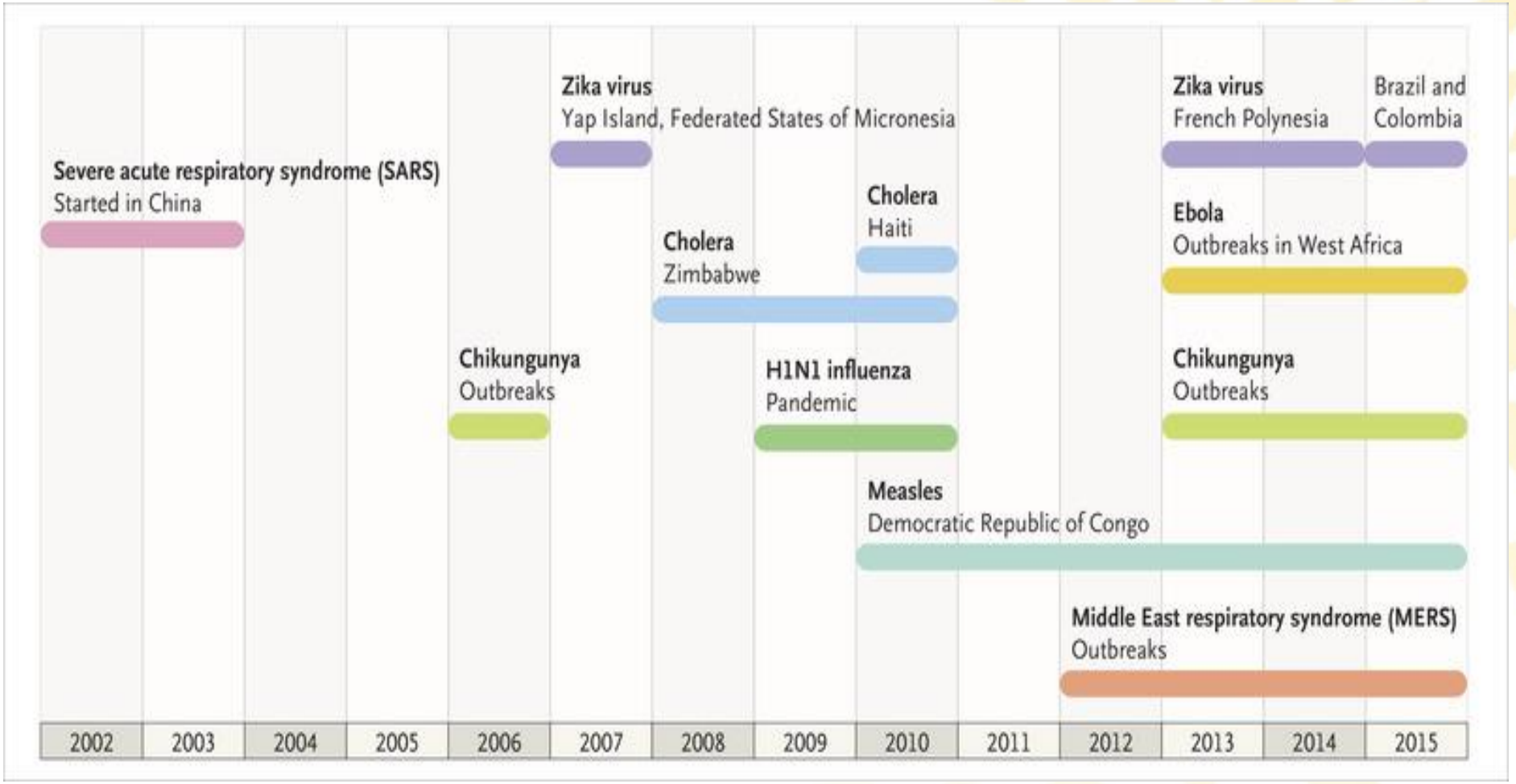
The World Today

Historical Perspective

- Plague of Athens heralded end of Greek Golden Age (430 BC)
- 1300's Black Death (Plague) in Europe killed 40% of the population
- 1500's smallpox in Latin America killed 10-15 million
- 1918 Influenza pandemic (H1N1) during World War I responsible for ≈50 million deaths
- 2020 COVID-19 How Many Millions???

