ORIGINAL ARTICLE

Analysis of the Capacities of Health Facilities in the Eastern Visayas Region based on Health Care Provider Network Service Delivery Guidelines

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ABSTRACT

Background and Objective. Timely access to appropriate levels of care is essential for improving maternal, newborn, and child health outcomes. To address persistent service delivery fragmentation and strengthen referral systems, the Philippine Department of Health issued Administrative Order 2020-0019 to guide the design of Health Care Provider Networks (HCPNs) under the Universal Health Care Act of 2019. This study assessed the extent to which sixteen municipalities across four provinces in Eastern Visayas comply with the HCPN service delivery guidelines in the context of maternal and newborn care.

Methods. The study employed a descriptive cross-sectional mixed-methods design, utilizing structured facility checklists to assess compliance with HCPN standards. Qualitative data were gathered through key informant interviews and focus group discussions with purposively selected stakeholders—decision-makers, health personnel, and mothers—to contextualize findings. A three-lever framework for integrated care (policy, operational, and cross-cutting) guided the analysis.

Results. The findings revealed significant gaps between the current capacities of study health facilities and the requirements outlined in the HCPN guidelines. Major gaps included (1) weak cooperative governance mechanisms to support network-wide coordination; (2) limited systematic linkages between facilities, including fragmented referral protocols and non-interoperable health information systems; (3) inadequate investments in infrastructure, health human resources, and medical commodities; and (4) absence of performance monitoring systems across HCPNs.

Conclusion. Despite these gaps, the study identified early signs of cooperative arrangements through inter-local health zones initiatives and DOH-supported referral programs. Lessons from these experiences, along with the current progress in selected municipalities and provinces, highlight the potential for stronger governance and integration of health services. Addressing the identified gaps across policy, operational, and cross-cutting levers is essential to establish functional HCPNs and advance the goals of Universal Health Care in the region.

Keywords: health referral system, maternal and newborn care, Health Care Provider Network, health service delivery integration, Universal Health Care, Eastern Visayas

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INTRODUCTION

Despite substantial global progress in reducing maternal and neonatal mortality, many low- and middle-income countries (LMICs) continue to struggle with high rates of maternal and infant deaths.[1,2] In the Philippines, maternal and neonatal mortality have shown minimal improvement over the past 25 years, despite the largely preventable nature of these deaths.[3]

The Philippine health system is highly pluralistic and fragmented, with public and private providers operating in parallel across all levels of care. In the absence of a gatekeeping mechanism, patients may consult any provider—rural health units (RHUs), city health centers, private clinics, hospital outpatient departments, or even traditional healers—based on accessibility, affordability, and personal preference.[4,5] While public health consultations are officially free, out-of-pocket (OOP) expenses remain common, due to medicines stockouts and other indirect costs such as transportation and income loss during illness.[4]

Although government-managed primary health facilities often serve as the first point of contact, they often face heavy patient load—averaging 50 to 250 daily consultations—even with infrastructure support from the Department of Health (DOH) Health Facility Enhancement Program (HFEP).[6] However, referral systems remain weak, and service delivery for maternal, neonatal, and child health (MNCH) is often fragmented, limiting continuity of care.

To address these systemic issues, the World Health Organization (WHO) has emphasized the crucial role of primary health care (PHC) in strengthening health systems. PHC is defined as 'first-contact, continuous, comprehensive, coordinated, and people-centered care'.[7] PHC is essential in reducing maternal and neonatal deaths through timely and quality services delivered along a continuum of care.[3,8,9] Moreover, interfacility coordination and referral networks are essential in achieving high-quality health systems in LMICs.[10]

In the Philippines, the devolution of basic health services to local governments has led to fragmentation in service delivery and financing, particularly for essential MNCH services, which resulted to uneven health system performance and disparities in health outcomes.[3,4] Various initiatives, including Inter-Local Health Zones (ILHZ) and Service Delivery Networks (SDN), have attempted to strengthen local health systems, with mixed results.[4,11] The Universal Health Care (UHC) Act of 2019 mandates the integration of local health systems under province- and city-wide networks.[12] In response, the DOH issued Administrative Order 2020-0019, which outlines the service delivery design for Health Care Provider Networks (HCPNs).[13] These guidelines emphasize licensing and accreditation, referral linkages, partnerships to augment service capabilities, and the integration of public health services into hospital operations. The HCPN model aims to improve access to comprehensive, coordinated, and efficient care, while strengthening the role of primary care providers and alleviating the pressure on higher-level hospitals. Integrated networks can facilitate resource allocation, patient care navigation, and provider support, leading to improved health outcomes.

Understanding the current state of HCPN implementation is therefore crucial for improving integrated service delivery, particularly in maternal, neonatal and child health. This study assesses the compliance with AO 2020-0019 among selected local government units in Eastern Visayas using the integrated care framework developed by La Forgia et al., which outlines three key levers – policy, operational, and cross-cutting – for integrated health services.[14] These levers reflect complementary strategies, particularly in settings where care is fragmented across providers, levels, and systems. *Policy levers* provide the formal authorizations and enabling environment for integration, including supportive laws and regulations, governance and leadership structures, human resource strategies, and financing and payment reforms that incentivize coordinated care. *Operational levers* encompass the fundamental changes at the service delivery level, including the strengthening of primary care's role in care coordination, redesign of provider organizations, logistics, and inter-provider and provider–patient interactions. These are designed to achieve the "integrating functions" of primary care such as care navigation, gatekeeping, and continuous care. *Cross-cutting levers* consist of system-wide enablers such as performance monitoring and evaluation mechanisms, digital health tools like electronic medical records, and interoperable information systems that facilitate communication, data sharing, and adaptive management. Together, these levers offer a holistic framework aligned with the WHO's PHC operational model.[7]

By profiling the current state of HCPN implementation in Eastern Visayas, this study assessed the extent to which sixteen municipalities in Eastern Visayas comply with the DOH's HCPN guidelines, specifically in the context of maternal and newborn care. These findings can inform policy and operational strategies to support course corrections in the UHC rollout.

