GLOBAL LEARNING COLLABORATIVE FOR HEALTH SYSTEMS RESILIENCE

The GLC4HSR's ANNUAL CONCLAVE 2025 March 11-12 New Delhi

GLC4HSR ANNUAL CONCLAVE 2025

CONFERENCE REPORT

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Executive Summary

The GLC4HSR's ANNUAL CONCLAVE 2025 March 11-12 New Delhi

The third edition of the Global Learning Collaborative for Health Systems Resilience (GLC4HSR) Annual Conclave, held on March 11–12, 2025, at the Indian National Science Academy in New Delhi, India marked a significant milestone in the ongoing efforts to build adaptive, inclusive, and future-ready health systems.

The conclave was co-hosted by ACCESS Health International, National Centre for Biological Sciences, Tata Institute for Genetics and Society, and InOrder – The Health Systems Institute.

Convening over 200 in-person attendees and more than 250 virtual participants from 18 countries, the two-day event emerged as a vibrant forum for exchanging insights, strategies, and partnerships across 11 main sessions, 3 thematic breakout discussions, and 25 academic poster presentations.

With over 70 expert speakers—including health policymakers, researchers, civil society leaders, and innovators—the conclave illuminated actionable pathways toward health systems resilience. The deliberations emphasized the urgency of translating knowledge into practice, fostering local ownership, and strengthening systems through inclusive governance, climate preparedness, financing reforms, digital transformation, and people-centered care.

Key Strategic Imperatives Emerging from the Deliberations:

1. Resilience Through Systemic Reform and Local Empowerment

A foundational message of the conclave was that resilience cannot be episodic or emergency-driven—it must be institutionalized across all levels of the health system. This includes embedding flexibility into governance frameworks, decentralizing decision-making, and strengthening local implementation capacity. Several sessions echoed the call to anchor resilience in primary healthcare, community engagement, and equitable service delivery.

Session discussions underscored that the road to resilience begins with recognizing local actors as central to healthcare transformation. From state health officials to community-based organizations, speakers emphasized the need for decentralization, financial empowerment, and participatory governance models that prioritize community agency.

2. Climate Change and Health: A Defining Challenge

Climate change emerged as a cross-cutting concern, with multiple sessions spotlighting its disproportionate impact on vulnerable populations. Participants shared case studies from the Indian states of Odisha, Kerala, Uttarakhand, and Chhattisgarh, highlighting both vulnerabilities and emerging models for climate-smart healthcare infrastructure, localized adaptation, and community-driven preparedness.

The session on climate resilience called for a whole-of-government and whole-of-society approach to integrating climate strategies into health system planning. Recommendations included the institutionalization of community emergency response teams, vulnerability mapping of health facilities, and investments in low-cost interventions such as improved ventilation and solar electrification.

3. Technology and Data: Catalysts for Future-Proofing Systems

Digital transformation was recognized as a crucial enabler of resilience. Sessions on AI, cloud solutions, health data governance, and surveillance systems stressed the importance of responsible digital adoption. From early-warning systems like wastewater surveillance to AI-driven diagnostics, speakers highlighted how data and technology can reduce health risks, expand access, and improve efficiency.

However, panelists also noted that the digital divide, lack of regulatory clarity, and ethical risks must be addressed urgently. Cross-border collaboration, harmonized governance frameworks, and national legislation—such as the proposed Model Law on Health Data Governance—were presented as key levers for building digitally resilient health systems.

4. Equity and Inclusion: Community as the Cornerstone

Whether addressing NCDs, mass displacement, or health workforce development, the centrality of community voice and inclusion was a recurring

theme. Panelists argued that solutions are most effective when they are co-created with the people they aim to serve.

Breakout discussions revealed that health workers, particularly at the frontlines, often lack the institutional and emotional support needed to respond effectively. Investing in supportive supervision, participatory governance, mental health resources, and skilling is critical not just for retention, but for community trust.

The emphasis on community was especially sharp in sessions on displaced populations, where inclusion in national health systems and labor markets was seen as essential for long-term resilience.

5. Financing Health Resilience: From Vision to Viability

Financing emerged as both a challenge and a solution space. Blended finance, outcome-based instruments, and catalytic philanthropy were explored as mechanisms to close the investment gap. Discussions highlighted successful models like the UTKRISHT Impact Bond and Egypt's flexible UHI fund allocation strategies, showing how public-private synergy can unlock system-level transformation.

Additionally, the evolving role of CSR in healthcare financing—particularly in diagnostics, skilling, and innovation—was noted as an untapped opportunity. Panelists urged that CSR be seen not as peripheral philanthropy but as a core pillar in long-term systems investment.

Insurance innovation also took center stage, with recommendations to address coverage gaps, climate-sensitive pricing, and the needs of aging populations.

Session-Wise Highlights and Takeaways

Session 1:
INAUGURAL PLENARY

This session established the tone of the conclave, emphasizing that resilience must be embedded into everyday health system planning rather than being reserved for emergencies. Panelists presented resilience as a multidimensional agenda—encompassing climate, community, technology, financing, and governance. Key messages included:

- The One Health approach must inform pandemic preparedness by integrating environmental, animal, and human health considerations.
- Digital health systems and robust health informatics are crucial to ensure service continuity and evidence-based policy during disruptions.
- Universal Health Coverage (UHC) depends on strong primary healthcare infrastructure, equitable financing, and community-based service delivery.
- The formal launch of the MENA Chapter of GLC4HSR showcased growing regional cooperation.

Speakers reiterated that resilience is a political, technical, and moral imperative—requiring sustained investment and cross-border solidarity.

Session 2:
CO-CREATING PATHWAYS TO COMMUNITY EMPOWERMENT FOR RESILIENT HEALTH SYSTEMS

This session emphasized that resilient systems must be rooted in empowered communities. The dialogue revealed that community participation cannot be a checkbox—it must be structurally embedded in governance, financing, and program design. Highlights included:

- Decentralized governance and financial devolution were identified as essential for enabling community-driven interventions.
- Public-private partnerships (PPPs), if purposefully structured, can expand service access without compromising equity.
- Civil society organizations (CSOs) must be repositioned as knowledge producers and innovation hubs, not just last-mile implementers.
- New models like Development Impact Bonds (DIBs) were suggested to diversify and sustain funding sources.

The session proposed the ABC framework—Acknowledge, Build, Collaborate—as a strategic roadmap for institutions engaging with communities. It closed with a call to center patient expertise in service design, recognizing lived experience as equal to clinical knowledge.

Session 3:
CLIMATE CHANGE AND HEALTH SYSTEMS – LOCALIZED ACTION FOR CLIMATE RESILIENCE

This session brought into sharp focus the escalating health risks posed by climate change, from heat stress and water scarcity to vector-borne diseases and displacement. Case studies from Kerala, Odisha, Uttarakhand, and Chhattisgarh demonstrated how climate-smart infrastructure and community-led preparedness models can mitigate risk. Notable innovations included:

- Climate-Smart Hospitals integrating energy efficiency and disaster planning.
- Community Emergency Response Teams (CRTs) trained in early warning and outbreak response.
- Use of constitutional mechanisms (73rd/74th Amendments) to enhance local accountability.

Speakers emphasized the need for:

- Integrated climate-health policies
- Vulnerability assessments of healthcare infrastructure
- Community health literacy around heat, hygiene, and vector management

There was strong consensus that health system resilience in India must now be climate-informed by default.

Session 4:
THE WAY FORWARD FOR BUILDING BETTER SURVEILLANCE-ALERT-RESPONSE-SYSTEMS

This session offered a comprehensive roadmap for building early-warning surveillance systems capable of anticipating outbreaks and emerging health threats. Key innovations included:

- Wastewater surveillance for early detection of antimicrobial resistance and disease outbreaks.
- AI applications in predicting treatment adherence, screening diagnostics, and analyzing media-reported outbreaks.
- Community-based surveillance models like the HAPPEN Project, which incorporate social determinants and lived experiences.

Countries such as Canada, Indonesia, and Taiwan were referenced for their successful integration of lab networks, AI systems, and health security protocols.

The session called for:

- A national surveillance blueprint integrating clinical, environmental, and digital streams.
- Cross-border interoperability and data sharing, particularly within the Global South.
- Ethical frameworks to guide responsible AI use in public health.

Session 5:
ENHANCING HEALTH SYSTEMS RESILIENCE IN THE CONTEXT OF CONFLICT AND MASS DISPLACEMENT

Focusing on humanitarian settings, this session stressed the need for multi-sectoral, dignity-centered, and inclusive service models for displaced populations. Key discussions included:

- Integration of refugees into national healthcare systems, labor markets, and financial services to promote resilience and economic contribution.
- The role of mobile clinics, telemedicine, and community-based mental health services in conflict zones.
- Financial constraints and healthcare worker shortages, exacerbated by war injuries, chronic illnesses, and workforce burnout.

The session highlighted partnerships such as that between ACCESS Health and Egypt's Unified Procurement Authority (UPA) as promising examples of technology transfer, training, and regional collaboration.

Session 6:
BUILDING RESILIENCE AGAINST NCDS: THE SILENT PANDEMIC

This session underscored that NCDs account for the majority of global deaths, yet remain underprioritized in policy and funding agendas. Panelists spotlighted:

- The disconnect between NCD national action plans and on-ground implementation.
- Weak patient engagement, fragmented care pathways, and underutilized private sector potential.
- Low adherence to hypertension treatment, despite its massive potential to reduce premature mortality.

Innovative pilots from Uttar Pradesh and Kerala using interoperable health records and digital monitoring offered hope. There was also emphasis on:

- Developing India-specific risk prediction tools
- Scaling early screening and decentralized diagnostics
- Supporting caregivers and rehabilitation services

A national-level patient advocacy platform was proposed to ensure long-term accountability and elevate lived experiences into policymaking.

Session 7:
DISASTER RESILIENT INFRASTRUCTURE: STRENGTHENING HEALTH SYSTEMS FOR CRISIS PREPAREDNESS

This session redefined resilience to mean not just surviving disasters—but maintaining continuity of care during and after crises. Key insights included:

- Japan's model of Disaster-Based Hospitals (DBHs) and system-wide disaster preparedness.
- Use of Multi-Criteria Decision Analysis (MCDA) and Hospital Safety Index (HSI) to prioritize infrastructure investment.
- Case examples from Sikkim, France, and Nepal showcased the power of local innovation married with global standards.

India's vulnerability, especially in coastal and mountainous regions, was acknowledged—with an urgent call for structural audits, green retrofitting, and workforce capacity building.

Session 8:
THE CASE FOR PRIORITY SETTING & DRIVING EFFICIENCY IN HEALTH FINANCING FOR RESILIENCE

This session tackled the financing question head-on, proposing blended finance models, CSR alignment, and insurance innovations as core tools to close the health investment gap. Takeaways included:

- Examples of impact bonds (UTKRISHT, MUKTI) demonstrating success in maternal health and TB care.
- Growing CSR investments in diagnostics and skilling, with calls to integrate CSR into long-term health system strategy.
- Introduction of climate-risk-sensitive insurance products, recognizing air pollution, heat stress, and pandemics as actuarial concerns.
- Learnings from Thailand and Egypt showed the value of risk pooling, strategic purchasing, and budgeting flexibility.

Participants called for regulatory frameworks, neutral convening platforms, and shared metrics to enable meaningful public-private-philanthropic partnerships.

Session 9:
STRENGTHENING SUPPLY CHAINS FOR HEALTH SYSTEM RESILIENCE

Supply chain disruptions were framed as systemic vulnerabilities, not one-off challenges. The session offered a structural approach to resilience:

- Shift from reactive to predictive systems using AI and real-time analytics.
- Strengthening API and biologics production to reduce external dependencies.
- Centralized procurement mechanisms to improve efficiency and ensure equity.
- Integration of digital traceability tools, especially at the last mile, to avoid stockouts.

The link between sustainability and supply chain planning was emphasized, urging the healthcare sector to address its environmental footprint through green logistics.

Session 10:
RESILIENT HEALTH WORKFORCE: PREPARING FOR THE FUTURE OF HEALTH SYSTEMS

This session addressed the heart of system resilience: the health workforce. The session emphasized policy support for equitable distribution, retention, and well-being of health workers. Future-oriented planning, mental health support, and digital training platforms were identified as resilience enablers. Panelists stressed:

- The importance of supportive supervision, standardized training, and digitally enabled learning.
- The need to address burnout, gendered inequities, and mental health of healthcare workers.
- Strategies to retain frontline workers through housing support, career progression, and local leadership roles.
- Integrating health workforce planning into national health strategies with adequate financial commitments.

Global and regional partnerships were seen as critical for capacity building, knowledge sharing, and policy coherence.

Session 11:
FUTURE-PROOFING HEALTHCARE: DIGITAL STRATEGIES FOR RESILIENCE

This closing session brought a sharp focus on the transformative potential of AI and cloud solutions in healthcare.

Highlights included:

- Governance is a prerequisite: AI deployment must be transparent, explainable, and ethically sound.
- Cloud-first strategies can enable affordable scaling of health data infrastructure, especially in public systems.
- The need for global consensus on health data governance, including cross-border frameworks and model legislation.
- Networks like AeHIN and HELINA were credited for their role in advancing regional collaboration.

The session closed with a call for multi-stakeholder engagement and capacity building to ensure digital transformation does not widen existing inequities.

Posters, Breakout Dialogues, and Innovations

The 25 academic posters presented cutting-edge research across areas such as AI in tuberculosis screening, climate-smart diagnostics, and community-led health financing models. Breakout sessions offered space for deeper deliberation on leadership in health workforce governance, digital competency, and supportive supervision.

Acknowledging Our Partners

We extend our heartfelt gratitude to the Indian National Science Academy for graciously hosting us and providing their esteemed and intellectually vibrant premises for this meeting. We deeply appreciate the continued support from INSA's leadership and staff throughout the planning and execution of this event.

Our sincere thanks also go to our valued knowledge partners, including the Asia eHealth Information Network, The George Institute, Coalition for Disaster Resilient Infrastructure, Global Journal of Medicine and Public Health, Asia Pacific Action Alliance on Human Resources for Health, Health Systems Global, APAC CVD Alliance, Alliance for Pathogen Survey Innovations–India, Center for Indonesia's Strategic Development Initiatives, and many others whose collaboration enriched the dialogue.

Last but by no means least, we are truly grateful to all our distinguished speakers and participants for taking the time to attend the conference and generously share your insights and expertise.

Moving Forward

The 2025 Conclave reaffirmed that resilience is not a destination, but a continuous process of adaptation, inclusion, innovation, and collaboration. The knowledge and partnerships forged over these two days will inform GLC4HSR's ongoing research, policy advocacy, and capacity-building programs.

Inaugural Plenary

SPEAKERS

Welcome Address:

- **Dr. Uma Aysola,**
  Global Director, Communication & Partner Engagement, ACCESS Health International

Context Setting:

- **Dr. N. Krishna Reddy,**
  CEO, ACCESS Health International

Special Addresses:

- **Mr. Siddharth Sharma,**
  CEO, Tata Trusts
- **Prof. Mala Rao,**
  Director, Ethnicity and Health Unit & Senior Clinical Fellow Department of Primary Care and Public Health, Imperial College London
- **Dr. Yupadee Sirisinsuk,**
  Deputy Secretary-General, National Health Security Office, Government of Thailand
- **Mr. Manoj Jhalani,**
  Director, Department of Health Systems Development, WHO SEARO

Official Launch of the GLC4HSR MENA Chapter:

- **Dr. Ahmed El-Sobky,**
  Chairman, Egypt Healthcare Authority

The GLC4HSR Annual Conclave 2025 commenced with a warm welcome by Dr. Uma Aysola, Global Director, Communications and Partner Engagement at ACCESS Health International, setting a tone of collaboration and shared purpose.

Dr. N. Krishna Reddy, CEO of ACCESS Health International, then provided the context for the session, reflecting on the Collaborative's journey and emphasizing the need to bridge the gap between learning and practice through a One Health approach.

Building on this foundation, Mr. Siddharth Sharma, CEO of Tata Trusts, stressed the importance of embedding resilience into everyday health system design, while Prof. Mala Rao of Imperial College London highlighted climate change as a defining challenge for global health.

Dr. Yupadee Sirisinsuk showcased Thailand's successes in achieving universal health coverage through strong primary healthcare systems and community engagement, and Mr. Manoj Jhalani of WHO SEARO urged systemic reforms to address gaps revealed by the COVID-19 pandemic.

The session culminated with Dr. Ahmed El-Sobky's launch of the GLC4HSR MENA Chapter, underscoring the importance of regional collaboration. Together, the speakers laid a comprehensive foundation for advancing resilient, equitable, and people-centered health systems worldwide.

Context Setting by
DR. N. KRISHNA REDDY

Dr. N. Krishna Reddy, CEO of ACCESS Health International, opened the plenary by reflecting on GLC4HSR's journey as a long-term, self-sustaining initiative dedicated to strengthening health systems through collaboration. He emphasized the significance of the One Health framework, which integrates human, animal, and environmental health, stressing that a holistic approach is necessary to address emerging global health challenges.

Key takeaways included the expansion of GLC4HSR's global footprint, now comprising over 100 members across 30-40 countries and engaging in 40 active projects across Asia. Dr. Reddy also underscored the importance of bridging the gap between learning and practice - ensuring that insights gained through research and collaboration should translate into real-world policy and implementation.

Additionally, Dr. Reddy highlighted the necessity of robust health informatics systems to enhance resilience, ensuring continuity of care, and improving decision-making capabilities. While the One Health approach is widely recognized, Dr. Reddy acknowledged the difficulties in effectively integrating it into policy and practice.

> ***Bridging the gap between learning and practice is crucial - our insights must not remain in research papers but translate into policies and real-world impact.***
>
> ***Dr. N. Krishna Reddy***

MR. SIDDHARTH SHARMA

on Building Health System Resilience Beyond Crisis Response

Mr. Siddharth Sharma, CEO of Tata Trusts, discussed resilience as a concept that extends beyond immediate crisis response to ensuring long-term, uninterrupted healthcare services. Mr. Siddharth Sharma stressed that resilience is about preparing health systems to withstand shocks while maintaining service delivery.

One of the key concerns Mr. Siddharth Sharma raised was the need to address rural healthcare challenges. Many communities still face significant barriers, such as long travel distances to healthcare facilities, inadequate infrastructure, and fragmented supply chains. Strengthening primary healthcare (PHC) networks and empowering community health workers could resolve up to 80% of healthcare needs at the local level, he noted.

Mr. Siddharth Sharma further elaborated on the role of technology in improving healthcare accessibility. Digital health solutions, including telemedicine and decentralized care models, could decongest tertiary hospitals and enhance service delivery in underserved regions.

Climate change was another critical factor in resilience planning. Mr. Siddharth Sharma pointed out that climate-induced disasters disproportionately affect vulnerable populations, yet many health incidents remain underreported due to systemic barriers. To ensure equitable access to care, Mr. Siddharth Sharma advocated for targeted public health interventions to address socio-economic disparities and a comprehensive approach to climate adaptation.

> *We need to move beyond reactive healthcare models and embed resilience into the core of system design, ensuring that communities, particularly in rural areas, have continuous access to care.*
>
> ***Mr. Siddharth Sharma***

PROF. MALA RAO

on Climate Change as the Defining Challenge for Health Systems

Prof. Mala Rao, Director of the Ethnicity and Health Unit & Senior Clinical Fellow at Imperial College London, presented on the accelerating impacts of climate change on health resilience. She warned that 2024 is set to be the warmest year on record, with rising global temperatures leading to increased heatwaves, worsening air pollution, and ecosystem disruptions that directly affect human health.

Prof. Rao framed climate change as part of a broader "polycrisis" - a convergence of environmental degradation, economic instability, and forced displacement. Health systems, she argued, must integrate climate resilience strategies at every level, from infrastructure planning to emergency preparedness.

Research and scientific evidence must also guide climate adaptation efforts, counter misinformation, and support policy interventions. Prof. Rao called for equitable resource distribution, as developing nations bear the brunt of climate-related health crises but receive disproportionately less global support.

> *Developing nations bear the brunt of climate-related health crises but receive disproportionately less global support - equity must be at the center of climate resilience efforts.*
>
> ***Prof. Mala Rao***

DR. YUPADEE SIRISINSUK

on Thailand's Model of Universal Health Coverage

Dr. Yupadee Sirisinsuk, Deputy Secretary-General at Thailand's National Health Security Office, provided insights into Thailand's universal healthcare model, demonstrating how strategic investments in health infrastructure, financial security, and community engagement have built resilience.

Dr. Sirisinsuk emphasized that Thailand's success is rooted in its strong primary healthcare foundation. By integrating PHC into its national strategy, the country has ensured widespread access to essential health services. She also highlighted the role of technology in improving healthcare efficiency, such as Thailand's Smart Identification Card system, which has minimized administrative delays and streamlined service delivery.

Community engagement has been pivotal in Thailand's approach, with civil society playing an active role in shaping policies and ensuring accountability. Dr. Sirisinsuk pointed to the financial sustainability of the model, emphasizing cost-control mechanisms, centralized price negotiations, and investments in preventive care as key elements that have kept healthcare accessible and affordable. Reflecting on the COVID-19 pandemic, she noted that Thailand's rapid adaptation to pandemic-related challenges demonstrated the effectiveness of decentralized healthcare models in managing public health crises.

> *Community engagement is not optional - it is essential. Civil society plays a crucial role in shaping policies and ensuring accountability in healthcare.*
>
> ***Dr. Yupadee Sirisinsuk***

MR. MANOJ JHALANI

on Addressing Systemic Weaknesses for Long-Term Resilience

Mr. Manoj Jhalani, Director of Health Systems Development at WHO SEARO, highlighted the weaknesses exposed by the COVID-19 pandemic and the urgent need for systemic reforms. Mr. Jhalani noted that the pandemic underscored significant gaps in health infrastructure, workforce capacity, and service delivery, reinforcing the importance of building stronger foundational systems.

One of his central themes of emphasis was bridging the "know-do" gap - while health research generates valuable insights, many health systems struggle to implement these strategies effectively. Mr. Jhalani stressed that investing in a well-trained, adaptive workforce is essential for ensuring a robust healthcare system capable of responding to emerging challenges.

Health information systems also play a crucial role in resilience. Mr. Jhalani argued that data-driven decision-making can enhance system responsiveness, support crisis management, and inform long-term policy development. He emphasized that sustained financial investments in health - through increased domestic spending, pro-health taxation, and reducing out-of-pocket expenses - are necessary for maintaining healthcare sustainability.

Mr. Jhalani further justified these investments by referencing the economic losses from health crises, such as the $3 trillion global GDP decline during COVID-19, which demonstrated the cost-effectiveness of proactive health policies.

> ***The cost of inaction is far greater than the cost of investing in resilient health systems.***
>
> ***Mr. Manoj Jhalani***

DR. AHMED EL-SOBKY

The Launch of the MENA Chapter of the GLC4HSR

The GLC4HSR marked a significant milestone at the Conclave with the official launch of its MENA Chapter. The launch was jointly officiated by Dr. Ahmed El-Sobky, Chairman of the Egypt Healthcare Authority (EHA), and Dr. Hala Zaid, former Minister of Health and Population, Egypt, and currently the Regional Director of ACCESS Health International (MENA).

The Egypt Healthcare Authority will serve as the regional convener of the MENA Chapter, which now joins GLC4HSR's growing global network of country and regional chapters in Singapore, Indonesia, Bangladesh, India (including a state chapter in Telangana), and Dubai.

Dr. Ahmed El-Sobky, made an important presentation titled "Building Resilient Health Systems: Insights from Egypt's Universal Health Insurance Experience" as he formally launched the MENA Chapter.

In his address, Dr. El-Sobky emphasized the alignment between Egypt's health reforms and the core principles of GLC4HSR- particularly the focus on collaboration, digital transformation, and health workforce strengthening. He highlighted Egypt's progress under the Universal Health Insurance program launched in 2018 by H.E. President Abdel Fattah El-Sisi, which seeks to achieve universal health coverage for the entire population by 2030.

The MENA Chapter, he stated, comes at a critical time as the region faces compounding economic, geopolitical, and health crises. Dr. El-Sobky outlined key priorities for regional collaboration: sharing context-specific lessons, developing innovative financing mechanisms, strengthening supply chain resilience, and enhancing knowledge exchange for surveillance and preparedness. He concluded with a call to action for policymakers, practitioners, and researchers across the MENA region to unite in building adaptive, people-centered health systems.

> ***Today, we in the MENA region take our place in the global network- bringing our unique perspectives, experiences, and innovations to the table.***
>
> ***Dr. Ahmed El-Sobky***

Conclusion

The inaugural session laid a strong foundation for the Conclave's discussions, with speakers collectively reinforcing the urgency of embedding resilience at the core of health system design. From addressing rural health inequities and integrating climate resilience into healthcare planning, to strengthening primary healthcare foundations and advancing digital health innovations, each perspective highlighted the interconnected nature of today's health challenges.

The formal launch of the GLC4HSR MENA Chapter further demonstrated the Collaborative's growing global momentum. As the Conclave progressed, the call to action remained clear: translate knowledge into practice, invest strategically in health systems, and foster inclusive, cross-sectoral collaboration to build a healthier, more resilient future for all.

Thematic Session

Co-creating Pathways to Community Empowerment for Resilient Health Systems

SPEAKERS

Fireside Chat:

- **Dr. N. Krishna Reddy,**
  CEO, ACCESS Health International, Context-Setting and Moderator: Fireside Chat
- **Dr. Jayaprakash Narayan,**
  Founder, Foundation for Democratic Reforms; Former Public Administrator, Speaker: Fireside Chat

Panel Discussion:

Moderator:

- **Dr. Uma Aysola,**
  Global Director, Communications & Partner Engagement, ACCESS Health International, Moderator

Panelists:

- **Dr. Sundararaman T,**
  Advisor, WHO; Public Health Expert, Panelist
- **Mr. Prabhat Sinha,**
  Director, Government and Public Affairs, Boehringer Ingelheim, Panelist
- **Dr. Rajvi Joshipura,**
  Senior Coordinator, Self-Employed Women's Association (SEWA), India, Panelist
- **Dr. Ratna Devi,**
  CEO, Dakshayani and Amaravati Health and Education, India, Panelist
- **Mr. Sachin Golwalkar,**
  Independent Public Health Consultant

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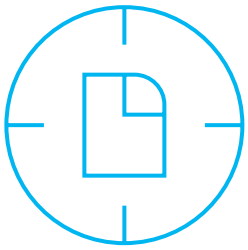

Context & Session Objectives

Community engagement is a cornerstone of resilient, equitable, and sustainable health systems. How health systems engage communities, the objectives they pursue, and the processes they use to co-design solutions for community-specific healthcare needs form critical areas of learning. Any discussion on health systems should begin with people and their health at the centre.

Communities are engaged through diverse pathways, including community health volunteers and workers, community-based organizations (CBOs) (such as self-help and patient groups), non-governmental civil society organizations (CSOs), community service organizations, and direct interactions via traditional and social media. These pathways operate through distinct yet interconnected mechanisms.

For instance, community health volunteers and workers serve as vital links between formal health systems and community members, ensuring that services are accessible and tailored to local needs. Similarly, CBOs and CSOs provide platforms for collective action, advocacy, and support, addressing specific community challenges. Traditional and social media further amplify these efforts by spreading awareness, promoting health literacy, and facilitating dialogue. Together, these mechanisms foster mutual understanding, empower communities to play an active role in shaping health outcomes, and promote sustainable health practices.

Participatory Action Research (PAR) is a collaborative research approach that actively involves community members in identifying problems, co-creating solutions, and implementing actions to address them, ensuring the research is both practical and empowering. It is a well-established methodology for community engagement but not the only approach. Broader health literacy initiatives such as behavioural change campaigns and mechanisms for self and assisted care are equally critical. These approaches tackle systemic challenges such as information asymmetry, limited health-seeking behaviours, and gaps in health system accountability.

The session highlighted the importance of community resilience and reinforced the vision that any discussion on health systems must begin with people and their health. Discussions delved into how communities can become active participants in governance and policy-making; ensuring health systems are responsive and accountable to their needs. This set the stage for the rest of the conclave.

Objectives

- **Highlight the Importance of Community Engagement:** Showcase the role of community engagement in building resilient health systems that respond to local needs and challenges.
- **Explore Diverse Engagement Strategies:** Highlight methods such as PAR, behavioral change interventions, and governance mechanisms like health councils, serving as community-based bodies that enable local populations to participate in health decision-making, policy formulation, and resource allocation.
- **Address Challenges and Opportunities:** Identify barriers to effective engagement, such as capacity constraints and systemic inequities, and propose actionable solutions.
- **Showcase Success Stories:** Present real-world examples where community engagement has led to measurable improvements in health outcomes and system accountability.
- **Foster Cross-Sector Collaboration:** Facilitate dialogue among policymakers, practitioners, researchers, and community representatives to identify synergies and create partnerships.

Fireside Chat

Dr. Krishna Reddy opened the discussion by highlighting the evolving role of communities in strengthening health systems. He pointed out that traditional health system frameworks have been largely top-down, focusing on service delivery rather than community participation. However, there is a growing realization that communities, being at the center of health systems, are best positioned to articulate their needs and contribute to co-creating solutions. The discussion explored ways to bridge the disconnect between health systems and communities, emphasizing the need for active community engagement.

Dr. Jayaprakash Narayan provided a broader perspective on governance and its impact on health systems. He cautioned against excessive pessimism regarding healthcare challenges and urged a balanced view that recognizes progress. Drawing on historical examples, he noted that while local governments once played a significant role in education and healthcare, subsequent policy changes—particularly the 73rd and 74th Constitutional Amendments—led to over structured but underpowered local governance. This shift disempowered communities, making governance more centralized and disconnected from people's daily needs.

A critical takeaway from the discussion was the importance of strengthening local governance to improve health outcomes. Dr. Narayan underscored that India's local governments account for only 3% of total government expenditure, compared to China's 51%, demonstrating a stark contrast in decentralization. He emphasized that empowering local bodies with adequate financial resources and decision-making authority would enhance their ability to address healthcare needs effectively.

Dr. Krishna Reddy acknowledged **Dr. Narayan's** comprehensive articulation of on-the-ground realities, including both achievements and persistent challenges. Building on the idea that governments alone cannot meet the complex demands of public service delivery, Dr. Reddy introduced the concept of a "triangle of governance" — where governance is a shared responsibility among the public sector, private sector, and the people. He emphasized that while the public and the private sectors play a crucial role in service provision, individuals must also be accountable for their own health and wellbeing. In this context, Dr. Reddy posed a forward-looking question: How can this concept of a governance triangle be effectively translated into institutional mechanisms at the ground level?

> *Democracy, by its nature, is vulnerable to disorder. But when accountability is rooted at the local level — when people see a direct link between their taxes, their votes, and the services they receive — self-correction becomes inevitable. The real failure of our governance is not a lack of goodwill, but the absence of institutional accountability at the grassroots.*
>
> ***Dr. Jayaprakash Narayan***

Dr. Narayan highlighted the role of public-private partnerships in improving healthcare delivery. He noted that India's public health spending remains at approximately 1.2% of GDP, among the lowest globally, making it imperative to explore models that integrate competition and choice. Citing the success of initiatives like the Pradhan Mantri Jan Arogya Yojana, he stressed that embedding competition among service providers and offering patients choices could significantly improve healthcare accessibility and efficiency. He advocated for a strategic redesign of institutions that fosters accountability, community participation, and efficient resource allocation to build a more resilient health system.

