

Analyzing the Impact of the COVID-19 Pandemic on Primary Health Care and the Service Delivery Network in Baguio City, Philippines

Jamie Eloise M. Agbayani

Ateneo School of Government Philippines

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ABSTRACT

A study was conducted in Baguio City, Philippines, with the objectives of evaluating the delivery of primary health care (PHC) and establishing its health care provider network (HCPN) amidst the COVID-19 pandemic. The challenges encountered were identified, and the actions taken and key strategies to mitigate the effects of COVID-19 were analyzed. Guided by the Primary Health Care Performance Initiative Conceptual Framework, key informant interviews and focus group discussions were conducted with 25 participants from the city government, public and private healthcare providers, and patients. Thematic analysis from interviews revealed significant deficiencies in PHC, a fragmented HCPN, and a lack of robust public health infrastructure. Actions taken were consistent with the PHC triad of multi-sectoral policies and actions, engaged communities for health promotion, and the delivery of integrated clinical and public health services. Among the key strategies to mitigate the deleterious impact of the COVID-19 pandemic was participatory governance and leadership. The local chief executive collaborated with multisectoral stakeholders and ensured responsive adjustments to population health needs. These included aggressive disease surveillance and the use of digital technologies, efficient supply chain management, health workforce augmentation, robust community engagement, and proactive population outreach for health services. Fast-tracking the HCPN, with primary care providers becoming the first point of contact and navigators in the referral network, contributed to better health outcomes.

Introduction

On January 30, 2020, the World Health Organization (WHO) declared the COVID-19 pandemic a global health emergency, which disrupted health care delivery systems. The Philippines imposed strict lockdowns in March 2020, lasting until June 2020, to contain the spread of the disease.

The pandemic had deleterious effects due to limited mobility affecting access to health care services and loss of livelihood for many Filipinos. This crisis further demonstrated the fragmented healthcare system of the Philippines, including its inequities, inefficiencies, and lack of access. The absence of primary care provider networks contributed to weaknesses in gatekeeping and navigating mechanisms of the referral system for service delivery from primary care to the secondary and tertiary levels.

The 2018 Astana Declaration reaffirmed the vital role of PHC in the improvement of healthcare systems and defined PHC as a triad of multi-sectoral policies and actions for health promotion, community engagement for the promotion of health, and integrated clinical and public health services for the delivery of better primary care. Strengthening PHC systems and service delivery is therefore needed to attain the Sustainable Development Goals (SDGs) and Universal Health Coverage (UHC) (Peiris et al., 2019).

The diversion of healthcare to address the COVID-19 pandemic has caused low- and middle-income countries (LMICs) to be more vulnerable due to a lack of public health infrastructure (Barkley et al., 2016; Bitton et al., 2019; Garg et al., 2020). The pandemic also demonstrated the need for primary care networks and highlighted that effective and strong coordinated responses were carried out through a PHC perspective. Singapore used this approach to successfully contain and address this global health crisis. General practitioner clinics saw 79.6 percent of cases, being the first point of contact, with strong gatekeeping mechanisms in place (Lim & Wong, 2020; Pierrakos, 2021).

Philippine Health Care System

The Philippines is a middle-income country, and health service delivery is provided through a dual system comprised of the public and private sectors. PHC is a devolved function to the local government units (LGUs) as mandated by the Local Government Code of 1991. It consists of basic health services such as the expanded program on immunization, maternal and child health, reproductive health, environmental sanitation, access to safe potable water, nutrition, and essential medicines to treat common illnesses (Bautista, 2020; Cuenca, 2018; Liwanag & Wyss, 2018).

PHC and public health services are provided by municipalities and cities through rural health units, health centers, and barangay health stations. Highly urbanized and independent cities provide both hospital and primary care services, while provinces operate provincial and district hospitals. Healthcare professionals from the private sector provide primary and specialty care through clinics, hospitals, and polyclinics, which are accessed through user fees and are market-driven (Dayrit et al., 2018).

Philippine Universal Health Care Act

In 2019, the Universal Health Care Act (UHCA) was passed, and significant health reforms were undertaken through a whole-of-society, whole-of-systems, and whole-of-government approach. It prioritized the establishment of patient-centered PHC at the community levels that shall be accessible, continuous, coordinated, and comprehensive through the entire spectrum of life. Primary care providers shall serve as gatekeepers and navigators to higher levels of care. Population-based and individual-based health programs with financial coverage from the national government's social health insurance, the Philippine Health Insurance Corporation (PhilHealth), were also included (Official Gazette of the Philippines, 2019).

The Department of Health (DOH) then formulated the Local Health System Maturity Level monitoring tool to assess the preparedness of LGUs in integrating their respective local health systems (public and private) into the province-wide and city-wide health systems (P/CWHS). The framework was based on WHO's six building blocks of a functional healthcare system and the 10 characteristics of the P/CWHS that demonstrate managerial and financial integration. Key result areas (KRAs) to determine the levels of progress of LGUs were defined, with performance indicators to assess their attainment of the Preparatory Level, followed by the Organizational Level and finally, the Functional Level (Department of Health [DOH], 2020).

The City of Baguio is a highly urbanized city and was chosen for this study since it was among the 33 LGUs in the Philippines designated as advanced integration sites for UHC implementation (Caampued, 2019). It is located 209 km north of Metro Manila in the Province of Benguet and is the regional center of the Cordillera Administrative Region (CAR). It is comprised of 129 barangays, which are the smallest political local government units, with an area of 57.51 square kilometers. The population is at 366,358, with an average age of 24 years (PhilAtlas, 2020).

