



# Leaving No One Behind: The Role of Primary Care Provider Networks in Advancing Equitable Universal Health Coverage in the South Dayi and South Tongu Districts in Ghana

Technical Report

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## Abbreviations

CHPS	Community-based Health Planning and Services
COVID-19	coronavirus disease 2019
FGD	focus group discussion
IDI	in-depth interview
NGO	nongovernmental organization
NHIS	National Health Insurance Scheme
OR	odds ratio
PHC	primary health care
R4D	Results for Development
UHC	universal health coverage

## Executive Summary

### Background and Introduction

Equity in health means the absence of systematic disparities in health or in the major social determinants of health among people from different social and economic groups (Braveman and Gruskin 2003). Primary health care (PHC) builds a critical foundation for promoting equitable universal health coverage (UHC) and attends to the health and health care of the most disadvantaged (World Health Organization 2008b) in doing so. In Ghana, the PHC system is built around Community-based Health Planning and Services (CHPS) compounds and health centers. Despite progress in scaling up CHPS, providing effective PHC has been a challenge for Ghana, mainly because of systemic problems in health care delivery (Agbenyo et al. 2017; Awoonor-Williams et al. 2013; Ghana Ministry of Health et al. 2015). Primary care provider (PCP) networks were designed to address some of these challenges and establish a long-term PHC model that can sustain the delivery of equitable, affordable, and high-quality PHC services.

**Figure A** below describes the logic model for PCP network’s effect on equitable provision and use of health care services at the community level. Network practices are designed to increase service availability and quality at the community level. The expected equity benefits are the promotion of CHPS compounds as the first point of care among communities, minimization of referral costs, and alleviation of access barriers and opportunity cost to everyone, especially poorer households, those living in remote or hard-to-reach areas, and other vulnerable groups.

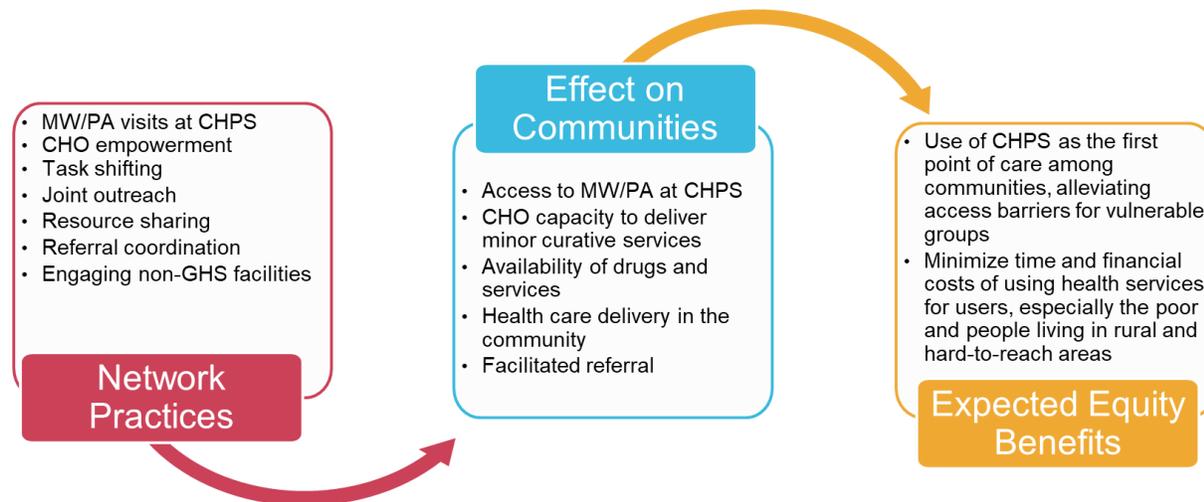


Figure A: Logic model of PCP network’s effect on equitable provision and use of health services at the community level

Note: CHO, community health officer; CHPS, Community-based Health Planning and Services; GHS, Ghana Health service; MW, midwife; PA, physician’s assistant

From 2020 to 2021 the Ghana Health Service, with support from the United States Agency for International Development and the Health Systems Strengthening Accelerator initiative,

conducted implementation research on the role PCP networks can play in advancing health equity in the communities they serve. This report presents the findings.

## Methodology

The Ghana Health Service selected the following research question in consultation with the research team and technical experts: *How can the PCP network model promote equitable access to and utilization of high-quality essential health services among vulnerable, underserved, and priority populations?*

The overall aim of the study was to generate actionable evidence and recommendations on the role the network model can play in ensuring the equitable provision and utilization of PHC services, especially as the Ghana Health Service embarks on the nationwide scale-up of the initiative. To achieve this aim, the study pursued the following specific objectives:

1. Examine the use of health services in PCP network catchment areas to identify existing inequities and the role of PCP networks in addressing them.
2. Identify factors that enable PCP networks to provide equitable services.
3. Identify factors that impede PCP networks from delivering equitable services and determine how these factors could be addressed.
4. Examine the role of nonpublic facilities and the stakeholder context in advancing equitable health care delivery.
5. Examine the policy environment for scaling up PCP networks in Ghana.

The research team employed mixed methods to account for the complexity and multifaceted nature of the research question and objectives (Tariq and Woodman 2013). The research team collected data in the South Dayi and South Tongu districts of the Volta Region of Ghana, where PCP networks were first piloted in 2017. The research team collected qualitative and quantitative data simultaneously but analyzed them separately to produce two separate sets of findings. The study prioritized three key equity variables—household wealth, gender, and location/distance from health facilities. At the end of the study, the research team held a cocreation workshop with PCP network practitioners and district, regional and national level managers to devise recommendations.