Governance of social systems cannot rest solely with the government. It must be a shared responsibility among three actors: the people, the private sector, and the public sector — or, as I like to call it, the triangle of governance. The private sector plays an essential role in addressing the needs of the people. Equally, the people themselves must take responsibility and be accountable for their own health.

Dr. N. Krishna Reddy

Highlights from the Panel Discussion

Historical Evolution of Community Service Organizations in Health

Dr. Uma Aysola, moderating the session, invited Dr. Sundararaman to reflect on two key areas; how community service organizations (CSOs) can be more effectively integrated into governance and public health systems and insights from his personal journey—particularly his experiences in transforming health systems from a top-down to bottom-up, more equitable approach.

Dr. Sundararaman highlighted the evolving roles that community service organizations (CSOs) have played in health governance over the decades. In the 1970s and 1980s, CSOs were actively involved in model building, developing innovative approaches to community-based healthcare that significantly influenced global health policies, including the landmark Alma-Ata Declaration. During the 1990s, their role shifted toward advisory and advocacy functions, moving away from direct service delivery. By the early 2000s, particularly with the launch of India's National Health Mission (NHM), community engagement became a central element of health governance. This was reflected in the institutionalization of initiatives such as Village Health and Sanitation Committees, the Accredited Social Health Activist (ASHA) program, and frameworks for community-based monitoring.

He emphasized that community engagement should be understood not merely for its instrumental outcomes—such as reducing infant mortality—but as an inherent aspect of public health. Health, he argued, is not simply the result of hospital-based care but an outcome of broader social and community processes. Community participation should therefore be seen not just as a strategy to improve health indicators, but as a fundamental element of a resilient health system. He cautioned that the shift toward an instrumentalist view of community engagement—where participation is valued only for its measurable outcomes—has eroded the participatory spirit that is vital to effective health governance.

Despite significant progress, various challenges continue to hinder community engagement in health systems. One major issue is the government's evolving approach to civil society organizations (CSOs); over time, CSOs have increasingly been treated as contracting agencies rather than partners in innovation, which has diluted their role in model building. Additionally, there has been a decline in institutional support—initiatives like the Village Health and Sanitation Committees have lost momentum due to a lack of political will and sustained investment. A growing disconnect between health workers and the communities they serve has also emerged; programs like ASHA, which were originally designed to be deeply rooted in community involvement, are now facing administrative and labor-related challenges due to reduced engagement. Lastly, policy-level resistance has posed roadblocks to mandating a certain percentage of service delivery through community-based organizations, further limiting their role in the health system.

Dr. Sundararaman emphasized that community engagement should be both a pathway and a purpose in health system strengthening. He stressed that health systems must be designed around active community participation, where people are not merely beneficiaries but co-creators of health solutions. Future policies, he noted, should ensure that community engagement is institutionalized and not treated as a temporary or ad hoc

> *Community engagement is not just a pathway – it is the purpose. What we ultimately need are health systems where communities are active participants, not passive beneficiaries – responsible for keeping themselves healthy, not simply receiving a hand-down from the system.*
>
> ***Prof. T Sundararaman***

strategy. He also called for continued advocacy to reframe community engagement as an essential pillar of public health governance.

Finally his insights underscored the need for **revitalizing community engagement** as a central tenet of health systems. While challenges persist, the goal remains to create **resilient, community-driven health systems** where communities are empowered participants rather than passive recipients of healthcare services.

The Evolving Role of Community-Centred Healthcare

Dr. Uma Aysola invited Mr. Prabhat Sinha to reflect on his journey across the private sector, where he has consistently championed community engagement. Having represented organizations such as Novartis, Pfizer, and Boehringer Ingelheim, Mr. Sinha has witnessed the evolving role of private healthcare—not only in service delivery but also in advancing public health outcomes. Dr. Aysola asked him to share key experiences from his career that illustrate how private sector engagement with communities has changed over time, and how these interactions have shaped his perspective on the private sector's role in strengthening public health.

Mr. Prabhat Sinha emphasized the increasing recognition of patient- and community-centered healthcare. He noted that while many organizations claim to be "patient-centered," the extent to which they truly engage with communities varies significantly. The transformation from a top-down approach to an inclusive system that acknowledges patient perspectives is a gradual but essential shift.

Mr. Sinha underscored the importance of recognizing the inherent knowledge and leadership within communities. He highlighted that in every community, leaders naturally emerge, and they play a crucial role in bridging the gap between healthcare providers and the people they serve. He cited ASHA workers as an example of grassroots leaders who have been trained and empowered over time, proving that community wisdom is invaluable in shaping effective healthcare interventions.

A key theme in his discussion was the need for continuous investment in capability-building among community organizations. He observed a decline in efforts to strengthen small grassroots organizations, which previously played a vital role in healthcare delivery. These local organizations and trained change agents are essential for fostering trust and ensuring that healthcare interventions are effectively implemented within communities.

Illustrating the impact of community engagement, he shared an example from his experience with a pharmaceutical company. A patient advisory board provided feedback on an educational leaflet for a blood disorder affecting individuals aged 60 and above. The patients pointed out that the font size was too small for their demographic, leading to a redesign that increased the leaflet's usability by over 60%. This example highlighted the importance of consulting end-users in the development of healthcare materials.

Mr. Sinha reiterated the three key elements of successful community engagement: acknowledgment, building-capacities, and collective action. While progress has been made in integrating community voices into healthcare, there is still a long way to go. The journey toward truly resilient health systems requires ongoing efforts to involve communities as equal partners in shaping healthcare delivery and policy.

> *We often talk about community engagement, but do we truly treat patients and communities as active participants? Do we offer them a real seat at the table? Do we create space for them to speak and do we listen? We assume we know everything. But there is so much we don't know and they do. Have we made a conscious effort to learn from them and bring that wisdom in?*
>
> ***Mr. Prabhat Sinha***

The Gap in Co-Creation: Moving Beyond Traditional Policy-Making

Dr. Uma Aysola invited Dr. Ratna Devi to share her unique journey in global health, having chosen a distinct path driven by the principles of patient advocacy. Highlighting that Dr. Devi has "walked to the beat of a different drummer," Dr. Aysola asked her to elaborate on what that journey has looked like, the values that have guided her work, and how patient advocacy—often overlooked—plays a transformative role in health systems. She encouraged Dr. Devi to share insights that would help the audience better understand the power and purpose of patient-centered approaches in global health.

Dr. Ratna Devi highlighted a fundamental issue in healthcare policymaking: the absence of meaningful community involvement. She pointed out that policies, guidelines, and operational frameworks are often developed without input from the very communities they intend to serve. Instead, communities are viewed merely as recipients or beneficiaries, rather than active stakeholders in decision-making. This disconnect leads to ineffective policies that fail to address the real needs of patients and caregivers.

Dr. Devi emphasized that healthcare systems are traditionally designed around clinicians' perspectives, focusing primarily on clinical outcomes rather than patient well-being. For instance, a doctor managing a hypertensive patient may focus solely on maintaining blood pressure levels, whereas the patient might be more concerned about the medication's side effects, such as persistent headaches, that impact their productivity and quality of life. She stressed that patient-reported outcomes, particularly quality of life, must be integrated into healthcare decision-making to ensure adherence to treatment and better overall health outcomes.

Another critical point raised was that healthcare does not begin when a patient enters a hospital, nor does it end upon discharge. Chronic disease management, in particular, occurs largely outside hospital settings, within homes and communities. However, healthcare systems often fail to equip caregivers and families with the necessary knowledge and skills to manage conditions effectively. She called for greater focus on community-based education and support structures that enable effective home-based care.

Dr. Devi referenced the WHO's extensive consultations from 2021 to 2023, which culminated in a framework document on the meaningful involvement of people living with non-communicable diseases (NCDs). The framework outlines the responsibilities of various stakeholders, including healthcare providers, governments, and patient communities. A key takeaway from this document is the recognition that people with lived experiences should be treated as experts on par with healthcare providers. She noted that patients often have a deep understanding of their own conditions, medication effects, and disease management strategies—insights that clinicians may overlook due to time constraints in consultations.

She underscored that healthcare challenges are interconnected with broader socio-economic issues, such as nutrition, housing, transportation, and employment. Effective healthcare solutions must therefore adopt a holistic approach that takes these factors into account.

> *Healthcare systems are designed around the clinician's perspective. We look at charts and lab reports, but we don't ask the patient — "Are you feeling well?" That simple question is often missing. For a patient, adherence to treatment isn't just about controlling a clinical number — it's about being able to go to work, to function, to live. Quality of life matters more than we often acknowledge.*
>
> ***Dr. Ratna Devi***

For example, prescribing the best medication is futile if the patient lacks access to food or a stable livelihood. Engaging communities in the decision-making process allows for a comprehensive understanding of their needs, leading to more effective and sustainable healthcare solutions.

Despite the existence of numerous frameworks, policies, and multi-stakeholder engagement initiatives, healthcare indices continue to stagnate, and Sustainable Development Goals (SDGs) remain out of reach. Dr. Devi attributed this to the failure to involve communities meaningfully in healthcare planning and implementation. **She emphasized that without genuine co-creation—where communities are integral to identifying problems and shaping solutions—healthcare systems will continue to fall short of achieving desired health outcomes.**

Health as an Incentive for Informal Sector Workers

Dr. Uma Aysola invited Dr. Rajvi Joshipura to reflect on SEWA's inspiring evolution from a two-woman initiative into a movement transforming the lives of thousands across generations. Dr. Joshipura began by emphasizing that 90% of India's population works in the informal economy, where health is directly tied to livelihood. Illness often means lost wages, making health an economic concern as much as a medical one.

She stressed that resilient health systems must be built with, not for, communities. Health should be defined beyond disease, encompassing social, mental, and physical well-being. A key challenge is treatment hesitancy, which SEWA addresses through trained community health ambassadors who bridge the gap between medical professionals and underserved populations. These ambassadors provide basic care guidance and support in areas like nutrition, occupational health, and non-communicable diseases (NCDs), helping demystify medical knowledge and build trust.

Financial and digital inclusion, Dr. Joshipura noted, are critical enablers of health access. Many informal workers must choose between healthcare and daily necessities, with added barriers like out-of-pocket costs and long hospital waits. Telemedicine and access to digital health

information can help overcome these barriers, improving access and outcomes without financial strain.

Dr. Joshipura called for a holistic approach that integrates NCDs, nutrition, menstrual hygiene, and sanitation. She reinforced that community-led, cross-sectoral strategies rooted in local leadership and digital literacy are essential for building health systems that are both resilient and equitable.

> *Ninety percent of India's population works in the informal economy. For them, health isn't just about well-being — it's a daily determinant of livelihood. A single day of illness can mean lost wages and an empty kitchen. We must frame health not just as a medical need, but as an economic imperative.*
>
> ***Dr. Rajvi Joshipura***

The Role of CSR and Philanthropy in Healthcare

Next, Dr. Uma Aysola invited Mr. Sachin Golwalkar—former CEO of Asia Pacific Consulting Advisory India, and former executive at United Way Delhi—to share his reflections on the evolving role of philanthropy in shaping healthcare. Drawing on his experience mobilizing resources for social impact, she asked him to speak about how philanthropic organizations influence and support health systems, and how this ecosystem has transformed over the years.

Mr. Sachin Golwalkar emphasized that a single act in corporate social responsibility (CSR) or philanthropy can create significant change in healthcare delivery. He highlighted how lived experiences and shared efforts in fundraising have shaped last-mile healthcare delivery. However, he acknowledged the challenges of raising funds, describing it as a difficult and evolving landscape that he has navigated for over 35 years.

Reflecting on his 26 years in the social impact sector, Mr. Golwalkar divided his experience into distinct phases. The first 15 years were predominantly supported by institutional donors and focused on institution-building at the grassroots level—an essential effort at a time when government spending was inadequate and infrastructure was weak. The current phase, however, is shaped by change management, largely driven by digital transformation. The widespread penetration of digital devices has altered both fundraising mechanisms and nonprofit management, making the sector more complex and competitive.

He observed that the earlier donor-led institutional ecosystem encouraged democratic participation and amplified civil society voices. However, the introduction of CSR regulations in 2013–14 marked a shift. Initially, corporate donors struggled to define their role, resulting in short-term, one-off projects rather than sustained institutional support. While CSR funding has matured over time, challenges remain. These include the compartmentalization of projects under Schedule 7 of the CSR regulations, which limits the interconnectedness of initiatives, and a decline in long-term investments in institutions that once played critical roles in governance and service delivery.

Intermediary nonprofit organizations (NPOs) like United Way, CARE, and Save the Children historically managed ecosystems of grassroots organizations, but their influence has diminished. As a result, smaller organizations are increasingly marginalized, struggling to keep pace with evolving compliance and funding mechanisms. Mr. Golwalkar emphasized the urgent need to restore the relevance of these intermediaries to effectively support grassroots initiatives.

Despite these challenges, several CSR-driven initiatives demonstrate the potential for meaningful partnerships between corporations, non-profits, and governments. For instance, a mental health project in government schools, piloted in collaboration with the Delhi government, corporate partners, United Way, and the Tata Institute, successfully introduced mental health interventions with the goal of scaling through public funding. Another example is Anamaya, a tribal health program led by the Piramal Foundation, which integrates tribal medicine and cultural practices into formal healthcare delivery by codifying traditional knowledge and strengthening the role of tribal healers in preventive and promotive health.

Recent policy changes have further enabled long-term CSR commitments that are no longer restricted to projects near corporate headquarters. There has also been a more liberal interpretation of Schedule 7, allowing greater flexibility in funding and encouraging investments in underserved areas rather than just major metropolitan centers.

The COVID-19 pandemic catalyzed innovation in CSR funding models. One such example is the ACT Fund, a venture philanthropic initiative that pooled resources from venture capitalists, institutional donors, and corporations to raise approximately ₹500 crore. These funds supported innovations in personal protective equipment, ventilators, telemedicine, and AI-driven healthcare solutions. Additionally, technology-driven health solutions such as AI-based diagnostics—including cough analysis for tuberculosis and AI-powered cervical cancer detection—have begun to reshape healthcare access and delivery in impactful ways.

Mr. Golwalkar emphasized the need to re-centre grassroots organizations and democratic spaces within the development ecosystem. His remarks underscored the importance of sustained community engagement, innovative funding mechanisms, and policy adaptations in building resilient health systems.

> *Grassroots institutions once formed the backbone of democratic development — but today, many are being marginalized in a rapidly shifting funding and digital ecosystem. If we don't bring them back into the mainstream, we risk losing the very voices that hold communities together.*
>
> ***Mr. Sachin Golwalkar***

Session Takeaways

- **Decentralize for Impact:**
  Advocate for stronger local governance and financial decentralization to empower community-driven health initiatives.
- **Partner with Purpose:**
  Encourage public-private partnerships (PPPs) to improve service quality while ensuring equity and affordability.
- **Boost Health Financing:**
  Push for increased healthcare budget allocations to meet essential service demands.
- **Leverage Execution Strengths:** Use India's mission-mode success to drive targeted health interventions effectively.
- **Center Community Engagement:**
  Recognize community participation as foundational to resilient health systems and core to governance.
- **Reclaim Innovation Space:**
  CSOs must reposition themselves as innovation hubs—not just service delivery arms.
- **Institutionalize Grassroots Efforts:**
  Governments must invest in sustaining community-led initiatives for long-term impact.
- **Rethink Participation:**
  Adopt community participation as a governance model, not just a programmatic add-on.
- **Enable Information Access:**
  Ensure real-time access to reliable health information for all stakeholders.
- **Integrate Data and Action:**
  Break down research silos to enable collaborative, data-driven responses to health challenges.
- **Support the Middle Layer:**
  Strengthen institutional backing for small and mid-sized non-profits working on the ground.
- **Bridge the Ecosystem:**
  Foster stronger collaboration among corporate donors, intermediary NPOs, and grassroots organizations.
- **Innovate Funding Models:**
  Explore mechanisms like Development Impact Bonds to ensure sustainability and scalability.

Call to Action

The discussion, summarized by Dr. Uma Aysola, issued a clear call: health systems transformation cannot wait. Structured pathways and purpose-driven strategies are no longer optional—they are imperative.

A standout takeaway was the ABC approach—Acknowledge, Build, Collaborate—a powerful framework urging us to recognize existing community efforts, invest in capacity-building, and drive collective action across sectors.

Panelists made a compelling case for placing patient expertise at the heart of healthcare design, noting that individuals with lived experience often hold insights that are as critical as clinical training. Healthcare must move beyond hospital walls—it must be holistic, integrated, and responsive to the daily realities of the people it serves.

Yet, financial sustainability remains a roadblock. The sector must adopt flexible, evolving funding models that address both the urgency and sensitivity of resource allocation.

Above all, the panel reaffirmed that community must be the starting point, the center, and the goal of every resilience effort. This is the ethos that ACCESS Health and the GLC4HSR champion—and this conversation is only the beginning.

Now is the time to act. We must co-create, innovate, and commit—so that health systems are not only resilient but just, inclusive, and truly people-centered.

Climate Change and Health Systems: Localized Action for Climate Resilience

3

SPEAKERS

Moderator:

Ms. Iman Hameed,
Associate Director,
ACCESS Health International

Case Study Presentations:

Mr. R. Prasana,
Secretary, Higher Education Department,
Government of Chhattisgarh, India

Dr. S.M. Kadri,
Fr Epidemiologist / Surveillance Officer
Communicable and Non Communicable diseases;
Head Climate Change and Human Health, Kashmir, India

Dr. Amrita Gupta,
Public Health Expert, India

Ms. Nitha Thankam George,
Health Systems Mitigation And Adaptation
Consultant, Health Care Without Harm, India

Dr. Bhuputra Panda,
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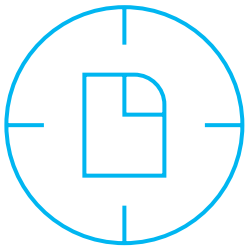


Context & Session Objectives

The session commenced with opening remarks by Ms. Iman Hameed, who provided a retrospective overview of discussions on climate adaptation from last year's Annual Conclave, when the GLC4HSR focused on initiating a learning journey to comprehend and unpack what resilience, adaptation, and mitigation mean at the climate and health nexus, particularly with centering people and communities. The previous deliberations examined a broad spectrum of climate resilience considerations, including planetary health, structural resilience, indigenous community engagement, vernacular architecture, passive cooling technologies, and water scarcity's impact on women.

A key gap identified in those discussions was the lack of focus on specific community needs within national adaptation and health policies, particularly in South and Southeast Asia. Despite the comprehensive coverage of disaster response, surveillance, and coordination mechanisms, an essential component remained underexplored—the recognition of specific community needs. Recognizing that resilience can only be truly achieved when adaptation efforts are rooted at the primary care level, this session shifted the focus from policy frameworks towards operationalizing climate resilience strategies at the community and health facility levels. The session also examined sustainability and inclusivity, ensuring that adaptation efforts not only address immediate challenges but also build long-term resilience in healthcare systems.

By advancing these themes, the session aimed to translate strategic climate adaptation discussions into localized, actionable solutions that empower communities and strengthen primary healthcare resilience in the face of climate change.

Objectives

This session aimed to bridge the gap between policy formulation and on-ground implementation by focusing on:

- **Bridging Policy and Action:** Examining mechanisms that translate national adaptation plans into on-ground implementation at local and facility levels, ensuring alignment with local context and needs.
- **Focusing on Community Specific Needs:** Understanding how climate adaptation plans can be tailored to the lived realities of marginalized and indigenous groups to ensure equitable resilience-building.
- **Health Facility Level Action:** Exploring strategies to integrate climate resilience and sustainability efforts into primary healthcare systems.
- **Enhancing Sustainability in Climate-Resilient Health Systems:** Discussing innovative approaches that amplify long-term sustainability of health adaptation measures.

By focusing on these objectives, the session sought to move beyond theoretical policy discussions toward actionable, community-driven, and community centred solutions for climate resilience in healthcare.

Highlights from Presentations

Following the introduction, the session transitioned into expert presentations, where the speakers provided regional perspectives on climate change's impact on health systems, highlighting best practices and challenges in climate adaptation efforts.

Mr. R. Prasana on Chhattisgarh's Climate Adaptation Initiatives

The session featured a presentation on Chhattisgarh's approach to addressing climate change impacts, particularly in the health sector. Mr. Prasana emphasized that while climate change discussions have gained momentum at the state level post-COVID, translating these discussions into implementation at the PHC level remains a critical priority. The presentation focused on ongoing efforts, challenges, and future directions for climate adaptation in Chhattisgarh's health system.

Mr. Prasana highlighted that one of the key interventions has been the establishment of surveillance systems to monitor climate-related health impacts, with a strong emphasis on heat-related illnesses. To achieve this, efforts have been directed toward mapping temperature variations across districts using data from multiple departments, allowing for a more precise understanding of climate patterns. Additionally, patient influx at Primary Health Centres (PHCs) and higher-level facilities is being documented to assess heat-related morbidity. Another critical component of this initiative is identifying sub-climatic variations and their effects on local populations, ensuring that climate adaptation strategies are tailored to specific regional needs. While current data collection efforts are primarily focused at the district level, future efforts aim to extend to block-level and even sub-block-level facilities to gain a granular understanding of climate impacts.

He also highlighted that Chhattisgarh, with its 44 percent forest cover and heavy industrial presence, faces unique climate challenges. The interplay between deforestation, industrial activities, and climate change necessitates a multi-sectoral approach to mitigation. He emphasized on the air quality surveillance initiative, which was initially conducted in Raipur and Korba and has now been expanded to eight additional districts, with findings set to be submitted to the Government of India.

Recognizing the role of healthcare facilities in both climate adaptation and mitigation, Chhattisgarh has initiated several interventions to enhance sustainability and resilience. One of the key initiatives underscored by the speaker is the solar electrification of hospitals, with nearly 900 government health facilities now running on solar power, reducing dependency on conventional electricity. In addition to solar electrification, Mr. Prasana highlighted how the state is actively working towards the development of Climate-Smart

Hospitals. Efforts are currently underway to obtain certification for one Primary Health Centre (PHC) in Northern Chhattisgarh, setting the stage for broader adoption across the state. The speaker noted:

Mr. Prasana went on to describe how a disease-focused approach was previously used to strengthen health systems in the state. A similar strategy is now being considered for climate-related health impacts, particularly focusing on temperature variations and heat stroke management. The rationale is that targeting one major climate-induced health issue will have a spillover effect in strengthening overall climate resilience. However, several challenges persist.

Infrastructure gaps, such as the absence of cooling facilities in labour rooms and postnatal wards, pose risks to vulnerable populations. Additionally, climate adaptation is not integrated into health worker training due to existing program demands. Inadequate data systems further limit the ability to track climate-health interactions, highlighting the need for improved surveillance and decision-support tools.

In his concluding remarks, Mr. Prasana emphasized on several strategic actions to strengthen climate resilience in Chhattisgarh's health sector. Developing district- and hospital-level climate action plans will ensure localized and practical implementation beyond the current state-level framework. Integrating climate adaptation into health workforce training is crucial to preparing frontline workers for emerging challenges. Strengthening data-driven decision-making by enhancing climate-health surveillance and incorporating findings into planning processes will improve preparedness. Additionally, increasing public awareness and community engagement through targeted IEC campaigns will foster proactive responses. A significant initiative is the documentation of indigenous knowledge systems on climate adaptation through collaborations with colleges and universities, ensuring that traditional practices contribute to modern resilience strategies.

> *Hospitals have an important role to play in climate change through the way they function. In Chhattisgarh, we have started converting our hospitals into climate-smart facilities providing solar electrification to around 900 government health facilities, reducing conventional energy demand. We are now in the process of getting formal climate-smart certification for one of our primary health centers. These are small but significant steps toward building a more sustainable and resilient health system.*
>
> ***Mr. R Prasana***

Dr. S.M. Kadri on Jammu & Kashmir's Health Vulnerabilities in High-Risk Regions

Dr. Kadri provided a comprehensive overview of the health vulnerabilities, challenges, and adaptation opportunities in Northern India, particularly in Jammu & Kashmir and Ladakh. Dr. Kadri highlighted ambient air pollution as a significant health concern, with sources including vehicular emissions, brick kilns, and road dust. A critical gender-based challenge was also identified—women in remote areas continue to rely on solid biomass for cooking, leading to high indoor air pollution exposure. He cited documented cases of early cataract formation due to overcrowding and exposure to pinewood smoke, which mimics tuberculosis and has historically led to misdiagnosis and unnecessary TB treatments.

Dr. Kadri further explained climate-sensitive health risks, categorizing them seasonally:

- **Winter (December–March):** Increased incidence of frostbite, chilblains, and carbon monoxide poisoning from the burning of hard coke for warmth, as well as exacerbations of respiratory diseases (COPD, bronchial asthma), cardiovascular disease, and stroke. Disease outbreaks such as measles, chickenpox, and mumps were also noted.
- **Summer (June–September):** Higher prevalence of waterborne diseases, including cholera, hepatitis A & E, enteric fever, and acute diarrheal disease due to poor water quality and sanitation.
- **Spring (May):** Pollen-induced allergic disorders were commonly observed.

Dr. Kadri also shared alarming incidents of carbon monoxide poisoning due to hard coke burning.

To mitigate these health risks, several adaptation strategies were discussed. Strengthening the National Clean Air Programme (NCAP), launched in 2019, and promoting the adoption of electric vehicles (EVs) were identified as key measures to reduce air pollution and emissions. Expanding the Ujjwala Scheme, which provides LPG stoves to replace solid biomass fuels, was emphasized as a crucial step toward improving indoor air quality and reducing respiratory illnesses, particularly among women. Intersectoral coordination between health, environmental, and infrastructure departments was highlighted as essential for an integrated and effective response to climate-sensitive health challenges. In addition, the establishment of early warning systems for cold waves and increased community awareness campaigns were proposed to mitigate the impact of extreme weather events.

> *In Kashmir, climate vulnerability is deeply gendered and geographical—women in remote areas rely on biomass for cooking, leading to indoor air pollution, cataracts, and even conditions like 'Gujel lung' that mimic TB. Winters bring carbon monoxide poisoning, frostbite, and respiratory illnesses, while summers see spikes in vector-borne and waterborne diseases. Climate-sensitive health planning is no longer optional—it's urgent and lifesaving.*
>
> ***Dr. S.M. Kadri***

Dr Kadri shared several opportunities for climate adaptation in Jammu and Kashmir (i) a cold health response strategy that included early warning systems for cold weather, providing cold alerts to residents that reminded people to keep rooms warm in winter and specific cold-risk mitigation such as hard coke burning discouragement during winters; (ii) community awareness and local capacity building on risks of extreme climatic conditions in local languages through multiple media; (iii) enhanced evidence communication to guide decision-making for climate resilient solutions, (iv) strengthening monitoring, evaluation and reporting systems through satellite and on-the-ground monitoring; and (v) taking cross sectoral action across all sectors.

He highlighted a notable renewable energy initiative in healthcare: the solarization of healthcare facilities, which began in 2019. One such success story is the installation of solar panels at the Sub-District Hospital in Kulga, serving a population of 50,000. This initiative has ensured uninterrupted power backup for operating theatres, offices, and critical medical equipment, strengthening healthcare resilience in the region. Dr. Kadri further emphasized the importance of localized messaging to drive behavior change. Awareness campaigns have been broadcast on FM radio and disseminated through print and electronic media in regional languages. Additionally, collaborative efforts with the Department of Tourism on World Environment Day have been instrumental in raising public consciousness about air pollution and health risks. Dr. Kadri concluded by stressing the need for continued community-based interventions, strengthened policy implementation, and intersectoral collaborations to mitigate the health impacts of climate change in Northern India.

Dr. Amrita Gupta on Uttarakhand's Community-Led Climate Adaptation Model)

The session then invited Dr. Amrita to share her insights on community-led public health emergency preparedness in the context of climate change. Dr. Amrita's presentation highlighted an innovative initiative, Kaushalam, spearheaded by the Government of Uttarakhand in collaboration with the National Institute of Disaster Management (NIDM), National Centre for Disease Control (NCDC), and US CDC India. This pilot project was designed to strengthen community-based public health emergency preparedness and response in the wake of climate change-induced disasters.

Recognizing Uttarakhand's vulnerability to floods, landslides, and disease outbreaks, the initiative focused on

> *Communities act as the first responders—through awareness, mock drills, and ownership, they build resilience from the ground up. Health authorities lead risk assessments and early warnings, while local governments and gram panchayats mobilize resources and coordinate action. This whole-of-community approach can enable swift and effective action during public health emergencies triggered by climate change.*
>
> ***Dr. Amrita Gupta***

strengthening community capacity for managing health emergencies. It established Community Emergency Management and Response Teams to improve preparedness and coordinated action. Core activities included training, mock drills, and community dialogues to build local knowledge and readiness. The project emphasized multi-stakeholder collaboration, engaging health workers, local governance, civil society, and educators to create a sustainable, integrated response system. The pilot was carried out in Nausar Gram Panchayat, Khatima Block, Udham Singh Nagar.

The pilot operated through a two-arm team under the Gram Pradhan. The first, a community emergency management team was involved in the planning, logistics and financing aspects of emergency response while the second, community emergency response team was in charge of operations which included (i) detection of cases through the integrated health information system and risk mapping; (ii) preventive measures such as isolation, quarantining and other disease-specific measures; (iii) risk communication, community engagement such as awareness generation and behavioural change public health emergencies; (iv) psychosocial services such as mental health screening, counselling, self-care and resilience; (v) provision of services and multi-sectoral coordination for continued essential services during emergencies and (vi) response measures such as facilitating public health service and intervention delivery

The project led to significant improvements in community preparedness ahead of the monsoon season. Residents became well-acquainted with evacuation routes and early warning signals, ensuring a swift and organized response to potential disasters. Flood preparedness and risk reduction measures were actively implemented, reinforcing the community's ability to mitigate the impact of extreme weather events. Additionally, community members adopted proactive measures to prevent mosquito-borne diseases and waterborne infections, demonstrating an enhanced awareness of public health risks. To institutionalize these efforts, the state developed a Village Public Health Emergency and Disaster Management Plan, in close coordination with the District Disaster Management Cell.

The talk concluded with a discussion on scaling such models to other disaster-prone regions, emphasizing the need for long-term policy integration, funding mechanisms, and intersectoral partnerships to sustain climate resilience efforts.

Ms. Nitha Thankam George on Kerala's Health Infrastructure Challenges and Adaptation Measures

Ms. George presented her study, conducted in collaboration with the Health Energy Initiative India and the Kerala Health Department. She highlighted how Kerala, her home state, experienced a devastating flood in 2018, causing extensive damage, particularly to government hospitals. The total losses amounted to nearly INR 120 crores, with Ernakulam, Pathanamthitta, and Idukki being the worst-affected districts. Hospitals were forced to evacuate patients, suspend surgeries, and halt critical care services. This crisis underscored the urgent need for climate vulnerability assessments of public health facilities.

