Joint Learning Network for Open Dialogue & Exchange
Virtual Learning Exchange: COVID-19 Infection Prevention & Control
Shared Learnings

Overview of the IPC group

Background
The **Joint Learning Network for Universal Health Coverage (JLN)** brings network members together for productive and high-impact practitioner-to-practitioner exchanges on a variety of health systems topics, often related to health finance or primary health care service delivery. Recent challenges posed by the COVID-19 pandemic, and the rapid mobilization of resources across countries to counter the pandemic, have heightened interest from countries in cross-border exchanges on immediate responses to the pandemic and the rapidly evolving understanding of infection prevention and control. With facilitation by **Ariadne Labs**, a joint center for health systems innovation at Brigham and Women's Hospital and the Harvard T.H. Chan School of Public Health, the **Infection Prevention and Control (IPC) Working Group** brought together a group of frontline practitioners and country representatives to both exchange and improve their national, subnational, or facility-level IPC strategies through cross-country virtual engagements.

Infection Prevention and Control & COVID-19
Infection prevention and control (IPC) is a methodical approach to prevent harm caused by infection to patients and health care workers. The topic encompasses concepts from the fields of infectious diseases, epidemiology, social science, and health system strengthening. During the COVID-19 pandemic, IPC principles, strategies, and protocols have been critical to preventing and managing spread of infections in communities and health care settings. Furthermore, due to the evolving understanding of the virus, best practices and evidence-based guidelines are constantly being updated and adapted. There has been significant variation in how countries have responded to mitigate the community and nosocomial transmission of the SARS-CoV-2 virus both in strategies chosen and how they have been implemented. With the entire world involved in COVID-19 response but hitting waves of infection at varying times, it is critical that countries learn from one another to strengthen responses during the different phases and adapt and correct course to reduce preventable infections in the community and health care setting, hospitalizations, and deaths.

Objectives of the learning exchange
- Build a network of practitioners and policymakers who can support one another in their COVID-19 response
- Identify the most pressing priorities in Infection Prevention & Control that are responsive to countries' needs during the pandemic
- Share, discuss, and improve COVID-19 Infection Prevention & Control knowledge, protocols, and strategies to implement throughout the course of the pandemic

Early IPC Strategies & Challenges

National policies

In the **Philippines**, the **Bayanihan to Heal as One Act** was enacted in March 2020, which granted the President authority to tackle the COVID-19 pandemic, including emergency funds for reallocation to support infrastructure and supply procurement. For example, the government was allowed to temporarily utilize public utilities and private facilities for the purposes of quarantine, health care worker accommodations, and supply chain management. Among many provisions, the Act allowed the country to prioritize the implementation of IPC guidelines and best practices from the World Health Organization; provide financial support to low-income households along with coverage of all costs of care related to COVID-19; and support health care workers through hazard pay, housing, and transportation for their work.

Malaysia applied lessons from past epidemics such as SARS and MERS-CoV and leveraged an established **National Influenza Pandemic Preparedness Plan** to quickly mobilize various aspects of their pandemic response. For example, part of the plan included preparedness for conducting laboratory tests for suspected infectious disease cases. As such, by February 2020, several hospitals in Malaysia had tests for COVID-19 that could deliver results in less than a day.

India revised IPC policies and issued fresh guidelines. Private health care providers also adopted them as standards. The government supported IPC and PPE supplies at multiple levels of administration (e.g. city, district, state).

Public education & community engagement

In many countries, there were consistent efforts to educate the general public about social restrictions, hand hygiene, and home isolation measures. **Indonesia** educated the public through its **3M initiative**, which focused on handwashing, social distancing, and the use of masks. Efforts were made to guide the public in adapting to the "new norm" and encouraging new daily habits to account for social

distancing and establishing guidelines for travel, religious activities, workplaces, public transportation, malls, and markets operation. Social and mass media were used to deliver messages with a theme song "Remember the mother's advice." The government announced updated information every day along with health protocols on the official website, social media, television and radio programs. Similarly, **India** pursued community education focused on personal safety by constant messaging similar to 3M initiative in Indonesia.

The **Ghanaian** government implemented policies to aid community mitigation and communicated to its citizens on a weekly basis. The business community created a COVID national trust fund, which was able to financially support a hospital for infectious diseases in the capital city of Accra. The government also paused community gatherings through stakeholder engagement including religious leaders. They also provided necessities for communities to stay home such as food and supplies.

