Preparedness and Resilience for emerging threats (PRET)

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Definitions (1)

- **Emerging threats :**
  - **New or re-emerging** health hazards.
  - Pose **significant risks** to public health.
  - Potential for **rapid spread, high morbidity or mortality,** and **disruption** to health systems and societies.
    - Health, Social and economic impact.
  - Can be **biological** (e.g., novel viruses). **environmental** (e.g., climate-related disasters), or **other hazards.**
- **Re-emerging threats :**
  - Hazards that had previously **declined in incidence** but are now **increasing again**, often due to changes in environmental, social, or biological factors.

Infographic credit : *Microorganisms* **2022**, *10*(1), 98; https://doi.org/10.3390/microorganisms10010098

Definitions (2)

Photo credit- Urban Design Lab

- **Health system Resilience（WHO）:**
  - One that can **prevent, prepare for, detect, adapt** , **respond to**, and recover from public health threats.
  - Simultaneously can **maintain essential health services**, even in fragile or conflicted settings.
- **Resilience in the context of emerging infections:**
  - The health system's ability to
    - **anticipate, absorb, and adapt** to infectious disease threats.
    - maintain **core functions** and **services** while **learning from past experiences** to t**ransform** and **strengthen capacities** for future **readiness.**
  - Focuses not only on **recovery**, but also on **transformation** based on lessons learned.

Characteristics of Emerging Threats

Photo credit: Keren Su/Getty Images

- **Unpredictable** in nature and timing.
- Often **transboundary** and affect **multiple sectors.**
- Require **rapid, coordinated response.**
- Can **overwhelm urban health systems**, especially in densely populated cities.

Why Focus on Cities?

Photo credit: Centre for Urban Ecology and Sustainability

- **Majority** of the global population live in **urban areas**:
  - Estimate – by 2050, **68% of the global population** living in urban areas.
- Cities are **frontlines for health emergencies** :
  - Due to high population density, mobility and complex governance.
- Urban settings face **unique vulnerabilities**:
  - Informal settlements, inequality, climate risks, and diverse populations.
- **Increased vulnerability** to respiratory, water and vector borne diseases:
  - Informal settlements, poor sanitation, and pollution.

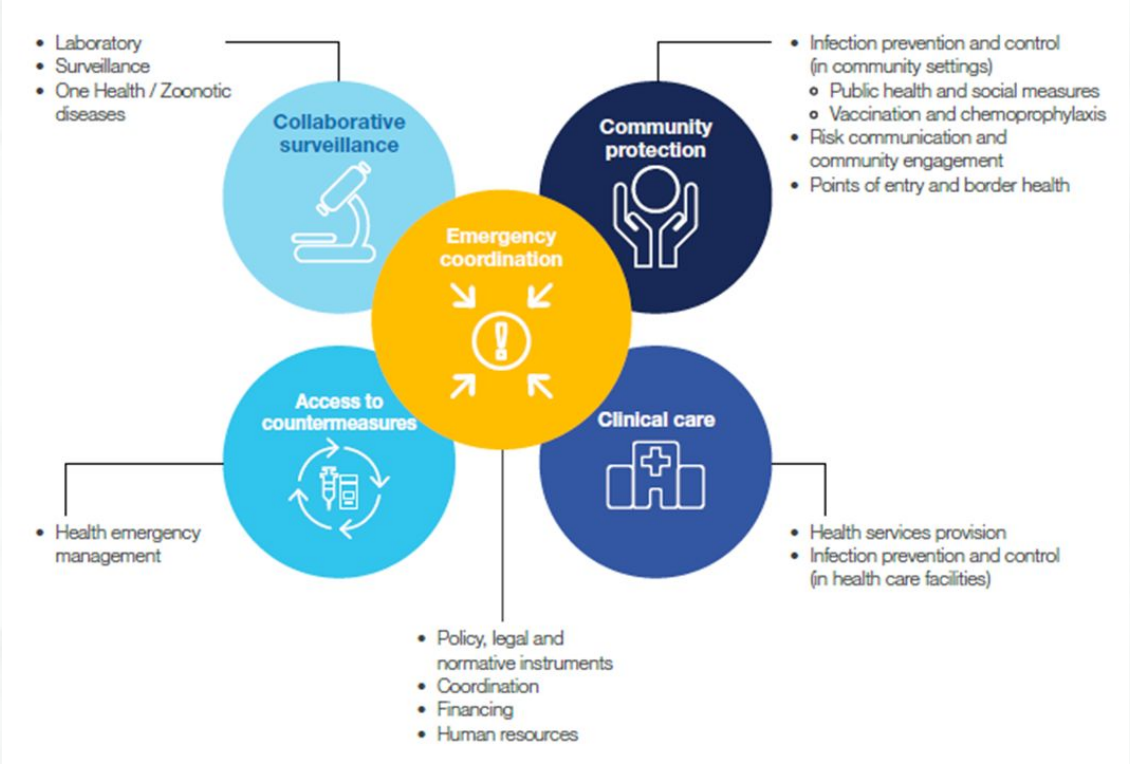
Lessons learned from previous emerging infections : Is preparedness needed ?