The study focused on Idukki, one of Kerala's 14 districts, known for its tourism, plantations, and hydroelectric projects. Idukki generates 66% of Kerala's power through its hydroelectric dam system but remains highly disaster-prone. The district experiences year-round earthquakes, heavy rainfall and landslides in June-July, and droughts and wildfires in March-April. Additionally, road and water-related accidents are persistent concerns. As a part of the study, four hospitals were assessed: a Primary Health Centre, a Community Health Centre, a Taluk Hospital, and a Family Health Centre. The assessment examined two key aspects—infrastructure vulnerability and climate-sensitive disease vulnerability. The objective was to understand

past experiences with extreme weather events, the extent of damage incurred, and the preparedness measures implemented.

Ms George highlighted one key case study of a Community Health Centre (CHC) in Vandiperiyar, a small panchayat in Idukki district. Situated on a one-acre campus with three buildings (OPD, IPD, and staff quarters), the hospital serves a population of 43,000, including 200 tribal residents. The hospital is frequently utilized by tourists and daily wage workers from tea plantations, many of whom rely on public healthcare due to financial constraints. The most pressing challenge faced by the hospital was flooding. A small canal in front of the hospital experiences backflow from the Periyar River during heavy rains. Landslides upstream further intensify water levels, leading to hospital inundation. The local panchayat's decision to raise the height of the adjacent highway inadvertently directed more floodwater into the hospital premises, while runoff from nearby tea plantations exacerbated water stagnation.

In 2018, the hospital encountered an unprecedented crisis when floodwaters surged into the premises at 5:30 AM without prior warning. The ground floor was submerged, medical records and equipment were destroyed, and patients had to be evacuated immediately. The hospital's two wells, one for drinking water and one for sanitation, were completely contaminated. Staff later marked flood levels from 2018, 2019, and 2020, documenting the recurrent nature of this disaster. Beyond physical infrastructure damage, service delivery was severely impacted. Electricity was cut off, further complicating hospital operations. Staff reported sightings of snakes and scorpions within the hospital premises post-flood, though no fatalities occurred. The hospital lacked a documented disaster management plan, relying solely on the experience of senior staff for emergency response.

Several mitigation measures were introduced post-flood:

- The height of the hospital's wells was raised to prevent future contamination.
- Medical equipment was insured, with policies renewed annually.
- A backup generator with a 50-litre diesel reserve was installed.
- Staff and community members mobilized for post-flood cleanup, and prophylactic medicines were administered to prevent disease outbreaks.

Ms George also highlighted some key findings from their assessment. The assessment of climate-sensitive diseases revealed seasonal health patterns. Respiratory illnesses such as asthma and bronchitis spiked during monsoons, while summer saw an increase in urinary tract infections. Post-flood, cases of snake and scorpion bites surged, along with reports of post-traumatic stress disorder (PTSD). She went on to underscore how despite some progress, gaps remain. Extensive infrastructure damage and significant disruptions to service delivery in the assessed hospitals. Long power outages, coupled with a lack of electricity backup and fuel shortages, severely hampered hospital operations, making it difficult to maintain essential healthcare services during emergencies. The findings also highlighted the geographic variability in climate vulnerability, as hospitals within a 10–12 km radius faced distinct challenges—some were severely affected by floods, while others struggled with water shortages or strong winds. Despite these recurring climate-related disruptions, there were no standard operating procedures (SOPs) or written disaster management plans in place, leaving hospitals reliant on ad-hoc responses and the experience of senior staff. The study highlighted the urgent need for institutionalized emergency response frameworks. Without them, hospitals remain highly vulnerable, with patient care suffering as a consequence.

In her concluding remarks, Ms George emphasized that hospitals across the state must establish comprehensive disaster management plans to enhance preparedness and resilience against climate-related disruptions. In the long term, integrating renewable energy sources into hospital infrastructure will be crucial for ensuring uninterrupted power supply during emergencies. A key aspect of the study presented by Ms George involved engaging with stakeholders to share findings and discuss potential mitigation strategies. One of the most significant takeaways from the stakeholder meetings was the realization that while various departments work on their individual priorities, they rarely have opportunities to convene and collaborate on shared challenges. The meeting provided a platform for interdepartmental coordination, facilitating the exchange of ideas and the development of localized solutions. Ultimately, the study

highlighted that localized interventions and intersectoral coordination are key to building climate-resilient healthcare systems.

> *In flood-prone districts like Idukki, healthcare services face repeated disruptions, yet many facilities still operate without a formal disaster management or contingency plan. Despite staff training, emergency responses often rely on the memory and initiative of senior personnel. Without standardized protocols, the system remains reactive—vulnerable to the same disruptions each time a crisis strikes.*
>
> ***Ms. Nitha George***

Dr. Bhuputra Panda on Odisha's Heat Stress Management and Vulnerability Assessment)

The final presentation of the session was delivered by Dr. Panda. Before delving into the specifics of heat stress and vulnerability assessment in Odisha, Dr. Panda outlined three paradoxical characteristics of India's health system:

(i) A loosely regulated system, unlike most global counterparts.

(ii) Abysmally low government expenditure on healthcare, even in comparison to neighbouring countries such as Pakistan and Bangladesh.

(iii) A dominant private sector despite significant portions of the population living below the poverty line and experiencing high illiteracy rates.

The discussion then transitioned to the core focus of the presentation—heat stress vulnerability in Odisha, particularly in urban areas such as Bhubaneswar. The rise in temperature, coupled with urbanization and air-conditioned lifestyles, has led to a vicious cycle exacerbating heat stress conditions.

Findings from Dr. Panda's study in Bhubaneswar (2019-2020) revealed that individuals exposed to extreme heat conditions face multiple vulnerabilities, spanning health, economic, and social domains. Heat stress can lead to a spectrum of health issues, ranging from severe conditions such as heat stroke and fatalities to moderately severe effects like dehydration, syncope, and exacerbation of pre-existing chronic illnesses. The recurring nature of heat stress in Odisha, particularly in urban centers like Bhubaneswar, presents an ongoing public health crisis. Dr. Panda's also highlighted that extreme heat events significantly impact economic productivity. Daily wage workers, traffic police officers, and outdoor laborers experience major financial losses as they are unable to work during peak heat conditions, leading to an average loss of several workdays annually. This economic burden is especially pronounced in Odisha's urban and industrial areas, where heatwaves disrupt normal working conditions. Heat stress also contributes to social disruptions, including increased migration patterns and heightened community health risks.

Dr. Panda then highlighted the significant seasonal variations in Odisha's climate, which not only bring extreme temperature fluctuations but also high humidity levels, leading to severe discomfort among residents. The impact of these environmental stressors extends beyond temperature alone, as humidity exacerbates heat-related health risks. The 1998 heatwave was a pivotal moment, claiming approximately 2,000 lives, compelling the government to acknowledge heat stress as a serious and recurring public health issue. This coincided with Odisha's increasing vulnerability to cyclones and other extreme

weather events. In response, the Odisha State Disaster Management Authority (OSDMA) was established as a nodal agency responsible for policymaking and action on climate-related vulnerabilities, including floods, famines, cyclones, and heat stress. Despite these governmental interventions, heat-related morbidity and mortality remain persistent concerns.

Unlike earlier institutional assessments, Dr. Panda's study focused on community-level heat stress vulnerability in Bhubaneswar. It identified ten urban heat hotspots, surveying 25–30 households in each. Residents commonly reported symptoms like excessive sweating, headaches, and dehydration. Coping strategies included fan use, hydration, and adjusting work hours—though these often led to income loss, especially for daily wage workers.

Despite these coping mechanisms, several challenges persist. Limited access to cooling infrastructure remains a major issue, even in a city like Bhubaneswar, where public cooling spaces and affordable personal cooling options are scarce. Additionally, awareness about effective personal cooling strategies is low, preventing many from adopting simple yet effective heat mitigation techniques. Furthermore, while the government has recognized heat stress as a public health challenge, outreach efforts and preparedness measures have been insufficient in promoting widespread adoption of adaptation strategies.

Dr. Panda stressed that air conditioning is not a sustainable cooling solution and may worsen long-term climate impacts. He advocated for alternative strategies like bathing, water sprinkling, using fans, and improving home ventilation. Rooftop cooling methods—such as reflective paint and halo balls—are gaining ground in India. He also predicted a revival of traditional clay houses as a sustainable, climate-resilient response to heat stress..

The study revealed stark disparities in heat stress vulnerability tied to geography and socioeconomic status. While wealthier groups can afford air conditioning, marginalized communities—like slum dwellers and daily wage workers—lack access to cooling, underscoring the need for affordable, community-based adaptation. Dr. Panda's research informed the Odisha State Disaster Management Authority's (OSDMA) Heat Stress Action Plan, which promotes public awareness and interdepartmental coordination for localized, sustainable responses.

Despite policy progress, infrastructure gaps remain—especially in smaller towns. Within Bhubaneswar, urban heat islands create 3–4°C variations, worsened by deforestation and loss of natural buffers like the Chandaka Forest. The study found 40.5°C to be the critical threshold for increased mortality, highlighting the need for similar assessments elsewhere. Emphasizing community-centered planning under India's constitutional framework, Dr. Panda advocated for local solutions such as afforestation, shading, clay housing, and reduced reliance on unsustainable materials. He concluded with a call for sustained, collaborative action to strengthen climate-resilient health systems.

> ***Heat stress is a lived reality disrupting health, livelihoods, and social systems, especially for the most vulnerable. Air conditioning is not the answer. Sustainable, community-driven solutions—like rooftop cooling, afforestation, and traditional clay housing—must replace short-term fixes. We must shift from reactive to proactive planning, place communities at the center of decision-making, and empower local governments to build climate-resilient health systems.***
>
> ***Dr. Bhuputra Panda***

Session Takeaways

Integrating Climate Adaptation into Health System Planning: The panel underscored the urgency of embedding climate adaptation strategies into health systems. Speakers highlighted how climate-related health risks are escalating due to extreme weather events, vector-borne diseases, and heat stress. Case studies from states like Odisha, Uttarakhand, and Kerala showcased both successful interventions and existing gaps in infrastructure, policy coordination, and funding. A whole-of-government and whole-of-society approach was emphasized as a critical pathway to enhancing resilience. Strengthening policy frameworks, developing localized adaptation strategies, and increasing community participation were deemed necessary for sustainable progress.

Localized Action for Climate Resilience: Localized solutions emerged as a key focus area, with panelists advocating for decentralized, community-driven approaches. Dr. Amrita Gupta presented the Kaushalam initiative from Uttarakhand, which built community capacity through training and risk assessments. Community Emergency Response Teams (CRTs) played a vital role in reducing disaster vulnerability by facilitating preemptive flood preparedness and outbreak management. The discussion emphasized that empowering communities through constitutional mechanisms, such as the 73rd and 74th Amendments, can help hold local governments accountable for climate adaptation initiatives.

Health System Preparedness for Climate Change: Dr. Nitha George presented Kerala's experience with climate-induced health system disruptions, particularly during the 2018 floods. The destruction of critical healthcare infrastructure, including hospitals and emergency care units, led to a re-evaluation of climate resilience strategies. The need for vulnerability assessments and climate-proofing of hospitals was highlighted, alongside solar electrification and disaster preparedness plans. Chhattisgarh's model of Climate-Smart Hospitals was discussed as a scalable approach, integrating energy-efficient designs with climate adaptation strategies. Changes in weather temperature and associated disease surveillance needs must be prepared for. Dr Kadri illustrated the case of Kashmir where temperatures have now reached 37degC in summer, giving way to a threat of local vector-borne diseases such as Dengue, Malaria, Chikungunya which, in the past were prevalent in Jammu, but were never of concern in Kashmir beyond external cases from other regions or travellers.

Governance and Institutional Strengthening for Climate Adaptation: Intersectoral collaboration was a recurring theme, with experts stressing the importance of coordinated governance between health, disaster management, and local government departments. In Odisha, the Heat Stress Action Plan incorporated interdepartmental convergence to mitigate urban heat island effects. The role of data-driven policymaking was underscored, with a call for more robust research to inform climate adaptation strategies. The discussion also highlighted how state disaster management authorities can play a crucial role in institutionalizing climate resilience through cross-sectoral partnerships.

Scaling Up Climate-Resilient Health Initiatives: The panel reflected on the need to scale up proven interventions. Models such as Uttarakhand's community-led preparedness framework and Chhattisgarh's Climate-Smart Hospital initiative were recognized for their potential national implementation. Panelists stressed that long-term funding mechanisms, policy integration, and continuous capacity building must be prioritized to ensure that climate resilience efforts are not short-lived. Aligning health policies with environmental sustainability goals was identified as a necessary step to future-proof India's healthcare system against climate risks.

Community-driven preparedness and health literacy

Unless an empowered community is created, community participation will not be successful. This has to be driven by government action, private sector and health systems in a collaborative concerted effort though education, communication and behaviour change to increase health literacy. In addition, community-led knowledge such as the conversations with communities in Surguja where communities have knowledge of lived experiences of climate adaptation that are key in informing response planning and wider climate-related health literacy,

Call to Action

The session underscored the urgency of integrating climate adaptation into health system planning. While best practices from different states highlight promising initiatives, significant gaps remain in implementation, infrastructure preparedness, and intersectoral coordination. Moving forward:

- A whole-of-government and whole-of-society approach will be critical in building resilient, climate-adaptive health systems in India.
- Strengthened policy frameworks, localized adaptation strategies, and enhanced community participation will be essential for sustainable progress.
- Further research, capacity building, and policy alignment are required to ensure climate resilience is institutionalized across all levels of healthcare delivery.
- Community empowerment through literacy, co-creation of responses as well as data and knowledge transfer from the community to inform policymaking is required.
- Leverage low-cost, existing solutions such as ensuring ventilation is unblocked and having better designed facilities to mitigate heat impact in facilities.

The Way Forward for Building Better Surveillance-Alert-Response-Systems

4

SPEAKERS

Session Moderator:

Dr. Shrikant Kalaskar,
Technical Head - Public Health & Capacity Building, ACCESS Health International

Case study presentations:

Dr. Shrikant Kalaskar,

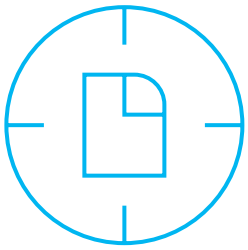
Dr. Aruna Panda (Virtual)
Program Director - Alliance for Pathogen Surveillance Innovation, India

Dr. Oscar Primadi (Virtual)
Former Secretary General, Ministry of Health, Indonesia

Dr. Cheng-Yi Lee (Virtual)
Senior Epidemiologist and Health Policy Officer, Taiwan Centers for Disease Control

Dr. Vijay Yeldandi
Clinical Professor of Medicine and Surgery, University of Illinois, Chicago, USA

Dr. Sneha Nikam
National Program Lead - MNCH & Clinical AI Solution, Wadhwani AI, India



Context & Session Objectives

The session focused on the need for strengthening the surveillance systems across globe including India. The surveillance alert and response systems are crucial aiding health systems resilience and requires collaborative efforts and innovative approaches. The speakers from different countries such as Indonesia and Taiwan shared their insights on their countries action plan, surveillance blueprint and innovative methods used in public health surveillance. The session highlighted India's initiative through NCDC, IDSP and partnerships with organization Wadhwani AI. The discussion highlighted the importance of environmental surveillance, citing examples of its role in zoonotic diseases prediction and improving public health. The session concluded with inviting for collaborations and contributions from experts in the field of surveillance for building a blueprint for public health surveillance in India.

Objectives

- To understand the global perspectives and policies of different blueprints across globe for public health surveillance and its strengthening
- To explore the role of innovative technologies like AI and genomics complementing surveillance and alert response systems

Highlights from Presentations

Leveraging Global Insights and Innovations to Strengthen India's Surveillance Systems by Dr. Shrikant Kalaskar

Dr. Shrikant Kalaskar highlighted progress in the surveillance thematic area of the Global Learning Collaborative for Health System Resilience (GLC4HSR), shaped by global experiences. A key recommendation from peer learning sessions was the creation of a blueprint for surveillance and alert-response systems. To this end, secondary reviews of international models were undertaken, referencing Canada's emphasis on collaboration and infrastructure, Indonesia's National Health Security Action Plan, Korea's Disease Control Agency white paper, and Taiwan's post-COVID epidemic policy. These informed the recommendation to develop a similar framework for India.

He also referenced ongoing efforts by NCDC and IDSP, the core of India's surveillance architecture, and the integration of technologies like Artificial Intelligence (AI) through initiatives such as Wadhwani AI. The role of the Alliance for Pathogen Surveillance Innovations (APSI) in advancing environmental surveillance was also noted. Together, these efforts demonstrate the value of aligning global best practices with local innovations.

Dr. Shrikant added that the session's speakers—experts in surveillance and disease control—would offer actionable insights on structuring and implementing technologies and frameworks to strengthen India's surveillance systems.

Advancing Environmental Surveillance in India: Insights from APSI by Dr. Aruna Panda

Dr. Aruna Panda highlighted the importance of environmental surveillance **as a powerful tool for predicting zoonotic infections, including potential pandemic agents.** Dr. Panda emphasized its role in complementing traditional clinical surveillance systems and shared examples from the work of the Alliance for Pathogen Surveillance Innovations (APSI) in India, showcasing its effectiveness in early detection and disease prevention.

Dr. Aruna Panda elaborated on APSI, a multi-city consortium aimed to develop an advanced surveillance platform using genome sequencing and bioinformatics tools. Initially focused on SARS-CoV-2 during Phase 1, the initiative created a robust database of genome sequences, promoting data sharing at both national and global levels. In Phase 2, the program expanded to environmental sampling, detecting pathogens like dengue, H5N1, and antimicrobial resistance (AMR) contributors through wastewater surveillance.

The initiative spans four regions—Hyderabad, Bangalore, Delhi, and Pune—and has established over 150 wastewater sites across 11 cities in India. Indigenous environmental surveillance kits and standard operating procedures (SOPs) have been developed to support public health authorities. In one instance, pathogens were detected up to seven days before patients exhibited clinical symptoms. Dr. Panda demonstrated a strong correlation between clinical cases of SARS-CoV-2 and viral loads in sewage samples, even during silent waves like Omicron, when clinical testing rates declined but wastewater still showed high viral loads. **Waste water surveillance is effective for detecting pathogens when clinical testing ceases and during silent waves of the virus spread.** Additionally, wastewater surveillance is used to identify priority pathogens resistant to antibiotics, determine their resistance mechanisms, and assess which antibiotic classes they resist.

Dr. Panda highlighted the availability of Standard Operating Procedures (SOPs) for wastewater surveillance, detailing steps from data collection to analysis. These SOPs are freely accessible and can be utilized by public health authorities. She also discussed capacity-building initiatives under the program, including workshops and hands-on training on wastewater collection, storage, processing, data interpretation, and reporting to public health authorities. These efforts aim to equip stakeholders with the skills needed to effectively implement wastewater surveillance systems.

The primary goal is to establish sustainable disease surveillance programs that enhance existing clinical systems, reduce healthcare costs, and mitigate the burden of diseases, particularly those with pandemic potential. The initiative also focuses on environmental surveillance targeting specific pathogens like H5N1 and others. Wastewater samples are collected from sources such as poultry farms, dairy farms, and lakes frequented by migratory birds, aligning with the One Health approach. These efforts aim to predict outbreaks, monitor antimicrobial resistance, and prepare for emerging health threats effectively.

> *Environmental surveillance—such as wastewater surveillance—is not just an early warning tool; it's a cost-effective, scalable, and essential complement to clinical systems. By detecting pathogens before symptoms arise and revealing silent transmission, it empowers public health systems to act swiftly and decisively. For true pandemic preparedness, environmental surveillance must be embedded into the core of our national disease monitoring framework.*
>
> ***Dr. Aruna Panda***

Strengthening Indonesia's Health Security: One Health Approach and Surveillance Enhancements by Dr. Oscar Primadi

Dr. Oscar Primadi discussed Indonesia's efforts to strengthen national health security in alignment with the Global Health Security Agenda and International Health Regulations. **The government has prioritized improving surveillance systems, enhancing laboratory capacities, and bolstering emergency response mechanisms to better prepare for health emergencies.**

Dr. Primadi highlighted that public health system is decentralized at district and provincial levels, working as per competitive priorities, and encounters the issues such as fragmented data, and underreporting. To address these complexities, he stressed the importance of stronger collaboration, digital integration, and real-time reporting to effectively detect and respond to health threats.

Dr. Primadi emphasized Indonesia's commitment to transforming its health system into one that is robust, adaptive, and resilient. **The Indonesia's health system transformation strategy is built around six pillars: primary care transformation and secondary care transformation and integration, healthcare resilience transformation, health financing transformation, health talent development, health technology transformation.** A central component of this transformation is enhancing disease surveillance to better detect and respond to emerging health threats.

Dr. Primadi highlighted Indonesia's comprehensive integrated surveillance system, combining indicator-based and event-based surveillance with over 15,000 reporting units, including health centers, hospitals, laboratories, and points of entry across 38 provinces. This web-based system, linked to SMS and WhatsApp, enables real-time disease monitoring and weekly reporting. Additionally, advanced AI tools like EIOS and BlueDot enhances epidemic intelligence.

Indonesia is enhancing its surveillance system through staff training, lab upgrades, and the SATUSEHAT digital platform, which connects hospitals, clinics, and individuals, integrating electronic health records for improved tracking and coordination across the health ecosystem. The SIZE app, rooted in One Health principles, fosters collaboration across human, animal, and environmental health sectors. A centralized national data center supports informed decision-making. Indonesia is also restructuring its labs into a five-tier system to better detect and respond to outbreaks, including chemical and biological threats.

Dr. Primadi emphasized that disease surveillance is a global challenge, highlighting the importance of regional and international collaboration for early detection and coordinated responses to public health emergencies. Additionally, he stressed the need to leverage AI and big data for real-time outbreak detection, enhance genomic surveillance platforms, and strengthen laboratory

> *In a country as vast and diverse as Indonesia, real-time, integrated surveillance systems—linking over 15,000 reporting units across human, animal, and environmental health—are not just innovations, they are necessities. By embedding digital and AI tools like SATUSEHAT and AI-powered epidemic intelligence into a five-tiered lab network, we are building a model of resilience that turns complexity into coordinated action—because the next outbreak won't wait for our systems to catch up.*
>
> ***Dr. Oscar Primadi***

capacities and workforce skills within the One Health framework. ACPHEED (ASEAN Centre for Public Health Emergencies and Emerging Diseases) unites Asian countries such as Vietnam, Thailand, and Indonesia to enhance regional capacity for addressing public health emergencies. Its main pillars include proactive disease prevention, improved detection through strengthened laboratory networks, and effective response and risk communication.

To improve surveillance systems, it is essential to enhance cross-border collaboration, establish real-time data sharing and interoperability among countries, strengthen regional networks like ASEAN, and invest in digital surveillance and AI-driven tools while institutionalizing the One Health approach. This will bolster global preparedness against emerging health threats.

Leveraging Artificial Intelligence (AI) for Enhanced Solutions in Healthcare by Dr. Sneha Nikam

Dr. Sneha Nikam reinforced to the audience that the foundation of AI in health lies in data, and its application through a One Health approach necessitates data generated from various platforms. Common data formats include text (e.g., OPD prescription slips), images (e.g., X-rays), audio (e.g., respiratory sounds), and tabular data (e.g., HMIS and ANMOL platform data). This data can be utilized to develop AI models for media surveillance, predictive analysis, geospatial analysis, audio recognition, image screening, and generative AI applications. The use of artificial intelligence in healthcare for surveillance can help in the optimization of resources.

Predictive analytics uses existing data to forecast outcomes, supporting risk assessment and identification of high-risk individuals. Dr. Nikam shared an AI model that analyzes ANMOL app data to predict whether pregnant women will complete all four antenatal care (ANC) visits, enabling targeted follow-ups by Auxiliary Nurse Midwives (ANMs). The model also assesses risks for maternal morbidities like preeclampsia and stillbirth using ANC data. She highlighted the Prevention of Adverse TB Outcome (PATO) initiative, which uses NIKSHAY data to predict treatment adherence, helping National Tuberculosis Program (NTP) staff focus efforts on patients at risk of discontinuing therapy.

Geospatial mapping, combining sociodemographic, NIKSHAY, and NFHS data, identifies TB high-risk areas to support targeted interventions. Media disease surveillance employs a web crawler to scan news articles nationwide, flagging IDSP-specified keywords to generate outbreak alerts, which feed into the Integrated Health Information Platform (IHIP). Dr. Nikam also shared an AI solution that screens for presumptive pulmonary TB using cough sound analysis, combined with symptoms and comorbidities for early detection. Another model detects and grades diabetic retinopathy through a simple, non-invasive point-of-care test. Generative AI and large language models (LLMs) are also being used for information extraction and comparative analysis to support health decision-making.

> *From predicting TB treatment dropouts to detecting disease outbreaks through media scans and cough sounds, AI is already transforming how we surveil public health threats. But its true potential lies in making frontline decisions smarter, faster, and more targeted—if we ask the right questions and build responsibly.*
>
> ***Dr. Sneha Nikam***

The challenges include building infrastructure and strengthening health systems to integrate AI tools. Key issues are the need for high-quality data, data interoperability, and limited AI understanding among stakeholders. Additionally, access to information for developing these tools and transparency in training data are significant hurdles.

To move forward, fostering partnerships and creating a supportive environment focused on capacity building and enhancing infrastructure for AI use in healthcare is crucial. Furthermore, data governance, standardization, and the ethical use of AI in development and deployment must be prioritized.

Taiwan's COVID-19 Response: AI and Evolving Surveillance Strategies by Dr. Cheng-Yi Lee

Dr. Lee discussed Taiwan's lessons learned from COVID-19 and the role of AI in public health surveillance. He shared insights from Taiwan's COVID-19 experience in 2020, highlighting how lessons from the 2003 SARS outbreak aided in preparation and early response during the pandemic. The Central Epidemic Command Center led the effort, and Taiwan successfully implemented a zero COVID policy for the first two and a half years, supported by strict border control and quarantine measures. According to the Economic Times, Taiwan had the ninth lowest cumulative excess deaths from 2020 to 2022. Similarly, The Lancet reported that Taiwan experienced the lowest excess mortality rates due to COVID-19.

Dr. Lee emphasized the evolution of Taiwan's epidemic events and control policies in the post-COVID era. The approach utilizes the SARS-CoV-2 seroprevalence rate to estimate the Infection Detection Rate (IDR), relying primarily on two components: the number of seropositive individuals (indicating real infections in the community) and comparisons with notification numbers collected by the surveillance system.

Taiwan's CDC surveillance system comprises both indicator-based and event-based systems. The indicator-based systems collect data through notifiable disease reporting, syndromic surveillance, sentinel surveillance, and laboratory surveillance, among other methods. In contrast, the event-based system gathers information from media sources, social networks, and intelligence from other countries.

In Taiwan, the national health insurance coverage exceeds 99 percent, which facilitates collaboration with the National Health Insurance Administration to monitor current syndromic data. Taiwan also employs natural language processing and AI-assisted systems to collect epidemic information, automatically categorize, and translate news articles. One of the primary challenges faced by the Taiwan CDC is information acquisition, as countries utilize various platforms or formats to disseminate official statements. Additionally, verifying epidemic data and fact-checking rumors present further challenges. Additionally, epidemic data verification and rumours factcheck is also another challenge

> *The surveillance concept can be understood using an iceberg figure, where the tip represents symptomatic cases reported to authorities and captured by surveillance systems, while the larger portion submerged beneath the surface signifies the vast amount of information that remains unknown and requires various systems to gather.*
>
> ***Dr. Cheng-Yi Lee***

Surveillance in infectious disease management

Dr. Vijay Yeldandi noted that simple observation is a form of surveillance useful in managing infectious diseases. He shared an experience regarding the increased incidence of aspergillosis in lung transplant patients, which was identified through patient observation. As a result, treatment for aspergillosis became mandatory for all lung transplant recipients. He also mentioned surveillance related to the spread of HIV in India, emphasizing its transmission not only among high-risk groups like truck drivers but also among pregnant women and blood donors.

Dr. Yeldandi shared insights from the HAPPEN project (Health Advancement, Peer Partners, Empowerment Network), which involved participatory research with both the Chenchu tribe and urban populations to understand the prevalence of metabolic syndrome.

> *True surveillance goes beyond detecting pathogens—it listens. It must move past a medicalized gaze to capture the social stressors, silent crises, and lived realities that shape health. When we only measure what we already understand, we ignore what matters most to communities. Surveillance should not just protect lives—it must uphold dignity, reflect local voices, and respond to invisible threats that too often go unnoticed in traditional public health systems.*
>
> ***Dr. Vijay Yeldandi***

Session Takeaways

- **Blueprint for India:**
  India must create a comprehensive surveillance blueprint, informed by global models (e.g., Canada, Korea, Taiwan) and rooted in the integration of traditional systems like NCDC and IDSP with AI-driven innovations.
- **Environmental Surveillance:**
  Wastewater surveillance, as demonstrated by APSI, is a cost-effective early warning system capable of detecting outbreaks and antimicrobial resistance before clinical symptoms surface, supporting the One Health approach.
- **AI-Driven Innovations:**
  AI models are already enhancing surveillance—predicting TB treatment adherence, identifying high-risk pregnancies, flagging media-reported outbreaks, and screening for diseases like TB and diabetic retinopathy.
- **Global Models in Practice:**
  Indonesia's SATUSEHAT platform and Taiwan's AI-supported epidemic intelligence show how digital integration, lab networks, and cross-sector collaboration can strengthen national health security.
- **Surveillance Beyond Pathogens:**
  Surveillance must move beyond disease detection to include social stressors and lived realities, as emphasized through community-based approaches and the HAPPEN project.
- **Challenges & Gaps:**
  Key barriers include fragmented systems, data quality issues, lack of cross-border interoperability, insufficient infrastructure, and ethical challenges in AI deployment.

Call to Action

The speakers collectively underscored the need for cross-border collaboration, ethical AI deployment, and robust data governance to address emerging health threats effectively. By combining innovative technologies with global partnerships and community-based approaches, the session outlined a comprehensive roadmap to enhance disease surveillance systems and global health security.

To build truly resilient, equitable, and responsive surveillance systems, India and global partners must:

- **Co-create a national surveillance blueprint,** integrating clinical, environmental, and digital surveillance systems with the One Health lens.
- **Institutionalize environmental surveillance** (e.g., wastewater monitoring) as a core pillar of early outbreak detection and pandemic preparedness.
- **Scale AI solutions responsibly** by investing in quality data, interoperability, ethical frameworks, and health system capacity-building.
- **Promote international collaboration,** particularly in the Global South, to strengthen real-time data sharing and epidemic intelligence.
- **Embed community voices** into surveillance design to ensure that systems reflect real health risks—not just medical indicators but also invisible social determinants.