For the quantitative component of the study, 500 randomly selected households were surveyed in 10 enumeration areas. The households were divided into five wealth quintiles (poorest, second, third, fourth, and wealthiest quintiles) using the EquityTool, based on the Demographic and Health Surveys wealth index from the *Ghana Maternal Health Survey 2017* (Fry et al. 2014; Ghana Statistical Service et al. 2018). The households were also disaggregated by the sex of the household head and rural or urban location. Sixty percent of households were located in the rural areas. Of all households, 28.2% belonged to the poorest wealth quintile and 15.6% to the wealthiest. Significantly more households from rural areas fell in the bottom two wealth quintiles compared with urban ones.

STATA software version 14 (StataCorp LLC, College Station, TX, USA) was used for the statistical analysis. Categorical variables were cross tabulated to analyze relationships among respondents' characteristics and their responses. Chi-squared tests were used to investigate significant differences of all variables relative to household wealth status. Multivariate regression analysis was done to explore how different factors affected health service use.

For the qualitative component, 14 focus groups discussions (FGDs) with 134 total participants and 17 in-depth interviews (IDIs) were conducted in the local language (Ewe) and English. Participants were community members, PCP network members and leads, and managers from the district, regional, and national levels of the Ghana Health Service, Ministry of Health, and National Health Insurance Scheme (NHIS). Data collectors worked in pairs (groups of two) to collect data, and a field supervisor provided additional quality check and support. Interviews were conducted in English and Ewe. Two researchers led the analysis and ensured quality control. Thematic analysis was employed to identify emerging themes from the discussions and interviews. The Ghana Health Service Ethics Review Committee granted ethics approval for the study on September 8, 2020.

## Study Findings

### **Objective 1: Examine the use of health services in PCP network catchment areas to identify existing inequities and the role of PCP networks in addressing them**

Quantitative and qualitative approaches were used to achieve the first objective. Of the total 500 households selected for the quantitative survey, 34% reported that at least one household member had been ill in the four weeks preceding the survey. The following key equity-related findings emerged from the quantitative component of the study:

- The majority (88%) of households with a member who reported illness/injury in the four weeks preceding the survey sought care in a health care facility. No significant inequities emerged for this variable among female- and male-headed households and rural and urban households. Multivariate regression analysis showed that households from the wealthiest quintile were 1.4 times more likely to visit a facility than those from the poorest quintile, and those living less than 1 km from the facility were more than two times likelier to visit a health facility than those living more than 10 km away.
- Inequities emerged in the patterns of health service use: Wealthier and urban households patronized higher-levels facilities compared with poorer ones. More than 50% of those in the third to highest wealth quintiles sought health care from district-level facilities compared with 18% and 21% of those in the poorest and second quintiles. Of those in the poorest quintile, 93% would have preferred going to a district health facility.
- Almost half of those from rural households who sought care went to subdistrict facilities compared with 26% from urban households. The majority of urban households sought care in district hospitals (61%). All households that indicated using CHPS compounds were in rural areas.

- The majority of the respondents from the sample reported proximity to the facility (46.7%) as the main reason for using it. However, only 28% from the poorest wealth quintile indicated proximity as the main reason for choosing a facility, compared with 48% from the wealthiest quintile. Many respondents in both quintiles would have preferred to use a different facility than the one they accessed. Availability of modern facilities and good quality of care were the main reasons cited for this preference.
- Related to the point above, poorer and rural households reported traveling further to visit a facility: 48% of the wealthiest households traveled less than 1 km to access a facility, compared with about 20% of the poorest. Additionally, 41% of the poorest households traveled 1 to 5 km compared with 28% of the wealthiest. The results also showed that more urban households traveled less than 1 km to the health facilities than rural households (45% versus 21%). The majority of rural households (42%) traveled 1 to 5 km to the health facility.
- No notable differences or inequities emerged in health care-seeking patterns among female- and male-headed households.

The qualitative component of the study explored the main challenges that communities faced in accessing health services. From the perspective of community members, PCP network members, and network leads, the general challenges in health service use were similar across selected equity variables; they included lack of money (poverty), transportation barriers, service delivery issues such as inadequate health infrastructure and services, and some health facilities (especially CHPS compounds) not being credentialed by the NHIS.

As for the role of PCP networks in addressing equity, PCP network members, leads, and district and regional managers indicated that the network approach has improved service provision at the community level. They cited several network practices from the logic model (Figure A) as key enablers of equitable service provision. These included routine visits to CHPS compounds and empowerment of community health officers by midwives and physicians' assistants from the network hub (a health center or larger CHPS facility at the subdistrict level); resource pooling and sharing, which have ensured service availability and continuity of care; improved referral system and communication, which has improved timeliness of treatment for referred clients; and last, but not the least, joint outreach services in communities.

**Objectives 2 and 3: Identify factors that enable PCP networks to provide equitable services; identify factors that impede PCP networks from delivering equitable services and determine how these factors could be addressed.**

The respondents discussed factors that have enabled and barred PCP network implementers in advancing equitable service delivery in the study districts. The main enabling factors identified included resource sharing among PCP network members, enhanced collaboration and teamwork borne out of the network approach, partnerships for outreach services, soft skills gained (e.g., professionalism), and solicitation of additional funds for community outreach. PCP networks also faced significant and persistent barriers, such as the lack of financial resources, some network members lacking the NHIS credential (which meant that these facilities did not

get reimbursed for services they rendered to NHIS subscribers, who had to pay out of pocket for these services), and transportation challenges for clients and personnel. A major barrier highlighted by all respondent groups was inadequate staff, resources, and infrastructure (including water and security) to deliver services and allow PCP networks to share resources effectively and consistently, as mandated by the approach.

