

COMMENTARY

Lessons learned from COVID-19 to better address future threats to global health security: A Critical Analysis of Experts Perspectives

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Abstract

Emerging infectious diseases have had a significant impact on the Asia-Pacific region in recent years, including a severe acute respiratory syndrome outbreak that occurred in 2002-2003, which had a substantial impact on several Asia-Pacific economies, the outbreak of highly pathogenic Asian avian influenza A (H5N1) that followed in 2006, strains of H1N1, and Middle East respiratory syndrome (MERS). There is an increasing frequency and impact of emerging infectious diseases (EID), as demonstrated by the current global outbreak of COVID-19 (coronavirus disease 2019). The Asia Pacific region is at risk of EID spread across national borders due to its dense population, rapid urbanisation, international travel, livestock markets, and limited public health infrastructure. Urban areas can be hotspots for disease transmission in the region, and livestock and wildlife markets can be a source of zoonotic diseases. Thus, strengthening public health systems and improving preparedness for disease outbreaks is essential for countries in the region.

In collaboration with the Ministry of Health of the Republic of Indonesia, the Asia Pacific Economic Cooperation (APEC) Health Working Group conducted an International Workshop on Managing Emerging Infectious Diseases (EID) in Jakarta, Indonesia, on 12–16 September 2022. The workshop focused on a lesson-learning approach and aimed to strengthen global and domestic preparedness for the next pandemic.

Four key lessons can be drawn from the APEC region's COVID-19 pandemic. First, zoonotic outbreaks threaten health security, making One Health an urgent necessity. Secondly, collaboration and partnership are essential to combating the pandemic. Thirdly, decisive leadership is essential at all global and local levels. Finally, risk communication builds trust and acknowledges uncertainty during a crisis. These lessons could strengthen the evidence base for regional policy responses and better responses to future threats.

Keywords

COVID-19, APEC, global health security

Introduction

The threat to global health security is among the most pressing global concerns. COVID-19 has spread rapidly worldwide since the first cases were reported in China (1,2). On 30 January 2020, the World Health Organization (WHO) declared the disease a Public Health Emergency of International Concern (1,3). Since then, global health security has been on the international agenda. During the first four months of 2020, the world halted as COVID-19 swept across the globe, causing death and an economic slowdown. As of January 2023, the COVID-19 pandemic had already affected nearly 754 million people, resulted in 6,807,572 deaths, and significantly disrupted economic activity, including global trade (4). Approximately 40 per cent of all COVID-19 cases worldwide originate from the APEC region (5).

In Asia-Pacific, cross-border pandemic outbreaks may be particularly susceptible due to the region's

interconnected economies and species, increasing the threat posed by pandemic, emerging, and re-emerging zoonotic diseases. Several previous epidemics and pandemics have affected the region, including the SARS outbreak in 2002-2003, significantly affecting several APEC economies (6). This outbreak followed the H5N1 epidemic in 2006 and strains of H1N1. As a result of other global pandemics like MERS and Ebola, the APEC region was affected to a lesser extent but still saw significant effects (6). A substantial economic and health impact has been felt throughout APEC due to the current COVID-19 pandemic.

The COVID-19 pandemic challenged the resilience of global and national health systems. Due to the pandemic, many countries implemented drastic legal lockdowns to enforce physical separation, ravaging economies worldwide. The actual pandemic responses of countries were diverse, including timing, choice of

actions, and intensity of implementation, with corresponding variations in health and social economy outcomes. In the fourth year of the pandemic, the global reaction to COVID-19 is taking shape as countries emerge from it and work towards improving their preparedness for future pandemics. COVID-19 performance has already been assessed in many ways (7,8). Nonetheless, these assessments have primarily focused on 'downstream' factors, such as measures to reduce infection and clinical approaches to disease management. However, they have not considered identifying the key lessons that shape responses in the first place. To this end, the views of stakeholders and experts dealing with COVID-19 are crucially important.

The opportunity arose when the MoH Indonesia and APEC invited experts, policymakers, practitioners, organisations, institutions, companies, and non-governmental organisations representing APEC member economies on 12-16 September 2022 for the EID workshop in Jakarta, Indonesia, to discuss and share lessons learned during the COVID-19 crisis.