The map of Baguio is shown in Figure 1.

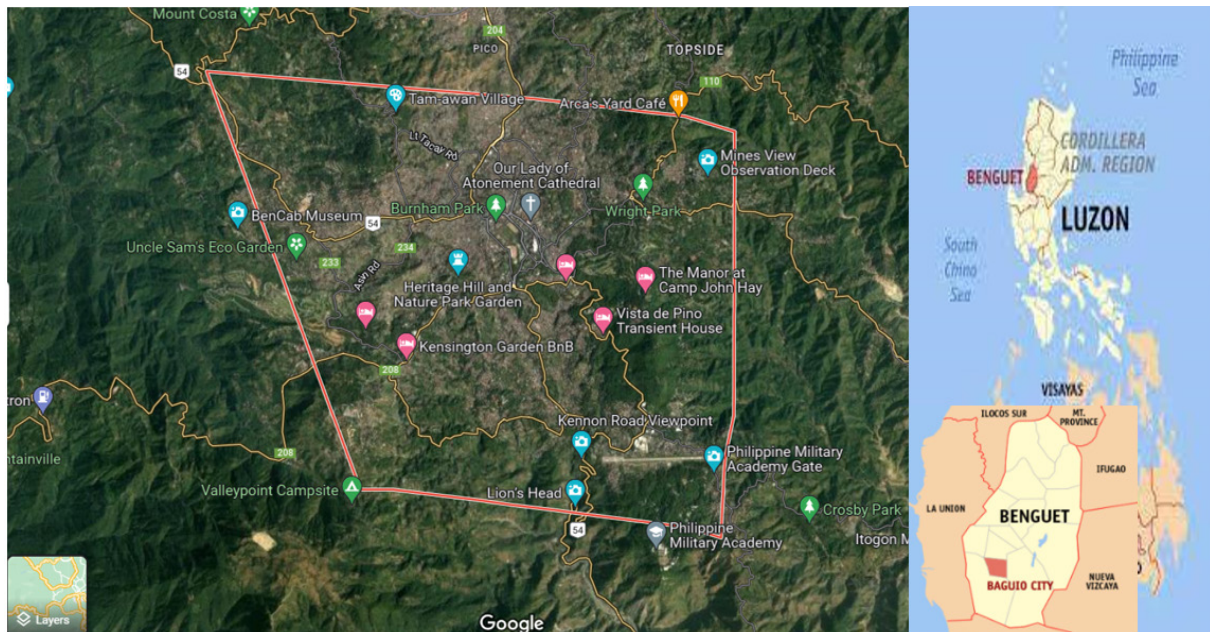


Figure 1 Map of Baguio City
Source: Google Maps

Healthcare facilities in Baguio City include 16 district health centers with a total of 10 doctors, 19 nurses, 28 midwives, and five dentists, and there is no city-owned hospital. The Baguio General Hospital Medical Center (BGHMC) is a DOH-run tertiary hospital serving Regions 1, 2, and the CAR. There are four private hospitals and a large sector of private healthcare providers in medical, dental, diagnostic, and ancillary services, as well as polyclinics (Center for Health Development-Cordillera Administrative Region [CHD-CAR], 2021).

Objectives and Significance

The objectives of the study were to evaluate the delivery of PHC in Baguio City and the establishment of its HCPN or service delivery network amidst the COVID-19 pandemic, since it was an advanced integration site for UHC. The challenges encountered were identified, and the actions taken and key strategies to mitigate the effects of COVID-19 were analyzed. Recommendations were made to strengthen PHC and establish a functional HCPN to attain UHC goals. Milestones in KRAs for service delivery, specifically the referral system in the DOH Local Health System Maturity Level, were also evaluated.

Most LMIC frameworks on monitoring and evaluation of healthcare systems are focused on inputs such as financing, human resources for health, facilities, supplies, and information systems. There is also limited PHC research in LMICs due to low priority and lack of funding (Bitton et al., 2019).

This study aimed to contribute to knowledge by analyzing the central role of PHC service delivery during the pandemic using the Primary Health Care Performance Initiative Conceptual Framework. This framework emphasizes the interactions of systems and inputs between healthcare providers and patients, families, and communities at the point of care. This contrasts with most LMIC frameworks, as stated above, which focus mainly on inputs to the healthcare system.

METHODS

Primary Health Care Performance Initiative Conceptual Framework

The Primary Health Care Performance Initiative (PHCPI) Conceptual Framework for Global Primary Health Care for LMICs was launched in 2015 by the World Health Organization (WHO), the World Bank, and the Bill and Melinda Gates Foundation, in partnership with Ariadne Labs-Harvard T.H. Chan School of Public Health and Brigham Health-Brigham and Women's Hospital, and Results for Development, with the aim of improving PHC systems in LMICs (Veillard et al., 2017; Bitton et al., 2019; Peiris et al., 2021).

The PHCPI Conceptual Framework is shown in Figure 2 and was the lens of inquiry, analysis, and interpretation of the primary and secondary data gathered for the study, focusing on the service delivery domain. PHCPI has been used in emerging service delivery innovations in many countries. Prioritizing community-based PHC systems, backed by supportive government policies and financing structures (public and private), has resulted in better health outcomes and equity in healthcare (Bitton et al., 2019; Peiris et al., 2021; World Health Organization [WHO], 2022).