#### **Objective 4: Examine the role of nonpublic facilities and the stakeholder context in advancing equitable health care delivery**

Study respondents discussed the extensive role that communities and community/religious leaders could play in advancing health equity in the district, especially through the PCP networks. They indicated that these stakeholders were well-positioned to address many of the barriers to equitable service use and provision in network catchment areas. For example, respondents from all groups noted that communities and their leaders could play a significant role in client education and quality control for PCP networks. They could also facilitate donation of logistics (equipment, medical supplies) and transport for referrals and outreach services. Respondents highlighted the role they could play in provision of basic but crucial infrastructure for CHPS compounds, including security for health staff.

The role of nonpublic facilities, the Christian Health Association of Ghana, nongovernmental organizations (NGOs), and the for-profit sector was explored as well. Respondents called for these facilities to be included in resource-sharing efforts and to provide support for logistics and equipment. In addition, respondents called upon NGOs to alleviate infrastructure and transport barriers discussed under Objective 3.

#### **Objective 5: Examine the policy environment for scaling up PCP networks in Ghana.**

The network approach to service delivery is gaining attention in Ghana as the country scales up PCP networks as part of efforts to achieve UHC. This drive will be informed by networks' potential role in advancing UHC goals.

Experiences from the pilot in South Dayi and South Tongu reinforced the idea that networks have the potential to advance equity in health care delivery. To inform the national scale-up process, the sections below highlight some observations and findings from this study that require policy attention, mainly those related to policy alignment, stakeholder engagement, and service availability and quality (or readiness) issues.

##### Policy Alignment

The network approach to service delivery at the primary care level was a recent development that did not necessarily align well with some existing policies, especially those related to the financing of health care. NHIS policies represented one such example: NHIS only reimbursed the cost of services incurred by facilities that were credentialed, but not all facilities within PCP networks were credentialed. Facilities that were not credentialed were unable to attend to clients who were NHIS members unless these clients were willing to pay cash. Furthermore, the

NHIS did not recognize the networks as entities for credentialing, as the current law only recognizes individual facilities for an NHIS credential. To PCP network members and leads, this was the greatest challenge to the networks. The current system of credentialing and payment for health service delivery was tied to specific entities providing services. This did not encourage staff of higher-level facilities to provide outreach services to lower-level facilities. There is therefore a need to review and modify existing policies to promote the equity potential of networks.

### Stakeholder Engagement

Health is multidimensional, and effective health care delivery requires commitment and involvement of all stakeholders. As demonstrated by the study respondents, various challenges confronted equitable health care delivery. It would take various actors within and across sectors and agencies to resolve these challenges. In implementing PCP networks efforts should be made to engage and mobilize relevant stakeholders to support the initiative.

Communities, as key stakeholders, and beneficiaries of health delivery initiatives, need to be engaged in the implementation of the PCP networks. In the case of the two study districts, communities had not been sensitized about the networks and how the operation of networks influenced the availability of services at the community level. This was a missed opportunity to leverage the community's role in effective and equitable implementation of the PCP network approach. Implementers of the networks ought to educate the community on the new approach to health care delivery and empower them to support and be an integral part of its implementation. Additional resources and technical assistance should be offered to enhance stakeholder engagement capacities of Network managers and implementers.

### Service Availability and Quality

Primary health facilities (CHPS compounds and health centers) are the foundation of PHC service delivery. However, many of these facilities face challenges that undermine their ability to meet the health needs of the population.

The quantitative data in this study indicated that many households preferred to seek care at the district hospital and poor households often had to travel further to seek care. The qualitative data indicated significant gaps in service availability and quality—key determinants of the quality of care, which emerged as a key factor in PCP networks' equity-promoting potential. The PCP networks were designed to improve service availability by pooling and sharing resources (financial; human capital; drugs, logistics, and other supplies); however, in practice, network member facilities could not share what they did not have. So, while the study highlighted some resource-sharing examples, the limited availability of resources as a **barrier** to equitable health care delivery raised questions about the networks' ability to improve services through the current model of enhanced collaboration and resource exchange. Future implementation research should aim to understand the PCP networks' influence on the availability and quality of services and its expected equity benefits, as well as the systemic changes that need to complement these to realize the benefits.

## Conclusions and Recommendations

This implementation research was commissioned to understand how PCP networks could promote equity at the community level and how implementation factors affected networks from their pilot to the existing model. While the quantitative data on service use patterns in the districts showed few significant inequities in the overall use of care, patterns of health service use appeared to be inconsistent with networks' expected equity benefits. For example, the poorest households tended to travel further to receive care. Additionally, poor and rural households gave preference to district-level facilities when in need of curative care, pointing to the inappropriateness of CHPS as the first point of curative care. Network members, network leads, and health managers indicated improvements in select service delivery practices that could support equity in the communities, but significant demand- and supply-side barriers existed that likely prohibited the networks from achieving their full equity-enhancing potential. Continued investments to remove these barriers are needed to improve equity at the PHC level.

Below are select recommendations that study respondents proposed, based on key study findings and the co-creation workshop, to formulate the way forward for the PCP network scale-up. The complete list of recommendations is in the Conclusions and Recommendations section of this report.