Health system response

The **Indonesian** health system worked to increase the bed capacity of hospitals and utilized designated facilities as COVID isolation areas. To prevent hospital-acquired infection, Indonesia improved health service facilities with spatial separation between the non-COVID and the COVID areas, revised clinical guidelines to make PCR-swab test for patients in the emergency room and in the preparation of medical procedure, and improved tele-consultation and tele-health services. The central and regional government provided central quarantine for patients without medical symptoms to prevent COVID infection among people and their families. In addition, they established COVID centers across governance areas and created open platforms to share experiences and learnings between different facilities in order to improve protocols. Special regulation of procurement and distribution for COVID medical supplies were implemented to keep sustainability of supplies in the health care facilities including PPE. Donors from the private sector provided support for health facilities and other resource needs for COVID response. Meanwhile, health officials worked to perform good data collection and report documentation to the National COVID Centre.

Malaysia also focused on isolation as it designated Ministry of Health hospitals as COVID hospitals, hybrid hospitals (COVID + ordinary care), and screening hospitals. All patients who tested positive for COVID were isolated at a Ministry of Health hospital. Additionally, quarantine centers provided space to isolate patients who did not need specialized care, and these centers collaborated with the police, military, and national government to provide basic necessities such that individuals could be supported through isolation.

The lack of personal protective equipment (PPE) has been a major challenge for several countries, including Egypt, Malaysia, and Côte D'Ivoire. A shortage of PPE prompted health care personnel in Malaysia to improvise PPE from unusual materials. This dearth also instigated support from donors and other sectors. In India, this crisis led to opportunities for production of materials for IPC

and COVID management. There was an increase in the production of materials ranging from PPE to ventilators under the Stewardship of Government. Nevertheless, PPE shortages have continued to crop up as a global problem.

Learning Exchange Deep Dives

According to the [Centers for Disease Control and Prevention (CDC)](#) in the United States, community mitigation activities are "actions that people and communities can take to slow the spread of a new virus with pandemic potential." During the COVID-19 pandemic, two primary community mitigation activities have been **masking** and **social distancing**. Though widely encouraged around the world, the implementation of such strategies were challenging, particularly for communities with fewer resources. Social distancing was particularly challenging in low-income communities while restrictions caused financial hardship for people whose livelihoods were made from daily salaries such as those earning their living from working at the markets or other crowded and informal working environments. Masking policies were most effective in urban areas with the infrastructure to support masking. For example, in **Uganda**, the government provided guidelines for a good mask, which were disseminated to local producers that were able to make higher quality masks. However, this was dependent on having such producers within the community. Additionally, some countries did not have the funding to provide masks for free to communities. On the demand side, there were challenges in encouraging community use of masks with concerns about affordability, discomfort of wearing a mask, and cultural disbelief in the threat of COVID-19.

In **Iran**, the Ministry of Health and Medical Education (MOHME) produced and updated evidence-based guidelines around community mitigation strategies. Mask-wearing became mandatory in public places while fines were issued for people not wearing masks. For social distancing, shrines were closed to avoid small spaces while many ceremonies were cancelled. Though this was criticized by some religious groups, these practices were believed to have significantly decreased transmission. Additionally, there were limitations on the number of people in shops while gyms and cinemas were closed. These restrictions had the downside of worsening the country's economic situation.

For PPE, Iran changed factory production lines to manufacture masks, disinfectants, and gloves as well as a wide range of local volunteer engagement in manual production of PPE. It also established the Coronavirus Scientific Committee in collaboration with the Ministry of Health and Medical Education (MOHME) during the early stages of the pandemic. The committee published the most up-to-date clinical guidelines and maintained continuous communication with healthcare providers and updated existing procedures repeatedly to prevent further spread and treat patients promptly. Health care and allied professionals collaborated in a multidisciplinary approach to reduce the burden on hospitals.

Outside of masking and social distancing, home isolation was another strategy used for IPC. Important guidelines for self-monitoring and self-isolation were distributed via social media and television with the goal of avoiding large influxes into hospitals. Telemedicine was used for patient care in the community in order to help triage patients and determine whether they needed to go to a hospital. Additionally, national disease registries of patients with chronic conditions were utilized for proactive outreach to these higher risk patients. Prior to the COVID-19 pandemic, due to a national shortage of medications, lists of patients with chronic diseases were created in order to understand the number of patients and match them to limited medications. These lists were adapted during the pandemic for home visits and prescription delivery, particularly for high-risk patients to avoid clinic/hospital visits, such as patients who were registered in the [Iranian Primary Immunodeficiency Registry](#). Notably, pharmacists played a major role in the provision of care, including making evidence-based guidelines available in hospitals and treating patients with minor illnesses in the community to reduce burden on doctors.