Recent Outbreaks

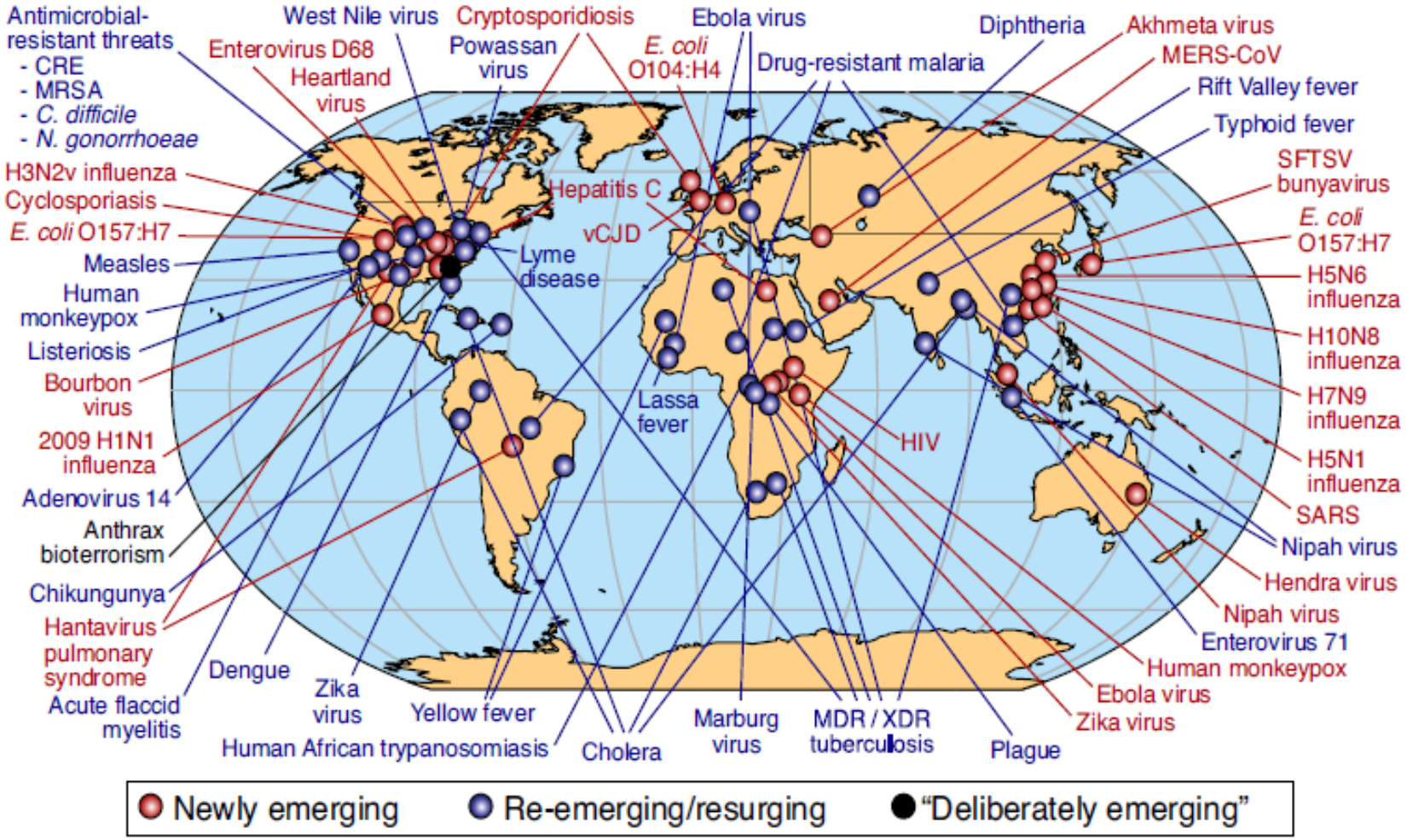


Sands P et al. NEJM 2016; 374: 1281-87

Emerging & Re-emerging Diseases

- Diseases caused by microorganisms or their toxic byproducts having the potential of rapid spread affecting large numbers across the world/region/country
- 20 previously well-known infectious diseases have re-emerged or spread to new areas in the past two decades
- 30 previously unknown infectious diseases have emerged in the last three decades
- Re-emergence of drug resistant variants or mutated variants
- 75% are zoonotic in nature: Animals → Humans