Based on the final expert workshop analysis, this paper aims to present and discuss what we have learned from COVID-19 and how we can strengthen and better prepare our public health systems for future pandemics. The One Health approach is becoming increasingly relevant after the recent zoonosis outbreaks. Several lessons can be drawn from this experience. These include the need for global partnerships in response to global threats. Additionally, decisive leadership, effective risk communication, a well-resourced health system, and adequate support for health professionals are imperative. These studies may contribute to developing a more substantial evidence base for regional and global pandemic response to better address future threats to global health security.

Methods

Apart from extensive literature reviews, in-depth stakeholder interviews and focus group discussions, conducting workshops is one of the means to collect the views and experience of experts in the fields. Conducting conference workshops become an acceptable data collection strategy to gather information, stakeholders' views, experts' opinions to explore a specific topic, and suggestions to solve identified problems and is exceptionally beneficial when studying emerging or unpredictable subjects (9,10).

The APEC EID workshop, moderated by the first author, brought together policymakers, researchers, and practitioners to discuss lessons learned from managing emerging COVID-19 diseases in the APEC region. In this qualitative research project, issues arising from workshop discussions were identified and analysed using focus group methodology and thematic content analysis. The EID workshops attended by around 37 experts consisted of a five-day-long

workshop over five days. The first author moderated the final workshop to ask experts to summarise issues arising from lessons learned, challenges and recommendations regarding the COVID-19 pandemic. The session was recorded and has become an important data source for this study.

APEC Forum

The Asia-Pacific Economic Cooperation (APEC) is a unique forum where the 21 member economies work together to address globalisation's economic, social and environmental challenges. It provides governments with a forum for the exchange of policy experiences, the identification of effective practices, and the coordination of national and international policies.

APEC has become a dynamic engine of economic growth and one of Asia-Pacific's most significant regional forums. Around 2.9 billion people live in its 21 member economies, which account for about 60 per cent of the world's gross domestic product (11). The APEC member economies are Australia, Brunei Darussalam, Canada, Chinese Taipei, Chile, Hong Kong, Indonesia, Japan, Mexico, Malaysia, New Zealand, Philippines, Papua New Guinea, People's Republic of China, Peru, Russia, Rep. of Korea, Singapore, Thailand, United States, and Vietnam (6).

The APEC Health Task Force (HTF) was established in October 2003 to help address health-related threats to trade and security, focusing mainly on emerging infectious diseases, both natural and man-made. APEC upgraded the HTF to the Health Working Group (HWG) in 2007 after reviewing the APEC fora, reflecting its belief that effective health policy is also effective economic policy (6).

APEC is also at the forefront of efforts to understand and help its member respond to the latest developments and concerns, such as the COVID-19 pandemic. Amid the pandemic, APEC economies are among the first and worst affected, and the region is on the front lines of meeting this challenge. In response to the pandemic, all 21 APEC economies have taken massive fiscal, monetary, and macroeconomic measures to boost their healthcare systems (5). As a result of this crisis, APEC must also learn from it. In the same way, the APEC region prepares for economic and financial problems, and it should also prepare for pandemics.

COVID-19 underscores more than ever the importance of multilateral cooperation during global crises. It plays a critical role in supporting member economies and monitoring and assessing the impact of a pandemic in the region. It also addresses broader regional issues, such as migration and access to healthcare.

In COVID-19, we experienced the importance of timely response to an unprecedented crisis. For this to happen, we need to strengthen our response and health systems, increase our pandemic preparedness efforts, and meet the commitments made under the

2005 International Health Regulations (IHR) in the post-COVID-19 context (11). The APEC HWG organised the EID workshop, which included experts, authorities, and stakeholders from the APEC economic forum to present and discuss. A lesson-learning analysis from the EID workshop can contribute to this effort. With future crises such as climate change and growing inequalities in global health security in mind, member economies hope lessons learned from the COVID-19 pandemic can be applied to address critical health challenges in the region.

Health security is at risk from zoonosis outbreaks, and One Health is urgently needed.

Over the last few decades, exacerbated by the covid-19 pandemic, it has become evident that zoonotic diseases threaten global health security. They emerge primarily due to human activities, such as changing ecosystems and land use, intensifying agriculture, urbanising, and travelling internationally (12). This emerging infectious disease is receiving special attention from public health officials. It is because the disease causes death and has devastating impacts on social, economic, and future development in the era of globalisation. Several previous health epidemics, such as severe acute respiratory syndrome, avian influenza, H1N1 flu, and, most recently, COVID-19, have affected the health sector, agriculture, trade, tourism, and transportation sectors (13,14).