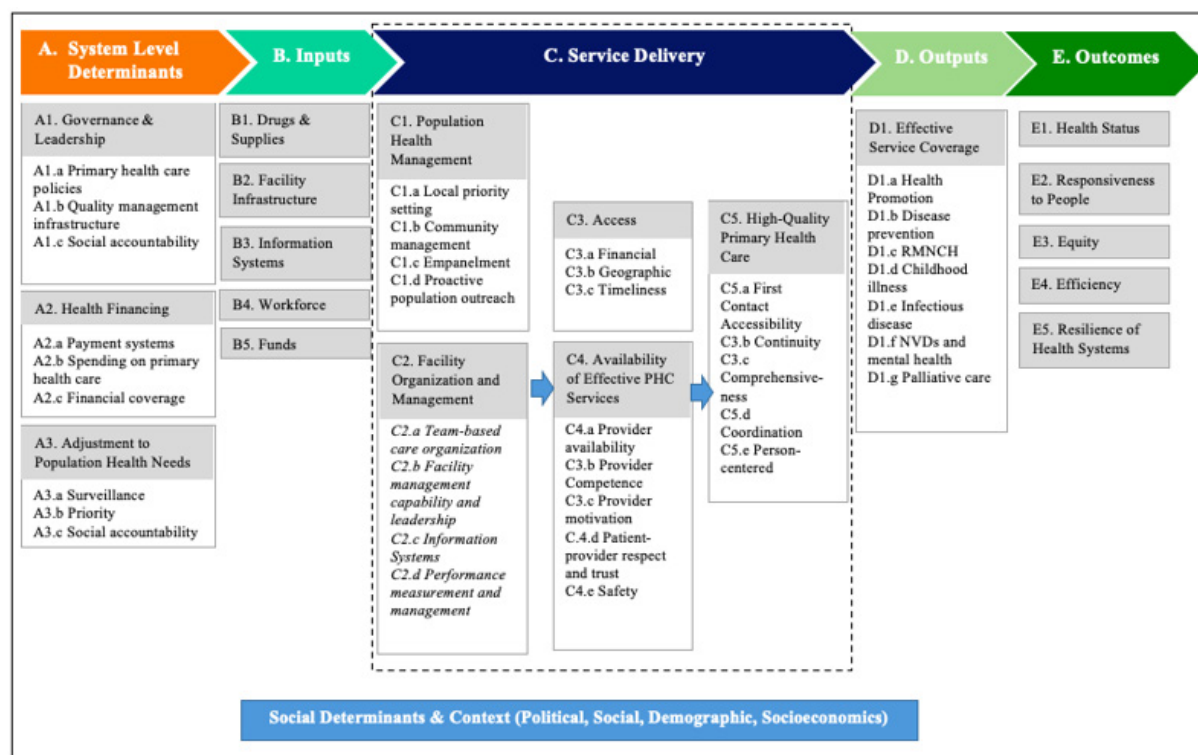


Figure 2 Primary Health Care Performance Initiative Conceptual Framework

Source: Bitton et al. (2019)

This framework recognizes that PHC systems are integral to the demographic, political, socio-economic, and cultural context of the locale, considering the social determinants of health to attain UHC goals. The Service Delivery domain is at the heart of the PHCPI, demonstrating the interactions of the system-level determinants and inputs between healthcare providers and patients, families, and communities at the point of care.

This study focused on sub-domains one and two of service delivery, which are Population Health Management and Facility Organization and Management, serving as prerequisites to sub-domains three

and four. Sub-domain three is **Access**, which refers to significant financial and geographic access to timely healthcare, while sub-domain four, the **Availability of Effective PHC Services**, refers to human resources for health who are competent, respectful, and prioritize patient safety in the provision of care. Sub-domain five is anchored on Barbara Starfield's High-Quality PHC, described as first-contact accessibility, continuity, comprehensiveness, and coordination. The person-centered healthcare function elucidates the interpersonal relations in PHC, which include respect, trust, and communication to empower patients to be responsible for their health. Success in combining the systems, inputs, and service delivery contributes to outputs on effective service coverage focused on prevention and treatment. The last domain, **Outcomes**, is affected by all the aforementioned domains and is aligned with the UHC monitoring framework (Bitton et al., 2019; Bitton et al., 2017).

Research Design

This is a cross-sectional qualitative study covering the pre-COVID-19 pandemic years from 2018 to 2019 and the pandemic years from 2020 up to the first three quarters of 2022. Primary data were gathered through purposive sampling for semi-structured key informant interviews and focus group discussions (FGDs). Emerging questions and processes were evaluated, and data collection was conducted in the participants' settings.

There were 25 participants interviewed based on the four levels of the healthcare system, namely: (1) the individual patient; (2) the care team comprised of healthcare providers, the patient, and their families; (3) the organization that provides the necessary infrastructure and other resources to support the work and development of care teams; and (4) the political and economic environment (Ferlie & Shortell, 2001).

FGDs were conducted for patients and healthcare workers in the district health center. The 11 key informant interviews included doctors from public and private healthcare facilities and the local medical society who were members of the HCPN and the City Health Board. The City Mayor, also known as the local chief executive (LCE), and key health managers from the City Health Services Office, the DOH, and PhilHealth regional offices were also among the key informants.