Emerging and Re-emerging Diseases



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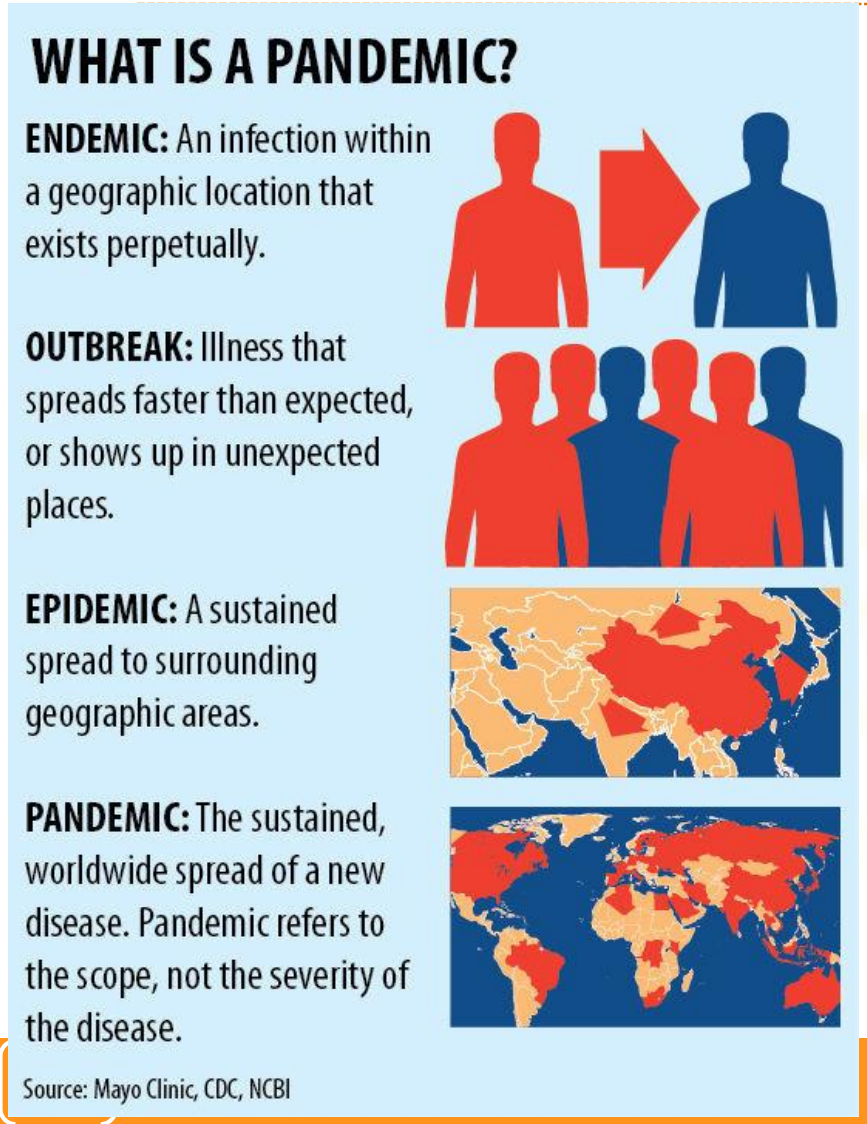
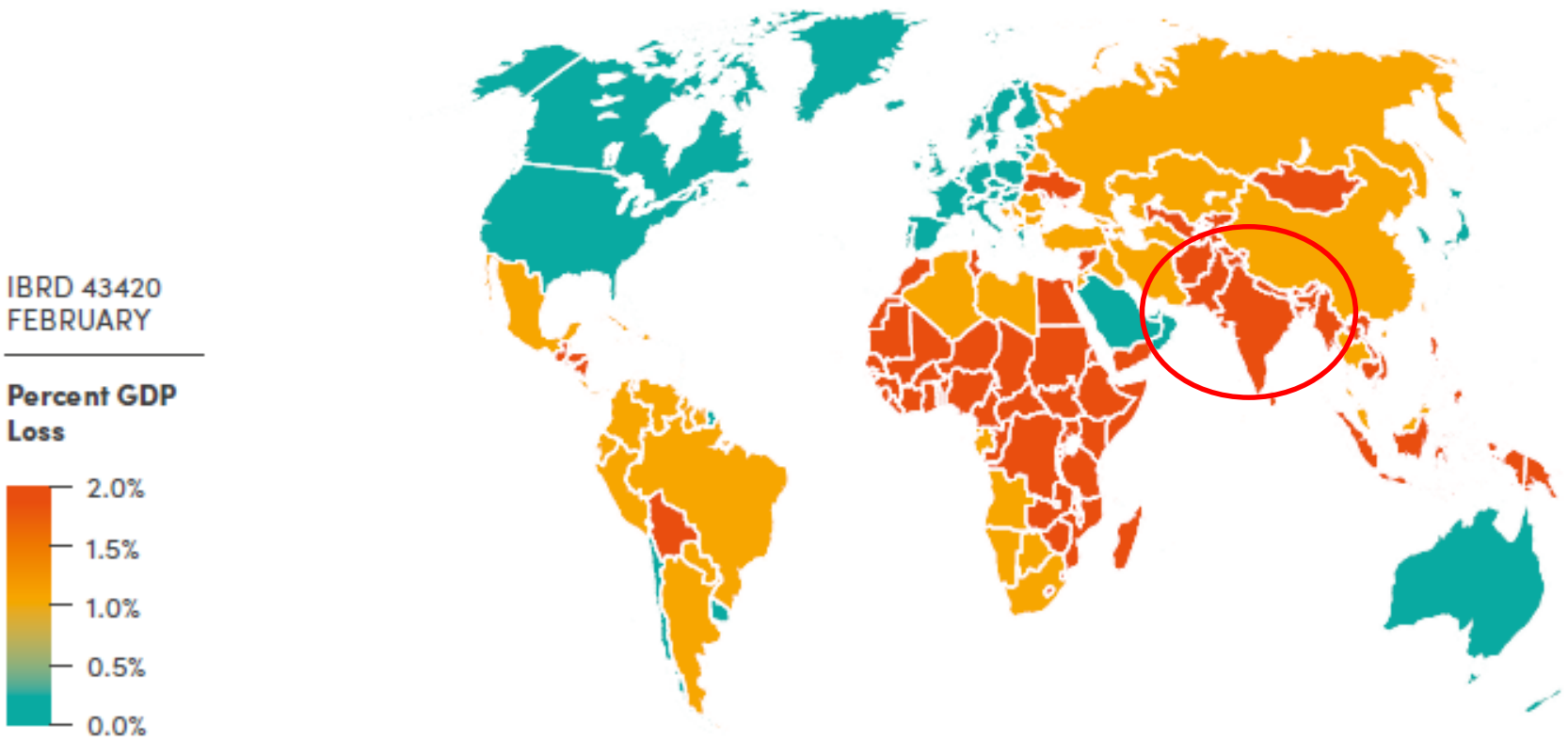
What are Pandemics?



- Pandemics occur when microbes appear for the first time in the human population for which people have no immunity
- Once peak intensity of pandemics ends, the diseases are likely to become endemic (constant presence)
- Many times the organisms mutate and continue to remain challenges

Predicted Country Vulnerability to Pandemic Economic Loss 2018 (% GDP loss)



IBRD: International Bank for Reconstruction and Development

What is Pandemic Preparedness?

Aggregate of all measures & policies formulated ***BEFORE*** the event occurs to reduce the damage that otherwise would have been caused

Risk assessment looks at the possibility of occurrence of an outbreak in the future

Risk management involves actions directed towards modification of the probability that an event will occur

Decrease the vulnerability (increase the resiliency) of the society to future events including alleviation of apprehension