Enhancing Health Systems Resilience in the Context of Conflict and Mass Displacement

SPEAKERS

Session Keynote:

Dr. Sohel Saikat (Virtual),
Senior Advisor Primary Health Care and Lead: Health Systems Resilience and EPHFs, World Health Organization

Moderator:

Dr. Shaza Hany,
Technical Specialist (Research & Public Health), ACCESS Health International

Panelists:

Dr. Hala Zaid,
Regional Director - MENA, ACCESS Health International; Former Minister of Health and Population, Egypt

Dr. Ahmed El-Sobky,
Chairman, Egypt Healthcare Authority

Prof. Mala Rao,
Director, Ethnicity and Health Unit & Senior Clinical Fellow, Department of Primary Care and Public Health, Imperial College London

Dr. Ahmed Sada (Virtual),
Executive Director, Civil Society Support Fund, Ministry of Social solidarity, Egypt

Mr. Jakob Arhem (Virtual),
Public Health Officer, United Nations High Commissioner for Refugees

5

Context & Session Objectives

The moderator set the context by highlighting several challenges health systems face in regions impacted by conflict and mass displacement. These regions often grapple with overwhelmed infrastructures, increased disease burdens, and significant gaps in healthcare delivery. Vulnerable populations, particularly women, children, and individuals with pre-existing health conditions, are disproportionately affected and encounter greater barriers to accessing care. The moderator emphasized that building resilience in these settings is not only about maintaining services but also ensuring health equity and quality care amid chaos.

Objectives

1. To explore strategies for strengthening health systems in regions affected by conflict and displacement, focusing on integrating displaced populations and host communities.
2. To discuss innovative approaches for providing equitable and quality healthcare in fragile and crisis-affected settings.
3. To examine the role of cross-sector collaboration between governments, international organizations, and civil society in building resilient health systems.
4. To address the broader social determinants of health and their impact on displaced populations and host communities.
5. To identify practical solutions for improving healthcare delivery, ensuring continuity of care, and enhancing the accessibility of healthcare for vulnerable groups.
6. To highlight the importance of building healthcare infrastructure and governance frameworks that can withstand crises and adapt to evolving health needs.

Session Keynote

Dr. Sohel Saikat on Building Health Systems Resilience in Countries with Fragility, Conflicts, and Violence Settings

In his keynote address, Dr. Sohel Saikat delivered a compelling message on the urgent need to reimagine health systems resilience, especially in countries affected by fragility, conflict, and violence (FCV). Nearly a quarter of the global population—over two billion people—live in FCV contexts, where governance and institutional capacities are deeply compromised. These countries face overlapping crises including displacement, poverty, and severely under-resourced health systems, all compounded by climate change.

Dr. Saikat emphasized the strong geographical and systemic overlap between FCV settings and regions most vulnerable to climate stressors. These dual pressures weaken countries' ability to deliver even basic health services. Over 50 countries lack foundational health infrastructure such as functional supply chains, a paid health workforce, or reliable access to water, electricity, and essential medicines. Globally, 4.5 billion people still lack access to basic health services, 2 billion face financial hardship in accessing care, and 1.3 billion spend more than 10% of their income on healthcare—figures that are worse in FCV contexts.

A central theme of his presentation was the fragmented and transactional nature of humanitarian and health security responses. Many investments remain short-term, focused on immediate relief rather than long-term system

strengthening. Humanitarian assistance, global health security programs, and vertical disease interventions often operate in silos, failing to integrate with national systems. Dr. Saikat described this as a missed opportunity to create lasting impact.

He presented WHO's strategic approach to health systems resilience, built around three pillars: investing in health systems during stable periods, ensuring continuity of essential services during crises, and planning for recovery post-shock. Citing COVID-19, he argued that its global toll could have been reduced with better-prepared systems. WHO has developed practical tools, including handbooks on service continuity and recovery planning, to help countries institutionalize resilience.

Dr. Saikat also highlighted the importance of embedding health into the Humanitarian-Development-Peace (HDP) Nexus. WHO has developed a framework to align health actions with national sector plans, budgets, and monitoring systems. He advocated for transitioning emergency resources—like mobile clinics and surge health workers—into national systems to avoid waste and strengthen long-term capacity. Using South Sudan as an example, he detailed how WHO helped develop a stabilization and recovery plan aimed at closing systemic gaps and building government and donor trust. He stressed that national leadership is key to sustainable change.

> *Countries affected by fragility, conflict, and violence cannot afford fragmented aid—we need integration, not parallel systems. We cannot let the burden of war, displacement, and disease fall on the same vulnerable populations again and again.*
>
> ***Dr Sohel Saikat***

Highlights from the Panel Discussion

Innovative Strategies for Seamless Integration of Healthcare Services for Host and Displaced Populations

The first question was directed to Dr. Hala Zaid on the Innovative Strategies for Seamless Integration of Healthcare Services for Host and Displaced Populations

Dr. Hala Zaid started by sharing valuable insights from the Egypt session on health system resilience in conflict and mass displacement, addressing key challenges faced when hosting displaced populations, such as duplication of efforts, coordination gaps, and the need for integrated, practical, and resilient healthcare solutions. Contributions from UNHCR, WHO, the Egyptian Red Crescent, Civil society, and government bodies played a vital role in shaping the approach moving forward.

Dr. Zaid emphasized that when discussing innovative solutions for displaced populations, it is important to address both cross-border and internal displacement, highlighting the critical role of neighbouring countries and the global community in supporting these efforts. She highlighted Egypt's strategic role in supporting displaced populations, particularly from neighbouring countries like Sudan, Libya, and Gaza. Dr. Zaid emphasized that healthcare for displaced people goes beyond just medical services; it includes housing, water, environmental health, and mental health, requiring a multi-sectoral approach and cross-sector collaboration to effectively tackle these issues.

Dr. Zaid also discussed innovative solutions like digital health tools, mobile clinics, and community-driven prioritization of services, especially maternal and child health. She pointed out Egypt's strength in integrating displaced persons into local communities, ensuring they have free access to national health services, rather than isolating them in camps.

She further outlined Egypt's sustainable financing model, combining government funding, health insurance, UNHCR support, civil society, and donor contributions. Dr. Zaid emphasized the importance of early identification of displaced individuals, culturally sensitive care, and engaging displaced persons as community health workers. She concluded by calling for stronger international cooperation to scale and replicate Egypt's model in other countries.

> *Healthcare for displaced populations goes beyond medicines and clinics—it includes housing, water safety, environmental factors, and mental health, requiring collaboration across all sectors to improve overall health outcomes*
>
> ***Dr. Hala Zaid***

Ensuring Uninterrupted Healthcare Delivery During Crises: Key Challenges and Collaborative Solutions

Dr. Ahmed El-Sobky acknowledged Dr. Hala Zaid's contributions to addressing challenges in health system resilience, particularly in displacement and supply chain issues. He highlighted the strain on healthcare infrastructure in host countries like Egypt, which provides healthcare to refugees from Gaza, Syria, Yemen, and Libya, and thanked the leadership for their support in maintaining humanitarian aid.

He identified financial sustainability as a key challenge, especially with the high cost of treating war injuries and chronic conditions like cancer, and noted the shortage of healthcare workers due to brain drain and burnout. He also mentioned the scarcity of essential medications and surgical consumables due to disrupted supply chains.

> *Innovative solutions such as mobile clinics, mobile healthcare services, and virtual consultations are critical in leveraging the capabilities of host countries to serve more people without further displacement. It is important to address these challenges collectively with the international community and funding agencies.*
>
> ***Dr. Ahmed El-Sobky***

For displaced populations, Dr. El-Sobky emphasized the dangers of violence against healthcare facilities and workers in conflict zones, as well as the mental health strain on both displaced people and healthcare providers. He pointed out the disruption of vaccination services in conflict areas, leading to preventable disease outbreaks.

He called for enhanced collaboration through platforms like the MENA region chapter for the GLC4HSR on health system resilience to share knowledge and find funding solutions for essential services. Dr. El-Sobky advocated for innovative solutions like mobile clinics, telemedicine, and virtual healthcare services to improve access to care in underserved areas and stressed the need for global cooperation to address displacement crises.

Targeted Healthcare Interventions for Vulnerable Populations in Crisis Situations

Prof. Mala Rao highlighted the significant health equity challenges faced by vulnerable populations, particularly women and children, in conflict settings. She shared her personal experience during the Yugoslav refugee crisis, where she was tasked with managing an influx of refugees on extremely short notice. This experience helped her understand the severe health and social needs of displaced populations, including the lack of basic necessities like shelter, clothing, and warmth, before addressing healthcare needs.

Prof. Rao emphasized that the majority of refugees are women and children, who face heightened risks, including limited access to healthcare, shelter, and protection. She pointed out that reproductive health issues are particularly critical in conflict zones, noting that maternal mortality rates can be twice as high as in stable regions, compounded by the destruction of healthcare facilities and the prevalence of sexual and gender-based violence. This violence and trauma often deter women from seeking medical help, making it harder to address their needs.

She further discussed the developmental challenges faced by children, including malnutrition, preventable diseases, and the psychological toll of trauma, which can delay their development. To address these challenges, Prof. Rao called for comprehensive targeted interventions that encompass both physical and mental health needs. This includes quickly mobilizing healthcare workers, even from among the refugee communities, and providing them with temporary registration and rapid training.

Prof. Rao also stressed the importance of communication and trust-building with the refugee populations, noting that interpreters should be chosen carefully to ensure trust within the community. The establishment of a respectful, humane relationship with the refugees is crucial for providing effective healthcare. She concluded by highlighting a crucial issue: peacekeeping missions, which are meant to protect vulnerable populations, can sometimes exacerbate gender-based violence and vulnerability. This calls for better governance, sensitivity, and training within such missions to ensure they do not worsen the problem.

> *Gender-based violence is a hidden crisis within conflict settings, and addressing it requires trauma-informed care, dedicated resources, and a deep understanding of the psychological and physical impacts on the survivors.*
>
> ***Prof Mala Rao***

Empowering Civil Society to Facilitate Healthcare Access for Displaced Populations

Dr. Ahmed Sada discussed the significant role of Civil Society Organizations (CSOs) in Egypt, with around 36,000 registered organizations addressing various sectors such as healthcare, education, and human rights. He highlighted the 2019 "Golden Law" that facilitates CSOs' independence and international cooperation and introduced the Civil Society Support Fund (CSF), activated in 2022. The CSF aims to empower CSOs to partner with the state to achieve Egypt's Vision 2030 and respond to humanitarian challenges, prioritizing values like positive citizenship, accountability, and sustainability.

Dr. Sada emphasized the importance of both financial resources and technical support for CSOs to improve healthcare adaptability, including investments in infrastructure like mobile healthcare centres and emergency preparedness. He stressed the need for capacity building at the grassroots level to ensure effective crisis response, especially in providing culturally sensitive healthcare for refugees and migrants. He also discussed the importance of sustainable funding, including multi-year grants and crowdfunding, for long-term CSO sustainability. Emergency response preparedness, supported by funding for local training and rapid response, was another key point.

Dr. Sada introduced the CSF's upcoming digital platform, linked to the national registry of CSOs, which will feature CRM (Customer Relations Management) and ERP (Enterprise Resource Planning) systems for efficient management. The platform will support donation campaigns, grant applications, and integrate with the national volunteer platform to strengthen emergency response efforts.

In conclusion, Dr. Sada highlighted the importance of empowering CSOs, improving healthcare infrastructure, and ensuring long-term sustainability through funding, capacity building, and technology.

> *Empowering Civil Society organizations to improve the adaptability of healthcare facilities and healthcare systems at large requires providing not only financial resources but also technical support and capacity building.*
>
> ***Dr. Ahmed Sada***

Strategic Policy Initiatives for Integrating Health Services for upholding the Rights of Displaced Populations

Mr. Jacob Arhem highlighted the crucial role of inclusion in addressing the needs of refugees in Egypt, focusing on financial and social integration alongside healthcare. He noted that refugees in Egypt now live within the host population, moving away from the old system of isolated camps, and contribute economically by participating in the local labor market. This shift shows refugees are no longer seen as a burden but as contributors to the local economy.

Mr. Arhem emphasized financial inclusion, stating that refugees should have access to local labor markets and financial systems, which would allow them to support themselves and contribute to the national economy. He also pointed out the challenge that refugees in Egypt, while receiving basic services, are excluded from national financial protection mechanisms, especially in advanced healthcare, and argued that they should be included in these systems. He praised Egypt's progress with the introduction of a new Asylum Law, which enables the government to manage refugee registration and integrate them into the broader healthcare and social systems. This law helps track refugees' demographics and needs, making their inclusion in national systems more feasible.

Mr. Arhem concluded by noting that Egypt's approach could serve as a model for other countries, like Jordan and Turkey, where refugees are integrated into national systems rather than relying solely on international organizations. This inclusion opens opportunities for financial support from international organizations and strengthens the host country's capacity to care for displaced populations.

In summary, Mr. Arhem advocated for a holistic, inclusive approach to integrating refugees into society, ensuring they have access to healthcare, economic opportunities, and social rights, which will lead to sustainable and equitable outcomes for both refugees and host countries.

> *We need to move away from the idea that refugees are a burden. They contribute to the economy, as seen in Egypt, where they boosted the local economy. The keyword is inclusion. Refugees must be included in society, not just in healthcare, but in all aspects, including financial inclusion, labor markets, and access to bank accounts.*
>
> ***Mr. Jakob Arhem***

Session Takeaways

The session focused on strategies to strengthen health systems in regions impacted by crisis and displacement. The discussions explored innovative solutions, cross-sector collaboration, and the need to address both healthcare and broader social determinants for vulnerable populations. Here are the key takeaways:

- **Multi-Sectoral Approach:**
  Effective healthcare for displaced populations must address not only medical services but also housing, water safety, environmental health, and mental health, requiring cross-sector collaboration.
- **Integration into Local Healthcare Systems:**
  Displaced populations should be integrated into local communities with access to national health services, avoiding isolation in camps.
- **Mobile and Virtual Healthcare Solutions:**
  Mobile clinics, telemedicine, and virtual healthcare services are vital for delivering uninterrupted healthcare during crises and improving access in underserved areas.
- **Financial Sustainability and Healthcare Worker Shortages:**
  Addressing financial challenges, including the high cost of care for war injuries and chronic conditions, and tackling the shortage of healthcare workers due to burnout and brain drain, are crucial for maintaining healthcare services.
- **Role of Civil Society Organizations (CSOs):**
  CSOs play a pivotal role in crisis response, requiring both financial and technical support to improve healthcare infrastructure and ensure cultural sensitivity in service delivery.

- **Empowering Refugees and Host Communities:** Refugees should be integrated into national systems, including healthcare, labor markets, and financial inclusion, to promote long-term resilience and economic contributions to host countries.
- **Sustainable Funding Models:** A combination of government funding, international support, and private-sector contributions is essential to ensure the sustainability and scalability of health systems in crisis zones.
- **Trauma-Informed Care for Vulnerable Populations:** Addressing gender-based violence, particularly in conflict settings, requires trauma-informed care, dedicated resources, and sensitivity to the unique needs of women and children.

These insights underscore the need for comprehensive, inclusive strategies to ensure healthcare resilience and support for displaced populations in conflict and displacement settings.

Presentation on Africa Health Excon 2025

The session continued with a presentation by Dr. Kamal Abid, Executive Director of Africa Health Excon. Dr. Abid provided an overview of Africa Health Excon 2025, scheduled to take place from June 24-27, 2025, in Cairo. Africa Health Excon is recognized as the largest medical exhibition and conference in Africa, and it will focus on crucial areas such as the localization of manufacturing and the integration of artificial intelligence in healthcare. The exhibition will span 30,000 square meters, with dedicated sections for consumables, equipment, laboratory supplies, and pharmaceuticals.

The event will bring together key decision-makers, including health ministers, heads of regulatory authorities, and other healthcare leaders. In addition to showcasing the latest in medical technologies, Africa Health Excon 2025 will serve as a platform for fostering partnerships and creating new investment opportunities in the Egyptian and African healthcare markets.

A notable emphasis was placed on the growing opportunities for Indian companies to invest in the Egyptian healthcare market, which boasts a pharmaceutical sector valued at $5 billion annually and a growth rate of 10-15% per year. These opportunities for innovation and collaboration will be key highlights at the event. Dr. Abid's presentation further elaborated on these prospects, highlighting the strategic focus on the future of healthcare in Egypt and Africa.

Call to Action

To effectively address the healthcare needs of displaced populations, it is crucial to implement multi-sectoral approaches that go beyond healthcare to include housing, water safety, and mental health. Financial inclusion must be prioritized by ensuring refugees have access to local labor markets and financial systems, enabling them to contribute to the economy and strengthen their livelihoods. Strengthening international cooperation is essential to scale successful models like Egypt's inclusive healthcare and social systems to other countries, while financial and technical support to Civil Society Organizations (CSOs) will enhance healthcare system adaptability and emergency preparedness.

Innovative solutions such as mobile clinics and telemedicine are vital for expanding access to care in underserved areas. The session emphasized that displaced populations must not be seen as burdens but as contributors to host societies, and inclusion should be central to integration strategies. Moving forward, strong national policies, enhanced international collaboration, and comprehensive, resilient approaches are key to improving the health and well-being of displaced populations and creating sustainable outcomes for both refugees and host communities.

Following the insightful discussions from the distinguished panelists, the session moved forward to a significant milestone in advancing healthcare in Egypt. The exchange of the Letter of Intent between UPA (the Egyptian Authority for Unified Procurement, Medical Supply, and Management) and ACCESS Health International marks an important collaboration aimed at enhancing healthcare capacity and advancing medical technology in Egypt. This partnership will focus on three key areas: designing and delivering training programs, implementing healthcare programs through partnerships, and building capacity with international experts.

The session concluded with an enthusiastic outlook on the potential of these collaborations and the positive impact they are expected to have on the region's healthcare landscape.

Building Resilience Against NCDs: The Silent Pandemic

6

SPEAKERS

Session Moderator:

Dr. N. Krishna Reddy,
CEO, ACCESS Health International

Panelists:

Prof. D. Prabhakaran
Executive Director, Center for Chronic Disease Control, Panelist

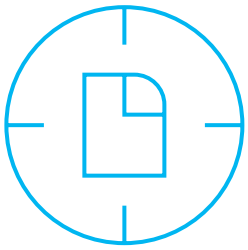
Dr. Meenakshi Sharma
Scientist G, Indian Council of Medical Research and Government of India (online), Panelist

Dr. Ratna Devi
CEO and Founder, Dakshayani and Amaravati Health and Education, Panelist

Dr. Parag Bhamare
Technical Lead, Women's Cancer, Jhpiego, Panelist

Mr. Ram Khandelwal
Founder & CEO, Health India Foundation (HHIF), Panelist

Ms. Himani Sethi
Global Program Director, ACCESS Health International, Panelist



Context & Session Objectives

As part of the conclave, an expert panel discussion on building a resilient health system to address the growing burden of non-communicable diseases (NCDs) was organized. The session included senior policymakers, state and non-state actors, academia, industry, and patient groups. The discussion focused on understanding evolving policies, implementation strategies, and innovative approaches to prioritize prevention, ensure access to treatment, and improve the overall well-being of people around the world.

The Asia-Pacific Cardiovascular Disease Alliance (APAC CVD) was launched in June 2023 to build a multisectoral coalition to address these gaps, with ACCESS Health International serving as the secretariat. To further strengthen the APAC Alliance, country chapters are being developed, with India being a critical focus due to its rising burden of non-communicable diseases, particularly CVD. The 'India CVD Country Chapter' aims to support the broader goals of the Alliance at a national level.

Objectives

The session aimed to:

- Further dialogue towards building a resilient health system to address the growing burden of non-communicable diseases (NCDs).
- Understand the evolving policies, implementation strategies, and innovative approaches to prioritize prevention, ensure access to treatment, and improve the overall well-being of people around the world
- Encourage collaboration between policymakers, academia, industry, and patient groups.

Dr. Krishna Reddy, CEO of ACCESS Health International and moderator of the session, set the context by emphasizing the urgent need to address non-communicable diseases (NCDs), which cause two-thirds of global deaths, with a significant proportion being premature and preventable. Despite the Sustainable Development Goal's commitments to reduce premature NCD-related deaths by one-third by 2030, only 17 out of 190 countries are on track. This issue has often been overshadowed by crises like climate change and infectious diseases. The session aimed to bring NCDs to the forefront, emphasizing the importance of building resilient health systems to tackle this ongoing health crisis. With the upcoming inclusion of NCD control on the UN General Assembly agenda, the discussion highlighted the need for stronger policy enforcement and greater attention to NCD prevention, treatment, and well-being.

Highlights from the Panel Discussion

Insights on the current national action plans for control of NCDs from the perspectives of a patient organization:

Mr. Ram Khandelwal highlighted the challenges that patients face, including limited access to care, delayed diagnosis, and a lack of awareness about non-communicable diseases. He pointed out that many people ignore health check-ups and lifestyle risks like lack of sleep, nutrition, stress, obesity, and exercise. He emphasized that while heart disease can affect anyone, it is often not talked about. He also discussed the mental health struggles patients face after treatment and the lack of education on living with heart disease. He also stressed the importance of patient communities in providing valuable support and education. Mr. Khandelwal called for a holistic approach in national health action plans, focusing on treatment, post-care, and mental health. He also highlighted the importance of cardiac rehabilitation, which many patients are unaware of. He also stressed the need for policies that address all aspects of patient care.

> *Most patients of diseases like cancer or heart disease have little guidance on how to live with their condition. Beyond medical treatment, patients face mental health struggles, lifestyle adjustments, and financial concerns. We must shift from merely treating diseases to truly supporting patients through a holistic, life-cycle approach in our policies and healthcare systems.*
>
> ***Mr. Ram Khandelwal***

Challenges in Implementing the Existing National Action Plan and Critical Gaps in Implementation

Dr. Prabhakaran discussed the revised National Action Plan for NCDs, acknowledging its strengths and highlighting key challenges. He praised its focus on primary care, which can manage 80 percent of the NCDs, and prevention in five key areas, especially air pollution, although action on this is lacking. He pointed out significant gaps, such as the absence of community engagement, and minimal private sector integration despite its 70–80 percent contribution to healthcare. Dr. Prabhakaran also highlighted the poor treatment adherence, especially for hypertension, where improved management could save 76 million lives by 2050.

The action plan mentioned a health system redesign using technology, but the implementation lacked action. It aligned with SDG 3.4, which aimed to reduce NCD deaths by 30 percent by 2030. However, implementation challenges arose from a lack of team-based care, limiting patient-centered approaches, and causing resistance to simple innovations like fixed-dose combinations.

He further pointed out the low adherence to treatment, particularly for hypertension, which affects 30-50 percent of urban populations. Despite hypertension being easy to manage, only 8-12 percent of patients reach treatment targets. Improving adherence could save 76 million lives globally by 2050.

Dr. Prabhakaran emphasized the need for a holistic approach to healthcare, linking maternal nutrition and childhood experiences to chronic diseases. He argued for integrating care for multiple long-term conditions, which affect 30-40 percent of people over 60 managing multiple chronic conditions. He concluded that healthcare needed to move beyond single-disease interventions and adopt integrated, patient-centered models.

Dr. Reddy emphasized the need to recognize the role of the private healthcare sector, which provides 50–60 percent of services, rather than focusing exclusively on the public health system.

> *The national NCD plan remains fragmented, lacking community engagement, private sector input, and patient-centered care. Despite its focus on prevention and primary care, it overlooks team-based models, adherence strategies, and tech-enabled lifelong management—shifting to a comprehensive, life-course approach is essential for real impact.*
>
> ***Dr. D. Prabhakaran***

Improving care coordination and integrating the private sector, while strengthening primary healthcare.

Ms. Himani Sethi shared insights from her work in Uttar Pradesh and Kerala, focusing on addressing the gaps in healthcare coordination. In Uttar Pradesh, nearly 23,000 health and wellness centers under Ayushman Bharat, have been established and the PMJAY scheme covers 80 million people. Despite this, the healthcare system remains fragmented, with patients navigating between public and private providers without sufficient coordination. To improve care coordination, the team has worked on integrating digital health infrastructure through the Ayushman Bharat Digital Mission (ABDM), encouraging both public and private hospitals to adopt interoperable electronic health records (EHRs) to enable better continuity of care.

She also highlighted initiatives to improve cancer care in Uttar Pradesh, where access to oncology services is limited. The state has expanded the number of empanelled hospitals, included cancer diagnostics in the health benefits package, and collaborated with the National Cancer Grid to reduce drug costs and improve care quality. These efforts aim to improve care coordination, integrate digital health tools, and increase treatment access, moving toward a more integrated and effective healthcare system.

Dr. Reddy summarized by emphasizing the importance of developing comprehensive models of care that go beyond policy to ensure continuity of care across the full NCD spectrum—from health promotion to palliation, following a life-course approach. He highlighted the the GLC4HSR's role in translating discussions into action and listening to community and patient voices to address gaps not

covered by current policies. Key issues raised included the lack of health literacy around NCDs and the need for more focus on rehabilitation and palliative care. The moderator noted that these insights should be communicated to public health authorities to help shape more inclusive and effective strategies.

Health system reforms must move beyond vertical silos and embrace integrated, patient-centric care models that leverage digital tools for better coordination and accessibility. The success of initiatives like PMJAY depends not just on expanding coverage but also on ensuring that treatment pathways are clear, accessible, and lead to meaningful health outcomes for patients.

Dr. N. Krishna Reddy

Perspective on the Current Risk Assessment Tools for the Indian Population

Dr. Meenakshi Sharma highlighted the need for country-specific risk assessment tools for non-communicable diseases (NCDs), as current tools are based on Western populations, missing factors relevant to South Asians, such as pollution, infections, and crowded living conditions. She stressed the importance of developing tools tailored to the South Asian context. At the Indian Council for Medical Research, tools have been developed for conditions like mild cognitive impairment, but more tools tailored to India's context are needed.

She raised concerns about children's exposure to unhealthy lifestyles and recommended including health discussions in university curricula to raise awareness. ICMR's

There is an urgent need to develop risk assessment tools that are specific to our population, as we currently rely on models created for other regions, which may not account for unique factors such as our genetic predisposition, environmental exposures, and socio-economic conditions ultimately leading to gaps in identifying those at risk and providing timely interventions.

Dr. Meenakshi Sharma

hypertension control program reached 56 lakh patients across 150 districts but had a 47 percent control rate and limited impact due to a lack of private sector involvement. She emphasized the need to engage sectors like ESI, railways, and the army for better health outcomes. In the Northeast, where 70 percent of strokes are hemorrhagic, controlling hypertension could reduce risks. Dr. Meenakshi also pointed out the need for risk assessment tools specific to certain populations, considering factors like smoking and drugs. She advocated for better caregiver support, as many patients, especially those with strokes, die within a short time due to inadequate care. Finally, she recommended establishing a surveillance system for NCDs to track progress and impact.

The moderator concluded by stressing the need for a sampling-based surveillance system for NCDs to track the trends, measure impact, and support future planning, similar to systems used for infectious diseases. The moderator also highlighted the need for the Ministry of Health and CCDC to prioritize this effort and incorporate it into relevant research methodologies.

Perspective on the role of the private sector and the civil society to address NCD related challenges

Dr. Ratna Devi discussed the challenges in addressing NCDs, focusing on the lack of financing to implement global commitments. Despite multiple UN high-level meetings, no global funding mechanism for NCDs exists, leaving countries to manage on their own.

In India, NCD funding through the National Health Mission (NHM) is only 3 percent, divided among seven to eight diseases like diabetes, hypertension, and cancer. Mental health is integrated into the broader NCD program, and there is a lack of a continuum of care for patients after conditions like stroke or cancer.

Dr. Devi pointed out that multiple long-term conditions, such as cancer and heart disease, were treated separately, even though they often co-occur in patients. She highlighted the increasing prevalence of neurodegenerative diseases like dementia and Parkinson's, which were not receiving adequate attention in the national NCD program. She also raised concerns about the lack of support for caregivers, especially for the elderly. As family structures change, more institutional care solutions are needed. Dr. Devi stressed the importance of treating patients holistically, considering both their physical and emotional needs. She also noted that patient advocacy in India is fragmented, and recommended forming a national forum of patient organizations to contribute to national policy.

In conclusion, Dr. Reddy emphasized the urgent need to improve health literacy and build the competencies of both professional and family caregivers to strengthen the overall management of non-communicable diseases.

> *While there are numerous commitments made at global high-level meetings on non-communicable diseases, the critical gap remains in the lack of financing. There is language, but no mechanism to implement it. Without dedicated funding, countries are left to their own means to address NCDs, leading to fragmented efforts and an unsustainable burden on health systems.*
>
> ***Dr. Ratna Devi***

Insights on Cancer Care in India

Dr. Parag Bhamare shared insights on cancer care, focusing on breast and cervical cancers and emphasizing early detection. He mentioned the 30-60-90 number representation which highlighted alarming statistics of 30,000 deaths from maternal causes, 60,000 from cervical cancer, and over 90,000 from breast cancer annually in India. Early detection significantly impacts survival rates, as highlighted by the 9-6-4 number representation where 9 out of 10 breast cancer patients survive in the U.S., 6 out of 10 in middle-income countries like India, and only 4 out of 10 in countries like Uganda, underscoring the critical importance of timely diagnosis and treatment.

He pointed out inequities in cancer care, with late-stage diagnoses and limited screening. He stressed the need to adapt screening methods to India's context, as Western guidelines may not fully apply. Jhpiego follows a five-pillar approach: awareness, screening, diagnostics, management, and reporting. Sharing a case study from Uttar Pradesh, he noted that of 100,000 people reached, only 68,000 accessed health centers, and just 27 had malignant cases. The program reduced diagnostic timelines from 22 days to 2 days and detected cancers earlier, showing its impact.

Dr. Bhamare concluded by calling for the need for an integrated effort, early detection, aggressive health promotion, self-care, and decentralized diagnostics using tech-enabled, smart solutions. He also stressed the importance of context-relevant workflows to address the silent NCD pandemic.

Dr. Bhamare highlighted that inequities in cancer care are not merely data points but reflect lives lost due to delayed detection and inadequate interventions. He emphasized that a truly strong health system is one that leaves no woman behind—where awareness permeates every household, screening is universally accessible, and treatment becomes a guaranteed path to survival rather than a privilege for a few.

Dr. Reddy emphasized that addressing the growing burden of non-communicable diseases (NCDs) requires a unified and multi-sectoral approach. He stressed that the government alone cannot tackle this challenge, and highlighted the need for collaboration with philanthropists, the private sector, researchers, and patient groups. Key priorities include strengthening financing mechanisms, developing effective and context-specific care models, improving caregiver training, and promoting evidence-based policymaking.

The panel further underscored the urgency of prevention, early detection, and integration of digital health solutions to improve care coordination and treatment adherence. Challenges such as fragmented healthcare systems, insufficient private sector engagement, limited access to post-treatment and mental health support, and inadequate funding were identified as major barriers.

> *Building a resilient health system means not only treating diseases but preventing them through awareness, early detection, and equitable access to care. When we empower frontline health workers, decentralize diagnostics, and integrate smart solutions, we transform cancer from a silent killer into a battle that can be won.*
>
> ***Dr. Parag Bhamare***

Call to Action

Non-communicable diseases (NCDs) now account for two-thirds of global deaths, many of them premature and preventable. In India, rising rates of cardiovascular diseases, cancers, diabetes, and chronic respiratory conditions demand urgent attention. Despite strong national plans and global commitments, implementation remains fragmented, underfunded, and overly focused on episodic care. This must change.

The session called upon all stakeholders—policymakers, healthcare providers, researchers, civil society, and the private sector—to collaborate in building a resilient, people-centered, and integrated health system that addresses NCDs across the full continuum of care: from prevention and diagnosis to rehabilitation and palliation.