Amidst its several promising practices, Iran faced various challenges as one of the countries hardest hit by the pandemic. The concurrence of the COVID-19 pandemic with the Persian New Year led to a high rate of viral spread from the beginning of the pandemic. In addition, international sanctions against Iran made equitable care more difficult, which was demonstrated in the complexity of health management and its direct correlation with sociopolitical factors affecting a given country. On the other hand, Iranian cultural habits such as social gatherings, the cultural tendency to greet one another with close person-to-person contact made implementing the social distancing measure more difficult. Still, Iranian health care front line workers demonstrated resilience amidst an unprecedented pandemic to put their lives on the line and work tirelessly to prevent the collapse of the healthcare system. They were stress-tested by facing a limited supply of medical equipment and high rate of admissions but continued to care for the patients.

In **Ghana,** there was strong political commitment from the Presidency and the entire government. Between March and November 2020, the President of Ghana delivered 19 live national updates on COVID-19. At the beginning of the pandemic, the government passed the [Imposition of Restrictions Act, 2020](#), which gave the government power to restrict social gatherings and impose sanctions on those who did not follow requirements. There had been an existing Public Health Act, but it had mainly covered environmental hazards, reporting, and public disclosures rather than epidemic disease control. Legislation was passed to make wearing a mask obligatory in public via [sanctions, fines and prosecution](#). Ghana implemented strategies for two main challenges related to mask-wearing: affordability and acceptability. To increase the affordability of masks, Ghana increased local production of masks and trained local seamstresses and tailors while subsidizing the costs of masks. To improve the acceptability of masks, the government, private industry, and religious leaders all came together with a unifying message about mask-wearing and ran campaigns.

For social distancing, there were bans on public gatherings, religious activities, and funerals while schools were closed. In addition to legislation, there were many adaptations to avoid public gatherings

such as moving markets to football fields with more space, adaptation of flexible schedules in the workplace and shifts to work-from-home, and virtual gatherings such as online funerals, virtual work, virtual classes at universities, and virtual trainings for healthcare workers.

For patients, the health care community conducted proactive outreach to patients to understand needs as well as to update and deliver prescriptions. Phone numbers of patients in registries were used for outreach. There was limited use of telemedicine but telephone visits were used where possible. For example, some doctors revised prescriptions based on symptoms that patients expressed over the phone and organized delivery of necessary medications. If an in-person visit was necessary, community sites often took the role of hospitals. For example, patients with sickle cell who needed lab tests were seen by doctors at community sites. Within the healthcare system, Ghana prioritized the wellbeing of health care workers through incentivization techniques. Additionally, it shifted staffing and task-shifting to areas of higher caseloads to enhance contact tracing and isolation strategies.

Critical to these endeavors was building public trust. The government and private sector were in sync in communicating the same messages. In addition, the government subsidized utility bills for water and electricity in order to make people feel comfortable in their own settings and tried to ensure meal security. They also reduced taxes on mobile money transactions. An extra motivation may have been an upcoming election; regardless, the government sought to support its citizens amidst restrictive legislation to control the spread of COVID-19.

Barriers to successful implementation included the limited availability of resources to compensate for economic losses for workers in the informal sector. There were also barriers based on perceptions of COVID-19. Some people either did not believe that the disease was real, or were not willing to wear masks and practice social distancing. To address barriers, resources were mobilized from the central government and private sector donors. There was a mass media campaign which sought to address the different perceptions of COVID-19 within communities.

Uganda was a country with significant experience with viral epidemics such as Ebola and Marburg hemorrhagic fever. With COVID-19, a national task force for epidemic response was reorganized to focus on COVID-19 and composed of members from various sectors of society. The COVID-19 response was supported through legislation from the Public Health Act 1935, which afforded the government extensive powers, such as fining or even imprisoning individuals.

At the start of the lockdown in March 2020, the government issued specific standard operating procedures to guide the public, including mandatory use of masks for all people above the age of 6 years who chose to get into contact with any other members of the public. After realizing that masks were not affordable for some communities and households, the government decided to provide a free mask for every person above the age of six. The distribution of masks to households began with the most affected districts like the capital city of Kampala and districts bordering neighboring countries where there had been high incidences of cross-border infections such as from South Sudan (due to an influx of refugees), Democratic Republic of the Congo, Tanzania (which had not had a lockdown), and Kenya

(Uganda's largest trading partner). Information guidance on the use of masks was shared on the radio, television, posters in public places, and door-to-door using megaphones by community health workers. By the fall of 2020, nearly all districts had received masks. Because people were struggling to afford masks, the government increased local manufacturing of masks and sanitizers. The government complemented mask distribution with the enforcement of the use of masks at all levels. At the community level, all local and village elected leaders, village crime prevention units (para-law enforcement structures), market leaders, and opinion leaders supported the enforcement of mask usage by their communities. Markets, shops, clinics, and any other public service entities were not allowed to serve anybody who was not wearing a mask. Taxis and public transports were not allowed to admit passengers without masks. Finally, road checkpoints were created to monitor and enforce mask usage by the public.