Pandemic Preparedness

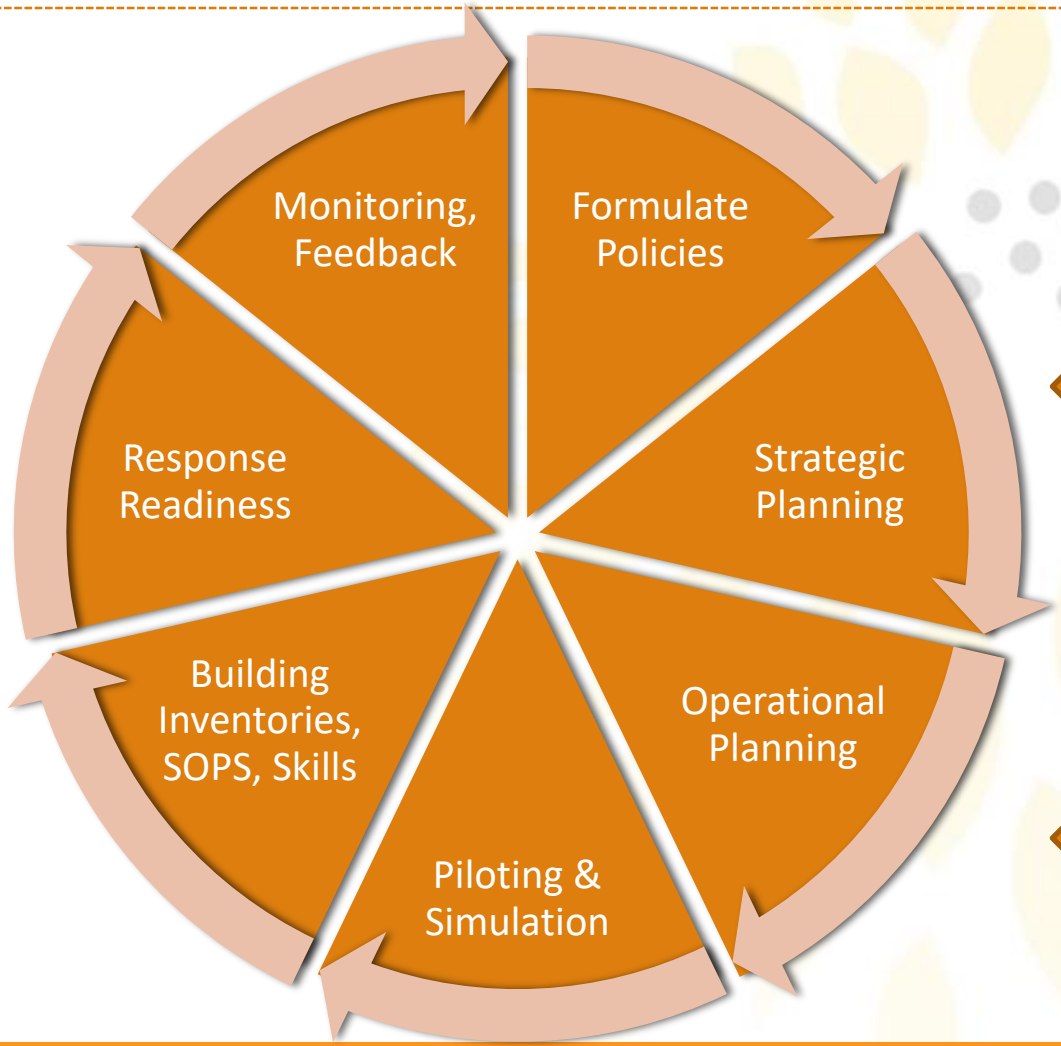
Goal:

- Sustainable reduction in natural disaster risk

Objectives:

- Increasing awareness of risks and risk reduction strategies
- Capacity building at all levels of care in the health system
- Appropriate systems, procedures and resources (including finances) are in place to provide prompt effective assistance
- Operational readiness to act without delay – buffer stocks
- One Health Surveillance for unusual outbreak in animals
- If specific organisms are new, initiate generic control measures
- Evidence Generation & Dissemination
- Feedback and completing of the loop for future