- Educate clients and communities about PCP networks and leverage the role of communities in supporting network implementation.
- Review, revise, and implement norms and practices that align with PCP network objectives—including staffing and referral guidance at the PHC levels.
- Designate a model health center as the hub in every network. Equip and staff existing hubs to provide the required range of basic services.
- Align network practices and policies with other health care policies, especially on NHIS credentialing.
- Provide a functional definition of equity and its indicators for all providers of health services.
- Routinely assess the functioning of the PCP networks and as the networks are scaled up, and commission more implementation research to:
  - Monitor and conduct trend analysis of equity in service utilization
  - Understand the effect of PCP networks on the availability and quality of services.
  - Explore the role and involvement of nonpublic (Christian Health Association of Ghana and self-financing), NGO, and non-orthodox facilities in networks.
  - Explore and define the role of communities and the nonpublic sector in PCP network implementation.
  - Conduct comparative or case-control analysis with districts that are not implementing the network approach to understand the impact of networks on policy-level objectives.

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Technical Report

## I. Background and Introduction

Equity in health means the absence of systematic disparities in health (or in the major social determinants of health) among people from different social and economic groups (Braveman and Gruskin 2003). It is the underpinning principle to universal health coverage (UHC), which means that all people have access to essential health care (including safe, effective, quality, and affordable essential medicines and vaccines) and protection from catastrophic health care expenditures (United States Agency for International Development, 2019). Primary health care (PHC) builds a critical foundation for promoting equitable UHC, and it attends to the health and health care of the most disadvantaged in doing so (World Health Organization 2008a). PHC establishes a user-centered, holistic approach to health (World Health Organization 2008b) and helps with the implementation of national UHC policies at community levels—at the very point of interaction between service providers and users.

In Ghana, the PHC system is built around Community-based Health Planning and Services (CHPS) compounds and health centers. CHPS is Ghana’s flagship PHC initiative. Its primary goal is to meet the basic health care needs of the population, especially those in remote and rural areas (Ghana Ministry of Health 2014). CHPS is designed to empower rural communities through health education, health promotion, case management of minor ailments, community mobilization for health action, referrals, and home visitations for postnatal care and child vaccinations (Awoonor-Williams et al. 2016a; Ghana Ministry of Health 2014; Kushitor et al. 2019; Nyongator et al. 2003). The CHPS model is considered to be an essential component of Ghana’s health system at the primary care level (Alhassan et al. 2015; Awoonor-Williams et al. 2013; Baatiema et al. 2013)—a tool to accelerate attainment of UHC and bridge the inequity gap (Ghana Ministry of Health 2014).

Despite progress in scaling up CHPS, providing effective PHC has been a challenge for Ghana, mainly because of systemic problems in health care delivery (Agbenyo et al. 2017; Awoonor-Williams et al. 2013). A provider mapping exercise by the Ministry of Health, Ghana Health Service, and National Health Insurance Authority showed wide gaps in service capacities at the PHC level. In the Volta Region, for example, none of the CHPS compounds had all essential equipment and only 5% had adequate human resource capacity to deliver a predetermined set of essential services (Ghana Ministry of Health et al. 2015). Health centers had better

capacities, but they were still inadequate to meet population needs. These gaps pose a real threat to the equity and efficiency objectives of CHPS and PHC systems as users of the systems may opt for private facilities or higher levels of care and thus incur more out-of-pocket and opportunity costs for health care (Kruk et al. 2010). The Ghanaian health system has demand-side challenges as well, with various socioeconomic determinants (e.g., wealth and income, gender, location, education, older age, and religion) barring people from accessing care (Agbenyo et al. 2017; Amoah and Phillips 2020; Biritwum et al. 2013; Buor 2004; Ghana Statistical Service et al. 2018).

Ghana's primary care provider (PCP) networks were designed to address the PHC service capacity issues described above. The network model has demonstrated the ability to expand coverage of care elsewhere, especially in rural and underserved areas (Kruk et al. 2010; World Health Organization 2008b). This model can improve the overall efficiency and responsiveness of PHC systems and promote integration of public health into PHC delivery to improve population health outcomes (Booth and Boxall 2016; Booth et al. 2016).

Ghanaian PCP networks were first piloted in the South Dayi and South Tongu districts of the Volta Region in 2017 (when the networks were known as "preferred primary care provider networks"). The vision behind PCP networks' original design was to establish a long-term PHC model and financing system that can sustain the delivery of equitable, affordable, and high-quality PHC services. They were designed during the capitation pilot in Ghana to support equity by improving financial protection against catastrophic health care costs, by increasing enrollment of communities in the NHIS and their empanelment to network, rather than individual facilities, for greater access to health services (USAID S4H Project, 2017). After the suspension of the capitation initiative in Ghana (Aboagye 2013; Andoh-Adjei et al. 2018) PCP networks transitioned from the original design to become predominantly a service delivery initiative; it focused its equity-promoting efforts on improving service availability and readiness at the community level. Results of the network pilot showed that PCP networks held promise for improving the availability and coordination of health care services (USAID, Systems for Health Project, 2019). The pilot phase ran until September 2019. Afterward, it was sustained as the main PHC service delivery model in the two districts and additional district launched the initiative under the leadership of GHS.

The section below describes the PCP network model and draws a logic model of its equity-enhancing potential.

### PCP Networks and Their Role in Advancing Equity in Ghana

Ghana's PCP networks are an innovative service delivery model that unites multiple PHC facilities for a common goal for ensuring accessible and high-quality care to their communities. Networks are configured according to the hub and spokes model at the subdistrict level, where a health center (or a larger CHPS compound in subdistricts without a health center, or a district

hospital public health unit in subdistricts with a district hospital) serves as a hub and other CHPS or nonpublic facilities are the spokes (Figure 1).