METHODS

Study Setting

Eastern Visayas, or Region VIII, has a population of 4,547,150, with approximately one-third of its population aged 14 years and below.[15] This study was conducted in 16 municipalities across four provinces – Eastern Samar, Leyte, Samar, and Northern Samar – each identified as recipient of support under the Korea International Cooperation Agency (KOICA) MNCH Project. Four municipalities were selected from each project province based on their inclusion in the KOICA Project. Based on the 2020 Field Health Service Information System (FHSIS) Annual Report,[16] the majority of these municipalities are characterized by below-average

performance in MNCH service utilization, lower rates of deliveries attended by skilled health professionals, and generally fall under lower income classification of income class.

Study Design

This study employed a mixed-methods descriptive design, combining a cross-sectional quantitative assessment with qualitative inquiry. Quantitative data were collected through structured facility checklists designed to assess compliance with referral system standards outlined in AO 2020-0019.

Complementing this, qualitative data were gathered through key informant interviews (KIIs) and focus group discussions (FGDs) with decision-makers, health personnel, and service users to capture stakeholder perspectives on referral system functionality, implementation challenges, and contextual factors influencing performance.

Study Site and Participant Selection

Total enumeration was used to include all public health facilities within the KOICA-supported municipalities, which include RHUs, district hospitals, province hospitals in Eastern Samar, Leyte, Samar, and Northern Samar, and the apex hospital in Eastern Visayas.

Three key stakeholder groups were purposively selected for the qualitative component of the study and were contacted via phone calls and in-person meetings.

1. Decision-makers, defined as individuals holding strategic and operational leadership roles, including municipal health officers, hospital chiefs, program coordinators, and unit heads;
2. Health personnel directly involved in maternal and newborn care, such as doctors, nurses, and midwives; and
3. Service users (mothers) who had recently accessed services, to represent patient experience. Mothers were identified through local health facility record and community health workers. Selection considered residence in a geographically isolated and disadvantaged area (GIDA), having experienced a complicated pregnancy, or being a member of an indigenous peoples' group. These interviews provided insights into patients' perspectives on accessibility, delays, and quality of care during referral.

Data Collection

Data were collected from December 2023 to March 2024, using both quantitative and qualitative tools. For the quantitative component, a structured health facility checklist was developed based on the Referral System Assessment and Monitoring Toolkit[17] as well as the guidelines under AO 2020-0019 on HCPN service delivery design. This tool captured information on health facility licensing and accreditation, service capability, referral protocols, referral system infrastructure (e.g., communication tools, focal person, patient tracking mechanism), and transport availability. The checklist was reviewed by public health experts and refined through a pilot test conducted in a non-study municipality to ensure relevance and clarity.

For qualitative component, semi-structured interview schedules for KIIs and guide questions for FGDs were developed and pilot-tested to capture stakeholder insights on referral system functionality, implementation of HCPN guidelines, and over-all service delivery experience. Moreover, KII interview schedule for service users were translated into local language and pre-tested to ensure cultural and linguistic appropriateness.

Except for one interview of decision-maker, all KIIs and FGDs were conducted in person. Interviews with decision-makers, FGDs with health workers, and interviews with mothers were facilitated by the researchers. All sessions were audio-recorded with consent, transcribed verbatim, and translated into English when needed. Supporting documents (e.g., referral logs, protocols, accreditation documents) were also reviewed to validate findings and reduce reporting bias.

Data Analysis

Quantitative data from the facility checklists were cleaned, encoded, and analyzed using descriptive statistics to summarize the level of compliance with HCPN guidelines across the study municipalities and facility types.

Qualitative data from KIIs and FGDs were transcribed and analyzed using Braun and Clarke's reflexive thematic analysis approach.[18] Firstly, the research team transcribed the interviews and focus group discussions verbatim. The team read and re-read the transcripts and field notes, took note of initial ideas, and underlined the transcripts' key statements, phrases, sentences, and paragraphs. Secondly, the transcripts underwent a coding process. Codes in the form of words or phrases were used to highlight words, phrases, sentences, or paragraphs that will encapsulate key ideas and narratives. Line-by-line open coding was used to determine initial categories or subcategories. After coding all the data, data that were identified with similar code/s will be grouped. Transcript lines, sentences, and paragraphs were reviewed and matched with field notes to look for patterns. Thirdly, the codes were organized and reorganized under themes and then merged into groups of individual or collective themes. Fourthly, themes were reviewed and revised for internal consistency and relevance to the study objectives. Lastly, themes were contextualized based on the integrated care framework (policy, operational, cross-cutting levers) to derive policy and practice implications. Data triangulation across facility records, interviews, and FGDs allowed for validation and reinforced the trustworthiness of findings.

Ethics Statement

Participants read, signed, and were provided with a copy of their Informed Consent Form (ICF). The study protocol was reviewed and approved by the University of the Philippines Manila Research Ethics Board (UPMREB) Review Panel 2 with UPMREB code 2024-0361-01 last August 13, 2024.

RESULTS

Study Sites and Participants

The study assessed the compliance of 26 of the 28 target health facilities (93%) in KOICA project sites. These include 16 RHUs; six district hospitals; three provincial hospitals; and one apex hospital across Leyte, Western Samar, Eastern Samar, and Northern Samar. One district hospital and one provincial hospital were unable to provide the complete facility information by the end of the study.

A total of 176 out of 182 target participants (97%) were engaged, comprising 23 decision-makers (e.g., municipal health officers, hospital chiefs), 113 health personnel (mostly nurses and midwives), and 40 mothers residing in GIDAs or with high-risk pregnancies. All targeted respondents were interviewed, except for six decision-makers who were unavailable despite multiple follow-up attempts. Nonetheless, data saturation was achieved through the perspectives of those who participated. The majority were female: 79.3% of decision-makers, 90.3% of health personnel, and all patient participants. Ages among decision-makers ranged from 33-64 years; health personnel age ranged from 26-61; while mothers' ages ranged from 14 to 43 years. Study participants read and signed the informed consent before they participated in the study.

Compliance of Study Sites with HCPN

The DOH Administrative Order 2020-0019 provided guidance in organizing service delivery through Health Care Provider Networks (HCPN) by setting the standards and requirements for integrating health facilities to ensure a continuum of care. The compliance of study sites with the requirements are organized and analyzed using the three-lever framework.

Policy Levers

These pertain to governance, regulation, and financing mechanisms that establish the enabling environment for integration.