- **Waiting for a crisis** delays response and increases impact.
- **Early planning** and **investment** save lives and resources.
- **Multisectoral Collaboration** reduces sectoral and overall impact.
- **Coordinated planning** improves efficiency and resilience.
- **Involving communities** ensures culturally appropriate responses.
- **Equity** and **inclusion** are non-negotiable.

Photo credit: WHO

Global Health Architecture – key for prevention, preparedness, response, and resilience.

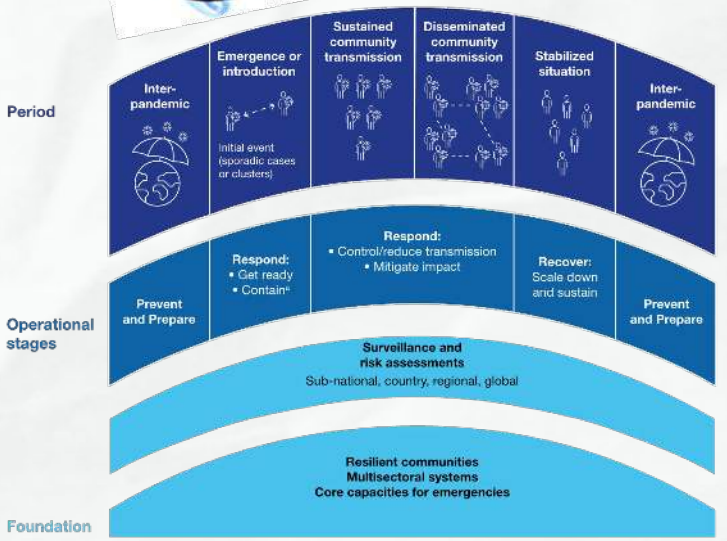
- **Global health architecture (GHA)**-key for emergency preparedness, response, and resilience.
- GHA has **three core components**:
  - **Governance** mechanisms
  - **Financing**
  - **Systems** development.
- Systems development component is grounded in the **Health Emergency Preparedness & Response (HEPR)** Framework
- The HEPR Framework consists of **five subsystems**:
  - **Collaborative Surveillance**
  - **Community Protection**
  - **Access to Countermeasures**
  - **Scalable Clinical Care**
  - **Emergency Coordination**
- HEPR framework – the basis for WHO **Preparedness and Resilience for Emerging Threats (PRET)** initiative.