Figure 3 shows the distribution of participants, wherein the care team represented 44 percent, followed by the political and economic environment at 24 percent, while organizations and patients were at 16 percent each.

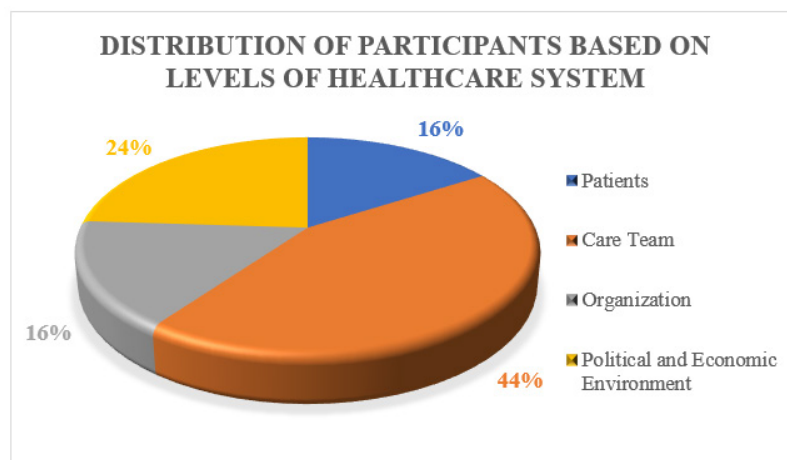


Figure 3 Distribution of Participants Based on Levels of Healthcare System

Secondary data were obtained from private and public documents, including reports from the city government of Baguio and the regional offices of the Department of Health (DOH) and PhilHealth. The Key Result Areas (KRAs) in DOH's Local Health System Maturity Level tool were also assessed.

Data Analysis and Interpretation

The research adhered to Braun and Clarke's (2012) six phases of thematic analysis to examine the interview transcripts. This method systematically identified, organized, and provided in-depth information on the patterns of meanings across the data gathered regarding the participants' experiences and understanding of the impact of the COVID-19 pandemic on PHC and the establishment of the HCPN in Baguio City.

Data collection and analysis were undertaken simultaneously, and validity strategies included triangulation of multiple data sources collected from interviews and documents. Data were analyzed and interpreted through the PHCPI lens, examining system-level determinants and inputs to the service delivery domain. Service delivery was assessed in the four areas of the population management sub-domain, namely local priority setting, community engagement, empanelment, and proactive population outreach. The facility organization and management sub-domain was also evaluated in four areas: team-based care organization, facility management capability, information systems, and performance measurement. Gaps were identified in these two sub-domains, as they are prerequisites to access and availability of effective PHC services (Bitton et al., 2019; Bitton et al., 2017).

Results

Thematic Analysis

Self-reported perceptions, views, and experiences regarding the conduct of PHC, the establishment of the HCPN, and the city government of Baguio's response to their healthcare needs amidst the COVID-19 pandemic were analyzed. Five themes were generated and are shown in Table 1.

Table 1 Results of Thematic Analysis

THEMES
Theme 1. Proactive and innovative local chief executive
Theme 2. Referral system limited to government to government or hospital of choice
Theme 3. Lack of access and availability of primary care and public health services
Theme 4. Need for enhancement of health infrastructure of district health centers
Theme 5. Lack of clarity and stakeholder engagement for PhilHealth <i>Konsulta</i> primary care benefit package

Proactive and Innovative Local Chief Executive

The first theme falls under the PHCPI's system-level domain. The majority of respondents stated that leadership and good governance were key drivers in the successes achieved in Baguio City's COVID-19 response. The local chief executive (LCE) was described as a proactive and innovative leader who had the political will to undertake the necessary adjustments and actions to mitigate the deleterious effects of the pandemic on the healthcare system and the socio-economic conditions of the populace.

The LCE is an experienced crisis manager who believes in systems thinking and digital transformation for innovative solutions in crisis management. He stated that leadership, political will, forward-thinking, and systems development in response to the pandemic were invaluable. He also invested in his people and worked closely with his health and non-health key managers, the City Council, national government agencies, and the private sector.

Among his key strategies were aggressive epidemiological disease surveillance and mass testing for case identification, contact tracing, isolation, and treatment. The EndCov digital tracker was developed for contact tracing, with its main system located in the Operations Command Center at Baguio City Hall. It was accessible through the mobile devices and computers of healthcare workers, private and public hospitals, and was beneficial for containing the spread of COVID-19. Disease surveillance was also conducted in partnership with the University of the Philippines in Baguio City for the generation of daily data analytics. These efforts significantly contributed to data-driven decision-making, strategic planning, action plans, and forecasting.

The LCE was collaborative and endeavored to learn from experts, strictly adhering to open, honest, and timely information dissemination and communication. Mandating the minimum public health standards and mobility guidelines was achieved through timely and massive information campaigns.

The city government proactively engaged the community and all stakeholders to participate in health governance, planning, and implementation of its strategy of “prevention, detection, isolation, treatment, and reintegration” (CHD-CAR, 2021). The organizational structure of the Crisis Management Team was prioritized, multi-sectoral and multi-stakeholder members from the public and private sectors.