Licensed and Accredited Health Facilities

Compliance with facility licensing[19,20] and PhilHealth accreditation – the foundational requirements of HCPNs – was uneven across study sites. Compliance among study Rural Health Units (RHUs) is variable. Leyte has the highest RHU compliance, with all units licensed and 75% accredited. Western Samar and Northern Samar each have 75% of RHUs licensed, but Western Samar lags in accreditation (25%) compared to Northern Samar (75%). Eastern Samar shows the poorest performance, with none of its RHUs licensed or accredited. These findings highlight disparities in the availability of licensed and reimbursable primary care services, particularly in Eastern Samar.

In addition, there are instances where an RHU, even without a license, needed to deliver pregnancies.

> *"Although [the] RHU is not a licensed birthing facility, there are cases wherein they have no choice but to deliver pregnancies particularly those that are crowning already, since it might be unsafe to transport/ transfer these mothers to other facilities." – Municipal Health Officer*

In contrast, the licensing and accreditation status of study hospitals shows consistent compliance across all four provinces, with all facilities fully licensed by the DOH and accredited by PhilHealth. However, most district hospitals were categorized as infirmaries in their license, falling short of their expected service level of Basic Emergency Obstetric and Newborn Care (BEmONC). Moreover, 75% of provincial hospitals are licensed as Level 1 facilities, which do not have the capability to provide Comprehensive Emergency Obstetric and Newborn Care (CEmONC) services.

> *"Our (provincial hospital) is a level-1 hospital with 50 beds, yet they handle 100-150 cases as there should be no refusal of patients (especially high-risk pregnant cases and newborns. (The hospital) has no NICU, so if there is a referral for premature babies, they will then refer immediately to a higher facility (usually to a level-3 government hospital)." – Hospital Chief*

Public Health Unit in Hospitals

All participating hospitals reported having PHUs as required by AO 2020-0019. These units are crucial for linking clinical care with population-level health services and referral back to primary care. However, the study did not assess the extent to which PHUs fulfilled their mandated functions, leaving a gap in evaluating their actual role in referral coordination and surveillance.

Network-wide Health Facility Operations

Administrative Order (AO) 2020-0019 emphasizes the need for standardized operations across HCPNs, covering financing, capital assets, supply chain, health human resources, patient safety, and performance management. However, findings from the study sites indicate limited progress in operational integration among study LGUs in Eastern Visayas. Across the provinces, Inter-Local Health Zones (ILHZs), pre-UHC governance structures for inter-municipality coordination, provides the structural mechanism for collaboration among local governments. Some ILHZs, particularly in Leyte, were described as "very functional." Some ILHZs were described to be 'functional' wherein regular meetings among local chief executives and stakeholders were conducted and health-related decisions were made about catchment areas.

> *"The Inter-Local Health Zone/ILHZ in [Local Government Unit (LGU) name omitted] is very functional, and has quarterly meetings. Both technical and political committees are active, as meetings are attended by [the] Mayor, SB [Sangguniang Barangay]*

Table 1. Comparison of AO 2020-0019 Policy Lever Requirements with Observed Implementation in Study Sites

AO 2020-0019 Guideline	Stipulated Guideline	Observation in Study Sites
Licensed and Accredited Health Facilities	All public and private facilities in the network shall be licensed by DOH and accredited by PhilHealth.	Most RHUs in Leyte, Western Samar, and Northern Samar are licensed; Eastern Samar RHUs are not. Hospital compliance is universal across provinces, but many district hospitals are licensed only as infirmaries, falling short of the expected BEmONC capacity. Provincial hospitals are mostly Level 1 and lack full CEmONC capability.
Public Health Units (PHU) in Hospitals	All hospitals shall have a PHU to facilitate population-based health services and patient navigation.	All study hospitals reported having PHUs. However, the study did not assess whether these units fulfilled their mandated public health and referral coordination functions.
Network-wide Health Facility Operations	HCPNs shall standardize facility operations across facilities, including financing, supply chain, HR, patient safety, and satisfaction.	Pooling of funds reported in functional ILHZs (e.g., Leyte), but limited evidence of broader operational integration. No unified procurement systems or network-led morbidity/mortality reviews. Fragmented referral agreements and MOAs remain a challenge. Political misalignment also impedes unified implementation.

on health, doctors, and provincial representatives." – Municipal Health Officer

"For the ILHZ common/trust fund, it is maximized as all LGUs including the provincial level have contributions, and the chiefs of hospitals are transparent in presenting financial statements/utilization of funds. The said funds are allocated for all patients to ensure free services and supplies." – Municipal Health Officer

While pooled funding was reported in some Inter-Local Health Zones (ILHZs), no other standardized network-wide mechanisms were observed to impact the efficiency and effectiveness of the referral system. For instance, procurement of medicines and supplies is still conducted independently by each LGU, with no unified supply chain or price structures in place. Moreover, no reported morbidity and mortality reviews were conducted at the network level, contrary to the AO's mandate to evaluate outcomes and appropriateness of referrals. This fragmentation reflects gaps in implementing a unified operations framework within the HCPNs.

Qualitative data from key informant interviews reveal both administrative and political challenges to network-wide operations. For instance, while agreements exist within some ILHZs to facilitate referrals, including the use of standardized referral forms, these are inconsistently applied and are not institutionalized at the provincial level. One municipal health officer (MHO) explained that although a province-wide referral manual exists, separate memoranda of agreement (MOAs) must still be crafted with individual facilities:

In terms of leadership and governance of UHC-mandated HCPNs, interviews with decision-makers suggest recognition and understanding of the intentions of organizing networks under UHC, but with little progress in implementation.

"Before, there was a signed MOA [Memorandum of Agreement] but as of now, a new MOA has not been developed yet." – Municipal Health Officer

"Local chief executives have concerns or several questions on the pooling of resources/funding – for mayors 'not aligned' with the Governor, it might be difficult to resolve where to source needed funds. As of now, there is a draft MOA given to the mayor for further review, but it is unsure if all mayors in the province have been called to discuss this. For mayors in the same alliance with the Governor, there are also no signed agreements yet." – Municipal Health Officer

Table 1 summarizes the requirements from the HCPN guidelines that represent policy levers, compared with key observations from the study.

Operational Levers

These involve the actual delivery of services and functioning of the referral network within the HCPNs.