Infographic credit: WHO

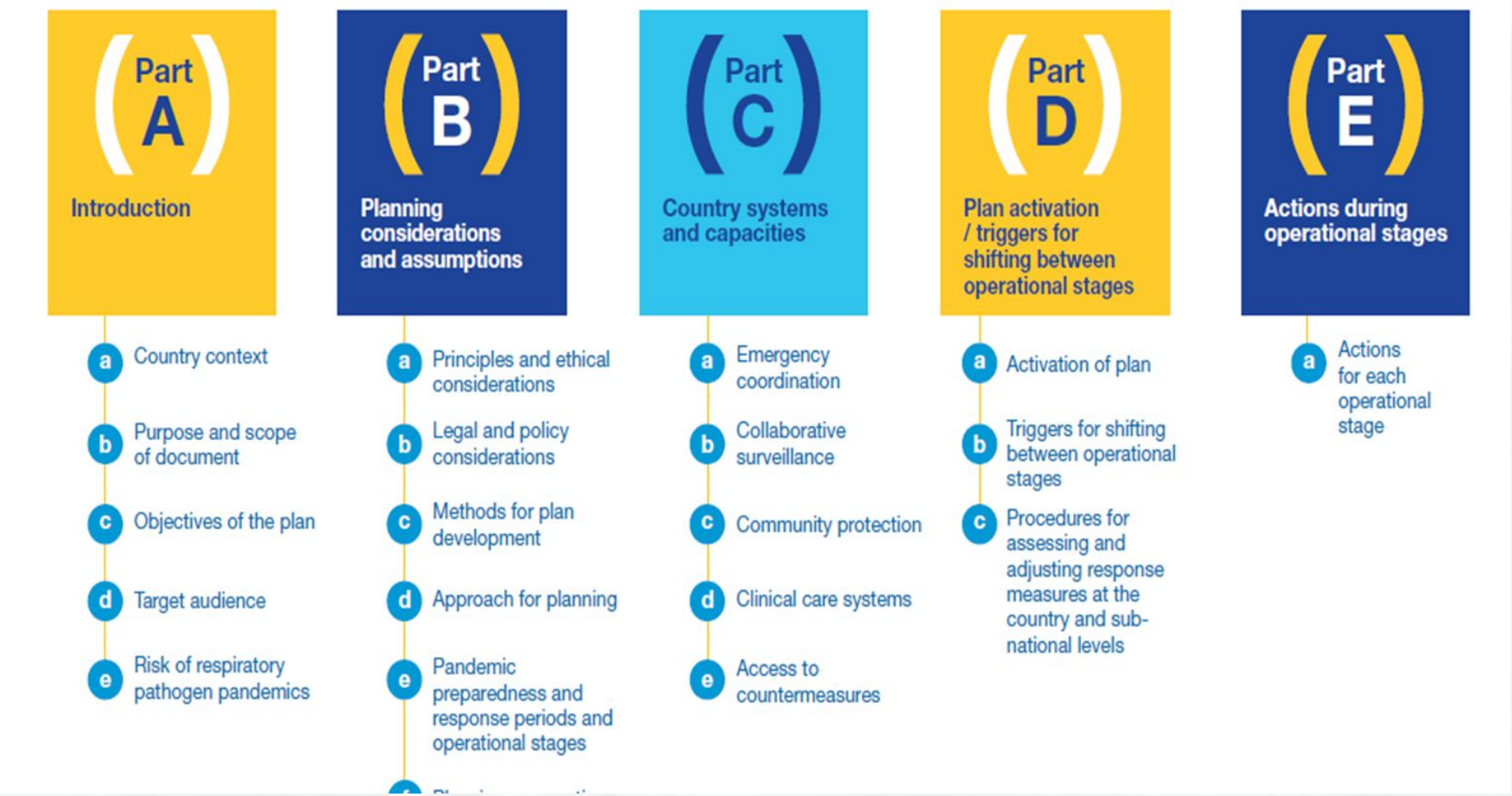
WHO Preparedness and Resilience for Emerging Threats (PRET) initiative

- Principle of ***"preparing now for risks ahead"*** – Offers advantages for advancing health security.
- PRET approach – preparedness based on the **mode of transmission of pathogens.**
- PRET – a **functional, risk-based, collaborative, efficient,** and **innovative** approach.
- Provides **strategic guidance** for prevention, preparedness, detection, response, and recovery.
- Applicable both during **epidemic/pandemic phases** and in the **inter-epidemic/pandemic phase**.