Since the 1970s, Asia Pacific has been affected by several significant epidemics of zoonotic diseases such as dengue fever and malaria (6,11). In addition, a SARS outbreak occurred in China in 2002-2003, and the COVID-19 pandemic began in 2019. COVID-19 is considered a zoonotic disease. Evidence suggests the virus originated in bats and spread to humans through an intermediate host, possibly a pangolin, at a wildlife market in Wuhan, China. The SARS-CoV-2's genetic sequence is similar to that of bat-borne coronaviruses, according to a study published in *Nature* in March 2020. The pangolin was identified as a possible intermediate host in a study published in the *Lancet* in February 2020 (1-4).

Zoonotic diseases in Asia Pacific regions pose a significant threat to public health. One Health approaches are therefore essential. Despite these threats, several recent epidemic outbreaks show considerable potential for preventing and mitigating outbreaks. Emerging zoonotic diseases require a multidisciplinary approach to prevention and control (15,16).

The importance of strengthening health security through One Health approaches has never been greater, as climate change drives the emergence of novel pathogens, hostile actors wage information bio-warfare, and drug resistance threatens our existing medical countermeasures. This concept was first used in 2003-2004 (15). It was related to the outbreak of severe acute respiratory disease (SARS) in early 2003,

the spread of highly pathogenic avian influenza H5N1, and a series of strategic goals derived from a meeting of the Wildlife Conservation Society in 2004, known as the Manhattan Principles, which recognised the connection between human and animal health as well as the threats diseases pose to economies and food supplies (12,16). One Health principles were an essential step toward recognising the need for collaborative, cross-disciplinary approaches to emerging and resurgent diseases and incorporating wildlife health as an integral part of global disease prevention, control, and mitigation. Collaboration with all relevant stakeholders through One Health is essential to prevent another pandemic for our people, nature, and the world.

Collaboration and partnership are essential in the fight against the pandemic.

Collaboration and partnership are essential in the fight against the pandemic in the Asia Pacific region because they enable countries to share knowledge, expertise, and resources and coordinate their response efforts. In the region, collaboration among countries can help identify and address common challenges, such as the shortage of medical supplies, testing capacity, and vaccine distribution.

COVAX Facility, a global initiative that aims to provide equitable access to COVID-19 vaccines, is an example of collaboration and partnership in Asia. Through the COVAX Facility, governments, vaccine manufacturers, and international organisations coordinate the distribution of vaccines to low- and middle-income countries. As a result of the COVAX Facility, countries in the Asia Pacific region, such as Cambodia, Laos, Indonesia, and the Philippines, have received COVID-19 vaccines.

Asia Pacific Economic Cooperation (APEC), a regional economic forum that promotes collaboration among its member economies, is another example of collaboration and partnership in the Asia Pacific region. The APEC member economies coordinated their efforts to address the health and economic effects of the pandemic by exchanging information and best practices. APEC member economies have collaborated on initiatives such as vaccine development and distribution and facilitating the flow of essential goods and services (6,11).

APEC's experience has demonstrated that the world needs global solidarity and more robust collaboration to address and mitigate pandemic impacts. As a multilateral forum, APEC provides a platform for governments to share feedback, exchange ideas and support each other, just as Indonesia, India, and Singapore did during the COVID-19 wave delta in 2021. At the regional level, APEC member economies have committed to supporting equitable access to safe, effective and affordable COVID vaccines (5,11). Additionally, the COVID-19 pandemic has revealed a lack of coordinated reporting systems under IHR 2005 among APEC member economies and the private

health sector in some affected countries, which correspond and share patient information under the health tourism scheme, especially between private health care facilities, without reporting to ministries of health. APEC also advocates extensive vaccination coverage to reduce mortality rates and severity. Using this example, we can see how international cooperation at the regional level can lay the foundation for a broader global partnership and support global health security.

Cooperation and coordination between APEC economies are crucial for responding to the pandemic and mitigating the cross-border transmission of infectious diseases like COVID-19. Regional cooperation should be front and centre in working to contain the COVID-19 pandemic, even after it has been contained. Through trust and cooperation, APEC economies can reconnect supply chains and find more innovative ways to do business and trade. Despite the pandemic, they will continue to exist. APEC can remain relevant as a region if policy action is taken today - swiftly, significantly, and coordinated.