Networking for resources and supply chain management with the private and public sectors was consistently evident. In addition to supplemental budgets, the national government likewise provided grants to augment the financial, technical, and infrastructure capacities of Baguio City (Department of Budget and Management [DBM], n.d.).

Referral System Limited to Government-to-Government or Hospital of Choice

The second theme falls under the facility organization and management sub-domain of service delivery. Pre-pandemic, referral systems were limited to government-to-government health facilities or the hospital of the patient’s choice. With no city-owned hospital, referrals from the district health centers were made directly to the tertiary (apex) hospital, the BGHMC. There are 4.3 health centers per 1,000 population. Table 2 shows the bed capacity of 3.2 beds per 1,000 population in Baguio City, with BGHMC accounting for 68 percent.

Table 2 Bed Capacity of Hospitals in Baguio City

HOSPITAL	LEVEL OF CARE	CLASSIFICATION	BED CAPACITY (Number)
Baguio General Hospital Medical Center	Level 3	Public	800
St. Louis University-Hospital of the Sacred Heart	Level 3	Private	120
Notre Dame De Chartres Hospital	Level 2	Private	125
Pines City Doctors Hospital	Level 2	Private	110
Baguio Medical Center	Level 1	Private	24
Total Beds			1,179

Source: CHD-CAR (2021)

Healthcare workers at district health centers included doctors, nurses, midwives, and volunteer community health workers referred to as barangay health workers (BHWs). They were at the forefront of primary health care (PHC) and became the first point of contact for probable or suspected COVID-19 infections. Triage of patients, contact tracing, case management, monitoring, referrals, and back referrals were among their functions. Healthcare workers reported being overwhelmed by the sudden surge in patient consultations and responsibilities, coupled with a lack of manpower to undertake the massive COVID-19-related activities. To address these challenges, human resources for health were augmented, and the Baguio Benguet Medical Society provided volunteer doctors to manage patients in isolation facilities. Community health teams were also trained in contact tracing and implemented COVID-19 restrictions.

Furthermore, to address the challenges in the referral system, the creation of the integrated Health Care Provider Network (HCPN) for COVID-19 was fast-tracked, which defined the referral system and roles of all its members. The One Hospital Command was established, with Baguio General Hospital Medical Center (BGHMC) providing the clinical pathways for patient navigation from the district health centers and other triage areas to isolation or quarantine facilities, or to hospitals based on the severity of COVID-19 disease.

The medical directors of the five hospitals readily participated in the planning and implementation of this HCPN. Sharing of information and resources such as human resources for health, personal protective equipment, testing kits, medicines, and other supplies was conducted. Timely updates on available beds and disease prevalence were likewise provided.

Lack of Access and Availability of Primary Care and Public Health Services

The third theme is consistent with the inputs domain and service delivery sub-domains on population health management and facility organization and management. Restricted mobility due to lockdowns significantly affected access to primary care. Delivery of essential health services was disrupted, and COVID-19-related activities were prioritized, including aggressive vaccination drives against the disease.

Notwithstanding the stigma and discrimination, patients in the focus group discussions (FGDs) claimed that their fear of COVID-19 transmission and long lines in the district health centers were among the barriers to accessing primary care. Aggressive information and education campaigns were undertaken to address the stigma and fear of COVID-19.

Furthermore, proactive community outreach was conducted through home visits by healthcare workers for consultations and refills of medications. Web-based and cellular phone teleconsultations were utilized for primary care and monitoring of patients, such as those with high-risk pregnancies and non-communicable diseases. Aggressive COVID-19 vaccination was also prioritized, and by the end of August 2022, coverage of fully vaccinated individuals was at 126.4 percent, while for the first booster dose, it was at 54.9 percent (City Health Services Office, 2022).

However, there was a lack of population databases that identified the poor, marginalized, and vulnerable populations. Actions taken resulted in the registration of 26 percent of indigent patients to their primary care providers by the end of 2021 (CHD-CAR, 2021).

Need for Enhancement of Health Infrastructure of District Health Centers

The fourth theme aligns with inputs on facility infrastructure, as well as the facility organization and management sub-domain of service delivery. Among the major challenges were the lack of public

health infrastructure and capabilities of district health centers. Healthcare workers expressed difficulties in meeting the requirements of the Department of Health (DOH) for licensing and accreditation by PhilHealth as primary care facilities. The main reasons provided were the lack of physical space, equipment, and ancillary services like clinical laboratories, diagnostic radiology, and birthing services.

In response to the foregoing, Baguio City was granted PHP 16 million (USD 300,000) from the DOH's Health Facilities Enhancement Program for the construction of two super health centers and the upgrade of one health center in 2022 (City Budget Office, 2022). In the second quarter of 2022, 10 of the 16 district health centers were licensed as primary care facilities by the DOH and accredited for the PhilHealth *Konsulta* primary care benefit package. These were made possible through a moratorium to fulfill the required infrastructure by years 2025 to 2026 (City Health Services Office, 2022).

There was also a lack of information and communication technology (ICT) infrastructure and internet connectivity in the district health centers, with paper-based record-keeping still in use. Electronic medical records (EMRs) were not interoperable between the district health centers, government and private hospitals, and PhilHealth. Table 3 shows these various EMR platforms (CHD-CAR, 2021).