Infographic credit: WHO

PRET planning – a tool for flexible and scalable preparedness



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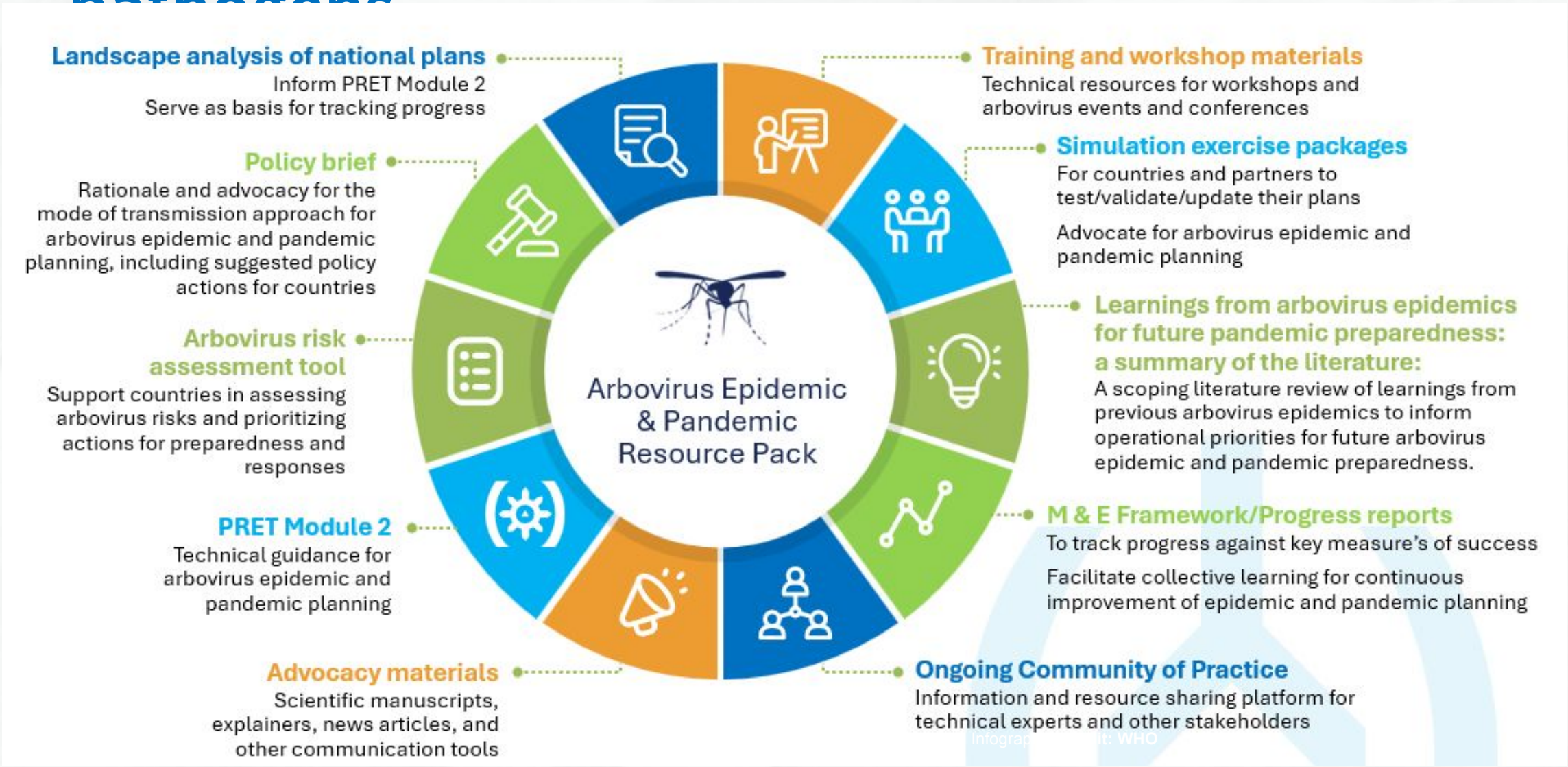
PRET approach supports preparedness based on the mode of transmission of pathogens



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HEPR in cities and urban settings

- WHO – developed **operational guidance** to strengthen **HEPR in urban settings**.
- Supports implementation of **WHA Resolution 73.8 :**
  - Strengthening Preparedness for Health Emergencies: Implementation of the International Health Regulations (2005).
- PRET supports **IHR (2005)** and **WHA resolutions.**
  - These resolutions-foundational to **urban health emergency planning.**
- **Healthy Cities initiatives** can serve as local platforms for **PRET rollout.**
  - Especially **respiratory** pathogen, **vector borne**, **water –food borne** preparedness.