Decisive leadership is crucial at all levels, from global to local.

At all levels, from global to local, decisive leadership is essential in addressing complex and rapidly evolving issues such as pandemics. Effective leaders have the ability to gather and analyse information, consult with experts, and make tough decisions quickly while also communicating clearly and transparently with their constituents.

Leadership's decisiveness, clarity, and accountability are critical determinants of a country's resilience in times of crisis (17,18). Without strong leadership and political will, governments are unable to make appropriate decisions about how to respond effectively to crises, as witnessed in several contexts during the COVID-19 crisis. During times of crisis, leaders will have to balance the need for agility and rapid decision-making with a more extensive scope that reflects the imminent and future threats to public health.

Throughout history, pandemics and poor leadership have been responsible for the loss of many lives and pose some of the biggest threats to global health security (19–21). The covid-19 pandemic has shown us how poor leadership can weaken global collaboration and make the world more vulnerable. Incompetent leadership has led to shutdowns of health security programs, reductions in health funding and support for the international organisation and lies about the infection rate and death toll of the COVID-19 outbreak during the pandemic. New Zealand, Chinese Taipei and Singapore have been praised for their rapid and effective response to the pandemic, which has helped them control the spread of the virus (22).

Chinese Taipei, for example, implemented a comprehensive strategy that included early border

controls, widespread testing and contact tracing, and clear communication with the public. Thus, Chinese Taipei has one of the lowest COVID-19 infection rates globally, despite its proximity to the first epicentre in China. Similarly, New Zealand implemented a strict lockdown early in the pandemic and has maintained aggressive testing and contact tracing (22). As a result, New Zealand has been able to contain outbreaks and reopen its economy without suffering high death tolls (22). These examples illustrate the importance of decisive leadership during a pandemic. Leaders who take decisive action, listen to experts, and communicate effectively with the public can save lives and prevent disease spread.

Additionally, EID's workshop emphasised the importance of leadership with high levels of adaptability during crises, particularly when it comes to communicating effectively, building trust, and creating meaning. The ability of leaders to maintain a reputation of competence and maintain the trust of governed populations is vital to reducing anxiety and maintaining effective responses during turbulent times. Further, international and local leaders must work together to improve collaboration and trust.

A lesson to be learned from the COVID-19 pandemic in the Asia Pacific region is that many crises are uncertain, especially during a pandemic of such severity. Scientists, politicians, and the media must present uncertainty from the beginning. Despite this uncertainty, leadership should be supported by a team of experts who can assist with decisions and communicate with the general public.

Amid a crisis, risk communication builds trust and acknowledges uncertainty.

The current outbreak has tested APEC economies' risk communication capabilities. Furthermore, the workshop finds that government entities and international organisations have communication issues. Information communication is challenging, especially concerning people's health, well-being, and livelihoods (14). In the case of the pandemic, everyone worldwide requires accurate, scientific-based information in a digestible and easy-to-understand format so that they can use it to make informed decisions every day (23,24). The government, leaders, scientists, and the media have been under enormous pressure due to the rapid development of new knowledge regarding the nature of the virus and its ability to form new strains. Meanwhile, public health messaging based on robust science is also required to enhance trust among the public and facilitate engagement among hard-to-reach groups.

Building trust is another significant aspect of effective risk communication, which is often undervalued. Trust is the first and most critical step in effective risk communication during a pandemic. In the absence of trust, risk communication interventions fail to enable people at risk to make informed decisions about protecting their lives,

health, families, and communities (23). In order to build trust, risk communication interventions should be linked to accessible and functioning services, transparent, timely, easily understandable, acknowledge uncertainty, reach out to vulnerable populations, link to self-efficacy, and be distributed in a wide variety of ways.

A key lesson from APEC is the importance of collaborating with trusted stakeholders and community leaders to deliver effective risk communication. Communicating risk effectively is essential for building trust, reducing fear and anxiety, and encouraging individuals and communities to take necessary precautions. Many countries in the region have influential religious or community leaders who have significant credibility with their communities. Health communication barriers can be overcome by engaging with these leaders and promoting a better understanding and acceptance of public health messages.