Table 3

Summary of Electronic Medical Records of District Health Centers, Hospitals and PhilHealth *Konsulta* in Baguio City

FACILITY/HOSPITAL	ELECTRONIC MEDICAL RECORDS
16 District Health Centers	iClinicSys and eFHSIS
Baguio General Hospital and Medical Center	iHOMIS
St. Louis University-Hospital of the Sacred Heart	MedSys
Notre Dame de Chartres Hospital	Comlogic
Pines City Doctors Hospital	TUO IT Solutions
Baguio Medical Center	Comlogic
PhilHealth <i>Konsulta</i> Primary Care Benefit	e- <i>Konsulta</i>

Source: CHD-CAR (2021)

The EndCOV tracker was the main digital tool used for COVID-19 contact tracing and containment of the disease. ICT equipment, internet connectivity, and cellular phone cards were provided to district health centers and triage areas to enhance accessibility for the general public.

Lack of Clarity and Stakeholder Engagement on PhilHealth *Konsulta* Primary Care Benefit Package

The last theme concerns health financing at the systems level for payment systems and financial coverage of primary care and HCPN providers. There was an apparent lack of stakeholder engagement and clarity regarding the PhilHealth *Konsulta* primary care benefit package, which is intended to provide financial coverage for outpatient consultations, medicines, and ancillary services. The process of registration and access to the primary care benefit package was described as tedious, with low service coverage at PHP 500 (USD 9) and PHP 750 (USD 14) per capita for public and private patients, respectively.

PhilHealth's regional office reported that there were no registered clients for its primary care benefit package, despite the accreditation of the 10 district health centers as providers. The state-run BGHMC applied as a primary care benefit provider, in addition to its accreditation as an end referral or apex hospital in the HCPN. Furthermore, as of July 2022, there were no applicants from the private sector

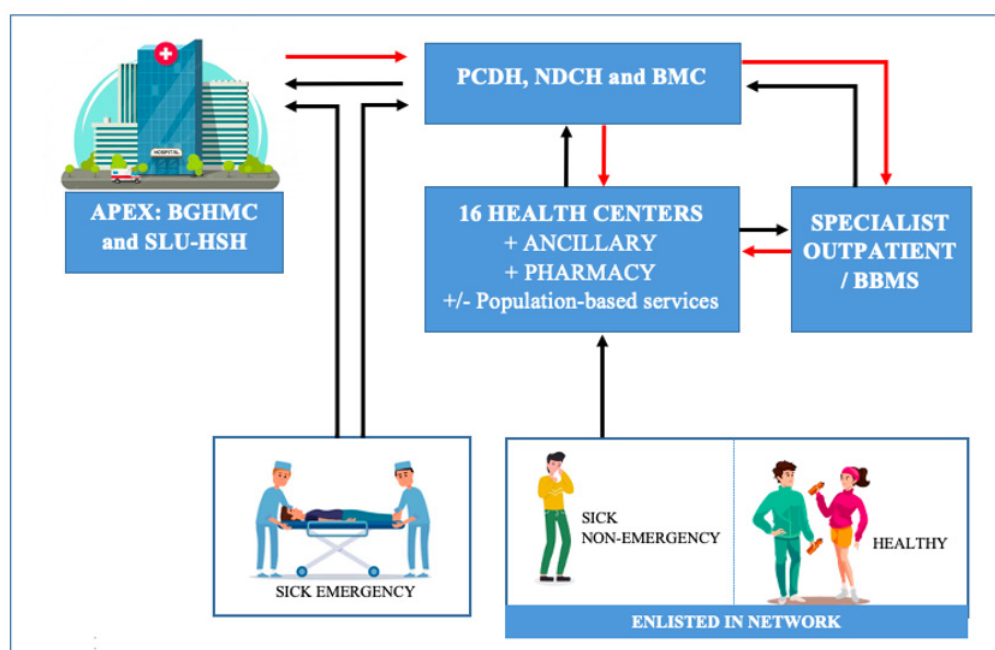
to become a DOH-licensed primary care facility. Defining the provider payment mechanism for private service providers remains a major challenge to their participation in the HCPN.

Results of the Local Health System Maturity Level

The pandemic delayed the implementation of the UHC initiatives of Baguio City as an advanced integration site. However, the continuous efforts of the city government, in collaboration with the HCPN members (public and private sectors), were commendable. These efforts resulted in attaining all the KRAs for the Preparatory Level and three out of the seven KRAs for the Organizational Level of the Local Health System Maturity Level monitoring tool for service delivery by December 2021 (CHD-CAR, 2021). The City Health Board was re-established in 2020, and the Special Health Fund was set up in 2022. Major accomplishments in the aforementioned monitoring tool are shown in Table 4, while Figure 4 illustrates the HCPN of Baguio City.