Policymakers must prioritize execution of the national NCD action plan, embed community engagement, and establish a sampling-based surveillance system for real-time monitoring and impact assessment. Greater investment is needed, along with better use of digital tools to improve treatment adherence and care coordination.

The private sector, which provides the majority of health services in India, must be actively engaged. Integration into national health platforms like ABDM, adoption of interoperable digital health records, and shared accountability for outcomes are essential.

Civil society and patient groups must be recognized as key partners. Their lived experiences can guide more empathetic, holistic, and relevant policies. Establishing a national platform for patient organizations can strengthen advocacy and bridge the gap between policy and practice.

Researchers and academic institutions must develop and evaluate context-specific risk assessment tools and scalable innovations tailored to India's diverse population and health system realities.

Disaster Resilient Infrastructure for Crisis Preparedness

SPEAKERS

Spotlight Presenters:

Mr. Christoph Michael Klaiber
Economist, World Bank's Global Facility for Disaster Reduction and Recovery (GFDRR)

Dr. Sihame Chkair
PhD, Health Economist, Universitary Hospital of Nimes, ANAP representant, France

Moderator:

Mr. Girish Bommakanti
Global Director of Operations and Growth, ACCESS Health International

Panelists:

Prof. Vinod Kumar Sharma
Vice-chairperson, Sikkim State Disaster Management Authority (SSDMA), India

Dr. Nino Kharaishvili
MD, Global Health Director, Jacobs, Washington DC.

Dr Hari Kumar
Regional Coordinator for South Asia, Geo Hazard International

Dr Ratnesh Kumar
Lead Specialist – Knowledge Management, Coalition for Disaster Resilient Infrastructure (CDRI)

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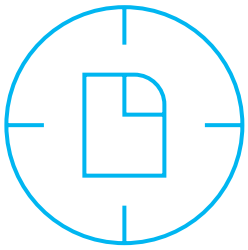


Context & Session Objectives

Disasters affect health systems mainly at three levels: population health, healthcare facility operations, and health infrastructure. While significant progress has been made in protecting population health and improving facility preparedness, resilience in health infrastructure remains under-addressed. Many health systems, especially in rural and underserved areas, lack robust infrastructure capable of withstanding disasters like earthquakes, floods, or disease outbreaks. Poor maintenance, inadequate risk-informed investment, and insufficient resources—such as energy, water, and communication systems—further weaken their ability to respond effectively. Geographic disparities in infrastructure also exacerbate inequalities in access to care during emergencies.

Strengthening health infrastructure resilience is crucial for ensuring uninterrupted care during crises. Innovations such as mobile health units, modular hospitals, telemedicine, and disaster-resilient designs (e.g., earthquake-resistant and flood-proof facilities) are emerging as adaptive solutions. Countries are increasingly adopting standards for sustainable systems in water, energy, and waste management while promoting community-based healthcare models and emergency operation centers. Particularly in developing economies, mainstreaming disaster risk reduction (DRR) and climate adaptation into planning and construction is essential to avoid economic losses and setbacks in achieving sustainable development goals (SDGs). Organizations like Coalition for Disaster Resilient Infrastructure (CDRI) play a vital role in sharing knowledge, building capacity, and supporting the integration of resilience into global infrastructure systems.

Objectives

The session aimed to leverage expert insights for effective disaster management in health infrastructure, even in remote areas. Participants expected to gain understanding on integrating health systems, climate resilience, and infrastructure resilience. The session sought to recognize and promote the development of resilient healthcare infrastructure through actionable plans and shared knowledge, specifically by:

- Understanding key lessons from success stories in building resilient health systems and infrastructure
- Discussing approaches to encourage investment in resilient health infrastructure and utilization of healthcare facility assessment tools for building resilient infrastructure.
- Exploring strategies for collaboration among key stakeholders to promote resilient health infrastructure and climate adaptation at a systems level.

Highlights from Presentations

Disaster Impacts and Health Infrastructure Resilience: Lessons from Japan by Mr. Christoph Michael Klaiber

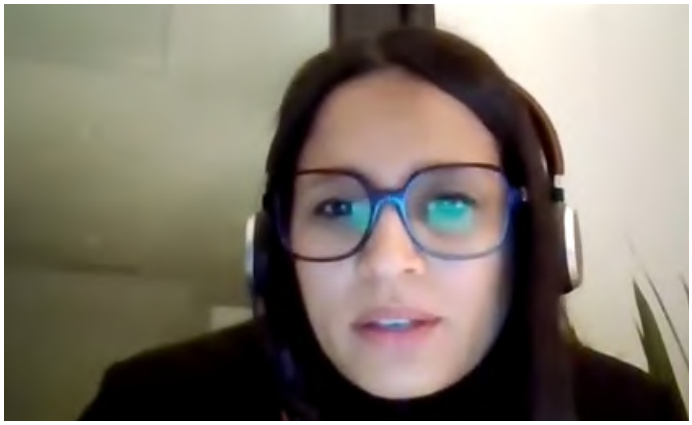
Mr. Christoph highlighted Japan's experience in creating disaster-resilient health infrastructure, focusing on three key features. Firstly, the foundation of the health system includes personnel, equipment, routine services, and cross-sectoral coordination. Secondly, continuous improvement through institutionalized learning processes updates infrastructure, hazard plans, and regulations. Lastly, resilient infrastructure plays a crucial role in a cross-sectoral approach to resilience. Japan's health infrastructure has faced significant challenges, such as the Great Hanshin-Awaji Earthquake, which affected Kobe City Central Citizens Hospital. Despite being operational, the hospital could not admit patients due to infrastructure disruptions.

This underscores the importance of resilient lifelines and essential services. Post-disaster reforms led to the establishment of disaster-based hospitals (DBH), which now number over 800, acting as first points of contact for emergency responses. DBHs are strategically located based on prefectures, structural integrity, and risk profiles. They are equipped with seismic base isolation systems, disaster dispatch medical teams (DMAT), and emergency communication systems. These hospitals can operate with reduced power and have backup systems like generators and satellite phones. Building code reforms have mandated seismic resilience, reducing building collapses.

The 2018 floods in southwestern Japan highlighted the need for updated infrastructure to address evolving hazard profiles. In response, measures were taken to mitigate flood risks, including relocating equipment to higher levels and installing flood barriers. Subsequently, business continuity plans were implemented across sectors, ensuring service availability for vulnerable populations. Resilient health infrastructure is critical but relies on cross-sectoral collaboration and flexibility to address disasters effectively. This approach avoids redundancies by focusing on where disasters occur, ensuring that resources are allocated efficiently to maintain essential services. Agreements with private sector actors, like power companies, help designate resources to hospitals during emergencies, supporting the most vulnerable populations.

> *Building disaster-resilient health systems goes beyond strengthening hospitals—it requires a deliberate, system-wide approach that integrates resilient infrastructure, real-time coordination across sectors, and continuous institutional learning. Japan's experience shows that without open roads, functioning power, and robust emergency networks, even the best-equipped hospital cannot save lives.*
>
> ***Mr Christoph Klaiber***

Financing Resilient Health Infrastructure by Dr. Sihame Chkair



Dr. Sihame Chkair discussed the economic aspects of investing in resilient health infrastructure, emphasizing the risks posed by extreme climate events like heatwaves, floods, and droughts. These events have direct health impacts and strain infrastructure, causing power outages, water shortages, and structural damage. To address these challenges, strategies include proactive planning by integrating climate resilience into infrastructure design, prioritizing sustainable investments to modernize existing facilities, and fostering local and national collaborations. Innovative technologies also play a crucial role in managing extreme climate events.

Multiple criteria decision analysis (MCDA) and cost-benefit analysis (CBA) are used to help policymakers make informed decisions amidst complex constraints. MCDA involves identifying and weighting criteria, evaluating strategies, and conducting sensitivity analyses to ensure robustness. This approach ranks strategies based on their weighted scores, facilitating the selection of the most effective option for mitigating climate risks. The decision-making process begins with identifying all relevant criteria, assigning weights based on importance, and evaluating available strategies. By aggregating these evaluations and incorporating sensitivity analysis, a total ranking of strategies is calculated, allowing policymakers to choose the best approach for addressing climate risks.

Dr. Sihame presented a case study from the 2014 floods in France, illustrating the use of CBA. A hospital near a river was flooded, necessitating the suspension of activities and patient transfers. In this context, the analysis compared two scenarios: renovating the hospital with flood-resistant measures and relocating it. The study estimated significant damages (7 million euros) but found relocating the hospital was not cost-effective due to the low probability of future floods. Ultimately, a political decision was made to rebuild a larger hospital in the region. Hence, MCDA and CBA are techniques which can empower professionals in order to make the best well informed decisions in the context of constraints and face to different scenarios. Hence it can promote transparency, objectivity and a good understanding of all the constraints involved in the complex decision making.

> *Building climate-resilient health systems requires more than physical upgrades—it demands forward-looking, transparent, and evidence-based decision-making. Tools like Multi-Criteria Decision Analysis (MCDA) and cost-benefit analysis enable policymakers to weigh complex trade-offs, prioritize investments, and align infrastructure planning with future climate risks, economic constraints, and community needs.*
>
> ***Dr. Sihame Chkair***

Highlights from the Panel Discussion

Climate Resilience in Indian Health Infrastructure

Moderator Mr. Girish Bommakanti discussed India's health infrastructure and its vulnerability to climate change. With over 200,000 healthcare facilities across the country, many face significant risks from extreme weather events like floods and cyclones. **India is ranked as the seventh most vulnerable country to these events.** A study by Council on Energy, Environment and Water (CEEW) found that 11% of healthcare facilities are at high risk, particularly in coastal areas such as Mumbai and Raigad. In Maharashtra, 33% of facilities are projected to be at higher risk due to extreme climate events. Half of India's healthcare facilities have moderate to high adaptive capacities, while 48% require significant improvements.

Immediate steps include conducting structural audits, enhancing workforce capacity, and investing in infrastructure. Long-term plans focus on districts with low adaptive capacity and high hazard occurrence. A healthcare facility resilience checklist has been introduced to mainstream risk assessments in coordination with the National Program on Climate Change and Human Health (NPCCHH). This checklist aims to enhance preparedness and resilience across healthcare facilities.

Enhancing Resilience in India's Disaster Management

Professor V K Sharma emphasised that a publicly available science and technology report highlights that India's coastal areas, the Himalayan belt, and central regions are becoming increasingly vulnerable to natural disasters due to climate change. Intergovernmental Panel on Climate Change (IPCC) reports and discussions at global climate conferences confirm the visible impacts of climate change. New disasters, such as heatwaves, cold waves, and emerging diseases, have added to the 31 disasters identified earlier. **Health has become a critical focus as new diseases and microbial mutations pose significant challenges, emphasizing the importance of cooperation in addressing these threats.** India is vulnerable to a large number of disaster and climate events. The Coalition for Disaster Resilient Infrastructure (CDRI) was launched in 2019 at the UN Climate Action Summit. This initiative quickly gained global recognition, with numerous countries and organizations joining as members. The coalition addresses the urgent need for resilient infrastructure to mitigate disaster risks and has become a significant success in the international arena.

In 2011, after the Sikkim earthquake, Dr Vinod shared his experience while serving as Vice Chairman of the Sikkim State Disaster Management Authority. The recognition of the vulnerability of the Himalayas to disasters like earthquakes, landslides, and avalanches was crucial. It was decided that all government-funded constructions—whether small village homes or major buildings in Gangtok—would be earthquake-resistant. Since 2012, every government project, including hospitals, schools, roads, and houses, has adhered to disaster-resilient standards, leveraging seismic zone IV and V guidelines and technology provided by IITs.

> *Resilience is no longer a luxury—it's a necessity. Even with limited resources, we can build both structural and non-structural capacities, draw on traditional wisdom, and create locally grounded models that save lives and can be replicated across the country.*
>
> ***Prof. V.K. Sharma***

Addressing Climate Change Impacts on Human Health Systems Globally

Dr Nino Kharaishvili mentioned that addressing the challenges of climate and health requires a multidisciplinary approach, as these areas are deeply interconnected. Major climate events significantly impact human health, as well as animal and planetary health. For instance, extreme heat exacerbates cardiovascular issues, air pollution worsens respiratory illnesses, and ecological changes due to rising sea levels and flooding lead to the spread of waterborne and vector-borne diseases.

Climate change impacts human health not only directly but also through indirect effects, such as drought and water scarcity, which disrupt food security and lead to malnutrition and undernutrition. These health challenges increase morbidity and mortality, placing additional strain on healthcare systems and driving up healthcare costs. Furthermore, illnesses related to climate change affect the workforce, exacerbating economic and social pressures. Dr Nino highlighted that about 3.6 billion people live in areas highly vulnerable to climate change. Climate-related events are projected to cause 250,000 additional annual deaths by 2030, linked to undernutrition, malaria, diarrhea, and heat stress. According to WHO, these impacts will result in $4 billion in annual health-related damages by 2030. Despite these challenges, only 2% of climate funding currently addresses health-related issues.

Greenhouse gas emissions in healthcare are categorized into three scopes that measures carbon emissions. Hospitals often focus on Scope 1 emissions, which include direct emissions from facilities and infrastructure. However, the bigger challenge lies in addressing Scope 2 and Scope 3 emissions, which stem from purchased energy and the extensive supply chain that supports healthcare services, including medical equipment, pharmaceuticals, and waste management.

Dr. Nino shared an eight-core competency model which can be used to assess health system resilience, covering policy frameworks, multisectoral coordination, infrastructure, logistics, business continuity, and healthcare worker training. Built on published best practices, this model addresses confusion among healthcare stakeholders about selecting appropriate tools and frameworks. The solution offers a clear blueprint for policymakers and healthcare facility owners to choose options tailored to their specific needs and scenarios.

She mentioned about the organization's experience, in which they have supported climate-resilient projects in various locations. In island Kiribati, they designed master plans for hospitals to mitigate sea level rise impacts. In Indonesia, they strengthened health systems by training workers and improving facilities. In the UK, they developed disease surveillance systems, and in Scotland, they created net-zero roadmaps for health boards. Additionally, the climate-health space often faces confusion due to numerous tools and practices. Simplified, adaptable blueprints tailored to local needs and environment are essential for effective implementation.

> *The healthcare sector is a significant contributor to climate change. If it were a country, it would rank as the fifth-largest carbon emitter globally, accounting for 4.4% of greenhouse gas emissions. In some nations, such as the U.S., healthcare contributes up to 8% of the national carbon footprint, while countries like Switzerland and Italy report contributions of 9% and 6%, respectively. This high impact stems from energy-intensive operations, procurement, and infrastructure within the sector.*
>
> ***Dr Nino Kharaishvili***

Building Resilient Health Infrastructure Beyond Safe Buildings

Dr. Hari Kumar mentioned that resilient health infrastructure goes beyond safe hospital buildings. It requires comprehensive measures to ensure hospitals can effectively serve communities during disasters, including robust systems, preparedness, and adaptability. Safe health facilities protect those inside, but functional hospitals go further by serving and safeguarding the entire community. They reduce loss of life and injury during disasters, ensuring broader resilience and support for affected populations. It can act as a hub for response, relief and recovery. Functional hospitals are complex institutions requiring multiple components to work together seamlessly. Key components of Functional Hospitals are Safe buildings, available supplies, functional communication and utility systems, functional medical equipments and staff preparedness.

Safe hospital buildings are essential, but not all buildings within a hospital complex are equally critical. Administrators must prioritize protecting key facilities. Beyond safety, staff must be trained to handle emergencies, medical equipment must remain operational, and utilities like power, water, and medical gases must function reliably. Effective communication and supply availability are also vital for ensuring hospitals can respond efficiently during disasters. Hospitals rely heavily on external utility supplies like power, water, and medical gases. **While many hospitals now produce their own oxygen post-COVID, external reliance limits control during emergencies. To ensure resilience, hospitals must aim for self-sufficiency in critical utilities.**

> *Hospital resilience is not just about surviving a disaster—it's about sustaining care when everything else fails. From anchoring generators to protecting power lines and training staff, resilience demands foresight, not just infrastructure. The true test is whether decision-makers ask the hard questions before a crisis forces the answers.*
>
> ***Dr Hari Kumar***

Ensuring Hospital Resilience through Comprehensive Assessment

The core of hospital resilience lies in maintaining functional utility systems. When assessing hospitals, it's crucial to examine all components comprehensively, including the building structure and potential hazards. A holistic, all-hazards approach is essential for evaluating a hospital's preparedness and functionality during emergencies. Dr Hari cited example of a hospital located just 30 meters from the Brahmaputra River has its generator and CSSD in the basement—a poor decision that risks shutting down operations during floods. Maintenance departments are critical to hospital resilience, as seen in Chennai in 2015, where a flooded basement caused power loss, leading to 18 ventilator deaths. Thus, risk assessments must address all the vulnerabilities comprehensively to ensure hospital safety and functionality during disasters.

The WHO's Global Hospital Safety Index (HSI) is a robust tool for assessing hospital functionality and identifying vulnerabilities without requiring detailed calculations. It evaluates various aspects, such as the impact of site hazards (e.g., floods, structural damage, or earthquakes) on medical service delivery, utility resilience, fire safety, and preparedness measures. The tool also highlights risks from building contents, such as tall equipment that

could fall during earthquakes, and ensures fire safety across facilities and individual buildings, including access for fire engines and the functionality of sprinklers and pumping systems. HSI serves as both an assessment and awareness tool, prompting decision-makers to address critical issues like backup power availability. Collaboration is crucial for effective assessments, coordination, and collective action to ensure hospital and community resilience.

Health system resilience framework

Dr. Ratnesh Kumar mentioned CDRI is collaborating with WHO to develop a framework for resilient health infrastructure as part of a broader health system resilience framework. The framework for resilient health infrastructure includes five components, centered around community needs. It encompasses the emergency preparedness, emergency departments, and safe hospital standards developed by WHO. These elements work together to ensure comprehensive resilience in health infrastructure. At its core are community needs and facilities. This also includes components such as safe hospital standards, and structural integrity of hospital buildings. The framework also considers systemic infrastructure like roads and power and integrates policy, investment, and local knowledge. This comprehensive approach ensures that hospitals remain functional during disasters.

Flexibility disaster response for infrastructural resilience

Mr. Klaiber mentioned that Japan's disaster response emphasizes flexibility over redundancy, allowing different sectors to adapt and allocate resources where needed. The Disaster Medical Assistance Teams (DMAT) exemplify this approach by coordinating relief efforts across prefectures, making it resource-efficient and sustainable.

Prof. Sharma highlighted the importance of flexibility in disaster response, citing his experience in Sikkim. Systematic approaches like triage and dedicated emergency areas enhance hospital preparedness. Training programs have significantly improved response capabilities, and Sikkim's proactive and collaborative health sector continually updates disaster plans for effective responses. This flexible approach is beneficial in both small and large settings.

Enhancing Hospital Resilience and Sustainability

The speakers highlighted the need for robust HVAC systems in hospitals, as highlighted by the COVID-19 pandemic, and the importance of implementing Failure Mode and Effects Analysis (FMEA) to address daily crises and prepare for disasters. This approach aligns structural, functional, and behavioral aspects to ensure resilience.

Dr. Nino discussed the challenges of achieving net-zero emissions in healthcare, particularly in addressing Scope 2 and Scope 3 emissions. While developed countries are more likely to implement these changes, broader global adoption is hindered by the lack of data from complex healthcare supply chains, making it difficult to measure and manage emissions effectively. Dr. Hari emphasized that the implementation of safety measures often varies, with some countries like Nepal and Myanmar showing proactive approaches by customizing global tools for disaster preparedness, while others fail to act on assessment reports due to lack of motivation. The National Disaster Management Authority (NDMA) guidelines stress the need for comprehensive safety measures beyond standard building codes, but these are often overlooked.

Dr. Ratnesh highlighted CDRI's collaboration with the Sikkim government to develop a comprehensive disaster management plan for hospitals. This includes a dedicated chapter on fire safety management, emphasizing preparedness due to the rapid spread of fires. At the Sir Thutob Namgyal Memorial (STNM) hospital, Sikkim, a fire officer position was created, and a fire audit was conducted, leading to ongoing improvements. CDRI continues to work with stakeholders to drive these changes forward.

Session Takeaways

- **Resilience goes beyond safe buildings:** Resilient health infrastructure requires functional hospitals that can serve as hubs for response, relief, and recovery during disasters. This includes operational utilities, trained staff, emergency supplies, and robust communication systems.
- **Lessons from Japan:** Japan's experience emphasizes a cross-sectoral, system-wide approach involving disaster-based hospitals (DBHs), continuous learning, institutional reforms, and coordinated emergency planning. Lifeline services like roads and power supply are as crucial as hospital buildings.
- **Data-driven decision-making tools:** Tools like Multi-Criteria Decision Analysis (MCDA) and Cost-Benefit Analysis (CBA) empower decision-makers to prioritize investments, evaluate trade-offs, and develop strategies that align with local risks and constraints.
- **Indian health infrastructure at risk:** India's healthcare facilities are increasingly vulnerable to climate-related disasters, especially in coastal and Himalayan regions. Structural audits, workforce training, and localized adaptation plans are key to improving resilience.
- **Health and climate are deeply interconnected:** Climate change affects health directly (e.g., heat stress, waterborne diseases) and indirectly (e.g., food insecurity, disrupted services). The healthcare sector must address its own carbon footprint, which accounts for 4.4% of global emissions.
- **Frameworks and assessment tools matter:** The WHO's Global Hospital Safety Index (HSI) and CDRI's resilience frameworks provide structured, actionable pathways for governments and facilities to assess vulnerabilities, improve functionality, and ensure continuity of care.
- **Localized innovation and leadership:** Examples from Sikkim, France, Indonesia, and Nepal demonstrate that locally grounded models and traditional wisdom, when combined with modern standards, can offer replicable, cost-effective solutions.
- **Flexibility is key in disaster response:** Rather than relying solely on redundancy, systems should be agile—capable of reallocating resources quickly and adapting protocols in real-time to ensure service continuity where disasters occur.
- **Sustainability and preparedness must align:** Climate resilience and health system sustainability go hand in hand, requiring HVAC improvements, fire safety audits, and strategic planning to reduce environmental impact while boosting disaster readiness.

Call to Action

As climate-related disasters intensify, health systems must pivot from reactive measures to **resilient, proactive strategies** that safeguard both lives and livelihoods. This session calls on:

- **Policy and decision-makers** to embed resilience into national health policies, financing models, and infrastructure planning using tools like MCDA, CBA, and HSI.
- **Healthcare facility administrators** to conduct comprehensive, all-hazard risk assessments and invest in functional preparedness—including backup utilities, supply chains, and trained personnel.
- **Donors and global health agencies** to increase funding dedicated to health-climate adaptation and promote capacity-building in vulnerable geographies.
- **Researchers and practitioners** to co-create simple, scalable frameworks tailored to local realities—ensuring no community is left behind in resilience planning.
- **The healthcare sector as a whole** to confront its environmental impact by transitioning toward low-carbon operations and climate-smart infrastructure.

Ultimately, resilient health systems are not built overnight—but through coordinated, informed, and sustained action, they can be made ready for the challenges of a rapidly changing world.

Case for Priority & Efficiency in Health Financing for Resilience

8

SPEAKERS

Moderator:

Mr. Maulik Chokshi,
Global Director - Health Systems,
ACCESS Health International, Moderator

Panelists:

Mr. Rajiv Lall,
Former Managing Director & Chairman, IDFC FIRST Bank, Panelist

Mr. Aashir Sutar,
VP and Principal, Desai & Associates, Panelist

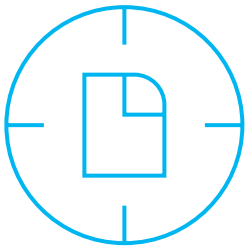
Dr. Vivek Prakash (Virtual),
Senior Vice President and Head- CSR, Jubilant Ingrevia Limited, Panelist

Mr. Bhawani Maurya,
Senior Manager- Health Impact Platform, AVPN, Panelist

Ms. Malti Jaswal,
Senior Consultant, The World Bank Group; Founder, Inspiring Seniors Foundation, Panelist

Dr. Yupadee Sirisinsuk (Virtual),
Deputy Secretary-General, National Health Security Office, Government of Thailand, Panelist

Ms. Mai Farid (Virtual),
CEO, Universal Health Insurance Authority - UHIA, Egypt, Panelist



Context & Session Objectives

In the face of any crisis or shock—be it due to climate change, conflict, economic disruption, or a pandemic—one of the most critical factors enabling systems to recover is financing. Financing mechanisms must be capable of improvising, investing, and adapting efficiently to minimize the impact of such shocks. The system in this context includes individuals, governments at both federal and provincial levels, private for-profit and not-for-profit entities, and development partners. To effectively mitigate the impact, all these actors must collaborate in strengthening both the supply and demand sides of healthcare financing. This collective effort, in turn, informs policies and processes that empower them to respond more effectively to crises.

In recent years, while public sector financing continues to play a central role, there has been growing recognition of the contributions individuals and the private sector can make. This shift has led to the emergence of numerous healthcare financing models backed by social impact investors, who are leveraging resources from individuals, philanthropy, and the for-profit sector to offer alternative financing solutions. These options are available at both individual and organizational levels and include blended financing, debt instruments, impact bonds, and private equity.

This session aims to explore alternative private sector models of healthcare financing, engaging various system actors and presenting opportunities to build greater resilience in healthcare financing.

Objectives

The session explores various facets of private healthcare financing, including:

- **Impact bonds/Blended financing:**
  The role impact bonds have been playing in strengthening healthcare financing, and what strategies are required to upscale them and make them sustainable.
- **Debt financing and consumer instruments:**
  Currently available instruments use debt financing as one of the mechanisms to finance healthcare. How can we enhance the information on such instruments and increase their adoption at an individual level?
- **Insuring healthcare:**
  Private voluntary insurance plays a significant role in mixed markets, catering to a group of people. How can it further strengthen its role in making them more resilient? Is there a role insurance companies can play in mitigating climate impact, especially in ensuring the creation of climate-resilient infrastructure, and what environment is necessary for them to play this role? And what is the role fintech companies can play?
- **Private equity in healthcare:**
  Investment in healthcare in most countries is more urban-centric and treatment-focused. How can we harness private sector equity in primary care and underserved areas? What would it take to ensure that emerging areas like climate financing, new emerging infections, and therapies get access to private equity? What are the criteria private equity investors applying before inve**stment?**
- **Philanthropic investment:**
  Aligned to private equity investor decision, how does a philanthropic organization decide on investment in healthcare? What is the process followed, and is there a scope for making a case for philanthropic investment?

Highlights from the Panel Discussion

Mr. Rajiv Lall on Rethinking Risk and Incentives in Health Financing

Mr. Rajiv Lall highlighted the persistent challenge of aligning financial mechanisms with public health goals, citing the entrenched silos between disciplines such as economics, political science, and healthcare delivery. He noted that limited cross-disciplinary collaboration has resulted in fragmented policies and misaligned incentives, making it difficult to design cohesive, long-term strategies. Emphasizing that financial decisions are fundamentally driven by self-interest, he argued that healthcare financing must be structured in ways that also appeal to investors and policymakers seeking long-term sustainability.

Drawing on his experience in climate finance, Mr. Lall stressed the importance of mainstreaming health risk modeling—similar to how climate risks have been integrated into financial decision-making frameworks. He proposed the development of pandemic-specific insurance products and urged central banks to implement health-related stress testing as part of financial resilience assessments. He also underscored the need to expand the role of impact investing by encouraging businesses to embed community well-being into their core mandates, alongside financial returns.

Mr. Lall concluded by asserting that for businesses to remain sustainable, they must adopt a broader purpose beyond profit. However, he cautioned that this is not a short-term fix but a long-term transformation that requires sustained commitment.

> *If businesses focus narrowly on profit, they risk long-term failure. But when they define their purpose as serving the communities they operate in they are more likely to build sustainable, resilient enterprises. Impact investing encourages this broader view, integrating social considerations into financial decisions. This shift isn't a quick fix—it's a long-term transformation.*
>
> ***Mr. Rajiv B. Lall***

Mr. Aashir Sutar on Blended Finance: Models and Impact

Mr. Aashir Suttar presented a comprehensive analysis of India's healthcare financing landscape. With public healthcare expenditure standing at $11 billion and out-of-pocket spending around $28 billion, he identified a significant $25–30 billion annual gap in the healthcare budget. A key challenge is the limited penetration of private investment in early-stage health ventures—with

> *Blended finance doesn't just expand the capital pool—it makes funding more affordable and ties it to real, measurable outcomes. The future of healthcare financing lies in linking capital to consequences—if you can't verify the outcome, it's not impact, it's just expense.*
>
> ***Mr. Aashir Sutar***

less than 5% of India's 6,000+ health tech startups receiving VC or impact investor funding. This leaves high-potential innovations without the capital needed to scale. He highlighted that while tertiary healthcare and pharmaceutical ventures have attracted $28 billion in private equity in recent years, primary care and community-level innovations remain critically underfunded, widening the financing gap.

He emphasized that blended finance is crucial to close this gap, as it allows for aggregating capital from private equity, philanthropic funds, venture capital, and debt markets. Blended finance plays a three-fold role: it increases the available pool of capital, makes capital more affordable for service providers and consumers, and ensures investments are outcome-accountable. He mentioned various innovative financing models, such as Program-Related Investments (PRI) by philanthropic foundations, credit guarantees that reduce risk for banks, and volume guarantees for affordable medicine procurement.

Outcome-based financing like the UTKRISHT Impact Bond and MUKTI Bond were highlighted as examples of tying investor returns to real-world health outcomes. Structured instruments like SAMRIDH are helping address capital gaps by offering de-risking, technical assistance, and outcome-linked financing models.

Mr. Sutar also outlined four key criteria that influence how impact investors evaluate healthcare ventures: the scalability and underfunding of viable business models; the financial credibility and capital structure of the recipient entity; customer stickiness, especially in tertiary care where patient retention is high; and the presence of verifiable, measurable health outcomes.

He further pointed out the underutilized potential of India's $1.1 trillion debt market, where healthcare lending remains negligible—highlighting a major opportunity for credit-based blended finance to unlock long-term impact.

Dr. Vivek Prakash on the Evolving Role of CSR in Health

Dr. Prakash explained how India's CSR ecosystem has matured into a critical driver of healthcare innovation and infrastructure. In 2023, nearly ₹6,600 crore—representing 22% of total CSR expenditure—was directed toward healthcare, making it the second-highest priority area after education. He noted that a key challenge has been the traditionally urban-centric and fragmented nature of CSR spending, with limited focus on strengthening public sector infrastructure or investing in workforce development.

He emphasized a significant shift in recent years, particularly post-COVID-19, from urban, service-based CSR initiatives to long-term capacity building in public hospitals and underserved geographies. He illustrated how CSR is now enabling investments in diagnostic infrastructure—such as CBNAAT and X-ray machines—in government hospitals, as well as training programs for nurses, paramedics, and geriatric caregivers. Additionally, CSR is increasingly supporting medical research and innovation,

> *CSR is evolving from charity to strategy—fueling public health infrastructure, skilling healthcare workers, and accelerating innovation through faster, more flexible investments than traditional public funding.*
>
> ***Mr. Vivek Prakash***

> *Philanthropy can be catalytic—de-risking investments, fostering collaboration, and building ecosystems that scale health innovations across the value chain.*
>
> ***Mr. Bhawani Maurya***

including vaccine development, incubator funding, and digital health startups. Notably, he highlighted that CSR funding offers greater speed and flexibility compared to traditional government financing, allowing for more agile responses to evolving community health needs.