The key barriers to implementation of mask usage were the affordability of the masks by communities. In some areas, communities improvised the use of various masks that did not meet the required standards. The consistent use of masks by communities continued to be a challenge as people who had not used masks gave a lot of excuses for not using masks. Moreover, the pandemic exacerbated the economic hardships of communities. Therefore, where possible, there was a need for the government to support vulnerable populations. In order to overcome implementation barriers, efforts need to be made to engage local leaders from communities who can educate, encourage, and hold the community accountable to community mitigation practices so that behavior changes can be sustained and self-regulated. Additionally, interventions should be holistic. For instance, mask distribution added to food distribution or healthcare service delivery made sure that all people who came in for food or healthcare had a chance to take a mask and immediately use it. Making the masks reusable also allowed people to wash and wear government-issued masks without having to discard them frequently.

In Uganda, community health workers (CHWs) emerged as a critical workforce during the pandemic. Because of previous success with Ebola, Uganda entered the COVID-19 pandemic with a strong community response mechanism. Every region had CHWs trained in typical mitigation strategies. They were educated to understand COVID-19, and they were crucial for misinformation control as CHWs went door-to-door spreading accurate health information. Moreover, they played a pivotal role in continued access to non-COVID health care. CHWs screened for and tracked additional illnesses and necessary services in addition to COVID. CHWs were supported to screen for social issues (including gender-based violence) as well as COVID since gender-based violence increased during the pandemic.

For testing and managing COVID patients, at the start of the pandemic, only one facility was able to conduct COVID-19 tests. Thereafter, HIV testing facilities were reengineered to manage and decentralize testing for COVID-19. In addition, Uganda implemented centralized data and information management to track the number of people who had been tested and were positive for COVID-19. Lastly, every district had a specialized, designated facility for patients with COVID-19 that were equipped to isolate patients and provide specialized services.

Within the healthcare setting, a major challenge across countries was the proper use of PPE in the appropriate settings, ranging from people wanting to always wear N95 respirators to people not wanting to wear masks. In **Ethiopia**, many health care workers wanted to wear an N95 respirator even around patients who did not have a confirmed COVID-19 infection. This was complicated by the fact that there was not enough testing to know exactly who did or did not have COVID-19. To better protect health facilities from nosocomial spread, facilities in Ethiopia reduced the number of health care workers to reduce traffic, limited movement within facilities, and closed or slowed down non-emergent care. Trainings were implemented regularly for health care workers, and the Minister of Health held weekly engagements with health care workers. A challenge was that some trainings were not locally adapted, which made some lessons difficult to translate into practice. Additionally, as health care workers became stressed and fearful, absenteeism increased. To support health care workers, teams of psychiatrists and clinical psychologists established a telehealth center to provide mental health care for health care workers.

Some other effective strategies included mask mandates and floor monitors in order to make mask-wearing be the default action. In **South Africa**, some facilities used closed-circuit television monitoring in donning and doffing areas and requested correct use of PPE via their public announcement system. Another strategy was creating spatial separation of COVID patients within and across health facilities. In **Côte d'Ivoire,** cases were sent to the capital Abidjan in order to centralize and isolate COVID care and follow-up. Lastly, improving public health communication and making masks more accessible and cheaper were other ways countries tried to ensure the proper allocation and use of PPE.

In the **Philippines**, a major challenge was the outbreak of COVID-19 infections in specialized health facilities for treatment and rehabilitation. To address this problem, a rapid response team doncuted assessments to verify the health event, profile cases, determine the existence of an outbreak, identify the source and mode of transmission, identify risk factors leading to the disease, and recommend control and preventive measures. Additionally, a harmonized tool was used to identify gaps and issues essential for quality improvement and technical assistance planning. The tool consisted of administrative systems; IPC practices; screening, triage, and isolation; environmental control; clinical management of suspected or confirmed COVID-19 cases; and transport of suspected or confirmed patients. Health facilities set a "no face mask, no entry" policy, established temperature screening at all entry points, segregated and monitored all people entering and leaving the buildings, and created makeshift transparent barriers in places between staff and patients in administrative areas.

Conclusions

Overall, countries across the globe faced similar challenges with varied responses that needed to be adapted to the local context to improve acceptability and effectiveness as well as to minimize disparities. Infection prevention and control is a multifaceted, whole-of-society, collaborative effort that

requires evidence-based guidelines in the community and health care settings; public trust married with strong and consistent communication; and restrictions that are accompanied by financial and psychosocial support. Many countries began with a clear legal framework that laid the groundwork for a strong, centralized response at the beginning of the pandemic then harnessed the power of community health workers, telehealth, community leaders, and more to adapt and localize each IPC strategy. Ensuring that promising practices and implementation strategies are effectively disseminated and adapted will enable the global community to bring the COVID-19 pandemic to an end as quickly and equitably as possible.

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