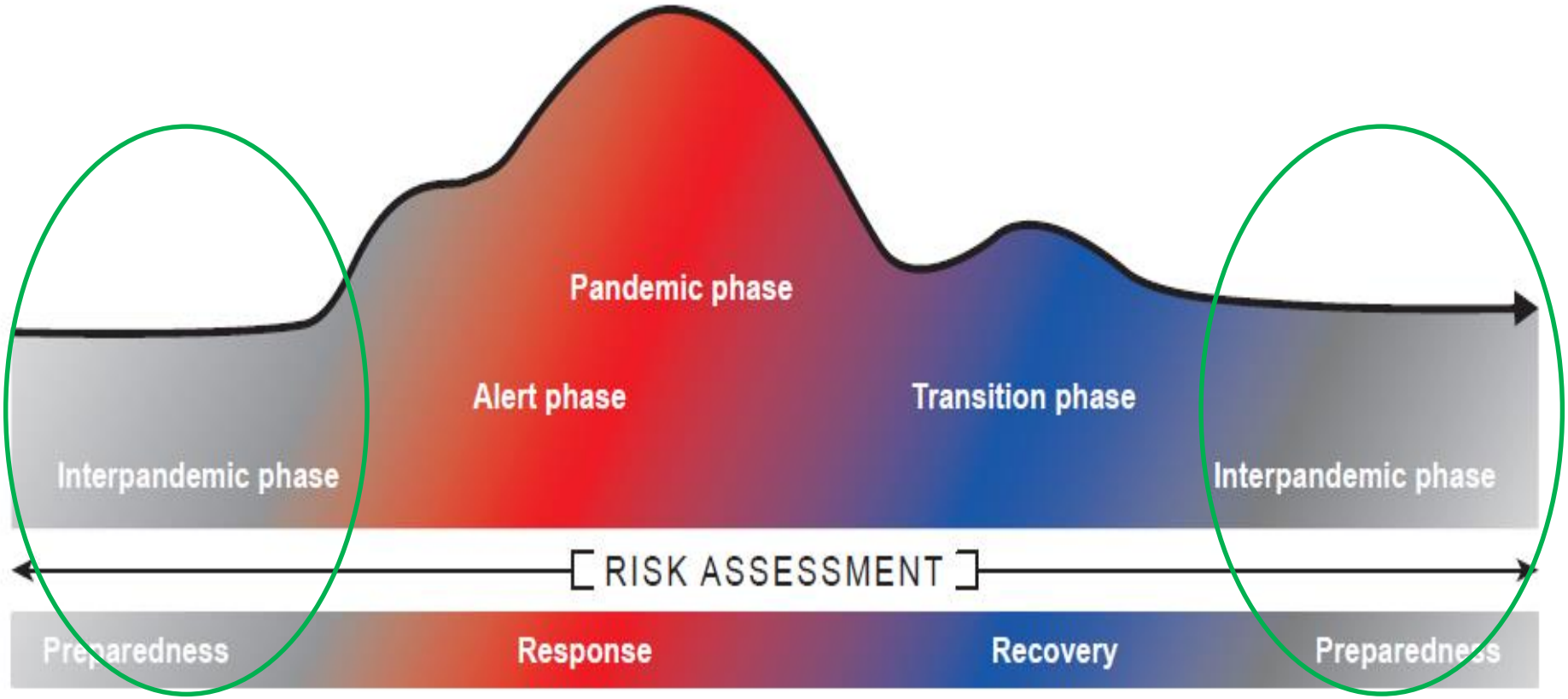
Pandemic Preparedness Planning



THE WHAT?

THE HOW?

Continuum of Pandemic Phases (WHO)



Source: WHO

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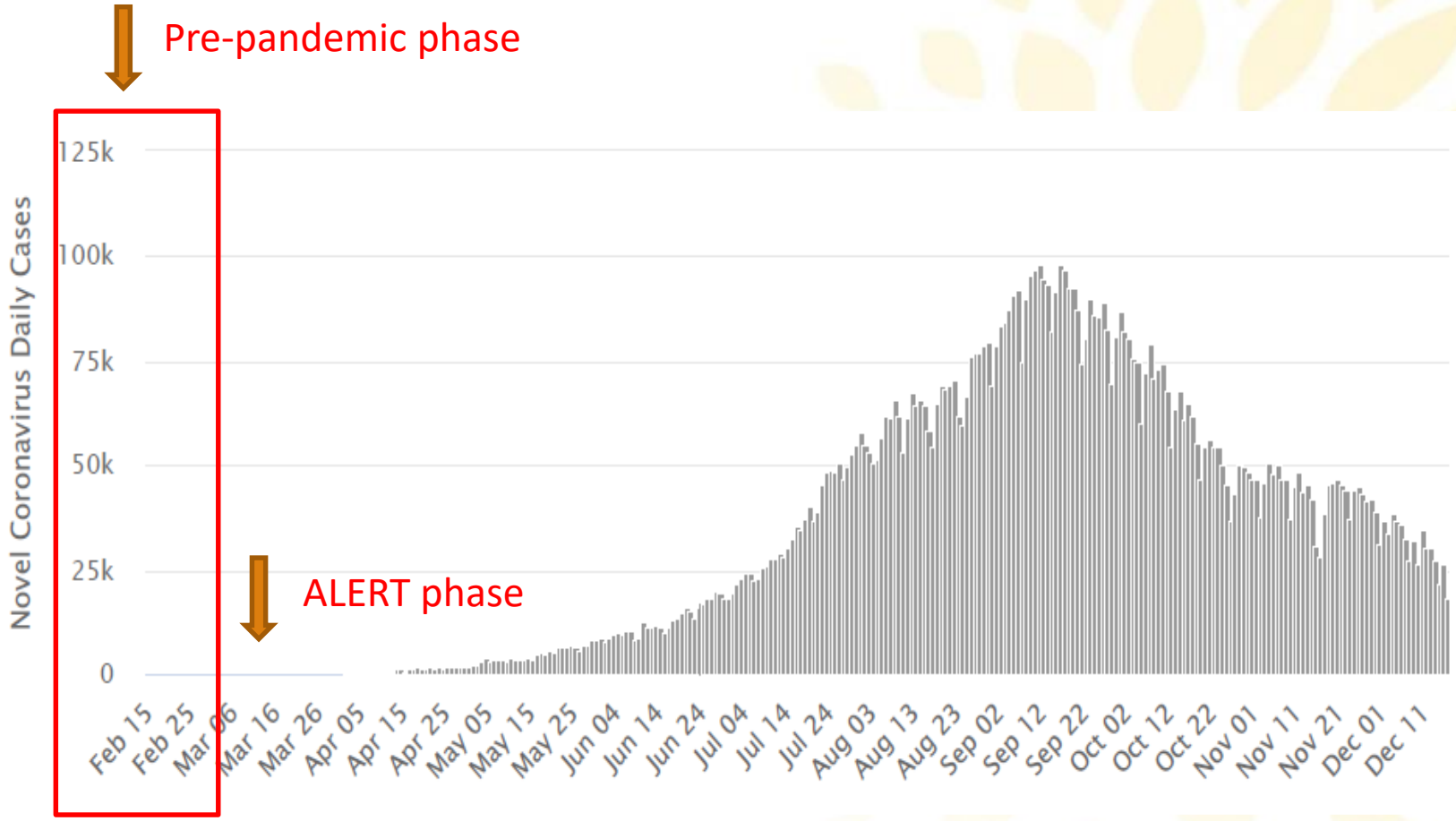
Daily New COVID Cases India



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Preparing for Pandemics/ Emergencies