Mr. Bhawani Maurya on Philanthropy and Climate-Health Financing

Representing AVPN, Mr. Bhawani emphasized the growing convergence between climate resilience and healthcare investment, particularly in the aftermath of COVID-19. He explained that climate-induced health threats—such as the rise in infectious diseases—are increasingly drawing both philanthropic and institutional capital toward strengthening healthcare systems in LMICs. In response, AVPN has created platforms that mobilize human, intellectual, and financial capital across sectors such as gender, climate, and health.

He outlined AVPN's approach of leveraging blended financing tools and catalytic philanthropy to de-risk investments and crowd in commercial capital. A key initiative is the Climate and Health Lighthouse Fund, which aims to support research and development in climate-linked health issues. Mr. Bhawani also highlighted the persistent challenge of aligning diverse stakeholders—philanthropic donors, development finance institutions, and governments—a gap AVPN seeks to bridge by serving as a neutral convening platform.

Ms. Malti Jaiswal on Insurance as a Tool for Access and Resilience

Ms. Malti Jaiswal discussed how the Pradhan Mantri Jan Arogya Yojana (PMJAY) has become a cornerstone of financial protection for India's vulnerable populations, particularly through its extensive utilization by private hospitals, which account for nearly 60% of total service claims. She highlighted the scheme's adaptability in times of crisis, noting how it was swiftly repurposed to cover COVID-19 testing and treatment despite being originally designed for inpatient care.

She also provided a candid assessment of the challenges faced by private health insurers, including rising medical costs, restrictive policy exclusions, and ongoing disputes with hospitals over reimbursement rates. While insurers responded to the pandemic with innovative short-term products such as COVID KAVACH, Ms. Jaiswal cautioned that health insurance is becoming increasingly unaffordable—especially for the elderly and in highly polluted urban areas—due to rising premiums and escalating risk profiles.

In response, she emphasized the need to design more inclusive risk-sharing mechanisms, expand support for small and mid-sized hospitals under PMJAY, and invest in preventive care to reduce long-term financial burdens across both public and private healthcare systems.

To truly protect the future, we must pair insurance with inclusive pricing, support for small hospitals, and a culture of healthy aging—because resilience isn't just institutional, it's personal.

Ms. Malti Jaiswal

Dr. Yupadee Sirisinsuk on Thailand's Strategic Financing for UHC

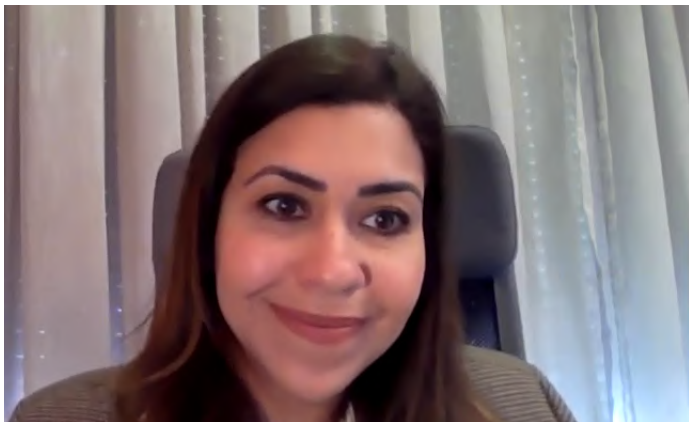
Dr. Yupadee Sirisinsuk shared how Thailand's tax-funded Universal Health Coverage system, operational since 2002, has achieved efficiency through a combination of price-and-quantity-based budgeting and a blended payment model using capitation and Diagnosis-Related Group (DRG) systems. She emphasized the importance of cost containment, achieved by continuously revising the benefit package and enforcing strict procurement mechanisms. The key challenge, she noted, lies in balancing expanded access—particularly through the newly launched Innovative Health Unit Model—with financial sustainability, as service volumes are harder to control in a decentralized provider ecosystem.

Thailand's success in Universal Health Coverage is rooted in strategic financing, institutional oversight, and constant innovation—from capitation-based budgeting to integrating private providers under standardized reimbursement. Every baht is spent with purpose: to maximize health outcomes, support local innovation, and ensure sustainability without compromising access.

Dr. Yupadee Sirisinsuk

Introduced in 2024, the Innovative Health Unit Model incorporates private providers such as clinics and pharmacies under a standardized reimbursement structure, significantly improving access, especially in rural areas. However, monitoring the volume and quality of services remains a persistent challenge. Dr. Yupadee also underscored the critical role of community participation and performance-based incentives, along with centralized procurement, in ensuring both access and cost control.

Ms. Mai Farid – Egypt's Flexible Financing During Crises



Ms. Mai Farid explained how Egypt's Universal Health Insurance (UHI) showed remarkable flexibility during the pandemic. Its risk pooling mechanism helped distribute financial shocks across population groups, and its strategic purchasing contracts ensured service continuity. She credited the scheme's resilience to flexible budgeting, emergency reserves, and forecasting tools.

She also detailed how public-private partnerships (PPPs) were leveraged to address gaps in diagnostics and hospital capacity. Despite the crisis, the UHI continued to expand coverage and access through phased implementation. She stressed that the system's adaptability was enabled by sound financial planning and diversified service provider engagement.

> *Resilience in health systems isn't accidental—it's built through strategic planning, risk pooling, and financial flexibility. Egypt's UHI scheme adapted to crisis by consolidating funds, engaging public-private partnerships, and swiftly reallocating resources—ensuring that healthcare delivery continued even amid the shock of COVID-19.*
>
> ***Ms. Mai Farid***

Session Takeaways

1. Blended and Outcome-Based Financing as Tools to Bridge the Health Investment Gap

Panelists discussed the growing potential of blended finance mechanisms in addressing the persistent health financing gap in India and other LMICs.

Mr. Sutar shared data illustrating the current scenario: despite a total healthcare expenditure of approximately $40 billion in India, out-of-pocket expenditure still dominates, indicating a financing gap of $25–30 billion.

To address this, panelists elaborated on various blended financing models:

- Outcome-based financing tools, such as the UTKRISHT Impact Bond, which supported the accreditation of 400 hospitals and benefited over 450,000 mothers.
- The MUKTI Bond, which tied disbursements to tangible health outcomes such as improved TB nutrition and reduced relapse rates.
- Program-Related Investments, volume guarantees, and credit guarantees, used to de-risk private investments and promote lending to healthcare ventures.

Mr. Sutar emphasized that India is emerging as a leader in deploying these tools, aligning private capital with public goals. He also noted the role of technical assistance in strengthening startups and expanding rural health services.

Mr. Lall added a broader lens, drawing on his climate finance background to highlight the need for health risk modeling and catastrophic insurance products. He argued that embedding health risk into mainstream financial systems — much like climate risk — is critical for long-term sustainability. He cautioned against short-termism and emphasized the need for regulatory environments that balance profit incentives with community well-being.

2. Corporate Social Responsibility (CSR) as a Strategic Source of Health System Financing

Dr. Vivek Prakash highlighted the shifting role of CSR in India's health sector, especially since COVID-19. He shared that CSR spending on health reached ₹6,600 crore in 2023, making it the second-highest funded sector after education.

CSR was described as:

- A responsive and flexible funding stream, capable of bypassing procurement delays and bureaucratic hurdles.
- Increasingly used for public infrastructure investments, including diagnostic tools like CBNAAT and X-ray machines.
- Supporting capacity building, particularly through skill development programs for nurses, paramedics, and geriatric care workers.
- Contributing to research and innovation, including corporate support for health startups via incubators.

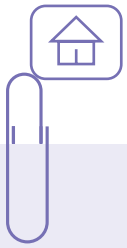
The discussion underscored that CSR, beyond its philanthropic roots, is becoming a critical enabler of long-term health system strengthening, especially in Tier-2 and Tier-3 cities.

3. The Climate-Health Nexus and the Role of Catalytic Philanthropy

Mr. Maurya of AVPN spoke about the increasing attention that climate-linked health risks are receiving from donors and impact investors. He emphasized the need for collaborative investment models to address the intersection of climate, health, and financing. AVPN's efforts include:

- Launching the Climate and Health Lighthouse Fund to support early-stage R&D for climate-sensitive health solutions.
- Building a platform that facilitates collaboration between philanthropic actors, DFIs, and governments.
- Leveraging philanthropic capital as risk capital that can crowd in private investment and enable large-scale financing mechanisms.

He pointed out that a key challenge is stakeholder fragmentation, and emphasized the importance of neutral convening platforms to bridge gaps in trust and execution across sectors.



4. Strengthening Health Insurance Ecosystems for Greater Access and Resilience

Ms. Jaiswal provided insights on both public and private insurance markets in India. She emphasized that PMJAY has played a major role in aggregating health coverage, with around 60% of its utilization in private hospitals, demonstrating the scheme's role in bridging affordability gaps.

She also discussed trends and challenges in the private insurance market:

- The unpredictability of morbidity risks, especially during crises like COVID-19, has driven up costs.
- Pandemic-related expenses (PPE, infrastructure) led to conflicts over reimbursement between hospitals and insurers.
- Urban risks, like air pollution, are now directly influencing premium costs — with Delhi residents experiencing up to 15% hikes.
- Insurance for senior citizens remains prohibitively expensive, making public schemes like PMJAY crucial for aging populations.

Ms. Jaiswal stressed the need for broader risk-sharing mechanisms and for insurance innovation to align better with environmental and demographic changes.

5. Lessons from Universal Health Coverage Models in Thailand and Egypt

Dr. Yupadee Sirisinsuk shared Thailand's experience with its fully tax-funded Universal Health Coverage system, managed by the National Health Security Office. The system uses:

- A price and quantity-based budgeting approach using beneficiary and utilization data.
- Capitation payments for outpatient services and DRG-based reimbursement for inpatient care.
- Fixed-fee reimbursement models for private providers.

She also highlighted the 2024 launch of the Innovative Health Unit Model, which brought over 13,000 private clinics and pharmacies into the national scheme under fixed-fee payments. This expanded service access significantly but raised concerns about cost control and service volume.

Mrs. Mai Farid discussed Egypt's Universal Health Insurance (UHI) system, which demonstrated flexibility during the COVID-19 pandemic. Key elements of Egypt's strategy included:

- Risk pooling across population groups, ensuring predictable financial flows.
- Flexible budgeting and contingency reserves, allowing real-time fund reallocation.
- Use of strategic purchasing and partnerships with both public and private providers.

She explained how Egypt's forecasting tools and phased implementation helped maintain service delivery during the pandemic, while also expanding coverage.

Both speakers emphasized that adaptive financial strategies and multi-provider contracting were central to maintaining access and efficiency under stress.

6. Trust, Regulation, and Ecosystem Enablement

A recurring theme across panelists was the need for ecosystems that enable collaboration, innovation, and accountability. Mr. Maurya and Mr. Lall both emphasized that regulatory clarity and trust-building are foundational to effective private and philanthropic investment in health. Panelists noted that financing structures must:

- Align investor incentives with public health goals.
- Enable data transparency and outcome-based accountability.
- Provide regulatory safeguards to prevent misuse or "greenwashing" in the name of social impact.

Platforms like AVPN were seen as instrumental in coordinating fragmented stakeholders, offering neutral spaces to negotiate shared metrics, and facilitating public-private-philanthropic collaboration for systemic health impact.

Call to Action

Mr. Chokshi closed the session by highlighting the need to rethink and retool health financing mechanisms to withstand future shocks and strengthen health system resilience. Drawing on the rich perspectives shared during the discussion, he emphasized that financing is not simply a support function but a core lever for system transformation—influencing how health systems prepare, respond, and adapt in the face of disruption.

He synthesized the discussion into five key action points:

1. **Enable blended and outcome-based financing at scale** by building investment models that align public objectives with private returns. Institutional support is needed to standardize frameworks and replicate successful instruments like impact bonds and credit guarantees.
2. **Unlock CSR and philanthropic capital for long-term system strengthening,** moving beyond one-time grants to structured, strategic investments in diagnostics, digital infrastructure, skilling, and rural health access.
3. **Promote health insurance innovation,** including products that respond to climate risk, aging populations, and emerging infections—especially for the underserved and informal sectors.
4. **Create trusted platforms that bridge public, private, and philanthropic stakeholders,** addressing coordination challenges and trust deficits. These platforms should offer technical assistance, co-investment models, and shared outcome frameworks.
5. **Build regulatory ecosystems that reward accountability and resilience,** encouraging financial actors to prioritize long-term health impact and actively mitigate misuse or short-termism.

The panel concluded by calling for **greater ambition, stronger coalitions, and sustained innovation** to ensure that financing systems are not just reactive but future-ready—capable of absorbing shocks, closing equity gaps, and creating lasting public value.

Strengthening Supply Chains for Health System Resilience

9

SPEAKERS

Session Keynote:

Dr. Girish Kapur,
Senior Vice President - India Site Operations, US Pharmacopeia (USP) | Keynote Speaker

Moderator:

Dr. N. Krishna Reddy,
CEO, ACCESS Health International | Moderator

Panelists:

Dr. Rakesh Mishra,
Director, Tata Institute for Genetics and Society, India | Panelist

Prof. (Dr.) John Lim,
Executive Director, Duke-NUS Centre of Regulatory Excellence, Singapore | Panelist (Virtual)

Dr. Hala Zaid,
Regional Director - MENA, ACCESS Health International; Former Minister of Health and Population, Egypt | Panelist

Prof. (Dr.) Fathy Ibrahim,
CEO, Acdima International, Egypt | Panelist

Brigadier General Engineer Ahmed Salah,
Chairman Advisor for Medical Equipment, Unified Procurement Authority, Egypt | Panelist

Dr. Amir El Telwany,
CEO, Egypt Healthcare Authority | Panelist

Context & Session Objectives

This session explored the foundational role of resilient pharmaceutical and healthcare supply chains in strengthening health systems globally. The discussion was contextualized in the aftermath of the COVID-19 pandemic, which exposed critical supply chain vulnerabilities across countries. As health systems face increasing geopolitical uncertainty, technological shifts, and new care demands, it becomes imperative to anticipate disruptions and proactively design solutions. The session convened diverse global voices across research, regulation, manufacturing, procurement, and service delivery.

Objectives

- **Highlight systemic risks,** including geographic concentration, pricing pressure, and weak regulatory harmonization.
- **Present innovations and policy tools** to enhance supply chain visibility and coordination.
- **Encourage South-South collaboration** for scalable, localized, and sustainable supply chain resilience.
- Serve as a platform for sharing global good practices, mobilizing multisectoral stakeholders, and shaping actionable strategies for building patient-centred, high-performing supply chains that improve access, equity, and care quality.

Session Keynote

Dr. Girish Kapur on "Global Pharmaceutical Supply Chain Vulnerabilities and Solutions"

Dr. Kapur opened the session by addressing four critical disruptors in the pharmaceutical supply chain: **geopolitical shifts, technological advancements, evolving pharmaceutical market dynamics, and increasing expectations from global regulatory authorities.** He pointed out that these trends are compounding the risk of medicine shortages, especially in low-margin drug categories. These gaps open the door for counterfeit and substandard medicines to proliferate.

He elaborated on USP's initiatives such as the **Medicine Supply Map,** which uses AI to forecast potential drug shortages and upstream risks, and the **DEG Toolkit,** designed to detect contamination from diethylene glycol and ethylene glycol in pediatric syrups. These tools, combined with USP's global regulatory collaboration

> *We need to move from a reactive to a predictive supply system—one that uses AI, upstream visibility, and regulatory coordination to anticipate and prevent disruptions before they impact patients.*
>
> ***Dr. Girish Kapur***

model, provide a proactive buffer against disruption. As part of USP's upcoming 2025–2030 strategic cycle, **environmental sustainability** and **global supply chain resilience** have been made key mission commitments. He called for a cultural shift from compliance-focused approaches to a **risk-based, predictive model,** urging pharmaceutical manufacturers to see resilience as a return on investment rather than a compliance burden.

Dr. Kapur also outlined the root causes of pharmaceutical supply chain vulnerabilities—geographic concentration, manufacturing complexity, low-margin economics, and persistent quality issues—emphasizing their interconnected nature. These disruptions often result in patient desperation and unsafe alternatives, increasing the risk of counterfeit medicines. Dr. Kapur called for targeted incentives for essential medicine production, regional pooled procurement in LMICs, and investment in advanced manufacturing technologies to enhance scalability. He concluded by stressing that building resilience requires collective action across governments, regulators, manufacturers, and global health institutions.

Highlights from the Panel Discussion

Dr. Krishna Reddy opened the panel by outlining its structure, designed to mirror the full medicine supply chain—from research and development, through regulation and manufacturing, to procurement and consumption. He highlighted the importance of a strong domestic research and development ecosystem as a foundational element of supply chain resilience, noting that countries like India that had invested in R&D infrastructure were better positioned to withstand crises.

Using India as an example, he emphasized how the country's built-in science and technology ecosystem enabled more agile responses during global health emergencies. He then invited Dr. Rakesh Mishra to begin the discussion, noting his deep experience in India's R&D landscape and his current leadership at the Tata Institute for Genomics and Society.

R&D and Innovation Ecosystems

Dr. Rakesh Mishra emphasized that countries with strong in-country research and innovation ecosystems were better equipped to respond to disruptions. He shared the example of Indian labs collaborating with industry to bring down the cost of COVID-19 test kits. His institution, the Tata Institute for Genetics and Society, along with others, provided quality assurance for the diagnostics, with the entire development and scaling process taking under nine months.

He advocated for regulatory policies that are supportive of biotech startups and entrepreneurs. He also described the government's investment in Biofoundries, centralized platforms where researchers can submit sequences for genome editing or antibody development and receive finished biologics for preclinical testing. These platforms minimize infrastructure duplication and democratize innovation.

> *India must move beyond being just the pharmacy of the world to becoming a global hub for biotech innovation—where we don't just manufacture at scale, but lead in discovery, design, and development of next-generation therapies.*
>
> ***Dr. Rakesh Mishra***

Regulatory Harmonization and Agility

Prof. John Lim called for a rethink of global regulatory architecture. He emphasized the critical need for harmonized, collaborative regulation, especially in light of the complexity and speed of therapeutic innovation. Drawing from his experience as a former regulator and academic, he described the slow pace of traditional regulatory models, which often delay patient access by a decade or more.

He highlighted the WHO Global Benchmarking Tool and maturity level framework as a key development in measuring regulatory agency performance. Singapore, under his leadership, had piloted regulatory cooperation platforms like the International Coalition of Medicines Regulatory Authorities (ICMRA). He called for new modes of peer referencing, real-time data sharing, and mutual recognition agreements, particularly for LMIC regulators.

> *Without regulatory agility, even the best logistics won't ensure patient access to innovative therapies. Regulators are often the Cinderellas of the health system—essential to resilience, yet routinely underfunded and overlooked in policy debates.*
>
> ***– Prof. Lim***

From Regulation to Regional Leadership

Dr. Hala Zaid provided a comprehensive overview of Egypt's transformation of its regulatory and procurement architecture. The establishment of the Egypt Drug Authority (EDA) and Unified Procurement Authority (UPA) in 2019 enabled the country to respond effectively to COVID-19 and future-proof its supply systems. She highlighted Egypt's achievement of WHO Maturity Level 3 in both vaccines and medicines, making it the only African nation to meet this benchmark across both product categories.

Egypt's regulatory frameworks were further strengthened through full membership in the International Council for Harmonisation (ICH). This, coupled with blockchain-enabled traceability platforms and electronic Common Technical Document (eCTD) submissions, significantly shortened drug approval timelines. Egypt's regulatory leadership has enabled mutual recognition agreements with Zambia, Madagascar, Zimbabwe, and Nigeria, positioning Egypt as a reference authority in the region.

> *With WHO-recognized regulatory maturity and full membership in global harmonization bodies, Egypt has become the technical arm of regulatory capacity for Africa. By accelerating approvals, unifying standards, and offering training and technical support to neighboring nations, Egypt is building a more resilient and self-reliant African health system.*
>
> ***Dr. Hala Zaid***

Domestic Manufacturing Capacity

Prof. Fathy Ibrahim elaborated on the transformation of Egypt's pharmaceutical manufacturing ecosystem. He shared those 17 state-of-the-art production facilities operated by Acdima Group manufacture over 1,200 products spanning 45 therapeutic areas. Egypt's ambition is to produce more active pharmaceutical ingredients (APIs) domestically, reducing its dependency on imports from China and India.

He highlighted a planned investment of $200 million to set up API manufacturing in partnership with Suez Canal Economic Zone. He also detailed the country's success in on-site vaccine manufacturing through collaborations with global innovators such as AstraZeneca. Ibrahim emphasized how government incentives, local innovation, and consistent demand forecasting helped build trust and scale in local supply.

> *Egypt is not just meeting local demand but becoming a regional manufacturing anchor—powered by strong public-private partnerships and sustained investments in quality, innovation, and local production.*
>
> ***Dr. Fathy Ibrahim***

Pooled Procurement and Strategic Stockpiling

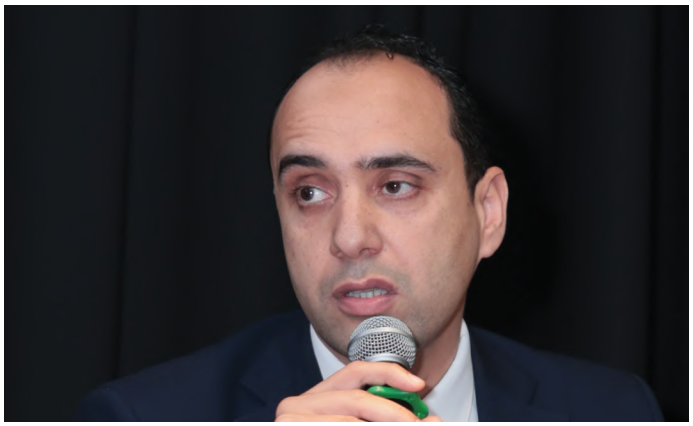
Brigadier General Ahmed Salah shared how Egypt's Unified Procurement Authority is working to streamline purchasing, reduce wastage, and strengthen system-wide equity. UPA operates under three guiding pillars: health technology assessment (HTA), centralized procurement, and logistics and distribution management.

Salah described how the UPA aggregates demand across public institutions to negotiate lower prices and reduce duplicative procurement. UPA is building six mega-warehouses for pharmaceuticals and medical devices, ensuring up to six months of national stockpiling. He emphasized the importance of digital platforms and AI tools in tracking shipments, managing vendor performance, and maintaining real-time inventory levels.

He shared that UPA supports both public and private sectors and is working closely with Africa CDC and African Union bodies to explore continental pooled procurement strategies.

> *Centralized procurement, built on value rather than just price, is the foundation for long-term sustainability and resilience. By consolidating national demand and prioritizing quality, we ensure equitable access, reduce stockouts, and safeguard the health system against future shocks.*
>
> ***Brigadier General Ahmed Salah***

Service Delivery and Provider Preparedness



Dr. Amir El Telwany focused on the operational end of the supply chain. As CEO of the Egypt Healthcare Authority (EHA), he oversees 354 public healthcare facilities, 85% of which are accredited under Egypt's national quality system. El Telwany highlighted the agency's adoption of AI-based inventory forecasting, digital dashboards, and advanced procurement analytics.

He discussed challenges such as low-value care, stockouts in rural areas, and data fragmentation, and how EHA is working with regulators and procurement authorities to address these. He noted that supply chain failures at the provider level can be the most visible and damaging for patients, emphasizing the need for interoperable systems, frontline training, and zero-stockout policies.

Dr. Krishna Reddy concluded the session by affirming that resilient supply chains are now integral to health system building blocks, alongside financing and human resources. He emphasized that countries must no longer see supply chains as technical backend systems but as critical enablers of equity, access, and universal health coverage.

> *Resilience must be engineered across the supply chain continuum — from molecule to medicine to the last mile.*
>
> ***Dr. N. Krishna Reddy***

Session Takeaways

- Supply chain disruptions are systemic, not incidental. Geopolitical instability, technological shifts, low-margin economics, and fragmented regulatory frameworks collectively heighten the risk of medicine shortages and compromise patient safety.
- A shift from reactive to predictive systems is essential. Leveraging AI, advanced analytics, and real-time data platforms can help forecast demand, detect vulnerabilities, and prevent stockouts before they occur.
- R&D ecosystems are foundational to resilience. Countries with robust scientific infrastructure and public-private collaboration were better equipped to respond rapidly to emergencies, develop diagnostics, and adapt manufacturing at scale.
- Regulatory agility and harmonization are non-negotiable. Without collaborative, risk-based, and adaptive regulation, even the best logistics and manufacturing systems fail to deliver timely access to essential therapies.
- Domestic manufacturing must go beyond formulation. Strategic investments in API and biologics production, aligned with quality assurance systems, are critical to reducing dependence on global supply chains and enhancing sovereignty.
- Centralized procurement enables equity and efficiency. Consolidating national demand through evidence-based, value-driven procurement ensures better pricing, reduces duplication, and improves product availability across regions.
- Service delivery is the final test of supply chain strength. Health systems must invest in interoperable digital systems, frontline training, and continuous monitoring to guarantee availability at the point of care.
- Emergency preparedness requires structural reforms. Stockpiling, local manufacturing, and regional pooled procurement mechanisms are vital for building shock-responsive supply chains.
- Digital transformation is a critical enabler. Integrating AI-driven forecasting, inventory management, and digital traceability tools strengthens oversight, enhances transparency, and accelerates decision-making.
- Sustainability and resilience go hand-in-hand. Efforts to green the supply chain—through efficient resource use and environmental safeguards—should be embedded in long-term planning and infrastructure design.

Call to Action

To build resilient, inclusive, and high-performing supply chains that enable better health outcomes, governments, development partners, and industry leaders must act collectively on the following priorities:

- **Build enabling R&D ecosystems and scale innovation through public-private collaboration.** Support infrastructure, funding, and partnerships that accelerate homegrown solutions and technology transfer.
- **Reform regulatory systems to become agile, responsive, and regionally integrated.** Enable faster approvals and mutual recognition by adopting risk-based and harmonized regulatory practices.
- **Expand domestic manufacturing and reduce API import dependence.** Prioritize investments in upstream capabilities, including APIs and biologics, to strengthen supply chain sovereignty.
- **Adopt centralized and pooled procurement mechanisms to achieve financial sustainability.** Consolidate national and regional demand to drive cost-efficiency, reduce duplication, and ensure equitable access.
- **Leverage data, AI, and digital tools to predict demand and ensure efficient distribution.** Integrate real-time analytics and inventory systems to proactively manage supply risks and optimize resource use.

Resilient Health Workforce: Preparing for the Future of Health Systems

SPEAKERS

Session Keynote:

Mr Ibadat Dhillion,
Regional Advisor- Primary Health Care, WHO SEARO

Expert Remarks:

Prof. B.R. Shamanna,
Professor, School of Medical Sciences, University of Hyderabad, India

Summary of Breakout Sessions:

Dr. Shweta Singh,
Technical Head - Research and Public Health, ACCESS Health International

Key Remarks:

Ms. Anna Kurniati (Virtual),
Chairperson, Asia-Pacific Action Alliance on Human Resources for Health

Ms. Diah Satyani Saminarsih
Founder and CEO, Center for Indonesia's Strategic Development Initiatives

Augmenting HRH Resilience - Community of Practice

(a partnership between ACCESS Health International and The Resilience Collaborative)

Dr. N. Krishna Reddy,
CEO, ACCESS Health International

Prof. Vivekanand Jha,
Executive Director, The George Institute for Global Health, India

Scope of CoP for HRH through opinion polls

Mr. Varadharajan Srinivasan,
The Resilience Collaborative Team

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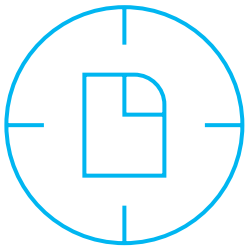


Context & Session Objectives

This session focused on the critical importance of building a resilient health workforce to strengthen health systems in response to emerging global health challenges. Recognizing the evolving nature of healthcare needs, the session aimed to address workforce shortages, distribution disparities, and the growing demand for skilled professionals, particularly in underserved areas.

Objectives

1. Explore the current challenges in Human Resources for Health (HRH), including workforce distribution, retention, and training gaps.
2. Highlight successful models and strategies that contributed to a resilient health workforce, with a focus on frontline health workers and community-based healthcare.
3. Discuss the role of digital tools and emerging technologies in supporting HRH resilience and improving service delivery efficiency.
4. Advocate for strategic investments in HRH education, well-being, and capacity building to ensure long-term sustainability and effectiveness of health systems.

The session aimed to foster collaboration among key stakeholders, sharing knowledge, experiences, and actionable insights to shape a future-ready health workforce capable of tackling evolving health challenges.

Summary of the HRH Breakout Sessions

Dr. Shweta Singh presented insights from the HR breakout sessions. The first session focused on supportive supervision for community health workers, highlighting three main tools: the Posando Observation Tool for service implementation evaluation, the Individual Skill Observation Tool for competency assessment, and the Mentoring Tool for guided discussions. Feedback stressed the importance of balancing assessment and mentorship for long-term development and incorporating local community voices for effective interventions.

The second session addressed building digital competency in HRH, emphasizing the need for political commitment and adequate funding. Challenges were noted, particularly with older health workers or those with limited digital skills. Ongoing sensitization and capacity-building programs were seen as crucial for successful digital health adoption.

The third session discussed the participation of frontline health workers in leadership and governance, stressing the importance of their active representation in leadership roles. Delegating responsibilities, including financial decision-making, was identified as essential for empowering these workers and improving resource utilization.

Dr. Singh concluded with key takeaways: a balanced approach to mentoring and supervision, inclusive and human-centric HR digital interventions, and the need for frontline health workers in leadership roles to ensure system-wide improvements.

Session Keynote

Resilient Health Workforce as the Future of Health Systems by Mr. Ibadat Dhillon

Mr. Ibadat Dhillon emphasized three key concepts: mentoring, human-centered care, and team-based approaches, stressing their importance in building resilient health systems and a future-ready workforce.

Reflecting on the evolution of health systems, Mr. Dhillon pointed out that much of today's infrastructure is based on the Millennium Development Goals (MDGs), which no longer suffice to address emerging challenges such as globalization, migration, climate change, and the rising burden of non-communicable diseases (NCDs). Drawing from his experience at the Syria-Jordan border, he highlighted the resilience and adaptability of local health workers during the refugee crisis, showcasing the potential of human capacity in times of crisis.

Key discussions focused on the challenges and opportunities in human resources for health (HRH). Mr. Dhillon acknowledged the declining global health workforce shortage and increasing HRH production capacity, particularly in countries like India and Indonesia. However, he emphasized the importance of aligning HRH growth with actual health needs, addressing geographic distribution and skill-based gaps to ensure that the workforce is both adequate and competent.

Mr. Dhillon also stressed the need for team prioritization and shared responsibility in health systems. While many systems remain focused on individual roles, he advocated for stronger emphasis on building cohesive health teams. He also discussed strategies to attract and retain health workers, particularly in underserved regions, through financial incentives and capacity-building programs.