Service Capability Profiling

Service capability profiling under AO 2020-0019 requires all HCPNs to regularly assess and update information on services, workforce, equipment, and infrastructure across their facilities. This includes mandatory annual facility profiling in compliance with DOH and PhilHealth standards, and the creation of accessible directories detailing available services and facility locations. HCPNs must also strive to meet geographic access standards, ensuring primary care is reachable within 30 minutes and hospital services within one hour of travel. Compliance with service capability profiling requirements varied across the provinces. In Western Samar, all study facilities (100%) had both a posted list of services and a directory with a map of health facilities within the Inter-Local Health Zone (ILHZ). Leyte also showed full compliance in mapping (100%) and 66.7% compliance in posting services. In contrast, Eastern Samar exhibited the lowest compliance, with only 28.6% of facilities posting a list of services and none displaying a facility directory or map. Northern Samar showed relatively strong performance, with 85.7% of facilities posting services and 57.1% displaying a

directory and map. These findings suggest persistent gaps in transparency and health system navigation tools, particularly in Eastern Samar.

Accessibility, as defined in AO 2020-0019, pertains to the ease of reaching referral facilities in terms of travel time and distance. The study revealed stark geographic disparities across the provinces. Only Leyte's provincial hospital met the guideline of being within one hour of the apex hospital, Eastern Visayas Medical Center (EVMC), with an 18-minute travel time. In contrast, travel to EVMC from Western, Eastern, and Northern Samar ranged from nearly 2 to 5 hours. These barriers were particularly acute in GIDAs, which were prevalent in Northern and Western Samar, with up to 30% of barangays affected. In some GIDA barangays, patients walked for several hours to access care, with one case involving an under-five death after an eight-hour walk from a conflict-affected area. Poor road infrastructure, lack of transport, and safety concerns were cited as key obstacles to timely referrals.

> *"RHU has challenges on GIDA barangays...last quarter, there was an under-5 death in an area that is eight hours away from RHU via walking. When the child was sick, the family did not go immediately to RHU; also, the barangay officials of that said area were not [safe] to reside in the GIDA area due to NPA [New People's Army] concerns and armed conflict. Barangay health workers also reside in 'proper' or 'poblacion.' As such, there was no referral or encouragement (to go to RHU) from the barangay-level." – Municipal Health Officer*

Nonetheless, some municipalities reported improvements, such as the construction of roads and LGU-supported halfway houses, which helped reduce home deliveries and improved access from remote communities.

> *"…The travel to said district hospital is difficult if the patient is not ambulatory because he/she needs to cross a river. While going to the provincial hospital, it takes two hours, and before, there were two rivers that had to be crossed, but now, a road has been opened, so it is more accessible." – Municipal Health Officer*

> *"Home deliveries in the municipality have decreased because of an existing ordinance. There is also a halfway house newly established by LGU in [area omitted], the closest barangay accessible to most far-flung areas." – FGD with nurses and midwives*

HCPN is mandated to establish a functional referral system anchored in effective primary care navigation. This includes developing localized referral protocols based on clinical practice guidelines that reflect local realities, such as road access, transportation options, and health workforce availability. Standardized tools must be used, including SBAR communication, uniform referral and back-referral forms, and ideally a centralized call or chat hotline with GIS capability aligned with EO 56 (Emergency 911). To support seamless care coordination, interoperable electronic medical records (EMRs) must be in place across all facilities, enabling real-time sharing of patient data. Additionally, adequate ambulance and transport services should be ensured to meet the referral needs of the catchment population.

Most study facilities demonstrated high levels of compliance with key elements of primary care-based referral coordination. First, all provinces reported having referral protocols consistent with national guidelines, with compliance ranging from 83.3% in Leyte to 100% in Western Samar, Eastern Samar, and Northern Samar. Second, 60% to 90% of study health facilities across the region have clinical practice guidelines related to maternal, newborn and child health, including guidance on essential intrapartum care, essential newborn care, and adverse events following immunization. Third, ambulance or transport vehicle availability was also high across study sites, with full availability reported in Western Samar and Northern Samar. Eastern Samar had slightly lower coverage (85.7%) due to one facility lacking a transport vehicle. Fourth, all facilities reported access to basic communication tools (e.g., phones, radios), enabling contact between referring and receiving facilities. Lastly, local call centers or emergency hotlines, intended to facilitate timely coordination especially during emergencies, were in place in most study areas. Western Samar had full compliance (100%), followed by Leyte and Northern Samar (83.3% and 85.7%, respectively). Eastern Samar also reported 100% compliance.

Despite having referral protocols, however, consistent use of standard communication tools for patient endorsements—such as the SBAR format—was notably lower. Only Leyte reported 66.7% usage, while Western Samar reported 50%, and both Eastern and Northern Samar reported only 14.3% usage. Moreover, execution of referrals within ILHZs has been varied and based on previous referral agreements and not updated for UHC-mandated HCPNs. While standards in essential intrapartum and newborn care are available in many study facilities, it is unclear whether health providers are using these within the referral system. There are also no mechanisms to regularly monitor compliance with the CPGs.

> *"The referral system is not properly implemented, as there are times that RHU do not call the hospital first, or they call when a patient is already on the way. Also, PHNs [Public Health Nurses] are just the ones who man the RHU, or at nighttime, the personnel on duty are not oriented on how to refer patients." – Hospital Chief*

> *"The referral starts at the barangay, then to the RHU, going to the district hospital, which will refer to "(provincial hospital)"; however, this flow is not always followed as there are patients in the barangay who go directly to the district hospital (not seen in RHU), or to the provincial hospital since it is more accessible." – Municipal Health Officer*

Completing Service Capability through Partnerships

To bridge service delivery gaps within HCPNs, DOH allows establishment of formal partnerships with other health facilities—public or private—through contractual arrangements. Such collaborations enable HCPNs to complement their service capability, particularly in areas where specific services, infrastructure, or expertise are lacking. These mechanisms are intended to promote sustainable and efficient health service delivery across the network.