Planning	• Resource identification • Resource Allocation
Coordination	• Nodal authority • Who will do what, when and with what resources
Responsibilities	• All involved personnel should know their specific roles and responsibilities
Private Sector	• Engage private health sector in planning & activities • Will lead to better reporting
Empowerment	• Civil society empowerment & engagement fosters ownership & prepares them with evidence and information to act proactively
Simulation	• Regular exercises/ drills to test plans
Participation	• All stakeholders need to be involved in the planning and control process

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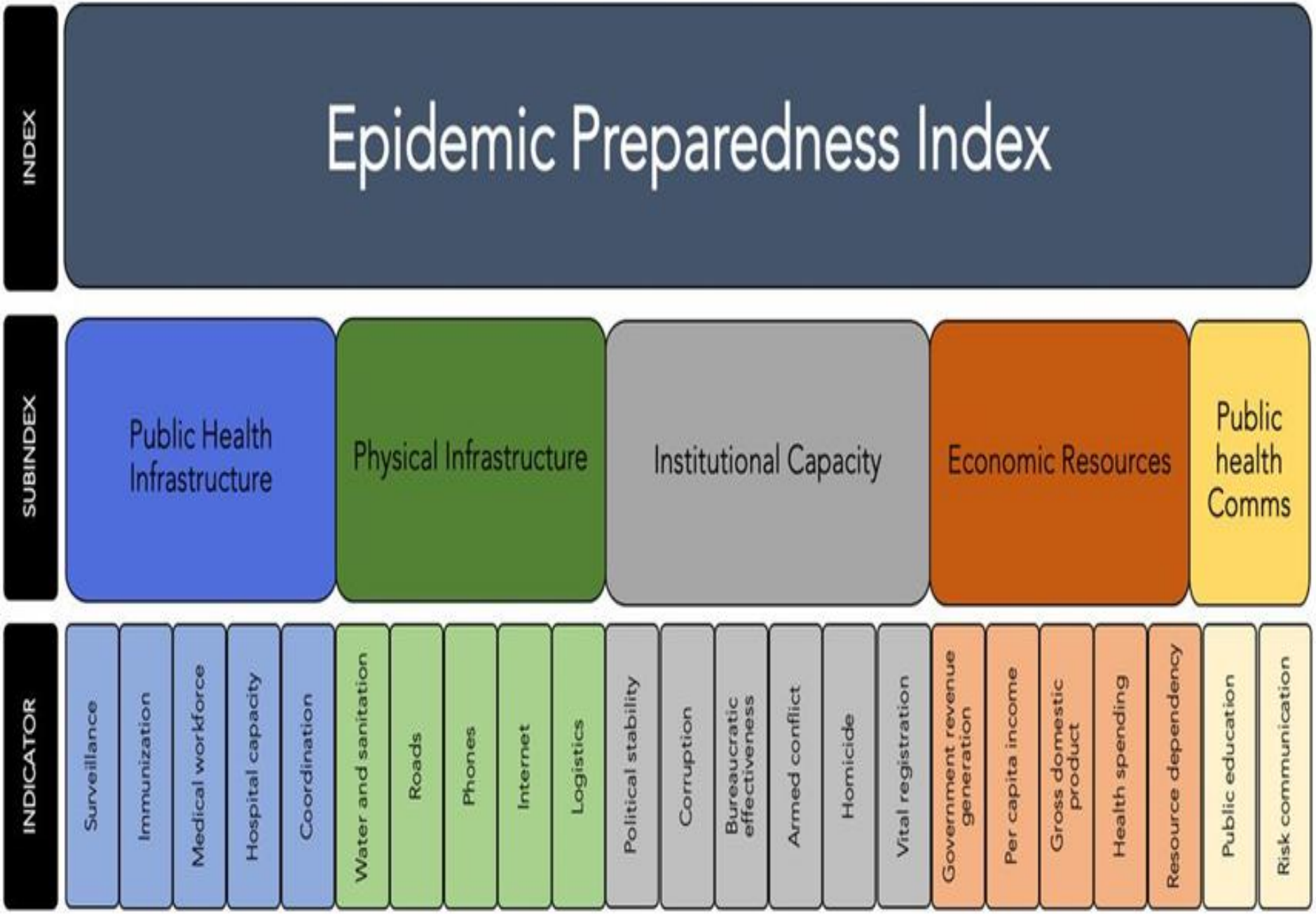
Urgent Actions Preparing World for Health Emergencies