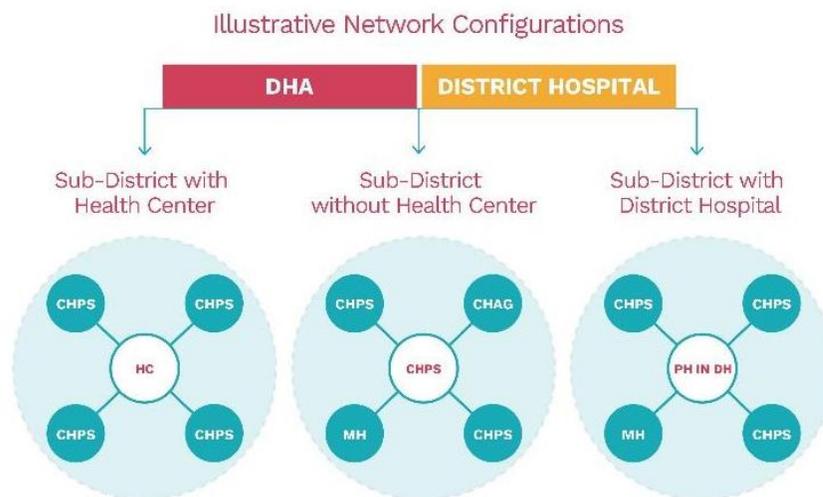


Figure 1: Illustrative configuration of PCP networks

Note: CHAG, Christian Health Association of Ghana; CHPS, Community-based Health Planning and Services; DH, District Hospital, DHA, district health authority; HC, health center; MH, Maternity Home; PH, Public Health.

Operationally, PCP networks follow existing governance structures and implement existing interventions of the Ghanaian health system. This is a deliberate design feature to ensure the networks’ sustainability and replicability for nationwide scale-up (United States Agency for International Development, Systems for Health 2019). Instead of introducing new institutions or services, PCP networks offer a new and improved organizational model to deliver existing health service packages and enhance collaboration among PHC facilities to achieve accessible and quality healthcare. Some features of this model are described below.

PCP network leads, usually midwives or physicians’ assistants at the hub facility, continuously train and provide supportive supervision to community health officers at CHPS compounds (the spokes) for essential preventive and minor curative services. PCP network members share human resources and supplies according to need to improve service availability and readiness and thus quality of care. Networks conduct joint outreach services, coordinate referrals, and jointly manage administrative tasks, such as National Health Insurance Scheme (NHIS) claims processing and submission, to achieve efficiency in service delivery.

Figure 2 below shows the logic model for PCP networks’ effect on equitable provision and use of health care services at the community level. Evidence from other settings has shown that PCP network practices have the potential to promote equity; these practices include midwife/physician’s assistant visits to CHPS compounds to deliver basic services and their

continuous engagement with community health officers to train and empower them, select task-shifting practices, joint community outreach to bring services from facilities to community settings, resource pooling and exchange, referral coordination, and engagement with the private sector (Chopra 2012). At the community level, these practices can improve availability and readiness of services at CHPS compounds, enhance service delivery, and facilitate client referrals. The expected equity benefits include the promotion of CHPS as the first point of care among communities, minimization of referral costs, and alleviation of access barriers and opportunity cost to everyone, especially those in poorer households, those living in remote or hard-to-reach areas, and other vulnerable groups.

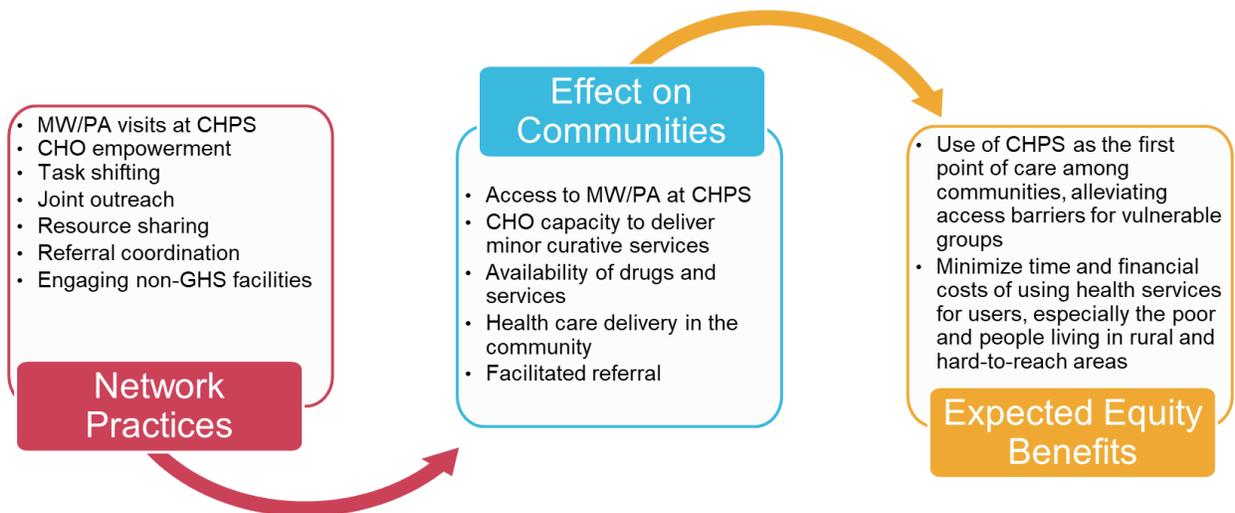


Figure 2: Logic model of PCP networks’ effect on equitable provision and use of health services at the community level

