

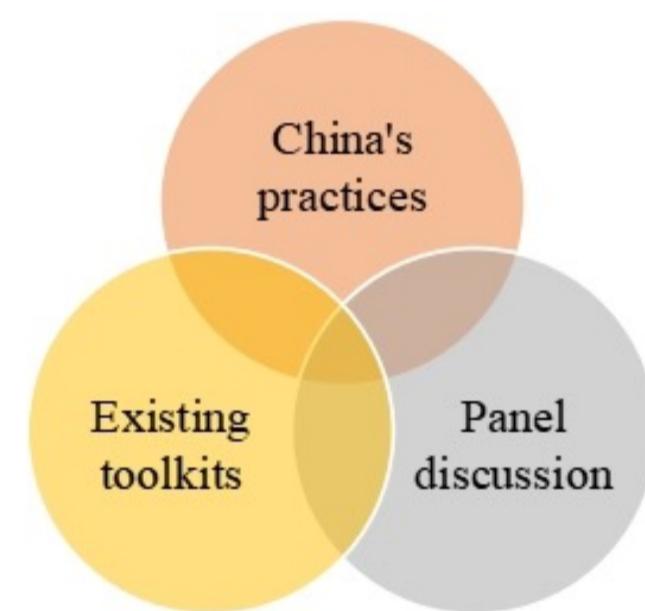
A Conceptual Framework for Global Health Security under the Pandemic Agreement: from a Len of AIxBio

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Background: The use of Artificial Intelligence (AI) for Research and Development (R&D) in all areas of biotechnology (AIxBio) has rapidly advanced in recent decades especially during the COVID-19 pandemic. Developing countries have made significant contributions through biological genetic resources (i.e., pathogens) sharing for the R&D of AIxBio; however, a lack of benefits (i.e., COVID-19 vaccines) sharing were received. Thus, establishing a Pathogen Access and Benefits Sharing (PABS) system in the Pandemic Agreement could be the solution for encouraging both sharings of pathogens and benefits.

Objective: In our study, we proposed a conceptual framework for assessing global health security capacities with the consideration of the development and implementation of the PABS system.

Methodology: 1) a content analysis of online government documents and press releases in China to propose the initial version of the framework; 2) a comparative analysis with previous toolkits such as Global Health Security Index (GHS Index), Joint External Evaluation (JEE), and Oxford COVID-19 Government Response Tracker to add components due to diversities of institutional arrangements and cultural customs across the world; 3) panel discussions for converging the domains and themes.



Results: A conceptual framework with four domains was proposed, including four domains. In each domain, there are key themes identified for achieving global solidarity and equity, such as global governance with the consideration of common but differentiated responsibility by all stakeholders, whole-of-government approach at national and sub-national level focusing on themes of supply chain and logistics, education and small business, risk assessment for measuring vulnerability and resilience at global, national, health system and community levels, pathogen surveillance and sequencing for preventing pandemic, as well as enhancing risk communication and community engagement by mutual learning of best practices.

Lessons learned

1) Themes emerged are not only related to capacities within but beyond health sectors, particularly supply chains for biotech products; 2) These new themes lacked included in existing assessment tools; as a result, the world did not prepare for strengthening the resilience of supply chains for biotech products (i.e., medical countermeasures).

Conceptual framework under PA



Policy recommendation

WHO should revise IHR Monitoring & Evaluation Framework, such as JEE, and collaborate with other international organizations and relevant stakeholders to develop another assessment framework for pandemic prevention, preparedness and response.