Promoting health and mitigating risk requires partnership and engagement with influential community figures, as shown in Singapore and Indonesia case studies during the workshop. Singapore, for example, collaborated with religious leaders to promote social distancing measures among the Muslim community during the COVID-19 pandemic. Leaders urged followers to observe social distancing, avoid large gatherings, and follow health guidelines. During the holy month, these efforts prevented a surge in COVID-19 cases. Communication about the COVID-19 vaccine trial in Indonesia required collaboration with trusted religious or community leaders. The government partnered with Nahdlatul Ulama, Muhammadiyah and LDII, three leading Islamic organisations in the country, to improve trust and increase vaccine acceptance among Muslims. As a result, effective risk communication is crucial for public health, and collaborating with trusted community leaders is an effective way to deliver effective health messages.

Recommendation

APEC region can implement immediate practices to address a future public health crisis. The first would be for APEC to coordinate the One Health strategy by creating an Interagency Group on One Health and developing a regional roadmap for its implementation.

Second is the cooperation among APEC member economies and between the APEC Secretariat and other international organisations such as WHO Regional Offices and COVAX facility.

Third, leadership should be backed by a team of experts who can assist them in making quick decisions and expressing empathy and concern with truthfulness and credibility. Additionally, the team can help with communication during uncertain times. Therefore, leaders could engage in interactive and respectful communication to encourage public cooperation and rapport.

Fourth, effective risk communication is crucial to public health, and collaborating with trusted community leaders is a valuable strategy for delivering effective health messages. Science risk communication strategies must be in place before the crisis occurs and tailored to the demographics and social situations of the target audience. Scientists, politicians, and the media should present uncertainty from the beginning of the public health crisis. Furthermore, a message that aligns with a person's or community's core values will be perceived as more credible.

Conclusion

COVID-19 has exacerbated the fragility and vulnerability of the international and national health systems. Thus, APEC member economies must strengthen their health security for pandemic preparedness to build resilience to global health threats. If this objective is to be achieved, it is imperative to apply lessons learned and approaches developed following previous epidemics and the current pandemic.

Among the essential conclusions of the workshop was the need for country-specific solutions. No one-size-fits-all approach will work in a region as diverse as the Asia Pacific. Countries could invest in health system strengthening, surveillance, and case reporting before the next pandemic, including local production of vaccines, antivirals, and rapid diagnostic tests.

Millions of people have been affected by COVID-19. Our failure to learn from its lessons would be even more detrimental. The COVID-19 pandemic has taught us several key lessons, including the importance of One Health, partnership and collaboration, decisive leadership, and effective risk communication. There will be years of relevance to lessons and initiatives resulting from APEC member economies' responses to the pandemic. Furthermore, this will provide an opportunity to develop policy directions that will enhance APEC's health system resilience and strengthen its ability to mitigate the effects of the pandemic.

Financial support and sponsorship

No funding was received for this work.

Conflicts of interest

None declared.

Author contribution statement

D. Budiman: First author, conceptualisation, writing original draft, data analysis and final revision

N. Nurlaela Arief: Second author, data supporting, writing, and revision

V. Setiawaty: Third author, data supporting, and validation

C. Chu: Fourth author, supervision and guidance

Acknowledgements

We want to thank Dr Mohammad Syahril, Dr Pompini Agustina, Dr Ernie Setyawati, Vivi Lisdawati, Apt., Dr Maria Lawrensia Tampubolon, Dr Nina Mariana and the steering committee from Sulianti Saroso Infectious Disease Hospital, Ministry of Health of Indonesia, for their support during the Asia Pacific Economic Cooperation (APEC) Health Working Group conducted an International Workshop on Managing Emerging Infectious Diseases (EID) in Jakarta, Indonesia, on 12–16 September 2022.

Data accessibility statement

Data will be made available on request.

Ethics:

The authors state that the work is written with due consideration of ethical standards. The study was conducted following ethical principles. The research complied with all ethical standards and anonymity; there were no requirements to provide confidential information (name, date of birth or place of residence, etc.).

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How to cite this article: Budiman et al. Lessons learned from COVID-19 to better address future threats to global health security: A Critical Analysis of Experts Perspectives. *Global Biosecurity*. 2023; 5(1).

Published: July 2023

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