Note: CHO, community health officer; CHPS, Community-based Health Planning and Services; GHS, Ghana Health Service; MW, midwife; PA, physician’s assistant

Despite multiple observational and anecdotal evidence on the role of PCP networks in advancing UHC in Ghana, no empirical study has been done to understand how they can help achieve the three core objectives of PCP networks: equity in access, high quality, and efficient service delivery of PHC services. The equity-enhancing potential of network-based and coordinated PHC has been conceptualized elsewhere, (Javanparast et al. 2019; Rayner et al. 2018; Ribeiro and Cavalcanti 2020) but no similar study has been conducted in a Ghanaian context. Empirical evidence is essential to inform the upcoming scale-up of the PCP network model to other districts and regions in Ghana. From 2020 to 2021, the Ghana Health Service, with support from the United States Agency for International Development and the Health Systems Strengthening Accelerator initiative, conducted implementation research on the role PCP networks can play in advancing equity in the communities they serve. This report presents the findings.

## II. Study Objectives and Research Question

The Ghana Health Service selected the following research question in consultation with the research team and technical experts:

*How can the PCP network model promote equitable access to and utilization of high-quality essential health services among vulnerable, underserved, and priority populations?*

The overall aim of the study was to generate actionable evidence and recommendations on the role the PCP network model can play in equitable provision and utilization of PHC services. To achieve this, the study pursued the following specific objectives:

1. Examine the use of health services in PCP network catchment areas to identify existing inequities and the role of PCP networks in addressing them.
2. Identify factors that enable PCP networks to provide equitable services.
3. Identify factors that impede PCP networks from delivering equitable services and determine how these factors could be addressed.
4. Examine the role of nonpublic facilities and the stakeholder context in advancing equitable health care delivery.
5. Examine what the policy implications of scaling up PCP networks might be for achieving UHC.

The Ghana Health Service selected an implementation research approach because it examines how implementation affects a program's objectives and goals and how the context and specific factors affect the implementation (Peters et al. 2013). The method is especially useful for studying initiatives for scale-up.

## III. Study Design

### Methods and Study Area

The research team employed mixed methods to account for the complexity and multifaceted nature of the research question and objectives (Tariq and Woodman 2013). The research team used quantitative methods to explore patterns of health service use in the study areas, with a view to identifying existing inequities. The research team used qualitative methods to understand factors that drive health service use patterns and examine the role and potential of PCP networks in advancing equity in the districts. The research team collected qualitative and quantitative data simultaneously but analyzed them separately to produce two separate sets of findings; these findings were presented together in this final report to review them against the study objectives and thus answer the research question.

Data were collected in the South Dayi and South Tongu districts of the Volta Region of Ghana, where the PCP networks were first piloted in 2017. All CHPS compounds and health centers in the two districts belonged to one of the 10 PCP networks operating there, so the study covered all network members. The study also sampled the population served by the networks. At the end of the study, the research team held a cocreation workshop with PCP network practitioners, district, regional and national health managers, and policymakers to devise

recommendations based on key findings and determine the implications of the findings for the nationwide scale-up of PCP networks.

### Sampling, Respondents, and Study Tools

#### **Sample Size Determination for Quantitative Component**

Sample size determination was informed by the proportion of the population estimated to have a valid NHIS membership card, which was based on the premise that having a valid NHIS card meant a person used health service or intended to use health service (Erlangga et al. 2019; Wang et al. 2017). Approximately 80% of the population in the two study districts were estimated to be enrolled in the NHIS (Ghana Health Service 2019a; Ghana Health Service 2019b).

The research team used a formula for sample size for the estimation of a single proportion based on Cochran’s formula. Based on this, the required minimum sample size was estimated as:

$$n = \frac{t^2 p (1 - p)}{e^2}$$

where:

n = required sample size,

t = confidence level at 95% (standard value of 1.96),

p = estimated proportion of active NHIS membership in the districts (80%),

e = margin of error at 5% (standard value of 0.05).

The estimation yielded a minimum sample size of 245 households per district, which was rounded up to 250 to account for any missing responses. The Ghana Statistical Service randomly selected five enumeration areas in each district based on the 2010 Ghana Population and Housing Census, ensuring adequate representation of both urban and rural communities. A total of 50 households were systematically sampled from a household listing in each enumeration area to obtain a sample size of 250 households in each district—which produced a total of 500 households in both districts.

#### **Demographics of Quantitative Survey Respondents**

All 500 households agreed to participate in the survey. Sixty percent of households were located in the rural areas. There was a total of 2,457 household members, of which females constituted 52%. About 32% of the household members were either heads (500) or spouses to the head (286) of the household; 36% of household heads were female. More than 88% of household members had some level of formal education. Approximately 79% said they had ever signed up for health insurance, and 99.9% of these had signed up for NHIS. However, only about 66% possessed valid health insurance (i.e., were insured at the time of the survey).

Of all households, approximately 15% were in the wealthiest quintile and 28% in the poorest quintile (Figure 3). About 44% of rural households were in the poorest quintile compared with about 5% of the urban households. Also, 33% of urban households were in the wealthiest quintile as opposed to 4% of their counterparts in rural settings. These results were significant and implied that households in rural areas were much poorer than those in urban areas. See Appendix B for more details on the demography of the surveyed population and associated tables.