Table 4 Major Accomplishments in the Local Health System Maturity Level of Baguio City for 2021

MAJOR ACCOMPLISHMENT	SIGNATORIES/AUTHORS
UHC City Ordinance No.115 S2021	City Mayor and Vice-Mayor
Memorandum of Understanding as integration site for UHC	City Mayor, DOH Secretary, PhilHealth President and Chief Executive Officer
Memorandum of Agreement to Operationalize the Health Care Provider Network of Baguio City	City Government of Baguio, BGHMC, SLU-HSH, NDCH, PCDH, BMC; PhilHealth- CAR; DOH CHD-CAR
Health Care Providers Network Manual, 2021 Edition	City Health Services Office; City DOH Office



Source : City Health Services Office (2021)

Note : BGHMC-Baguio General Hospital Medical Center, SLU-HSH-St. Louis University Hospital of the Sacred Heart, PCDH-Pines City Doctors Hospital, NDCH-Notre Dame de Chartres Hospital, BMC-Baguio Medical Center, BBMS-Baguio-Benguet Medical Society

Figure 4 Health Care Provider Network of Baguio City

Discussion

Using the PHCPI lens, among the strengths of Baguio City's response to the COVID-19 pandemic were system-level determinants on governance and leadership, health spending for primary care, and timely and responsive adjustments to population health needs. Inputs such as the augmentation of human resources for health and upgrading of facility infrastructure—including ICT provisions of the district health centers—were vital. The EndCOV digital tracker and data analytics by the academe enabled the containment of the spread of COVID-19. However, significant limitations were evident in the service coverage and payment provider mechanism of PhilHealth's primary care benefit package and among the HCPN members from the private sector.

For the service delivery sub-domain on population health management, local priority setting, robust community engagement, and proactive population outreach were among the strengths of the COVID-19 response. In contrast, the lack of databases to identify the poor and vulnerable sectors of society was among the limitations in Baguio City.

For the sub-domain on facility organization and management, the team-based organization of healthcare workers included doctors, nurses, and midwives; however, there was an absence of a primary care provider network to support them and serve as the foundation of the HCPN. There was also a lack of robust public health infrastructure, and the information systems were not interoperable among the public and private healthcare providers. Furthermore, there was no performance evaluation system in place. The foregoing are further discussed below based on the results of the thematic analysis.

System-Level Determinants and Inputs Domains

The study showed that under the systems-level domain, governance and leadership steered the bureaucracy to address the pandemic efficiently and effectively through the creation of public health policies and actions. Adjustments to population health needs were made through aggressive disease surveillance and mass testing, which enabled data-driven decision-making, forecasting, and recalibration of priorities to address the changing needs during the pandemic. The city government proactively engaged communities and all stakeholders to participate in health governance, planning, and implementation of healthcare services and protocols.

Health financing through supplemental budgets and grants from the national government provided the means to build the needed infrastructure in the healthcare system (DBM, n.d.). Augmentation of human resources for health, provision of ICT equipment, internet connectivity, and telemedicine were vital in addressing the pandemic.

Innovative solutions included the EndCOV digital tracker for case identification and contact tracing, timely data analytics in partnership with the academe, and robust immunization drives. COVID-19 demanded the strengthening of ICT foundations for timely data collection. Ninety-six percent of countries were said to have halted face-to-face data collection due to lockdowns, and those with capacities to collect data remotely had more favorable outcomes (UN, n.d.).

Strategies adopted by the city government were also aligned with the "COVID-19 Global Risk Communication and Community Engagement (RCCE) Strategy – Interim Guidance" issued by the WHO for December 2020 to May 2021. Figure 5 shows the four main objectives of RCCE, which are: (1) "be community-led," (2) "be data-driven," (3) "reinforce capacity and local solutions," and (4) "be collaborative" (WHO, 2020). The overarching goal is to establish a wide range of advocates for people-led

and community-led approaches, building trust and promoting social cohesion to mitigate the deleterious impact of COVID-19.



Source: WHO (2020)

Figure 5 Objectives of the Risk Communication and Community Engagement Strategy

Service Delivery Domain

The interactions between the three domains—systems, inputs, and service delivery—became evident at the district health centers, triage areas, isolation facilities, and the HCPN. More importantly, there was a focus on the functions of service delivery and interactions of the key stakeholders of the healthcare system, specifically the service providers, the communities, patients, and their families at the point of care. Patient-centered and community-centered care were emphasized in Baguio City’s COVID-19 response.

Population Health Management Sub-domain

Delivery of essential health services was affected by the lockdowns and diversion of healthcare to COVID-19-related activities. The SDGs Report of 2022 stated that the COVID-19 pandemic caused disruptions in the delivery of essential health services in 92 percent of countries and gravely affected decades of work on global health and progression of UHC (United Nations [UN], n.d.).

Local priority setting, as discussed under adjustments to health needs above, was people-centered and community-centered, with the LCE leading through participatory policy creation and implementation in an organized and efficient manner. These approaches have been validated to make health systems more efficient and responsive to the needs of the people, building stronger patient-provider relationships that foster trust and respect (Bitton et al., 2019; WHO, 2022).

Empanelment is the continuous and iterative process of assigning individuals to a primary care provider and a primary care facility that shall proactively deliver coordinated PHC to the rostered patients (PHCPI, n.d.). Among the major challenges in Baguio during the pandemic was the lack of databases that identified the poor, marginalized, and vulnerable members of the population for priority targeting of service delivery. Identifying the vulnerable population groups is vital to have a better appreciation of the challenges they face and to prioritize addressing these (UN, n.d.).

Proactive population outreach was conducted through home visits provided by healthcare workers who engaged their catchment populations for first contact of care, referrals, and continuum of care. Similarly, home visits by healthcare workers of primary care facilities in Spain were done to ensure the continuum of care, and among their major roles were to address the mental health issues of patients and provide emotional support due to isolation caused by mobility restrictions (Muñoz et al., 2020).