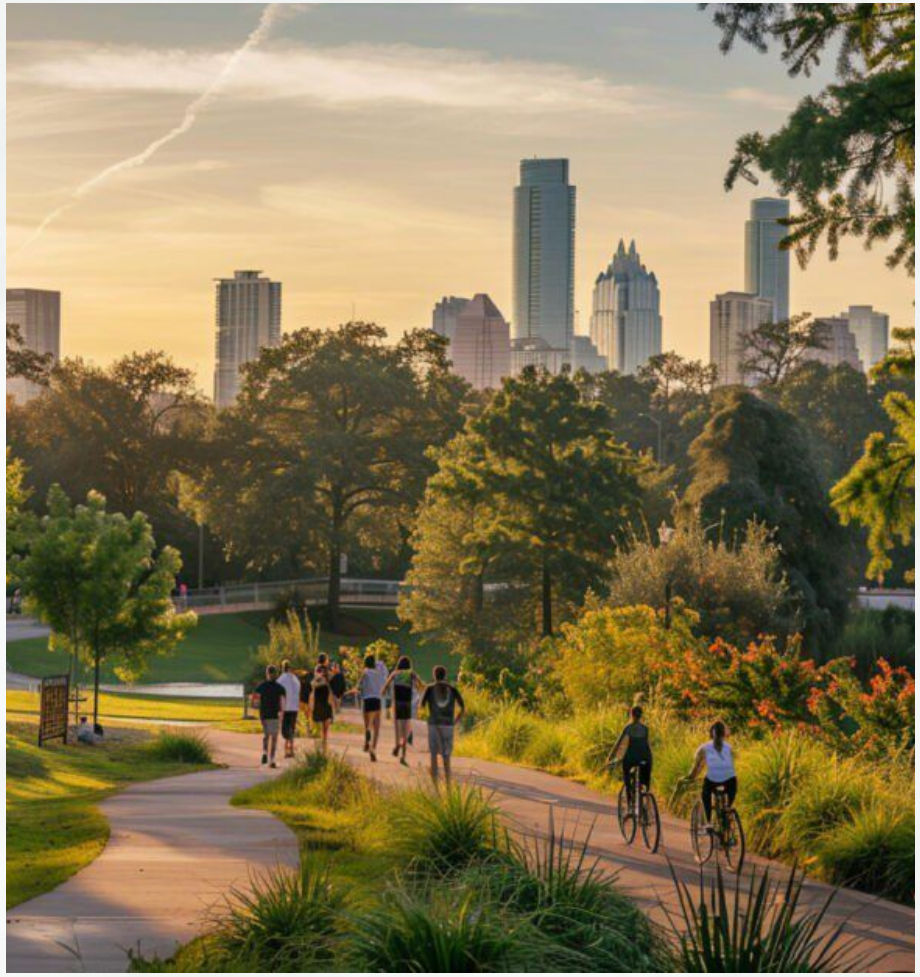

Photo credit- Urban Design Lab

How Can PRET help HEPR in cities and urban settings

- Preparation of PRET aligned **transmission-based preparedness plans.**
- Use **technical resource packs** to help local authorities **update plans.**
- Adaptation and conduct of **PRET Simulation exercises** (e.g., PanPRET) for cities and urban settings.
- PRET **Community of Practice** for sharing experiences of peers.
- Using other **risk assessment tools, capacity building guides, case studies** from other cities and networks.