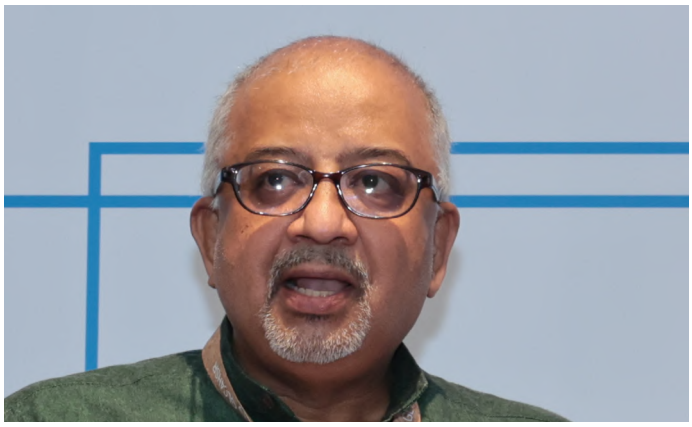
Regarding HRH development, Mr. Dhillon emphasized the significance of competency assessments and mentoring. He called for HRH training that includes empathy and cultural competence, key elements for people-centered care. He highlighted that health systems must not only focus on quantity but also on the quality and relevance of workforce training.

A key portion of his presentation focused on health practitioner regulation. Mr. Dhillon emphasized the need for regulatory reforms to balance the availability and quality of health professionals. He also underscored the role of medical humanities in fostering empathy among health professionals, especially as concerns grow about younger generations lacking the empathy of their predecessors.

In conclusion, Mr. Dhillon reiterated the need to reimagine health systems for the future, focusing not just on increasing the quantity of healthcare professionals, but also on ensuring their quality and competency to deliver accessible, quality, and empathetic care.

> *We must not only focus on increasing the quantity of healthcare professionals but also ensure that the workforce is capable of delivering quality, accessible, and empathetic care through competency assessments, mentoring, and a focus on human-centered training.*
>
> ***Mr. Ibadat Dhillon***

Expert Remarks



Prof B.R. Shamanna on Addressing HRH Challenges: Building Resilient Health Systems for the Future

Dr. BR Shamanna provided expert insights on several pressing challenges facing Human Resources for Health (HRH), particularly in low- and middle-income countries (LMICs). He addressed critical issues such as understaffing, workforce distribution disparities, and the lack of scientific workforce planning across health systems. He emphasized the need for better data mapping and workforce inventory to understand the true extent of HRH gaps. Dr. Shamanna pointed out that many countries lack reliable data on the number of healthcare workers and their distribution across traditional and alternative medicine systems, which exacerbates workforce planning issues.

He further highlighted the vulnerabilities faced by HRH, including the personal, family, and social challenges that healthcare professionals often encounter, especially in community-based settings. Dr. Shamanna pointed out the strain that health workers, particularly community health workers (like ASHA workers in India), face in decentralized health systems. While decentralization is intended to increase local control and service delivery, it often results in health workers being overburdened with responsibilities without adequate financial incentives, training, or support, leading to burnout and resistance among healthcare workers.

> *We need to recognize that health systems are only as resilient as the workforce that supports them. Financial support, adaptive planning, and training for every health worker, not just medical personnel, are essential to ensure readiness for future health crises.*
>
> ***Dr. B R Shamanna***

Drawing from the High-Level Expert Group Report on Universal Health Coverage (UHC) for India, Dr. Shamanna emphasized the importance of pandemic preparedness training for not only medical doctors but also for all categories of health workers, including nurses, allied health professionals, and community health workers.

Dr. Shamanna also stressed the need for substantial financial support to ensure that healthcare professionals, especially those in frontline and underserved areas, have the resources they need to perform their duties effectively. This includes adaptive planning that accounts for changing health needs and the increasing pressure on health systems, especially in the face of pandemics or emergencies. He called for a more integrated approach to HRH that incorporates task-sharing, multitasking, and cross-functional training to address the growing demand for healthcare services.

Additionally, Dr. Shamanna highlighted the potential of emerging technologies such as Artificial Intelligence (AI) and Machine Learning (ML) to support HRH strategies. He suggested that these technologies could be used to optimize workforce management, streamline patient care workflows, and improve decision-making at all levels of health systems. However, he cautioned that technology should not be viewed as a panacea. Instead, it should be integrated with social determinants of health, such as community engagement and public health policies, to create holistic, sustainable solutions that address both the supply and demand of healthcare services.

In conclusion, Dr. Shamanna's urged for the creation of resilient health systems that are capable of responding to current and future health crises, while also ensuring that the health workforce is adequately supported, trained, and equipped to provide quality care across diverse settings.

Key Remarks

Ms. Anna Kurniati on Empowering Regional Health Workforces Through Collaboration and Digital Competency

Ms. Anna Kurniati, Chairperson of the Asia-Pacific Action Alliance on Human Resources for Health (AAAH), delivered a pre-recorded video message highlighting the critical role of regional collaboration in strengthening health workforces across the Asia-Pacific region.

In her remarks, Ms. Kurniati reflected on the 2024 network conference, which focused on enhancing digital competency to maximize benefits and reduce the HRH burden. She highlighted the importance of having a strongly committed health workforce that is well-prepared to respond to health system crises and challenges.

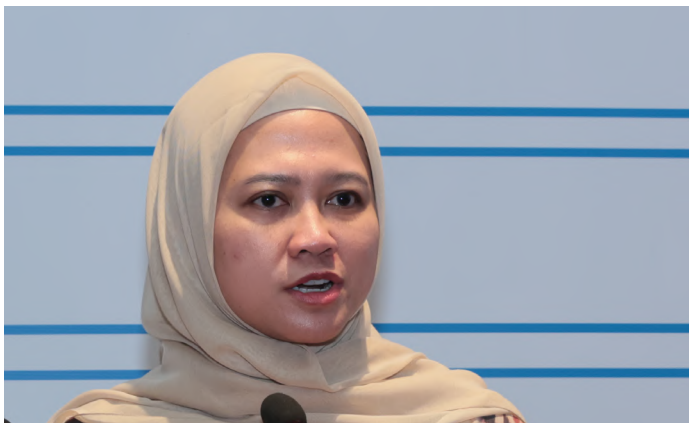
> *By sharing knowledge, resources, and experiences within our region, we can create innovative solutions that are tailored to our unique context, ultimately strengthening health systems that serve all populations effectively and inclusively.*
>
> ***Ms. Anna Kurniati***

She praised the collaboration between AAAH and ACCESS Health International, for being closely aligned with the fundamental principles of the regional network, elevating regional voices and offering a South-South collaborative approach.

Ms. Kurniati also stressed the importance of equitable access to quality healthcare, regardless of gender, age, or socioeconomic context, and pointed to the promising models of collaboration that have been established. These models focus on enhanced networking, regional learning, and the use of data-driven decision-making to improve health systems. She emphasized that data-driven decisions are crucial for effective policy implementation, and that partnerships like the one with ACCESS Health International will help strengthen these efforts.

She concluded by expressing confidence that through their collaboration, the regions could achieve lasting change toward a more equitable and sustainable society, ensuring effective healthcare delivery for all populations.

Ms. Diah Satyani Saminarsih on Building Resilient Health Systems through Strategic HRH Investment



Ms. Diah Satyani Saminarsih emphasized that, for effective health systems to operate, skilled and knowledgeable human resources are essential, and these cannot be overlooked. Ms. Saminarsih highlighted CISDI's efforts to ensure team collaboration among health workers, communities, and policymakers.

CISDI's model, which demonstrated the importance of team-based approaches, was successfully adapted by Indonesia's Ministry of Health. Initially proven in hard-to-reach areas, the model showed its potential when pivoted during the pandemic to strengthen the country's frontline health workers and ensure they could respond rapidly to COVID-19 challenges. The model focused on community health workers and community involvement ultimately became a national program.

Ms. Saminarsih emphasized that strategic investment in HRH is crucial for the development of resilient health systems. She stressed that such investments must focus on capacity-building and on creating supportive environments where health workers feel empowered and valued.

A key point she raised was the importance of mental health support for health workers, especially during the pandemic, where health workers often face immense personal and professional stress. Despite this, she noted that mental health support for the health workforce was initially overlooked in the policy landscape, with training and health insurance being among the budget items rejected when the program was first launched.

Ms. Saminarsih also stressed the role of digital competency as an essential pillar of HRH sustainability. She highlighted the use of digital tools, such as telemedicine, AI-driven diagnostics, and e-learning platforms, to enhance real-time decision-making and improve service delivery efficiency.

> *A resilient health workforce is not built in isolation; it requires strategic planning, continuous investment, and the empowerment of those on the frontlines*
>
> ***Ms. Diah Satyani Saminarsih***

Dr. N Krishna Reddy on Building a Resilient Health Workforce through Collaboration and Protection

Dr. N. Krishna Reddy discussed the GLC4HSR into a network of networks focused on strengthening health systems. He emphasized the critical importance of investing in the health workforce, noting it takes years to build, making it a key asset for resilience. He stressed the need to protect health workers during public health emergencies, as they are often directly affected, reducing their capacity to respond.

Dr. Reddy also encouraged sharing successful models and proof of concepts being tested in countries, alongside collaborating with academic institutions to transform theoretical ideas into scientific evidence for policy-making. He concluded by highlighting that collaboration, protection, and evidence-based policy are essential for building a resilient health workforce ready to meet future challenges.

Professor Vivekanand Jha on the Community of Practice to Augment HRH Resilience

Professor Vivekanand Jha began his remarks by emphasizing the critical shortage of healthcare workers and the pressing need for equitable workforce distribution across health systems. Reflecting on past experiences, he pointed out that healthcare systems have always faced immense challenges, especially during times of crisis. He stressed that the human resource for health (HRH) issue is not new but has gained more structured attention recently, with a focus on improving the resilience of health systems through better planning and strategies.

Professor Jha underscored the importance of frontline health workers, particularly those in underserved areas, and highlighted the critical role of community health workers (CHWs), such as ASHA workers, in addressing healthcare gaps. He noted that while the number of medical graduates is increasing, other essential healthcare professionals, particularly those in primary care, are often neglected, and their role must be prioritized.

He also emphasized the need to incorporate gender equity and systemic resilience into HRH strategies. He advocated for evidence-led approaches to ensure that healthcare systems are both sustainable and capable of achieving improved health outcomes. Professor Jha outlined the George Institute's mission, focusing on research-driven solutions in areas such as better treatments, workforce development, and policy implementation. He concluded by urging continued efforts in collaboration and community engagement, inviting participants to join the Resilience Collaborative, which aims to promote evidence-based strategies for HRH and systemic resilience.

> *Human resources for health is not a new challenge; it's just that we are rediscovering it and approaching it systematically to ensure that the right people are supported to deliver care where it is most needed.*
>
> ***Professor Vivekanand Jha***

Mr. Varadharajan Srinivasan on Engaging Health Workforce Communities

Mr. Varadharajan Srinivasan from The Resilience Collaborative Team emphasized the importance of active participation and engagement in human resources for health (HRH) initiatives. Reflecting on the success and lessons learned from the Global Health Workforce Alliance, he pointed out that flexibility, clear communication strategies, well-defined roles, and measurable success metrics are crucial for sustaining HRH networks. He highlighted that effective governance is key to making HRH efforts successful, stressing the importance of having clearly defined structures and active communication within these networks.

To further engage participants, Mr. Srinivasan introduced a set of questions aimed at gathering feedback, inviting everyone, including panelists, to share their thoughts. This exercise was designed to gain insights into the governance and representation challenges within HRH networks, particularly how frontline health workers can effectively represent their concerns at the systems level.

He also shared findings from recent studies, including one by Martinu (2025), which identified gaps in health workforce literacy as a significant challenge within HRH networks. The study pointed out that many participants in these systems do not fully understand what HRH entails or how it can be strengthened. Mr. Srinivasan concluded by reiterating the need for inclusive governance structures and leadership models that ensure frontline health workers are adequately represented, noting the importance of building an ecosystem that involves all stakeholders in HRH efforts.

Session Takeaways

The session recognized that building resilient health systems requires a holistic approach, addressing both workforce challenges and the evolving needs of healthcare delivery. Below are the key insights that emerged from the discussions:

1. Health systems need to evolve beyond traditional goals, addressing workforce distribution, production capacity, and quality. Although the global shortage of health professionals is declining, challenges in competency, retention, and equitable access persist.
2. Addressing personal, social, and financial challenges is essential to improving retention and motivation of the health workforce.
3. The resilience of the health workforce is crucial for effective pandemic preparedness and response. Adaptive policies, better training, and the integration of technology like AI and clinical decision support systems can help bridge demand-supply gaps.
4. Ensuring the quality of health services requires standardized competency assessments, mentoring, and supportive supervision. Strengthening regulations on workforce training and distribution is necessary for improving healthcare delivery, particularly in low-resource settings.
5. Digital interventions such as telemedicine, AI-driven diagnostics, and e-learning platforms enhance workforce efficiency. However, ensuring equitable access to training and infrastructure is essential to maximize the benefits of digital advancements.
6. Frontline health workers play a key role in community-based healthcare and must be adequately trained and supported. Their active involvement in leadership, decision-making, and capacity-building efforts is necessary for strengthening health systems.
7. Strong collaborations between global and regional organizations are essential for knowledge sharing, workforce capacity building, and policy development. Partnerships can drive innovation and ensure the sustainability of workforce solutions.
8. Strategic and long-term investments in education, training, and retention of health workers are crucial for strengthening health systems. Workforce planning should be integrated into national health policies with appropriate financial commitments.
9. The mental well-being of healthcare workers is vital for sustained performance. Policies should support work-life balance, stress management, and access to psychological support services to prevent burnout and workforce attrition.
10. Future-oriented policy-making requires evidence-based decisions, continuous monitoring, and adaptation to changing healthcare demands. Governments, development partners, and policymakers must work together to secure financing and governance for sustainable workforce development.

Call to Action

The session highlighted the urgent need for collaboration and action in building a resilient health workforce. It emphasized that global and regional partnerships are crucial in aligning policies, practices, and investments to create a more equitable and sustainable healthcare system. Participants were encouraged to continue engaging in community-driven solutions for HRH resilience, leveraging evidence-based strategies to address current and future challenges in health systems.

Moving forward, the session stressed the importance of policy development, capacity building, and long-term investments that ensure frontline health workers are adequately supported and empowered. This is especially critical in underserved areas, where resources and support are often limited.

The session called for collaboration, innovation, and strategic investments to strengthen the health workforce, ensuring it is capable of meeting the evolving demands of healthcare delivery. Stakeholders are urged to unite in the effort to build a sustainable, resilient health workforce that can effectively address global health challenges now and in the future. The time for action is now, and the collective commitment of all partners is essential for shaping the future of healthcare.

Future-Proofing Healthcare: Digital Strategies for Resilience

SPEAKERS

Session Keynote:

Dr. Karthik Adapa
Regional Advisor DH, WHO SEARO

Expert Presentation:

Mr. Andrew Wiltshire
Head, Healthcare Policy, Public Policy APJ
Amazon Web Services

Panel Chair:

Mr. Jai Ganesh Udayasankaran
Executive Director, Asia eHealth Information Network (AeHIN)

Moderator:

Ms. Supriya Cotra Prabhakar
Technical Head - Digital Health, ACCESS Health International

Panelists:

Dr. Aida Karazhanova
Economic Affairs Officer, UN Economic and Social Commission for Asia and the Pacific

Kirsten Mathieson
Deputy Director & Policy Lead, Transform Health

Dr. Peiling Yap
Chief Scientist, HealthAI

Mr. Steven Wanyee (Virtual)
President HELINA, Pan African Health Informatics Association (HELINA)

Ms. Xin Rou Teh (Jocelyn)
Secretariat (Malaysia), Asia eHealth Information Network (AeHIN)

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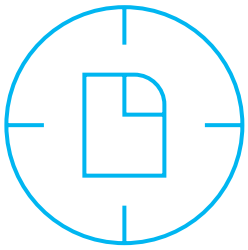


Context & Session Objectives

The session, "Future-Proofing Healthcare: Digital Strategies for Resilience," explored the transformative potential of digital technologies, particularly Artificial Intelligence (AI) and cloud solutions, in revolutionizing healthcare across diagnosis, treatment, and follow-up. AI is projected to have three times the impact of the internet. The discussion highlighted various AI applications in healthcare, such as radiology, pathology, drug discovery, and chronic disease management. The session also addressed the role of cloud solutions in enhancing healthcare resilience through secure data storage, compute capabilities (including AI), and cost-effective scaling. Despite these opportunities, the speakers emphasized that the healthcare sector, especially in low- and middle-income countries (LMICs), faces significant challenges in implementing these technologies, including limited data contribution, lack of evidence, and low readiness of health systems.

A central theme throughout the session was the critical need for robust governance frameworks for both AI and health data to ensure responsible and ethical implementation. The rapid advancement of AI by the private sector necessitates governmental regulation to mitigate potential harmful outcomes. Key ethical challenges identified include cybersecurity threats, ownership of AI-generated knowledge, and ensuring ethically and culturally appropriate AI use, particularly in underrepresented regions like Africa. Health Data Governance (HDG) was underscored as foundational for responsible AI adoption, requiring frameworks that address data privacy, algorithmic accountability, and global regulatory disparities. The importance of transparency and explainability of AI systems for building trust among stakeholders was also consistently emphasized.

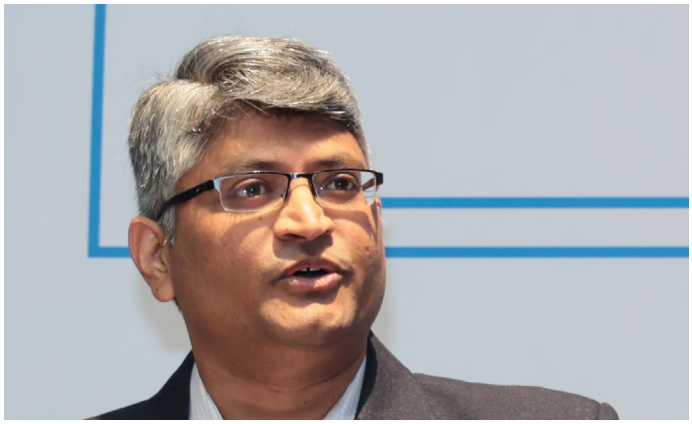
The session concluded by stressing the importance of regional and global collaboration on HDG and digital health initiatives to facilitate cross-border data sharing while maintaining data sovereignty. Initiatives like the Asia Pacific Information Superhighway (APIs) and the work of organizations such as AeHIN and Transform Health in developing HDG principles and a model law were highlighted as crucial steps towards a harmonized global approach. Ultimately, the session called for multi-stakeholder engagement and strengthened national legislative frameworks to responsibly leverage digital strategies and AI to future-proof healthcare for everyone.

Objectives

- Explore AI and cloud solutions in transforming healthcare, including diagnosis, treatment, and follow-up.
- Examine AI applications in radiology, pathology, drug discovery, and chronic disease management.
- Address implementation challenges in LMICs, such as limited data and low system readiness.
- Highlight the need for robust governance for AI and health data to ensure responsible and ethical use.
- Identify ethical challenges like cybersecurity, ownership of AI-generated knowledge, and cultural appropriateness, particularly in underrepresented regions.
- Emphasize transparency and explainability of AI systems to build trust.
- Promote regional and global collaboration on Health Data Governance (HDG) and cross-border data sharing while maintaining sovereignty.
- Encourage multi-stakeholder engagement and national frameworks to leverage digital strategies and AI for resilient healthcare.

Session Keynote

AI in Healthcare: Applications, Challenges, and Ethical Considerations - Dr. Karthik Adapa



Dr. Karthik Adapa, a Physician Scientist at WHRO and Adjunct Faculty at Yale University and the University of North Carolina School of Medicine, delivered an insightful presentation on AI in Healthcare, discussing its applications, challenges, and ethical considerations. He emphasized that AI is a transformational force in healthcare, particularly noting its recent surge due to the exponential growth of global data and computational power, alongside a dramatic reduction in model training costs. He highlighted that AI is projected to have three times the impact of the internet, indicating its potential to revolutionize the sector.

Dr. Adapa detailed the broad use cases of AI across various domains, including pharmaceuticals and population health, while acknowledging that healthcare contributes only about 5% of global health data, making implementation challenging. He provided examples of AI applications in diagnosis and treatment, stressing the growing evidence supporting these technologies. Notably, he remarked that radiologists utilizing AI tools may outpace their counterparts who do not, underscoring the necessity of adapting to technological advancements.

He also discussed the implications of AI on physician-patient interactions, referencing studies that suggest AI could outperform human responses in terms of empathy. Dr. Adapa raised concerns about the readiness of health systems to implement AI, with only 12% readiness reported in the Stanford Healthcare system, despite a robust innovative ecosystem. He called for increased evidence generation regarding AI applications in low- and middle-income countries (LMICs), emphasizing the need for effective governance to keep pace with rapid private sector advancements.

In conclusion, Dr. Adapa highlighted the importance of collaboration between public and private sectors to ensure that AI benefits everyone. He stressed the necessity of evidence-based and scalable AI models, as well as the importance of asking the right questions in this evolving landscape.

> *AI is projected to have three times the impact of the Internet. Given this, it is crucial to understand both what AI is and how it is transforming healthcare. While the biggest challenge in implementing AI in healthcare is that the sector contributes only about 5% of global health data, there has still been an exponential acceleration in AI research, paving the way for its growing applications.*
>
> ***Dr. Karthik Adapa***

Expert Presentation

Empowering Healthcare Resilience through Cloud Solutions - Mr. Andrew Wiltshire

Mr. Andrew Wilshire presented an insightful perspective on empowering healthcare resilience through cloud solutions. He described AWS as a hyper-scale cloud services provider that offers essential services such as data storage, compute capabilities, and health-specific applications like FHIR-enabled data exchange and genomics. Mr. Wilshire illustrated how major health organizations globally leverage cloud technology, citing examples like CoWIN in India and the NHS in the UK.

Despite the potential benefits, he noted that healthcare has been slow to adopt digital and cloud technologies, primarily due to barriers identified in a paper he co-authored with Access Health International. He pointed out two critical obstacles: a lack of clear guidance from governments on safe cloud adoption and concerns regarding security and resilience in managing healthcare data. Historically, the healthcare sector has struggled with security and privacy, necessitating substantial investment in on-premises data management.

Mr. Wilshire emphasized that cloud computing provides standardized approaches to building resilient healthcare systems that can innovate and scale cost-effectively. He highlighted the importance of not consolidating all data in one location, as cloud providers offer redundant infrastructure across multiple regions to withstand disasters and cyber threats. He outlined various tools for securing resources, such as identity management and multi-factor authentication, ensuring compliance with regulations like HIPAA and GDPR.

He proposed several policy recommendations, including instituting a cloud-first policy for public institutions and establishing resilience standards to guide healthcare organizations in secure cloud adoption. Mr. Wilshire stressed the importance of collaboration among organizations and policymakers to enhance resilient standards and maximize the benefits of digital health solutions. He concluded by noting that strong policy frameworks are essential for leveraging digital health innovations effectively, referencing India's Ayushman Bharat Digital Mission as a successful example.

> *Cloud computing provides standardized approaches to building resilient healthcare systems that not only enable innovation but also scale cost-effectively. The real power lies in not putting all your data in one place—cloud infrastructure, with its multiple regions and redundancy, ensures that health systems can withstand a range of challenges, from natural disasters to cyber threats.*
>
> ***Mr. Andrew Wiltshire***

Highlights from the Panel Discussion

Context Setting for the Discussion

Moderator **Ms. Supriya Cotra Prabhakar** focused on leveraging digital strategies to future-proof healthcare. She expressed gratitude to Amazon Web Services (AWS) for their support and outlined the session's format, featuring presentations from prominent speakers followed by a panel discussion on global AI perspectives in healthcare. Ms. Prabhakar emphasized the critical intersection of technology and patient care, addressing governance challenges posed by rapid AI advancements. **She identified three key challenges: the Data Privacy Paradox, Algorithmic Accountability, and Global Regulatory Disparities.**

Additionally, she highlighted the importance of trust and transparent governance in AI adoption. Supriya provided examples of global initiatives tackling these issues and underscored the need for public-private partnerships and comprehensive stakeholder training to bridge the policy-practice divide. During the panel discussion, she facilitated dialogue on equitable access and strategies to foster public trust in digital health innovations.

Governance Frameworks and Regulatory Challenges

Session Chair Mr. Jai Ganesh Udayasankaran introduced the session by emphasizing AeHIN's role in supporting governments through capacity-building programs, particularly in digital health. He highlighted how AeHIN addresses gaps in governance, program management, and interoperability through its convergence workshops.

Ms. Supriya Cotra Prabhakar also addressed the importance of clear regulatory guidance for digital health adoption, noting the slow progress of AI integration in healthcare due to regulatory challenges. She emphasized the need for flexible regulatory frameworks that can accommodate evolving technologies such as AI.

Ms. Kirsten Mathieson further supported this point by advocating for robust national legislative frameworks and the development of a global Health Data Governance framework, which is crucial for ensuring harmonization and data sovereignty across countries.

> *Governments must lead the way by creating robust national legislative frameworks for Health Data governance. This will ensure that data can be shared across borders responsibly, protecting privacy while enabling public benefit.*
>
> ***Ms. Kirsten Mathieson***

Trust-Building and Transparency in AI Adoption

Ms. Supriya Cotra Prabhakar highlighted the necessity of trust and transparent governance in adopting AI in healthcare, focusing on the importance of creating systems that foster public trust. She referred to global initiatives and underscored the need for public-private partnerships and stakeholder training to bridge the policy-practice divide.

Dr. Peiling Yap discussed the importance of transparency and explainability of AI systems, stressing that stakeholders, including regulators, healthcare professionals, and patients, must understand how AI works. This transparency ensures greater trust in AI systems, making them more acceptable across various levels of healthcare governance.

> *Transparency and explainability of AI systems are crucial for healthcare stakeholders. By providing clear documentation on data sets, limitations, biases, and clinical processes, we can foster understanding and ensure safe, effective, and accountable use of AI in healthcare.*
>
> ***Dr. Peiling Yap***

Ethical Considerations in AI Governance

Mr. Steven Wanyee raised critical ethical issues around AI governance in healthcare, particularly in Africa. He noted that cybersecurity threats and the lack of investment in this area posed significant risks. He also addressed the complexities surrounding the ownership of AI-generated knowledge, emphasizing that culturally and ethically appropriate AI systems are needed for the diverse contexts of healthcare across the globe.

> *Cybersecurity threats are one of the biggest ethical challenges in AI governance, particularly in Africa. The investments in cybersecurity in the health sector are very low, and AI's complexity increases the risks, making it even more difficult to handle these threats effectively.*
>
> ***Mr. Steven Wanyee***

Dr. Aida Karazhanova also touched on ethical considerations, focusing on the importance of strengthening policies and regulatory frameworks to support AI-driven health systems, specifically in ensuring that these systems respect data privacy and are ethically sound.

Regional and Global Collaborations for Health Data Governance

Dr. Aida Karazhanova discussed the role of UNESCAP in promoting regional collaboration, emphasizing the significance of the Asia Pacific Information Superhighway (APIs) as a key digital public infrastructure. She also mentioned the UN Secretary General's focus on foresight technologies, data, and behavioral science in driving digital health innovations.

> *Strengthening regional collaboration is essential for advancing digital health systems. The Asia Pacific Information Superhighway (APIs) is a key digital public infrastructure that can enhance connectivity, resilience, and regional cooperation, enabling us to build a unified approach to health data governance.*
>
> ***Dr. Aida Karazhanova***

Ms. Xin Rou Teh (Jocelyn) elaborated on AeHIN's efforts to facilitate regional engagement on Health Data Governance, particularly its work on HDG principles and model law consultations in countries like Malaysia, the Philippines, and Sri Lanka. She highlighted the importance of local context adaptation and capacity building, alongside the need for public awareness and partner collaboration for successful implementation.

Security and Resilience in Health Data Systems

Mr. Steven Wanyee stressed the challenges posed by low cybersecurity investment in the health sector and the need for better security frameworks to protect healthcare data.

Mr. Udayasankaran introduced the concept of resilience in health data systems, referencing AeHIN's focus on creating more secure, interoperable health systems that can withstand disruptions.

Ms. Supriya Cotra Prabhakar and Mr. Udayasankaran both emphasized the role of cloud computing and standardized infrastructure in ensuring the security and resilience of healthcare systems. They discussed how cloud services, with their redundant infrastructure, can support systems during disasters and cyber threats, ensuring healthcare services continue uninterrupted.

> *Effective governance isn't just about creating policies, it's about translating these actions into practices. Healthcare's responsibility to prioritize patient safety while advancing technology makes governance even more critical.*
>
> ***Ms. Supriya Cotra Prabhakar***

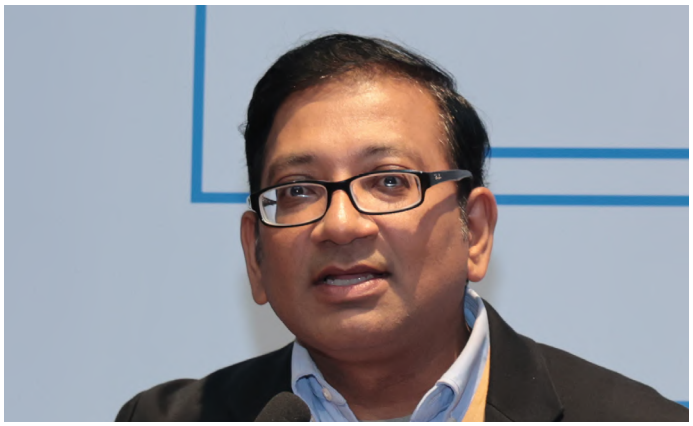
Capacity Building and Stakeholder Engagement

Ms. Supriya Cotra Prabhakar stressed the need for comprehensive stakeholder training to help governments, healthcare providers, and policymakers understand the implications of digital health and AI technologies.

Dr. Peiling Yap discussed HealthAI's role in strengthening the capacity of health regulators by providing technical assistance and operationalizing transparency and explainability principles within regulatory workflows.

Similarly, Ms. Jocelyn emphasized the importance of regional capacity building through consultations and training to ensure that local contexts are understood and adequately addressed when implementing health data governance models.

Policy Recommendations and Future Directions



Mr. Udayasankaran and Ms. Supriya Cotra Prabhakar both called for policy frameworks that support the integration of digital technologies into healthcare, including AI. Mr. Udayasankaran proposed multi-stakeholder dialogue as essential for addressing governance challenges and promoting responsible AI adoption.

Mr. Wilshire added that a cloud-first policy for public institutions could be a crucial step toward advancing digital health solutions. Additionally, he highlighted the need for resilience standards and flexibility in regulations to allow healthcare organizations to adopt technologies like AI securely and efficiently. The session concluded with a focus on the importance of strategic partnerships and ongoing knowledge sharing to continuously improve health data governance frameworks and enable the global scaling of AI in healthcare.