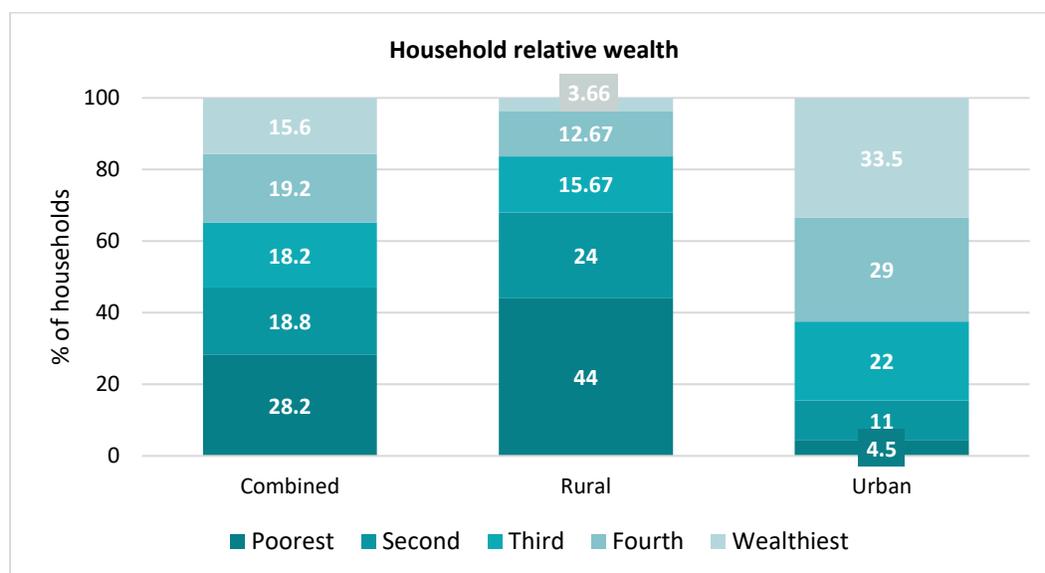


Figure 3: Relative wealth of survey population

### Qualitative Component Respondents

Fourteen focus groups discussions (FGDs) with 134 total participants and 17 in-depth interviews (IDIs) were conducted in the local language (Ewe) and English. Participants included community members, PCP network members and leads, and managers from district, regional, and national levels of the Ghana Health Service, Ministry of Health, and NHIS (Table 1).

Table 1: Qualitative study respondents

Respondent(s)	Type	Number of respondents	Health system level	Study objectives(s)	Themes
Community members—women	FGD	2	Community	1	Health use patterns and challenges
Community members—men	FGD	2	Community	1	Health use patterns and challenges
PCP network members (health care providers, such as community health	FGD	10	Community/subdistrict	1, 2, 3, 4	Health use patterns and challenges

officers, enrolled nurses, midwives)					PCP networks' role in enhancing equity, including affecting factors
PCP network leads (midwives and physicians' assistants from network hubs)	IDI	10	Subdistrict	1, 2, 3, 4	Health use patterns and challenges PCP networks' role in enhancing equity, including affecting factors
District health managers (GHS and NHIS)	IDI	4	District	2, 3, 4, 5	PCP networks' role in enhancing equity Implications for scale-up
Regional health manager (GHS)	IDI	1	Regional	2, 3, 4, 5	PCP networks' role in enhancing equity Implications for scale-up
National health managers from GHS and MoH	IDI	2	National	2, 3, 4, 5	PCP networks' role in enhancing equity Implications for scale-up

**Study Tools**

IDI and FGD guides for the qualitative component of this study were developed based on the objectives. Questionnaires were adapted for different respondents based on their role in PCP network implementation.

A survey questionnaire for the quantitative component of this study was created based on (and adapted from) other questionnaires used in Ghana to explore service utilization trends (Fenny et al. 2014). A standardized questionnaire from the EquityTool was used to estimate relative wealth of households. The survey questionnaire examined: (1) household demographics and assets based on the Equity Tool; (2) health service utilization trends and preferences; (3) perceptions of quality of care; and (4) COVID-19 awareness and self-reported ability to abide by prevention protocols (see Appendix A for details about the COVID-19 component of the activity).

The study tools were tested in the Adaklu District after the data collectors' training and adapted for the study districts. The tools were translated into the local language. See Appendix D for the study tools.

## Data Collection

Fourteen quantitative and five qualitative data collectors were recruited in the districts and trained on study approaches, the concept of equity used for this study, survey and qualitative data collection techniques, the use of survey tools and questionnaires (theory and practice), approaches to minimize biases, and the COVID-19 protection protocol during data collection. Quantitative and qualitative data were collected simultaneously during the period from September 28 to October 17, 2020. Additional quantitative data were collected during November 30 to December 4, 2020, to accommodate for rural enumeration areas that were missed in the first phase of data collection.



Figure 4: Data collectors reviewing study tools.