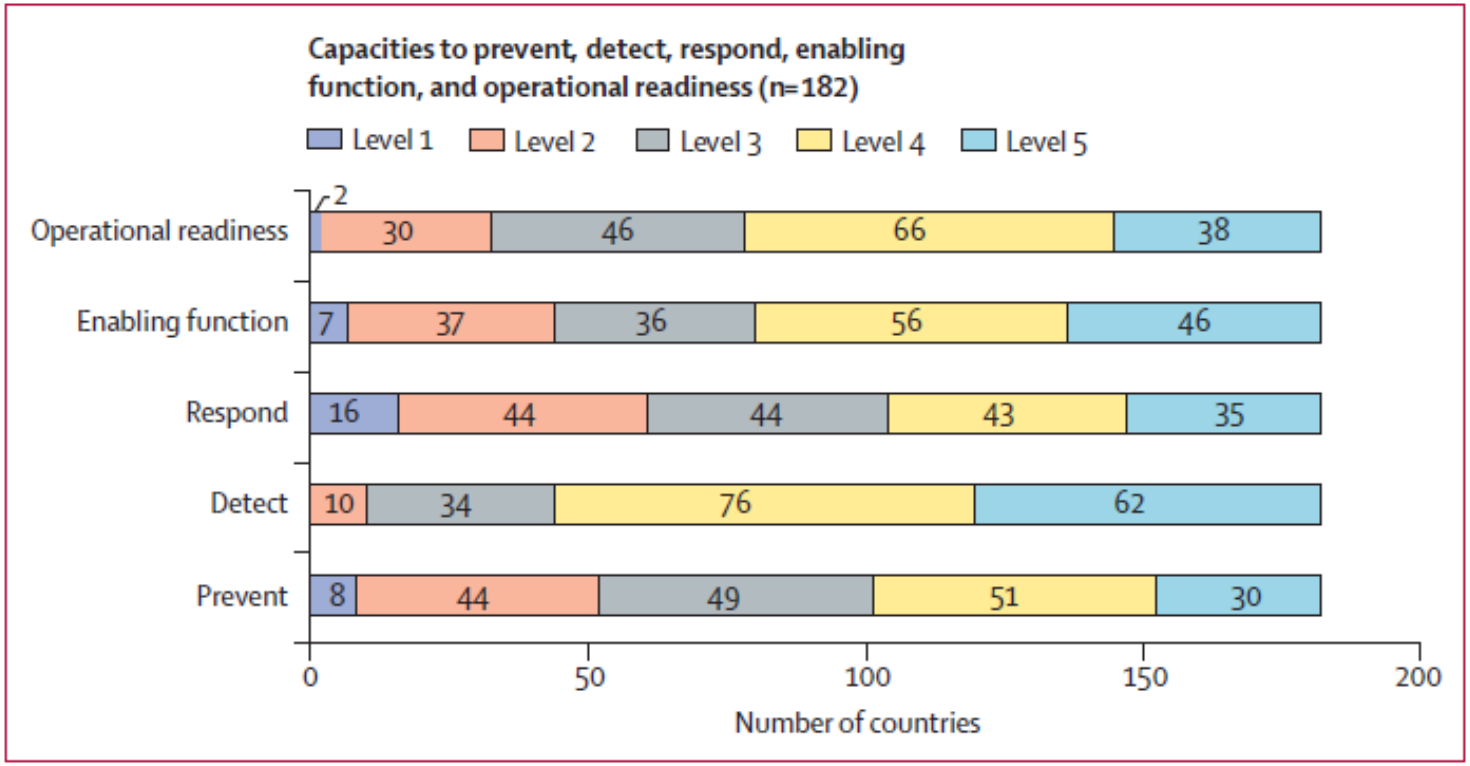
Leadership Drives Progress	• Heads of government MUST commit and invest • Countries must lead by example
Countries & regional Organizations MUST lead by example	• G7,G20,G77 States & Regional Intergovernmental organizations must follow through their political & funding commitments
Building Effective Systems	• All Countries MUST build strong systems • Appoint national high level coordinator with Authority & Political Accountability to lead Whole of government/ society approaches
Preparing for the **WORST**	• Countries, donors and multilateral institutions must be prepared for the WORST
Financing bodies link preparedness with financial risk planning	• Mitigate severe economic impacts of a national/ regional epidemic • Funding Institutions link preparedness with economic risk planning
Development Assistance Funding	• Development assistance funders must increase funding for preparedness and support for the poorest and most vulnerable countries
International Coordination Mechanisms	• UN MUST strengthen coordination mechanisms



BMJ Global Health 2019; 4: e001157

Operational Readiness Index

104 countries (57%) were operationally ready to prevent, detect and control an outbreak of a novel infectious disease:
36% Level 4;
21%-Level 5



- Level 1: ≤ 20%: very little functional capacity
- Level 2: ≤ 40%: Little functional capacity
- Level 3: ≤ 60%: Functionally capable at national but not subnational level
- Level 4: ≤ 80%: Functionally capable at all levels
- Level 5: ≥ 80%: Well advanced & Sustainable health system

Why do Whole of Society Pandemic Planning?

- Since pandemics or major disease outbreaks will have consequences for the entire society, it is essential that ALL organizations (Public/private) plan for potential disruption including employee absenteeism
- Preparation is required for the economic, humanitarian and societal consequences.
- There will be a significant threat to continuity of essential services and shortage of supplies
- All business will be impacted but the worst affected are the travel and tourism industries.
- Developing robust preparedness plans/updating current plans to adapt to a pandemic is essential to mitigate economic and social impacts
- Whole of society approach to pandemic preparedness will have additional benefits as it will strengthen resilience of communities to withstand threats