The presence of formal referral agreements, such as Memoranda of Agreement (MOA) or Understanding (MOU), varied across the study provinces. All study facilities in Western Samar and Northern Samar reported having established MOAs or MOUs with partner facilities for referral purposes, reflecting full compliance (100%). In Leyte, approximately two-thirds (66.7%) of facilities had such agreements in place, with 75% of RHUs and 50% of hospitals reporting a referral MOA/MOU. Eastern Samar showed the lowest level of compliance, with only 50% of RHUs and none of the hospitals having formal referral agreements, resulting in an overall compliance of just 28.6%. These findings suggest that while some provinces have institutionalized referral partnerships, others—particularly Eastern Samar—lag in formalizing inter-facility referral arrangements, potentially weakening the effectiveness of coordinated care within the HCPN framework.

> *"There is an ongoing MOA with OB [Obstetrics] and Pedia [Pediatrics] in the district hospital. There is also an existing MOA with a doctor who is BEmONC-trained (MHO in adjacent municipality, [LGU name omitted]), for licensing/compliance purposes." – Municipal Health Officer*

> *"There is a MOA for ultrasound scans, and for transport, the captain in [LGU name omitted] provided a 'sampan' [flat-bottomed wooden boat] so all deliveries could be transferred, but this was donated to [LGU name and hospital name omitted]; as such, it can no longer be used by RHU. It was donated because RHU has a way going to [LGU name omitted], unlike in [LGU name omitted], which is more distant." – FGD with nurses and midwives*

Linkage of HCPNs to Apex Hospitals

Apex hospitals, as designated by DOH, serve as end-referral facilities within HCPNs. They are mandated to provide performance mentoring and technical assistance to network members in areas of quality and efficient clinical services, training of health personnel, referral system functionality, and operations research. In Eastern Visayas, the EVMC currently functions as the primary apex hospital and receives referral across the region. However, due to limited capacity among provincial hospitals – only one of four is licensed as a Level 2 facility – EVMC often receives cases that could otherwise be managed at the secondary level. This places additional burden on the apex hospital and reflects a gap in service capability distribution within the HCPN.

> *"Our Provincial Hospital is a Level 1 hospital with 50 beds, yet we handle 100–150 cases as there should be no refusal of patients, especially high-risk pregnant cases and newborns. (The hospital) has no NICU, so if there is a referral for premature babies, they will then refer immediately to a higher facility, usually EVMC since [it is a] level-3 hospital." – Hospital Chief*

Table 2 provides an overview of the requirements from the HCPN guidelines that represent operational levers, compared with key observations from the study.

Cross-cutting Levers

These are systems that support integration across all levels of care within HCPNs.

Functional and Certified Electronic Medical Records

AO 2020-0019 mandates an interoperable patient record management system across all HCPN member facilities to enable real-time information-sharing. The presence of health information systems across the study sites was uneven, reflecting significant gaps in the functionality and certification of electronic medical records (EMRs) within the HCPNs. Overall, only 57.1% of facilities (16 RHUs and 10 hospitals) had a functioning EMR, and of these, 35% were certified by DOH. Western Samar and Leyte reported the highest proportion of functional EMRs at 66.7%, although many of these were not DOH-certified. Eastern Samar had the lowest coverage, with only 42.9% of facilities using EMRs and most still relying on manual systems. In Northern Samar, while 57.1% of facilities reported having EMRs, one RHU indicated that its EMR was non-functional, highlighting issues not just of adoption but of operational reliability.

> *"The RHU has no EMR, and data is recorded on paper forms. Communication is done verbally, or letters are sent to barangays with no internet signal (especially in GIDA, it takes days to reach patients). For barangays with Wi-Fi signals, the personnel can chat with patients online." – FGD with nurses and midwives*

> *"The referral system in the hospital is done manually in a logbook, and copies of referral forms are filed (return slip is not accomplished most of the time, and only acknowledgment receipt to the driver is given). Medical records are also kept manually." – Hospital Chief*

Standard Processes of Communication

All study sites demonstrated full compliance in establishing communication facilities essential for referrals, including standard referral forms, landlines, mobile phones, or two-way radios. Every RHU and hospital surveyed in the four provinces reported having functional communication equipment in place, aligning with the HCPN guideline

Table 2. Comparison of AO 2020-0019 Operational Lever Requirements with Observed Implementation in Study Sites

AO 2020-0019 Guideline	Stipulated Guideline	Observation in Study Sites
Service Capability Profiling (includes accessibility)	All HCPNs shall determine and continuously monitor the services, human resources, equipment, and infrastructure of all its health facilities. Each facility must post a list of services and a directory of HCPNs. The catchment population should have access to a primary care facility within thirty (30) minutes and to a hospital within one (1) hour.	Western Samar had full compliance (100%) for both posting services and facility maps. Leyte met mapping requirements (100%) and had 66.7% of facilities posting services. Northern Samar showed moderate compliance (85.7% posting; 57.1% mapping). Eastern Samar had the lowest compliance (28.6% posting; 0% mapping). Only Leyte's provincial hospital was within 30 minutes of the apex hospital (EVMC). Other provinces had travel times ranging from 2 to 5 hours. GIDA barangays in Western and Northern Samar study municipalities (24-30%) posed additional access barriers.
Primary Care Coordination (includes referrals, communication tools, transport, and call hotlines)	HCPNs shall establish a functional referral system rooted in effective primary care navigation. This includes localized referral protocols, use of standardized tools (e.g., SBAR, referral/back-referral forms), emergency hotlines, and availability of ambulances and transport vehicles.	All provinces had referral protocols (83–100% compliance). All facilities had communication tools (100%) and referral/back-referral forms. Use of endorsement tools (SBAR) was inconsistent: 14.3% in Eastern and Northern Samar, 50% in Western Samar, 66.7% in Leyte. Local emergency hotlines were present in most provinces (83.3–100%). Transport vehicles were widely available in Western and Northern Samar (100%), slightly lower in Eastern Samar (85.7%), and Leyte (83.3%). However, maintenance issues and fuel constraints were reported.
Completing Service Capability through Partnerships	HCPNs may formalize service delivery partnerships via MOAs/MOUs with other public or private facilities to complete or enhance service provision.	Western Samar and Northern Samar achieved full compliance (100% of facilities with MOA/MOU). Leyte had 66.7% of facilities with formal referral agreements. Eastern Samar lagged behind, with only 28.6% of facilities having MOAs/MOUs (50% of RHUs; none among hospitals).
Linkage of HCPNs to Apex Hospitals	Apex hospitals, designated by DOH, must serve as end-referral facilities and support HCPNs through technical assistance, mentoring, and specialized services.	EVMC serves as the apex hospital for all study provinces. Due to only 1 of 4 provincial hospitals being Level 2, EVMC receives many cases that should be managed at the secondary level, indicating a service capacity gap in lower-level hospitals.

to support real-time coordination between referring and receiving facilities.