Facility Organization and Management Sub-domain

Team-based care organization at the district health centers included doctors, nurses, midwives, and barangay health workers with clear definitions of roles and responsibilities. The pandemic became the impetus for district health centers to become the first point of contact for patients suspected of having COVID-19 disease and non-COVID conditions. Augmentation of the health workforce and fast-tracking the integrated HCPN by the city government and the five hospitals in Baguio City were invaluable for the coordinated, efficient, and effective response to the pandemic. Similarly, continuity of basic preventive care amidst the pandemic was highlighted in an urban city in Brazil, where service delivery of primary care at the community level included readily available doctors, nurses, and epidemiological surveillance to address the needs of the people (Pingel et al., 2020).

Telemedicine was also a vital platform for primary care and the provision of medicines and urgent care. Triaging of patients through teleconsultations was also done by a large primary care facility in Spain to minimize contact with patients exhibiting symptoms of COVID-19 infection, and 68 percent of patients accessed primary care through telemedicine (Muñoz et al., 2020). Noteworthy is the opportunity for telehealth to bridge the gaps in health service delivery in Southeast Asian countries. However, the reduction in physical contact with patients was considered a loss of opportunities for early detection of health conditions, which may significantly impact chronic burdens of disease in the future (Gudi et al., 2021; Halcomb et al., 2021; Lal et al., 2022).

Lack of public health infrastructure in the district health centers was another major challenge for facility management. In addition, the physical infrastructure requirements of the DOH for licensing of primary care facilities entailed substantial capital investments for the government and the private sector. Similarly, studies have shown that the diversion of healthcare to address the COVID-19 pandemic has caused LMICs to be more vulnerable due to a lack of public health infrastructure (Barkley et al., 2016; Bitton et al., 2017; Garg et al., 2020).

Information systems in the HCPN were not interoperable, and there was an apparent lack of a performance evaluation system and patient feedback mechanism in the health centers.

Access and Availability of Effective Primary Health Care Subdomains

There were limited data to evaluate access and availability of effective PHC in the study since the prerequisites of service delivery sub-domains on population health management and facility organization and management were not fulfilled.

For financial access, however, the apparent low service coverage and lack of coherence of the provider payment mechanisms discouraged the private sector from participating in PhilHealth's primary care benefit package.

Conclusion

The impact of the COVID-19 pandemic demonstrated the significant deficiencies in PHC and the fragmented HCPN in Baguio City. Delivery of essential health services and progress of its UHC initiatives were disrupted; however, the pandemic also became the impetus for strengthening PHC. Actions taken by the city government were consistent with the WHO Framework for PHC approach and the 2018 Astana Declaration, which defined PHC as the triad of multi-sectoral policies and actions for promotion of health, engaged communities for health promotion, and the delivery of integrated clinical and public health services (Bitton et al., 2019).

Multi-stakeholder and multi-sectoral collaborations were evident through participatory governance led by a proactive and innovative local chief executive. Creating public health policies and ICT infrastructure for digital health were prioritized for better health outcomes. Aggressive disease surveillance through mass testing, timely data analytics in partnership with the academe, as well as massive vaccination drives against COVID-19 were instrumental in mitigating the deleterious effects of the pandemic.

The mixed HCPN (public and private) was fast-tracked for patient navigation from primary care to higher levels of care. The district health centers became the first point of contact for referrals and back referrals, which was not evident during the pre-pandemic years. Proactive population outreach was undertaken by the health workforce to address the continuous healthcare needs of the people. Reactivation of the community health teams and augmentation of human resources for health were likewise valuable during the pandemic.

The low coverage of PhilHealth's primary care benefit package and the lack of coherence in the payment provider mechanism for the private sector remain bottlenecks in fully operationalizing a functional HCPN to attain UHC goals.

Recommendations

Moving forward, among the recommendations of the study is to prioritize the establishment of a functional primary care provider network as the foundation of the HCPN that shall bring healthcare closer to the people in their daily environments and across all life stages through community-based PHC and person-centered care. In addition, building a cadre of community health teams shall likewise strengthen PHC and empower the citizenry to be responsible for their own health and well-being.

Most importantly, there is a need to invest in digital systems for empanelment, or the robust and iterative rostering of individuals to a primary care provider and primary care facility that shall proactively deliver primary care to them. Empanelment shall establish a broad population database to identify the priority sectors for service delivery, such as the poor, marginalized, and vulnerable. Epidemiological surveillance shall likewise gain coherence and enable the timely response to emerging and emergent diseases. Furthermore, local investment plans for health shall be informed to strengthen PHC and attain managerial and financial integration of a functional healthcare system into the city-wide health system for UHC.

The COVID-19 pandemic has reminded us that no one must be left behind in access to quality, responsive, and equitable healthcare at the appropriate levels of care, with financial risk protection. Strengthening PHC, therefore, remains crucial, as this shall serve as the cornerstone to attain UHC goals and the SDGs for better health and well-being of the people.

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Author Biographies

Jamie Eloise Manzano-Agbayani, MD, MPM earned her degree in Master in Public Management-Health Governance Track at the Ateneo School of Government in Quezon City, Philippines. She is currently an Associate Professor, and Head of Faculty Relations at the St. Luke's Medical Center College of Medicine-William H. Quasha Memorial, Inc., and a Pediatrician at the St. Luke's Medical Center in Quezon City.

She is a public health advocate and served as Chief of Mission, in partnership with the Provincial Government of Pangasinan, to deliver primary health care and public health programs to the underserved and far-flung communities in the province.