> *Digital health is all about partnerships. Rather than having a fragmented approach, it is in our best interest to work together to build robust systems and drive innovation, ensuring that every stakeholder contributes to the collective vision of a resilient health system.*
>
> ***Mr. Jai Ganesh Udayasankaran***

Session Takeaways

- AI holds significant transformative potential in healthcare across diagnosis, treatment, and follow-up, with projections of having three times the impact of the internet.
- Implementing AI in healthcare, particularly in LMICs, faces challenges such as limited data contribution, lack of evidence, and low readiness of health systems.
- AI governance is crucial to address potential harmful outcomes as the private sector moves rapidly, necessitating government involvement through regulations and policies.
- Cloud solutions offer enhanced healthcare resilience through secure data storage, compute capabilities (including AI), cost-effective scaling, and redundant infrastructure, although adoption has been slow due to a lack of clear governmental guidance and security concerns.
- Health data governance is fundamental for responsible AI adoption in healthcare, requiring frameworks that address data privacy, algorithmic accountability, and global regulatory disparities.
- Critical ethical challenges in AI governance in healthcare include cybersecurity threats, ownership of AI-generated knowledge, and ensuring ethically and culturally appropriate AI use, especially in underrepresented regions like Africa.
- Transparency and explainability of AI systems are essential for building trust among regulators, healthcare professionals, and patients, allowing for better understanding and scrutiny of AI outputs.
- Strengthening policies and regulatory frameworks for digital public services to support AI-driven health systems requires open data frameworks, regional collaboration through initiatives like the Asia Pacific Information Superhighway (APIs), and a focus on digital foresight.
- Regional collaboration on Health Data Governance (HDG), as exemplified by AeHIN's work with Transform Health on HDG principles and model law consultations, is vital for facilitating cross-border data sharing while maintaining data sovereignty.
- There is a growing global consensus on the need for a harmonized approach to Health Data Governance, potentially through a global framework endorsed by the World Health Assembly, to facilitate responsible data sharing and support national legislative efforts, with the Model Law on Health Data Governance being a key resource in this direction.

Call to Action

- Prioritize the development and implementation of robust AI governance frameworks at national and potentially global levels to address the ethical considerations, security risks (like cybersecurity threats), and challenges associated with the rapid advancement of AI in healthcare. This should involve government leadership and action.
- Invest in generating evidence for the effectiveness and safety of AI applications in healthcare, with a particular focus on low- and middle-income countries (LMICs) where evidence is currently limited.
- Promote the adoption of cloud solutions in healthcare by establishing clear governmental guidance, resilience standards, and addressing security and privacy concerns to enhance data security, privacy, and system resilience. Consider instituting cloud-first policies for public healthcare institutions.
- Strengthen Health Data Governance (HDG) frameworks to ensure responsible AI adoption, addressing data privacy, algorithmic accountability, and global regulatory disparities. This includes facilitating cross-border data sharing while maintaining data sovereignty.
- Emphasize transparency and explainability of AI systems in healthcare to build trust among regulators, healthcare professionals, and patients, enabling better understanding and scrutiny of AI outputs.
- Foster regional and global collaboration on Health Data Governance and digital health initiatives, leveraging networks like AeHIN and HELINA, and supporting efforts towards harmonized frameworks and cross-country learning.
- Strengthen national legislative frameworks for the responsible collection and use of health data, providing clear guardrails for all actors and building public trust in health data systems. Consider the adaptation and use of resources like the Model Law on Health Data Governance.
- Invest in capacity building for governments, healthcare professionals, and the public to understand AI, digital health, and health data governance, including training on how to ask good questions of AI systems and critically evaluate their outputs.
- Ensure equitable access to digital health technologies and AI-driven healthcare solutions across all regions and socioeconomic levels to prevent a widening digital divide.
- Promote multi-stakeholder engagement involving governments, healthcare providers, technology companies, academic researchers, civil society, and patients in the development and implementation of digital health strategies and governance frameworks.

The session highlighted the transformative potential of digital technologies, especially AI and cloud solutions, in healthcare, while also emphasizing the significant challenges in their responsible and equitable implementation, particularly in LMICs. Key issues discussed included the rapid pace of AI development necessitating government regulation, the slow adoption of cloud solutions due to security concerns and lack of clear guidance, and the critical need for robust Health Data Governance frameworks to address privacy, accountability, and regulatory disparities. Ethical challenges such as cybersecurity threats, ownership of AI-generated knowledge, and culturally appropriate AI use were also underscored.

Moving forward requires strong AI governance frameworks, evidence generation, and the promotion of secure cloud adoption through clear guidelines. Regional and global collaboration are essential for harmonizing Health Data Governance and digital health initiatives, with efforts like AeHIN's work and the development of the Model Law on Health Data Governance being crucial steps. Ultimately, multi-stakeholder engagement and a harmonized global approach to Health Data Governance are vital to responsibly leverage digital strategies and AI to future-proof healthcare for all.

Breakout Session 1

From Insight to Action: Supportive Supervision in Primary Health Care for Community Well-Being Conclave Workshop & Simulation Session

Collaborator: Centre for Indonesia's Strategic Development Initiatives (CISDI)

SPEAKERS

- **Ms. Nidya Eka Putri**
  Lead of Community Health Workers Strengthening Project (Lead of PN-PRIMA Initiative), Center for Indonesia's Strategic Development Initiatives
- **Ms. Diah Satyani Saminarsih**
  Founder and CEO, Center for Indonesia's Strategic Development Initiatives
- **Ms. Yudharina Meilissa**
  Chief Strategist and Acting Chief of Primary Health Care, Center for Indonesia's Strategic Development Initiatives

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Context & Session Objectives

Dr. Shweta introduced the session, emphasizing its interactive and practical approach to understanding the key challenges and best practices in community health worker (CHW) supervision. She highlighted that supportive supervision is crucial for enhancing the performance and motivation of CHWs, ultimately leading to improved community health outcomes.

Objectives

This session highlighted how supportive supervision, when grounded in mentorship and collaborative evaluation, can strengthen health workforce performance and system accountability. Specifically, the session aimed to:

1. Explore lessons learned from the PN Prima approach to supportive supervision, including the integration of mentorship, coaching, and participatory evaluation methods.
2. Examine scalability by assessing how the supportive supervision framework can be adapted across diverse healthcare settings and contexts.
3. Evaluate replicability to determine whether this mechanism can be implemented effectively in other country chapters with similar challenges and health system needs.

From Policy to Practice: CISDI's Integrated Approach to CHW Support and Supervision

Ms. Diah Satyani Saminarsih began by setting the context for CISDI's work, aligning it with national priorities. She stressed that **primary healthcare** is a critical pillar in Indonesia's healthcare system and that CISDI focuses on this area to **improve community health.**

Primary Healthcare:

She discussed the intersection between climate and health, explaining how environmental factors influence health outcomes.

She noted that the COVID-19 pandemic pushed the approach from business-centric to community empowerment, highlighting the need for more inclusive and community-focused healthcare strategies.

Challenges:

Ms Saminarsih pointed out that CHWs often do not receive adequate remuneration or acknowledgement for their work, posing a significant challenge to their motivation and effectiveness.

She emphasized the importance of strategic planning in addressing these challenges.

Supportive Supervision:

She explained that **supportive supervision improves CHWs'** performance through constructive feedback and guidance.

Quality interactions between supervisors and CHWs are essential, focusing on providing support rather than just checking compliance.

This approach helps increase CHWs' motivation, leading to the delivery of higher-quality services.

PN Prima's supportive supervision model caters to the needs of both the healthcare system and the community.

Framework of Change:

Ms. Yurdhina Mellisa discussed the need to professionalize CHWs to enhance their effectiveness and reliability.

She highlighted the challenges of **ensuring CHWs receive proper training in settings with limited funding and resources.**

A hand-holding mechanism is crucial for increasing CHWs' knowledge and skills, ensuring they are well-prepared to deliver quality healthcare services.

Monitoring and Outcome Engagement:

This component involves using data collected by CHWs as a feedback mechanism for the entire healthcare system.

Regular mentoring sessions are conducted to discuss the challenges CHWs face, providing one-to-one coaching as needed and hands-on skill-building steps.

Ms. Mellisa also noted that CHWs provide adult care along with maternal and child health services, broadening their scope of work and impact.

Skill Assessment and Poshyandu Activity Assessment Tools:

These tools are used to assess CHWs during home visits, ensuring they have the necessary skills and knowledge to provide quality care.

Mentoring and Coaching Tool: This tool facilitates supervisors in identifying the best mentoring practices, helping them provide targeted and effective support to CHWs.

Monitoring Dashboard: The dashboard allows facilitators to monitor CHW performance, identifying areas for improvement and ensuring continuous quality enhancement.

Tool Orientation:

Ms. Nidya Eka Putri provided an orientation on various tools designed by CISDI to support CHWs.

Poshyandu Observation Tool:

This tool evaluates the implementation of services and identifies topics that need to be addressed in mentoring sessions for CHWs.

Recording Progress:

It involves tracking the progress of maternal and child health, including immunization status and health education based on specific conditions.

Individual Skill Tools:

These tools assess the competency of CHWs, allowing supervisors to plan targeted mentoring sessions.

Mentoring Tool:

This tool guides discussions between supervisors and CHWs, focusing on continuous learning and improvement.

It includes feedback mechanisms to make future mentoring sessions more engaging and empathetic, utilizing role models, storytelling, and case studies.

QUESTION AND ANSWER SESSION:

During the Q&A session, several insightful questions were raised by the participants, leading to a rich discussion on the various aspects of CHW supervision and motivation. One participant highlighted the detailed yet simple tools provided for CHWs and inquired about what motivates them to conduct such assessments. It was explained that the support from CISDI in the PN Prima project and their commitment to community welfare serve as significant motivating factors for CHWs. Furthermore, it was emphasized that a **balance is necessary to ensure that CHWs are well taken care of while they serve their communities.**

Another participant raised concerns about the impact of additional work without extra incentives on CHW dropout rates. The response addressed several challenges contributing to CHW dropouts, including the lack of incentives for the extra workload. It was noted that younger CHWs tend to be more adaptable and flexible, adjusting to increased responsibilities more easily than older CHWs, who often feel overburdened and are more likely to drop out due to the added burden on their job profiles.

A question was also posed regarding the profile of CHWs and the community's role in supporting them. It was shared that most CHWs are women in their 40s, living in villages with basic education, using simple tools for their work. The difficulty in finding supervisors within the community was acknowledged, and the importance of involving community-based organizations to take on supervisory roles was emphasized.

One participant asked if this was the first time formal feedback mechanisms were being implemented in Indonesia and how it affected CHWs' relationships and status in society. It was confirmed that this initiative is indeed a first for Indonesia and aims to bring about policy changes that will positively impact the status and relationships of CHWs within their communities.

Lastly, there was a question about how the team identified inactive CHWs and the reasons for their inactivity. It was explained that inactive CHWs were identified based on their failure to perform expected duties, with many CHWs themselves communicating their inactivity, stating that they were not currently engaged in any activities.

Key Session Takeaways

1. **Interactive Approach:** Supportive supervision enhances CHWs' performance and motivation.
2. **Primary Healthcare Focus:** Emphasis on community health within primary healthcare.
3. **Strategic Planning:** Essential for addressing CHW challenges.
4. **Supportive Supervision:** Improves CHW motivation and service quality.
5. **Professionalizing CHWs:** Need for proper training in resource-limited settings.
6. **Skill Assessment Tools:** Ensuring CHW competency through assessments.
7. **Mentoring and Coaching:** Targeted support and continuous learning.

Breakout Session 2:

Resilient Health Workforce: Building Digital Competency in maximising benefits and Minimising HRH burden

Collaborator: Asia Pacific Action Alliance on Human Resource for Health (AAAH)

SPEAKERS

- **Ms. Anna Kurniati**
  AAAH Chair
- **Ms. Chayanan Khutsutthipipat**
  AAAH Secretariat Manager
- **Ms. Vorawee Varavithya**
  AAAH Secretariat

Context & Session Objectives

Objectives

As digital transformation accelerates across health systems, there is a growing need to ensure that the health workforce is equipped with the competencies, infrastructure, and support needed to thrive in a digital era. This session explored strategies to strengthen workforce resilience through digital innovation, drawing on insights from the 13th AAAH Conference. Specifically, the session aimed to:

1. Highlight the critical role of digital technology in health workforce resilience, building on the output of the 13th AAAH conference.
2. Define and outline effective strategies for building digital competency within the Asia-Pacific health workforce, focusing on approaches that enhance resilience, improve service delivery, and prevent increased workload on already strained human resources for health.
3. Identify practical solutions to address challenges such as digital literacy gaps, infrastructure limitations, and resistance to change, thereby ensuring equitable access to digital health resources and promoting a more resilient and equitable healthcare system.
4. Provide a platform for knowledge sharing, best practices, and networking among HRH experts, digital specialists, AAAH member states, and participants.

Session Highlights

The session featured significant insights and discussions on the importance of digital competency in remote and underserved areas, emphasizing collaboration and inclusivity.

Ms. Anna Kurniati highlighted the importance of regional voices in driving health initiatives and fostering collaboration and inclusivity. She emphasized that equality and neutrality are the foundational principles of the AAAH. By ensuring these principles, the AAAH aims to create an environment where all voices are heard and valued, fostering a culture of inclusivity in healthcare.

Ms. Chayanan presented a structured framework on digital competency, breaking it down into three key levels:

Level 1: Skill, Knowledge, and Attitude in Digital Savvy: This level focuses on the foundational skills, knowledge, and attitudes necessary for individuals to become digitally savvy. It emphasizes the importance of being competent in using digital tools and technologies, understanding their applications, and maintaining a positive attitude towards digital transformation.

Level 2: Training and Capacity Building: At this level, the emphasis is on training and capacity building to enhance digital competencies. This involves providing comprehensive training programs that cater to the specific needs of individuals and organizations, ensuring they are well-equipped to leverage digital technologies effectively.

Level 3: Enabling Factors: This level addresses the broader enabling factors that support digital health transformation. It includes creating an environment that fosters digital innovation, ensuring access to necessary resources, and engaging key stakeholders, including non-governmental organizations (NGOs) and the private sector.

Ms. Chayanan underscored the **crucial commitment needed for digital health transformation,** stressing that integrating digital technology into training and capacity-building efforts is essential. Engaging NGOs and the private sector plays a vital role in this process, as their collaboration can drive meaningful change and sustainability.

Facilitator: Dr Shweta Singh facilitated the group discussion by briefing the members about the flow of the session. The group will be discussing two sets of questions, which were :

QUESTION 1:
Discussion on Targeted Digital Skills Training in Remote and Underserved Areas with Limited Human Resources for Health (HRH):

The discussion centred around the need for targeted digital skills training in remote and underserved areas where human resources for health are limited. The technical resource person from the Ministry of Health and Family Welfare, India discussed the handholding required during the initial phases of implementing the Comprehensive Primary Health Care Programme. A cascade training approach was emphasized, involving the training of trainers and master trainers to ensure that digital skills are not solely dependent on ground staff.

Facilitators and coordinators in the field played a crucial role, supported by the National Health Mission due to a strong political commitment to adopting digital training. TATA Trust provided backend support across all states, while doctors from Primary Health Centers trained ground staff in remote villages and transitioned them to digital applications. The digital training cascaded quickly and was well-accepted by ground staff, leading to sustained adoption. However, the continuous evolution of digital applications necessitates iterative training with ongoing learning components.

It was noted that the inclusion of multiple languages facilitated the adoption of digital training by CHWs. Despite this, digital interventions are often perceived as an administrative burden. CHWs nearing retirement are particularly hesitant to adopt such interventions due to the increased data burden. There was concern that digitalization in health should extend beyond mere data reporting and avoid double entries in portals and registers. Digital registers could be designed to integrate with existing tools and apps to reduce redundancy.

Although smartphones have alleviated some burdens, ground-level staff frequently use family members' devices, complicating the process. The significant volume of data generated raised concerns about data safety, emphasizing

the need for stringent data privacy policies to protect both identifiable and non-identifiable variables. Digital tools should be designed with a human-centric approach to genuinely reduce the burden on healthcare workers.

QUESTION 2:
Discussion on Leveraging Digital Technology in Healthcare for Remote and Underserved Areas:

This discussion focused on the challenges and strategies for leveraging digital technology in healthcare for remote and underserved areas. A key issue identified was the lack of digital literacy among CHWs and inadequate telemedicine facilities in underserved regions, which are meant to ease access to healthcare services. The disparity between rural and urban areas, especially affecting tribal regions, further exacerbates this gap.

Even when telemedicine is available, data privacy issues arise when patient information is transferred via platforms like WhatsApp to doctors, limiting the effectiveness of telemedicine in critical cases. However, telemedicine showed promise through decision-making algorithms that effectively interpret symptoms and summaries to aid medical decisions.

The discussion emphasized the importance of community involvement in decision-making processes to ensure participatory and inclusive solutions. Technology can complement CHWs in providing healthcare on the ground. Initially challenging, the adoption of technology has improved post-pandemic. It is crucial to introduce technology in a manner that users enjoy and do not feel overburdened by it.

Participants noted the recurring issue of workload overburden, with multiple applications capturing similar data. Developing a system where information is captured once and utilized across applications could significantly reduce duplicative efforts. While technology should not replace CHWs, it can serve as an alternative support mechanism for the healthcare system and program.

Key Takeaways from the Session:

Toward the end of the session, Dr Shweta Singh summarised the key takeaways as follows:

1. Political commitment, financial assurance, linked incentives, and adequate handholding are some of the key enabling factors in digital competency.
2. Continuous sensitization of health workers need to be there for any digital health intervention.
3. Essential digital health literacy need to be maintained
4. While introducing any digital intervention, there is a crucial component to be consider of the geography of the intervention whether it is an urban area rural or tribal
5. Regular feedback from healthcare workers, especially getting to know their pain points is crucial to keep them motivated and also ensures the quality of data that is being collected
6. Digital technology cannot replace human resources for health, but it needs to be considered a good supplementary tool that works in an integrated way.

Breakout Session 3:

Health Workers from the Frontlines: Participation in Leadership and Governance Mechanisms

Collaborator: The George Institute of Global Health (TGI)

Facilitator Details

- **Dr. Richa Chintan**
  Researcher (Public Health, Economics),
  The George Institute for Global Health

Context & Session Objectives

Objectives

This session reflected on efforts to strengthen the health workforce as a cornerstone of resilient health systems. Discussions centered on policy, governance, and practical strategies that were implemented or advanced to improve preparedness and response capacities, especially in the face of emerging public health threats. Specifically, the session aimed to discuss ways to:

1. Strengthen human resources for health norms to enable effective delegation, redistribution, and task shifting, thereby enhancing health systems' response during health emergencies.
2. Build workforce capacity to address population health priorities and support public health emergency preparedness and response.
3. Enhance governance and regulatory frameworks and promote the development and implementation of national policies and plans for human resources for health.
4. Foster decent working conditions, safeguard the physical and mental health of health workers, and ensure an adequate and sustainable supply of human resources for health.
5. Integrate digital health tools and data-driven workforce planning to strengthen health workforce resilience and support capacity building during public health emergencies.

Session Highlights

Dr. Richa Chintan began by emphasizing the pivotal role of Community Health Workers (CHWs) in India's primary healthcare system. She highlighted how CHWs serve as the backbone of healthcare delivery in rural and underserved regions, ensuring essential services reach even the most remote communities. However, Dr. Chintan also detailed the myriad challenges CHWs face, which hinder their effectiveness and well-being. These challenges include:

1. **Workload:** CHWs often manage a high volume of tasks, leading to burnout and decreased efficiency.
2. **Safety:** CHWs face safety concerns, especially when working in volatile or inaccessible areas.
3. **Inadequate Facilities:** A lack of proper facilities and resources hampers their ability to deliver quality care.
4. **Social Discrimination:** CHWs, particularly women, often encounter social discrimination and stigma, affecting their morale and performance.
5. **Increasing Digitalization:** The push towards digital health interventions adds to their burden, especially for those not well-versed in technology.
6. **Dichotomy and State's Agenda:** Conflicting priorities between local needs and state agendas can create additional pressure on CHWs, affecting their focus and efficiency.

Group Discussion Exercise:

The participants were divided into four subgroups to delve deeper into these challenges and explore potential solutions.

The following questions were discussed in detail among the participants:

1. Identifying barriers that restrict their agency and finding ways for better and effective representation of Health workers from the frontline in the health system
2. What changes in the Governance System need to be made (Budget, Design of interventions) to give HWs from frontlines greater agency in health governance?
3. Is there a role of social hierarchies in inhibiting their agency? How can it be countered?
4. Can existing institutions play a role in empowering them? How?
5. How can to have better representation of them in leadership and governance roles within health systems? Positive examples?

Summary of the Subgroups Discussions:

During the Group 1 discussion, participants identified several barriers that restrict the agency of female CHWs in representing themselves within the health system. The selection process for these roles often favours individuals with connections over those with necessary competencies, leading to a lack of conviction and initiative among CHWs. Additionally, a **weak onboarding process means CHWs are often overloaded with tasks from various health verticals without proper integration or support, leading to inefficiency and burnout.**

Grievance redressal mechanisms are inadequate, leaving CHWs without support when facing challenges. The allocation of funds and resources is often limited and lacks discretion, further hindering CHWs' effectiveness. To address these issues, the group suggested leadership training to help CHWs take initiative and represent their communities more effectively. They also recommended distributing power more equitably, improving financial management training, and fostering collaborations with local NGOs and community-based organizations to support CHWs' roles and responsibilities.

Overall, the discussion highlighted the need for comprehensive support and training for CHWs to enhance their agency and effectiveness within the health system, ensuring they can address community health needs more effectively.

The discussion in Group 2, consisting of representatives Dr Sulekha, Dr Sandhya, Dr Prachi, and Dr Gaurav, focused on designing budget interventions to enhance the agency of frontline workers in health governance. They emphasized the importance of representing frontline workers, such as ASHAs, in local bodies to ensure their voices are heard in governance from the grassroots level.

A key point discussed was the need for specialization among ASHAs. The group suggested that each ASHA should focus on specific fields, such as immunization or maternal health, rather than one ASHA handling all tasks in an area. This specialization would require increased

recruitment of ASHAs. They referred to the National Health Policy 2017, which recommended allocating two-thirds of the budget to Primary Health Centers. By increasing the budget allocation to PHCs, ASHAs would receive more support and resources, enhancing their recruitment, specialization, and representation.

Finally, the group highlighted the need for developing guidelines and Standard Operating Procedures (SOPs) for ASHAs to improve their representation in governance. Clear guidelines and SOPs would provide ASHAs with the structure and support needed to advocate for their communities effectively.

In summary, the group called for greater representation of frontline workers in local bodies, specialization and increased recruitment of ASHAs, and the development of guidelines and SOPs to enhance ASHAs' agency in health governance.

The Group 3 discussion focused on the role of social hierarchy in the recognition and reward of frontline workers within the health system. It was observed that higher-level authorities often receive credit for the work done by frontline workers, resulting in a lack of motivation among those at the lower levels. The group emphasized the need to provide proper credit and rewards to the best-performing frontline workers to counteract social hierarchy at the ground level.

The group suggested initiatives to change the belief systems of frontline workers by recognizing and appreciating their efforts, which would encourage more active and motivated participation. Sensitization sessions and awareness programs were recommended to highlight the importance of frontline workers' contributions and promote a culture of recognition.

The group also discussed the importance of incentivizing tasks and implementing feedback mechanisms to ensure continuous improvement and motivation. They proposed forming teams of doctors and frontline workers to create agendas and manage finances, thereby empowering them to take ownership of their work and initiatives.

Additionally, the group highlighted the need for private feedback mechanisms, where NGOs could assess the effectiveness of frontline worker groups at the grassroots level. This would provide an alternative to traditional government reporting systems and ensure more accurate and actionable feedback.

The discussion also touched upon the role of existing institutions in empowering frontline workers. Institutions such as medical officers' unions, health training centres, schools, PHCs, and village health and sanitation committees can play a crucial role in representing frontline workers and addressing their challenges. The group emphasized the need for a bottom-up approach in decision-making, ensuring that the voices of frontline workers are heard and considered at all levels.

Finally, the group stressed the importance of leadership training and delegation of power to frontline workers, enabling them to make decisions and take initiatives at the local level. Providing incentives and awards for achievements would further motivate frontline workers and enhance their sense of ownership and responsibility.

The Group 4 discussion focused on improving the representation of frontline health workers and Community Health Workers in leadership and governance roles. The participants mapped various institutions, including the Ministry of Health and Family Welfare and professional associations like the Trained Nurses' Association of India (TNAI), to identify platforms that effectively represent healthcare workers. TNAI, a 117-year-old professional association for nurses in India, was highlighted as a successful model for raising healthcare workers' voices and empowering them to participate in policymaking. The association provides training, insurance, and support to nurses and participates in numerous government committees, raising issues and contributing to policy formulation.

However, the discussion noted that similar platforms do not exist for ASHAs and Anganwadi workers, who face challenges in unionizing due to resistance from various government levels. Recognizing these workers as professional healthcare providers is crucial to empowering them and improving their representation in governance. The participants emphasized that ASHAs and Anganwadi workers are burdened with medical tasks but are not acknowledged as healthcare workers, leading to inadequate support and recognition. Once recognized, increasing their salaries, professionalizing their work, and involving them in decision-making processes would significantly enhance the primary healthcare structure.

A positive example from Delhi was shared, where Anganwadi workers and helpers with ten years of experience were promoted to supervisory roles, providing

them with career growth opportunities and better remuneration. This approach could be extended to ASHAs and other frontline health workers to improve their motivation and engagement.

The discussion also highlighted the barriers faced by frontline health workers, including the lack of identity and recognition as professional workers, contractual limitations, and difficulties in accessing mainstream representation platforms. Addressing these barriers requires a bottom-up approach, with improved financial management, leadership training, and the delegation of power to local levels. Empowering frontline health workers to take ownership of their roles and providing incentives for their achievements would enhance their effectiveness and representation.

Additionally, the group emphasized the importance of showcasing positive examples of frontline workers who have successfully transitioned into leadership roles or engaged in political activities. These success stories can inspire others and demonstrate the potential for frontline health workers to drive change and improve healthcare systems.

In conclusion, the Group 4 discussion called for better representation, recognition, and support for frontline health workers in leadership and governance roles. By addressing these issues, the health system can become more decentralized, inclusive, and effective.

Key Takeaways from Group Discussions:

1. **Selection and Onboarding:** Favouring connections leads to inefficiency.
2. **Work Overload:** Excessive tasks without proper support.
3. **Grievance Redressal:** Limited mechanisms for resolving issues.
4. **Leadership and Financial Training:** Need for leadership and financial skills.
5. **Representation:** Importance of frontline worker representation in local governance.
6. **Specialization:** Advocating for specialized ASHAs.
7. **Recognition and Rewards:** Motivating frontline workers with credit and rewards.
8. **Sensitization and Incentivization:** Promoting awareness and task incentives.
9. **Leadership Training:** Enhancing leadership skills and power delegation.
10. **Positive Examples:** Highlighting successful career growth.

Conclave Closing Remarks

In his virtual closing remarks at the GLC4HSR Annual Conclave 2025, **Dr. Sohel Saikat** noted that the focus on health system resilience—especially during a globally turbulent time—was not an easy choice but a necessary one. He expressed WHO's solidarity and appreciation for the broad participation of experts, practitioners, and attendees from across the world.

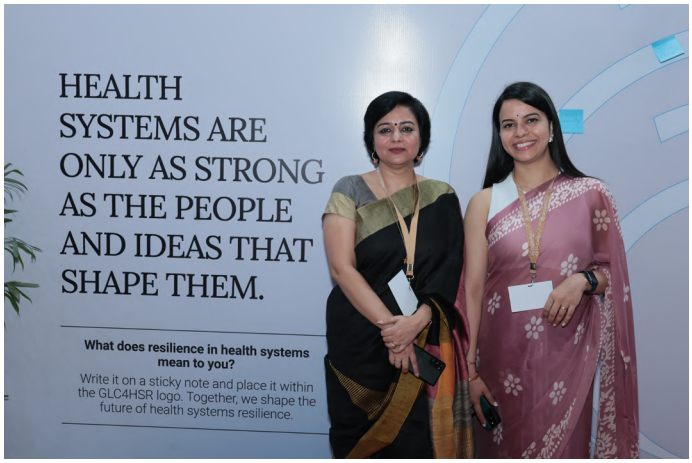
Dr. Saikat reflected on the key themes emerging from the discussions. He highlighted the need to operationalize the One Health approach by embedding it in coherent strategy, policy, and planning. He emphasized that primary health care must be strengthened as the foundation of resilient systems, pointing out that the lack of strong PHC undermined response efforts during COVID-19. He noted that public health must be rooted in primary care to enable timely surveillance, contact tracing, and response.

On climate change, he called for actionable health sector policies and a stronger sense of responsibility—individually and collectively—to reduce carbon footprints. He identified surveillance as a foundational element of any functioning health system and pointed to positive examples from Taiwan and Indonesia for potential scale-up.

Dr. Saikat stressed the importance of addressing the needs of the 25% of the global population living in humanitarian crisis settings, without which Sustainable Development Goals (SDGs) and Universal Health Coverage (UHC) cannot be realized. He also drew attention to the growing burden of non-communicable diseases (NCDs), noting that prevention requires multi-sectoral public health collaboration across urban planning, food safety, and local governance. He underlined the need to integrate disaster preparedness into core health system functions, and called for urgent investments in building a competent, equitably distributed health workforce—a prerequisite for public trust and access.

In conclusion, Dr. Saikat reaffirmed WHO's support and emphasized that building health systems resilience requires ongoing collaboration, innovation, and participation. He urged continued dialogue beyond the conclave, with a clear focus on translating shared knowledge and intellectual capital into action—preparing health systems for 21st-century challenges amid growing constraints.

Glimpses from Annual Conclave 2025


HEALTH SYSTEMS ARE ONLY AS STRONG AS THE PEOPLE AND IDEAS THAT SHAPE THEM.
What does resilience in health systems mean to you?
Write it on a sticky note and place it within the GLC4HSR logo. Together, we shape the future of health systems resilience.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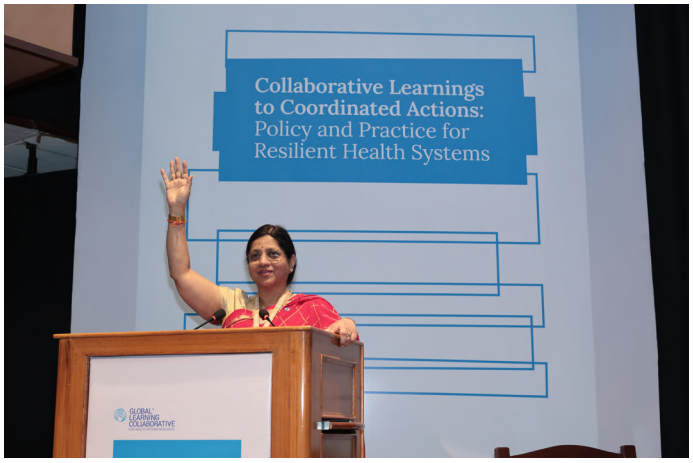
Glimpses from Annual Conclave 2025


Collaborative Learning to Coordinated Action:
Policy and Practice for Resilient Health Systems

Glimpses from Annual Conclave 2025




From Urban Comprehensive Primary Health Care (CPHC) to Healthy Cities:
A Multisectoral Model for Sustainable Health in Karnataka
Key Learnings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