However, compliance with the use of standardized tools for endorsement—such as the SBAR (Situation, Background, Assessment, Recommendation) communication format—was more varied. Only 66.7% of Leyte's facilities and 50% of Western Samar's reported using endorsement tools. In Eastern Samar, compliance was inconsistent: while all three hospitals used SBAR or similar tools, only one of the four RHUs did so. Northern Samar had the lowest RHU compliance, with none of the four RHUs using endorsement tools, and only one of the three hospitals reporting use (33.3%).

Local emergency call centers or hotlines, which are vital for timely response during emergency referrals, were widely present. All facilities in Western and Eastern Samar reported having operational call centers. Leyte and Northern Samar showed slightly lower coverage: one RHU in Leyte and one hospital in Northern Samar lacked a dedicated hotline.

These findings suggest that while communication infrastructure and documentation tools are largely in place, the actual use of standard endorsement tools remains weak, especially in Northern Samar and among RHUs in Eastern Samar and Western Samar. This gap in protocol adherence could undermine the effectiveness of referrals, particularly in urgent or complex cases, and warrants targeted improvement efforts in provider orientation and system monitoring.

> *"The referral system in the hospital is done manually in (the) logbook, and copies of referral forms are filed (return slip is not accomplished most of the time, and only acknowledgement receipt to driver is given)."* – *Hospital Chief*

> *"Since the start of the pandemic, there has been an innovation in Eastern Samar, wherein a referral template is sent by RHUs/MHOs or district hospitals to a hotline. A text message is preferred for use since not all areas have a good internet signal (at least 'yung text mabilis') [SMS is faster], which is the patient's information. When "[the hospital] receives this message, they do an assessment and then call the referrer if clarification is needed. If the patient can be handled by "[hospital name omitted], the referral will then be accepted."* – *Hospital Chief*

Network-wide Performance Management

In accordance with AO 2020-0019, HCPNs are expected to implement a network-wide performance management system to ensure the delivery of quality, efficient, and effective health services across all member facilities. This includes mechanisms for monitoring service performance, adherence to standards of care, and continuous quality improvement across the network. However, no formal or integrated performance management systems were reported across the study provinces, beyond existing pooled financing

Table 3. Comparison of AO 2020-0019 Cross-cutting Lever Requirements with Observed Implementation in Study Sites

AO 2020-0019 Guideline	Stipulated Guideline	Observation in Study Sites
Functional and Certified Electronic Medical Records	HCPNs shall have a patient record management system with an interoperable electronic medical record in all member health facilities, capable of real-time information-sharing.	EMR functionality and certification varied across provinces. While 57.1% of facilities had functioning EMRs, only 35% were DOH-certified. Western Samar and Leyte had the highest rates (66.7%) of functional EMRs, though many were uncertified. Eastern Samar had the lowest coverage (42.9%), with most facilities still using manual systems. In Northern Samar, one EMR was reported non-functional. While facilities report having functional EMRs, its use is limited in the health facility.
Standard Processes of Communication	HCPNs shall standardize the process of communication, including communication facilities, tools for endorsements (e.g., SBAR), uniform referral forms, and local call/chat hotlines.	All provinces had 100% compliance in communication facilities and referral forms. However, endorsement tool usage was inconsistent: Leyte (66.7%), Western Samar (50%), Eastern Samar (hospitals only), and Northern Samar (33.3% hospital use; 0% RHUs). Local emergency hotlines were present in all sites except one RHU in Leyte and one hospital in Northern Samar.
Network-wide Performance Management	HCPNs shall ensure quality, efficient, and effective services across health facilities through performance management systems.	No formal, network-wide performance management systems were implemented. Efforts remain facility-based and fragmented. A promising but localized practice was pregnancy tracking, which helped identify and monitor high-risk pregnancies. However, the absence of organized community health teams hindered consistent implementation across the provinces.

mechanisms through the ILHZs. Performance monitoring and quality assurance efforts remain largely facility-based and fragmented, lacking coordination across the HCPN.

One notable practice, albeit localized, was the use of pregnancy tracking systems by several municipalities. Led by midwives and barangay health workers (BHWs), this mechanism enabled the identification and monitoring of high-risk pregnancies at the community level. Health workers emphasized the value of these systems in improving maternal health outcomes by ensuring early detection of complications, promoting timely prenatal visits, and facilitating referrals when needed.

> *"The MHO cites that, at present, there is more active pregnancy tracking or counseling by midwives and barangay health workers (BHWs) (1 BHW:20 households) here in [LGU name omitted]. And if there is a pregnant woman, this is immediately reported to RHU. Currently, there are nine barangay health stations, nine BHWs, and two midwives in the mainland center. Upstream and island barangays are clustered, while GIDA consists of upland and island barangays (with health stations; about 4–5 catchment barangays per cluster)." – Municipal Health Officer*

> *"We are able to determine and monitor our pregnant women through our pregnancy tracking system here in [LGU name omitted]. Barangay health workers and midwives in their respective areas ensure that these women are given proper education, reminded about their prenatal schedule, and frequently monitored for any danger signs." – FGD with nurses and midwives*

Despite this promising approach, its implementation was uneven. The lack of trained and organized Community Health Teams in many areas was cited as a key constraint to its wider adoption and sustainability.

Table 3 provides an overview of the requirements from the HCPN guidelines that represent cross-cutting levers, compared with key observations from the study.

DISCUSSION

This study assessed the extent to which 16 municipalities in four provinces in Eastern Visayas have implemented the referral system design under DOH Administrative Order 2020-0019, focusing on maternal and newborn care within the Health Care Provider Network (HCPN) framework. Using the three-lever model for integrated care—policy, operational, and cross-cutting—as outlined by La Forgia et al.,[14] the analysis combined document review, facility profiling, and stakeholder insights. Findings revealed critical implementation gaps across all three levers. While most municipalities demonstrated progress in licensing and network formation, significant disparities persist in service capability, referral coordination, and transport access. Additionally, the absence of standardized electronic medical records, weak inter-facility communication, and lack of shared performance indicators continue to undermine effective integration. These gaps suggest that while foundational structures are in place, HCPN functionality remains limited, requiring policy reinforcement, operational alignment, and improved system-wide enablers to fully realize the goals of Universal Health Care.