Urban HEPR– Some best practices

One city making strides in this area is Rio de Janeiro. By integrating health and meteorological data, Rio developed an early warning system for dengue fever, a mosquito-borne viral disease, nicknamed "bone-break fever" for its debilitating aches.

During Rio's winter, when weather is generally cooler and dryer, dengue cases drop. But in 2023—one of Rio's mildest winters ever—cases of dengue remained unseasonably high. That September, the city's Epidemiological Intelligence Center, a team established in 2022 with meteorological support from the city's municipal government, alerted health authorities that the impendending wet season could create ideal conditions for an outbreak.

Another city using predictive modeling against dengue is Bangalore, India, where a team used climate and health data to make AI-driven outbreak forecasts at the district level. But the vast majority, 77% of cities, do not use meteorological data in health surveillance systems, and replicating Rio's success requires more than predictive modeling.

Rio de Janeiro: integrated meteorological
and health data for dengu
warning

TIME

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Cities Are on the Front Line of the 'Climate-Health Crisis.' A New Report Provides a Framework for Tackling Its Effects

Dhaka– Forecast-based action for heatwaves, mobile alert
and resource deployment

In October, the Zambia National Public Health Institute reported an outbreak of cholera in Lusaka, which has been battered by both flooding and drought. By January, the casualty rate had hit 4%, four times the WHO's threshold. Rachel James, interagency risk communication and community engagement coordinator for the Collective Service, a partnership between IFRC, UNICEF, and the WHO, recalls trudging through the streets in knee-high water. "That's when it becomes very real."

The high death rate was, in part, due to inaccurate risk perceptions, misinformation, and barriers to accessing health services. "To better understand what the community perceptions were," the Collective Service visited communities, "talking to people who had survived cholera, talking to the families of people who died, and just people in the districts where there are a lot of cases," James says. That information was shared with Zambia's health ministry and partners to inform how they communicated, contributing to a 100% uptake of cholera vaccines, she adds.

Community engagement also revealed the barriers preventing people from accessing healthcare, such as lack of transport. In response, Zambia's ministry

Lusaka: Community risk communication and engagement during cholera outbreak

Way forward

- Adapt **All-Hazards Approach** for responding to health emergencies.
- Plan for **building common capacities** applicable across different types of emergencies.
- Prioritize the need for planning **response to biological hazards** within the **overall All hazards approach.**
- **Develop polices** to **adapt PRET plans** to strengthen health security by preparing for emerging infectious threats grouped by transmission modes.
- Enhance **capacities for developing transmission-based plans** for emerging infections at city and urban settings.
- Consider **plans** aligned with **WHO PRET framework.**
- Establish **systems and capacities linked to HEPR** for **operationalization** of the plans at cities and urban settings.
- Conduct **simulation exercises** to test the plans and **Pilot PRET modules** in select urban areas.
- Ensure **institutional support** and **funding.**

Conclusion: Key Takeaways

- **Emerging threats are unpredictable and multisectoral,** requiring proactive and coordinated preparedness.
- **Urban settings are critical** for health emergency planning due to high population density and complex vulnerabilities.
- **PRET offers a flexible, transmission-based approach** to strengthen preparedness across epidemic and inter-epidemic phases.
- **HEPR Framework provides the foundation** for building resilient systems through collaborative surveillance, community protection ,clinical care, access to counter measures and emergency coordination.
- **Cities must adopt all-hazards planning, integrate PRET tools, and conduct simulation exercises** to test readiness.
- **Institutional support, financing, and community engagement are essential** for sustainable preparedness and response.

Photo credit -WHO

PRET
RESPIRATORY
ZOONOTIC
ARTHROPOD
DIRECT CONTACT
WATER AND FOOD BORNE

Global
Regions
Select language
World Health Organization
Donate
Health Topics
Countries
Newsroom
Emergencies
Data
About WHO
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Health Topics
Countries
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Emergency coordination
Access to countermeasures
Community protection
Clinical care
Collaborative surveillance
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SCENARIOS HELP US:
THINK THE UNTHINKABLE...
AND PLAN FOR THE FUTURE IN ADVANCE!