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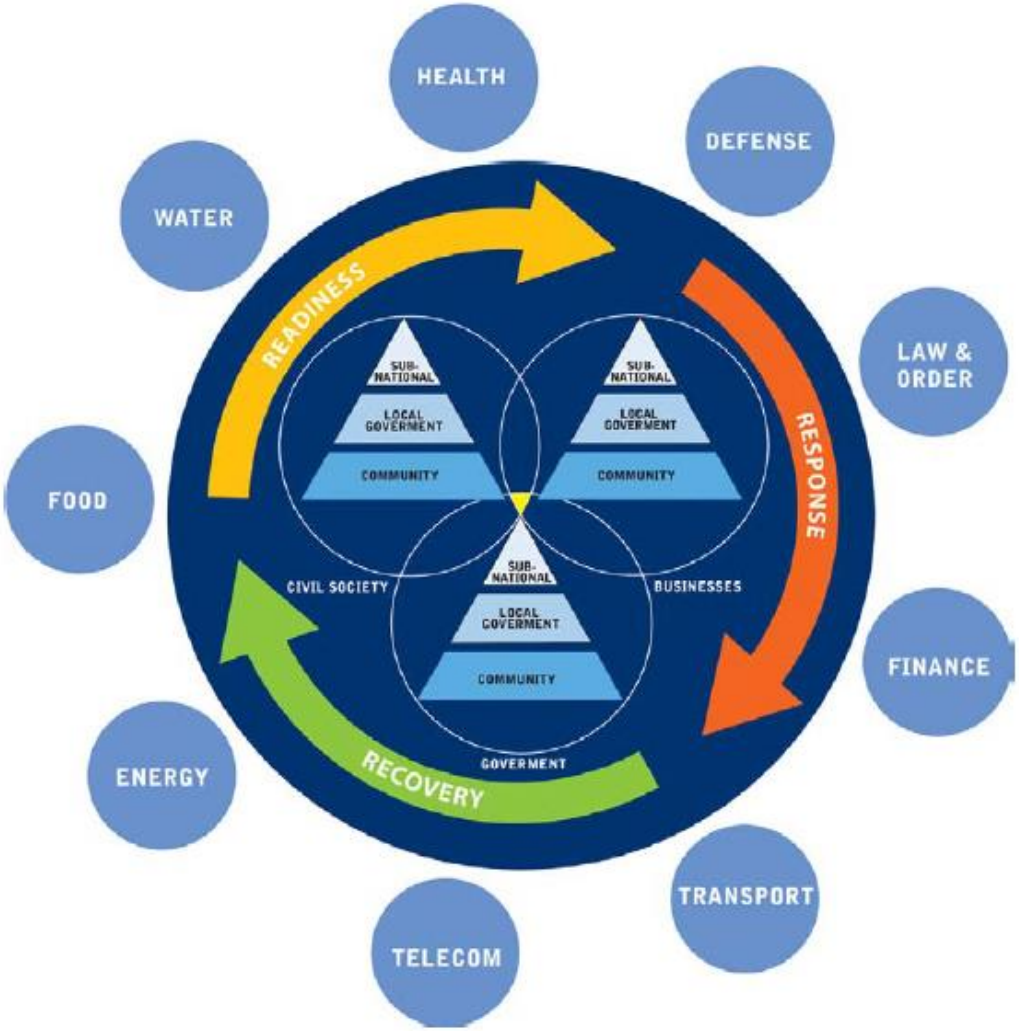
The Whole-Of-Society Approach



Advance Preparation is Critical

Social Domain	• Generalized panic; anxiety; apprehension • Displacement, Migration, Isolation, Gender-based violence, Persons with disability, Human Rights • School closures & educational losses, job losses
Nutritional Domain	• Food distribution impacted/ Food shortages • Nutritional Programs affected – Mid day school meal/ ICDS/ Pregnancy supplements
Health & Rehabilitation	• Disruption in health care access including Immunization/ANC • Provision of medical supplies • Critical Care logistics and human resource capacities & deployment & Rehabilitation service

Inter-pandemic surveillance

- Surveillance generates information that can be used to plan appropriate disease control and intervention measures, Allocate resources and prepare case management guidelines.
- Surveillance systems act as Early Warning system by detecting unusual disease activity compared to baseline of normal patterns
- Devise modalities for immediate notification and reporting
- Since public health systems and capacities are insufficiently prepared to prevent a localized outbreak from transforming into a pandemic, such capacities must be strengthened

Epidemiological Modelling

- Models help in predicting an outbreak, its likely spread, regions more likely to be affected etc.
- They also help in testing public health interventions and their effectiveness – E.g. Masks; Physical Distance
- They are most useful in the pre-pandemic phase
- Assumptions should be realistic and evidence-based
- Needs a robust epidemiological surveillance system to provide accurate data

Preparing Digital Technology Response

Infection Prevention and Control	• Public health surveillance • Identification of Hot Spots • Contact Tracing • Modelling, Prediction, Forecasting
Remote Clinical Management	• Tele consultation • Follow Up • Psychological & Mental Health Support
Information Support	• Providing Infection messages through Social Media & Helplines • Guidance on Referral Pathways & resource availability
Capacity Building & Skilling	• Remote training • Monitoring Performance

Uncertainties in Planning for Pandemics

Which pathogen?

Expected Level of Severity?

What Assumptions?

Operational / Logistics?

Ethics / Human Rights?

Terrorism Mock Drills at Airports: Pandemic Preparedness Drills?

Need for Community Ownership

- Community members and representatives know their communities best
- Well versed with the community perception of an infection
- Civil society representatives are the best peer educators
- ‘Khap’ panchayats in Haryana and UP show the power and span of control of community leadership
- Civil society representatives should be included for planning a response right from the beginning
- Involving civil society representatives in COVID-19 contact tracing has been very successful in many countries and is cost- effective

Trust is Critical

- Community organizations were trusted more than other source of COVID-19 related information including federal, state and other government agencies including CDC, WHO and media news sources in the USA.
- This included tangible needs (i.e. food provision), social support, virtual religious services and dissemination of COVID-19 related information

Sarah L. Weinberger-Litman et al. J Religion and Health.doi/10.1007/s10943-020-01064-x

Subhani

TO HELL WITH THE TRIALS... WE HAVE TO RELEASE THE VACCINE BEFORE OUR COMPETITORS DO

"This will not be the last pandemic. History teaches us that outbreaks and pandemics are part of our life. World must be better prepared for the next pandemic. Countries need to invest in public health.

When the next pandemic comes, the world must be ready- more ready than it was this time"

Tedros Adhanom Ghebreyesus,

WHO Director General

Panasonic
बैंक ऑफ़ बड़ौदा
Bank of Baroda

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Thank You for the honour

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