Maternal and infant deaths remain a pressing issue in the region, with increasing infant mortality rates from 2018-

2022. Northern Samar reported the highest maternal deaths, with four study municipalities accounting for nearly all provincial maternal deaths in 2020 and 2021.[16] Preventable with early detection and timely care, these deaths highlight the urgency of a functional referral system rooted in primary care coordination.

Policy Levers

The policy levers of integrated care—facility regulation, financing mechanisms, and cooperative governance—are foundational in operationalizing health referral systems under AO 2020-0019.[13] While licensing and accreditation are formal requirements to ensure safety and quality,[19-21] this study highlights a disparity between formal compliance and actual capacity. Most RHUs in Leyte, Western Samar, and Northern Samar were both licensed and accredited, unlike their Eastern Samar counterparts, which lacked both credentials. Without licensing and accreditation, RHUs in Eastern Samar cannot guarantee the quality of normal spontaneous deliveries, nor can they secure PhilHealth reimbursement—unless these services are accessed through private providers. Moreover, a differences-in-differences study in 2020 showed that accreditation had a direct effect on outcomes related to maternal health, child health, and family planning by ensuring that services are sufficient and of quality.[22] While hospitals across the study sites were technically accredited, many district hospitals were classified as infirmaries and most provincial hospitals as Level 1. These designations limit their capacity to provide essential maternal services such as Basic Emergency Obstetric and Newborn Care (BEmONC) and Comprehensive Emergency Obstetric and Newborn Care (CEmONC), respectively. Globally, increasing the use of skilled birth attendants and ensuring timely access to Emergency Obstetric and Newborn Care (EmONC) services are recognized as key strategies in reducing preventable maternal and neonatal mortality.[23, 24]

The HCPN guidelines emphasize full licensing and accreditation of health facilities, according to their category, to ensure the delivery of safe and quality care.[13] Corresponding supply-side investments in infrastructure, health personnel, supplies, and commodities are needed to meet these standards. Related to these investments is the establishment of network-wide facility operations that harmonize management and governance over funds, human resources, supply chains, and capital assets. While the LGUs are now receiving higher share of national revenues through the National Tax Allotment (NTA)[25,26] and whose mandate to allocate adequate financial resources has been reiterated,[27] DOH continues to support capital investments in LGUs[28] especially in areas like Eastern Visayas where there is high need to improve health facilities especially in GIDA areas vis-à-vis the low capacity of local government units to invest by themselves.

The implementation of ILHZs in the study sites before the enactment of UHC law provided a mechanism for pooled financing through common trust funds among LGUs. These pooled funds were generally used for patient services. However, usage and sustainability were inconsistent, heavily influenced by the political alignment of local chief executives and the lack of updated MOAs, which are recurring observations regarding the effectiveness and sustainability of ILHZ.[29,30] Additionally, procurement, supply chain, and human resource management remained fragmented, as LGUs individually handled these functions, undermining efficiency and quality.[13] Many MOAs governing these partnerships were outdated or unrenewed, undermining formal governance arrangements for referrals.[11] The AO emphasizes network-wide operational alignment and cooperative governance,[13,31] which remain underdeveloped in the region.

Stakeholder interviews echoed these gaps, citing limitations in hospital bed capacity, equipment, and trained personnel. These deficiencies were commonly attributed to inadequate LGU investment, driven by fiscal constraints and fragmented leadership across local governments.[29] This further weakened the foundations for integrated care, highlighting the urgent need for coordinated governance and targeted investments. As such, these stakeholder perspectives reinforce and contextualize the observed compliance gaps discussed above.

Operational levers

Operational levers support actual service provision such as health services and commodities, provider-to-provider interactions, and clinical practices. For this study, service capability profiling and partnerships, referral mechanisms, availability of transport vehicles, and linkage of HCPNs to an apex hospital were analyzed.

Mapping of services by health facilities play a crucial role in identifying what they can deliver to constituents, and linking them to other facilities should the need arise. It also provides a basis of linkage with the apex hospital. In this study, services were identified and listed by most study facilities (except for Eastern Samar). However, there is no network-wide monitoring and analysis of service capabilities. Further, analysis of spatial arrangements of all health facilities in a certain area would also facilitate proper referral flows. Service mapping is recognized globally as a critical strategy in building responsive referral networks, particularly in resource-constrained settings.[24] Studies have shown that geographic and service capability mapping enhances coordination, ensures efficient allocation of scarce resources, and informs referral pathway design.[23] Without such mapping, referral inefficiencies and mismatches between patient needs and facility capacities often persist.[32]

Study sites have individually fortified partnerships with other facilities to complement service capabilities. This suggests that provinces recognize current shortfalls in providing needed services for constituents. Health officers in some municipalities described successful collaborations with tertiary hospitals, which improved referral efficiency and maternal health outcomes. Capacities on following legal

frameworks and policies for partnership with private facilities may have to be explored to further increase service capabilities. WHO underscores that effective local arrangements are a critical quality standard for referral systems, ensuring that women and newborns who require higher levels of care are referred promptly—24 hours a day, seven days a week—without unnecessary delays, regardless of facility capacity.[32]

In terms of transportation of people to and across facilities, the study found that moving patients was a challenge, they are either compelled to travel using unsafe public transportation or some may need to pay for fuel for the hospital ambulance. Other healthcare providers would use their own money to be able to transfer patients to another facility. In literature, this was found to result in health providers' hesitance to refer women to adequate care.[33] The lack of reliable transportation in the event of obstetric and neonatal emergency may contribute to increased maternal and newborn deaths. Moreover, WHO estimated that 70% of maternal deaths and 85% of neonatal deaths are caused by complications that can otherwise be prevented or treated through timely access to childbirth-related care.[32]

EVMC acts as an end-referral facility as the designated apex hospital in the region, but only Leyte has a study hospital that is accessible to EVMC. According to the AO, apex hospitals shall be linked to HCPNs and shall deliver specialty healthcare services not expected to be provided in HCPNs.[13] However, EVMC also receives cases that should be addressed at Level 2 hospitals. Given that only one of four provincial hospitals met the capability of a Level 2 hospital, EVMC is burdened with managing cases that ideally should be handled in lower-level health facilities.

Stakeholder perspectives reinforced the findings, underscoring systemic limitations in service capability, referral coordination, and transport availability. In several instances, district hospitals were reportedly bypassed due to inadequate capacity to handle even basic obstetric emergencies. Referral protocols were inconsistently followed, often reduced to verbal or text-based communication due to insufficient training and unclear workflows. In GIDAs, the absence of reliable transport further delayed access to urgent care. These firsthand accounts highlight the operational fragmentation and underscore the pressing need to strengthen frontline services and formalize referral processes within the HCPN framework.

Cross-cutting levers

Cross-cutting levers enhance delivery through tools such as information and communication technologies (ICTs) and performance monitoring systems. This study analyzed the availability and functionality of electronic medical records (EMRs), communication processes for referrals, and network-wide performance management.

ICTs, particularly EMRs, play a crucial role in facilitating interoperability and data sharing across health facilities. Nine of 16 municipalities had a functional EMR system, but only seven were certified by the DOH, which ensures compliance with national health data standards and reporting requirements.[34] Certified EMRs will allow integration into national reporting systems such as the Field Health Services Information System (FHSIS) and the Online Hospital Statistical Reporting System (OHSRS). However, several respondents cited challenges in using EMRs due to system inefficiencies and insufficient training, leading to difficulties in patient tracking and referral management.

The use of EMRs has been shown to enhance clinical efficiency, reduce medical errors, and support continuity of care through timely access to comprehensive patient information.[35,36] These systems can optimize consultations and follow-up care by allowing providers to address multiple health concerns based on accessible diagnostic and clinical data. Yet, in study sites, EMR usage remains inconsistent and fragmented across platforms—such as iClinicSys, CHITS, and paper-based records—hindering seamless patient referrals and data continuity across the network.

Pregnancy tracking, a potentially powerful tool for early risk detection at the barangay level, was notably absent in most study sites. This gap aligns with findings in similar studies that demonstrated that pregnancy surveillance is often neglected in low-resource settings despite its critical role in maternal health.[37-39] Community health worker programs and referral systems require reliable communication channels and consistent follow-up mechanisms, both of which were lacking in many municipalities.

Participants acknowledged the importance of inter-facility communication prior to patient transfers. However, mechanisms for sharing patient information—such as condition updates or feedback following referral—were either informal or absent. WHO recommends that all referrals be monitored regularly to inform improvements such as targeted training or adjustments in referral protocols.[40] Our findings echoed those in the literature, identifying weak feedback systems, minimal referral documentation, and poor use of communication technologies in referral coordination.[41,42] While tools like SMS, phone calls, or emails have been suggested to improve information flow, studies note that these solutions often remain impractical due to high patient volumes, limited staff, and technology costs—especially in rural settings.[43]

Beyond technological challenges, stakeholders also pointed to the absence of unified performance management systems as a major barrier to coordinated referral care. While some providers developed workarounds, such as SMS-based referral alerts, these lacked formal templates or training. The absence of shared performance metrics reinforces fragmented operations and underscores the need for coordinated oversight to achieve functional referral networks.

Provincial Context and Implications for HCPN Implementation

Variations in compliance with the AO across four provinces reflect both structural and contextual disparities.

Leyte's relative proximity to the apex hospital and relatively higher EMR certification rates facilitated more effective referral coordination. In contrast, Eastern Samar faced various barriers including geographic isolation, unlicensed RHUs, and the absence of certified EMRs. Northern Samar, which bore the highest maternal mortality burden, also reported gaps in provider training, further underscoring how limited resources and fragmented governance hinder HCPN implementation. These provincial distinctions emphasize the need for tailored implementation strategies that align with specific health system context of each locality.

Limitations

This study used the Referral Systems Assessment and Monitoring Toolkit and the HCPN guidelines to guide the development of data collection tools to reduce bias through structured and objective approach. While this approach helps minimize interview bias, social desirability bias remains a concern as participants may provide favorable responses due to the evaluative nature of the study. To mitigate this, researchers reviewed supporting documents to validate reported referral practices whenever feasible.

Another limitation is the relatively short implementation period between the issuance of the HCPN guidelines by the DOH and the conduct of this study, which may have affected the degree of compliance and system maturity observed. Moreover, ongoing reforms under the Universal Health Care Act of 2019 introduce further variability. The implementation of HCPNs and other UHC-mandated changes varies significantly across local government units, leading to inconsistencies in how referral systems and service delivery structures are developed and perceived. To address these limitations, the study employed a total enumeration approach across KOICA-supported municipalities to provide a more comprehensive and representative snapshot of the local referral landscape.

Lastly, differential support received by LGUs through public-private partnerships may influence service delivery capacity and referral practices. By focusing exclusively on municipalities supported by the KOICA MNCH Project, the study was able to control for some variability in external support. However, this limits the generalizability of findings to other municipalities in the region that do not benefit from similar programmatic investments. Despite this limitation, however, the study contributes valuable evidence on the operationalization of key elements of the UHC Act and the DOH guidelines for HCPN design and implementation.

CONCLUSION

This study underscores significant gaps in the operationalization of HCPNs in Eastern Visayas, particularly in maternal and newborn referral systems. Despite existing policies and guidelines under AO 2020-0019, inconsistencies in licensing, referral coordination, transport, and information systems undermine the delivery of integrated care. Provinces have made notable strides, such as forming partnerships and piloting electronic medical records, yet structural fragmentation, resource limitations, and weak performance monitoring persist.

Addressing these gaps requires harmonized investments in infrastructure, interoperable technologies, and capacity building, especially at the primary care level. Moreover, strengthening local governance mechanisms and revisiting devolution-related inefficiencies are crucial to achieving a responsive and equitable referral system. Stakeholder insights highlight the need for unified standards, improved communication across facilities, and collective accountability for health outcomes. These lessons can guide improvements in future phases of implementing the HCPN model and broader health system reforms aimed at improving maternal, newborn and child survival.

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All authors certified fulfillment of ICMJE authorship criteria.

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