Photo credit: Juliana Amoateng, Health Systems Strengthening Accelerator

## Data Analysis and Presentation of Findings

### Quantitative Component

Stata software version 14 (StataCorp LLC, College Station, TX, USA) was used for the statistical analysis. Categorical variables were cross tabulated to analyze relationships between user characteristics and their responses. The households were divided into five wealth quintiles (poorest, second, third, fourth, and wealthiest quintiles) using the Equity Tool and based on the Demographic and Health Surveys wealth index from the *Ghana Maternal Health Survey 2017* conducted by the Ghana Statistical Service, Ghana Health Service, and ICF (Fry et al. 2014; Ghana Statistical Service et al. 2018). Chi-squared tests were used to investigate significant differences of variables relative to household wealth status (each wealth quintile compared with the other four as a group), sex of the household head (male and female), and household location (rural and urban). Tables with  $p$  values can be found in Appendix C. User-assessed dimensions of quality of care were analyzed using the Kruskal-Wallis rank test and chi-squared

tests to assess whether significant differences in client satisfaction levels existed between wealth quintiles. Patient satisfaction was ranked using a four-scale measure (not satisfied, somewhat satisfied, satisfied, and very satisfied). Multivariate regression analysis was done to explore how different factors affected health service utilization. Eight independent variables were included in the regression model and coded as follows: gender of household head (male = 0; female = 1), age of head of the household (<30 years = 0; 30 to 40 years = 1; 41 to 50 years = 2; >50 years = 3), marital status as dummy variable (single = 0; married = 1), highest school grade completed (none = 0; basic school = 1; secondary/vocational = 2; tertiary = 3), household location (urban = 0; rural = 1), valid health insurance status (yes = 1; no = 0), distance to health facility (< 1 km = 1; 1 to 5 km = 2; 6 to 10 km = 3; > 10 km = ref), and wealth quintile (poorest = ref; second = 1; third = 2; fourth = 3; wealthiest = 4). The inclusion of the variables in the regression model was informed by their association with health service utilization in Ghana and elsewhere (Enuameh et al. 2016; Gabrani et al. 2020). Multivariable regression analysis also helped control the bias from confounding variables, as it allows for more than one confounder at the same time and allows for the interpretation of each confounder individually (Hennekens and Buring 1987).

### **Qualitative Component**

Data collectors worked in pairs (groups of two) to collect data, and a field supervisor checked the quality of data and provided support. Interviews were conducted in English and Ewe, recorded, and later translated and transcribed in English by the data collectors. Two researchers validated transcripts and individually reviewed the transcript codes to ensure internal validity and minimize the biases of one individual expert.

Two researchers led the analysis and ensured quality control. They employed thematic analysis to identify emerging themes from the discussions and interviews. The researchers validated the transcripts based on select voice recordings. A preliminary codebook was developed based on study objectives, interview guides, and an initial reading of transcripts; it was further adapted during the coding process. All transcripts were coded using a predeveloped template in Microsoft Excel. Key themes were identified under each objective based on questions posed and excerpts from text allocated to these themes. Subthemes within each theme were developed based on emerging topics. Data were analyzed to highlight differences and convergences in responses from different groups of stakeholders. In vivo codes were used to give further voice and meaning to the data in the report. Two researchers separately reviewed codes and associated text from transcripts, then jointly discussed them to ensure internal validity. The respondents were assured that their answers would not be attributed to them as individuals, nor would their names appear in the study or with the study data to mitigate courtesy bias.

### **Equity and Equity Variables**

For the purposes of this study, equity in health refers to the absence of disparities in the use of health services among people with different social and economic status, such as household

wealth and gender (Braveman and Gruskin 2003). The study prioritized three key equity variables—household wealth, gender, and location/distance from the health facilities. These variables were selected and prioritized in consultation with health experts in Ghana because they relate to the equity priorities of the country, PCP networks, and specific context of the study area.

- **Household wealth.** Health service use by household wealth was measured in the quantitative component of the study. Service utilization trends and challenges among the poor were specifically probed in the qualitative component. In the absence of up-to-date district-level data on health utilization in the study areas, the research team used the Equity Tool to estimate relative wealth of the sample population surveyed. The Equity Tool uses a short survey to enable comparison of study respondents' wealth with household wealth nationally (using data from the Demographic and Health Surveys wealth index for Ghana) (Chakraborty et al. 2016). The short questionnaire makes data collection less cumbersome and time consuming and makes it an appropriate option for implementation research.
- **Gender** was probed in both the qualitative and quantitative components of the study. In the quantitative analysis, all key indicators were disaggregated by sex of the household head to explore trends and potential differences among households that were headed by men and women (since the principal survey respondents were heads of households). The qualitative interviews specifically probed on the barriers to health care for women. Separate community-level interviews were held for men and women to enable women to speak freely about their challenges in using PCP network services and compare the challenges expressed by the two groups for any notable differences.
- **Household location and distance from the health facility.** Household location was recorded in the quantitative survey. The respondents were also asked about the approximate distance of their household to the facility they visited to access care to estimate the distance they traveled. Qualitative interviews specifically probed on health use challenges experienced by people living in hard-to-reach areas. The research team was not able to quantitatively assess health utilization patterns of people living in “hard-to-reach areas” because they encountered inconsistent definitions of this term in the study districts (see the Challenges and Study section).

### Ethics Issues

The Ghana Health Service Ethics Review Committee granted ethics approval for the study on September 8, 2020. All respondents participated voluntarily, were informed about the study, and provided informed consent. Confidentiality of respondents was guaranteed and observed. Anonymized data were kept secure on Ghana Health Service and Results for Development (R4D) servers.

## IV. Study Findings

### Objective 1: Examine the utilization of health services in PCP network catchment areas to identify existing inequities and the role of PCP networks in addressing them

Objective 1 looked into three key themes to examine the use of health services in PCP network catchment areas, with a view to identifying existing inequities:

- Patterns in health service use and preference: This was explored in the household survey in the quantitative component, as well as in FGDs with communities and PCP network members and IDIs with PCP network leads in the qualitative component.
- Main challenges in accessing health services faced by communities: This was explored in the qualitative component during FGDs with communities and PCP network members and IDIs with PCP network leads.
- The role of PCP networks in supporting equitable provision and use of services: This was explored in the qualitative component through FGDs with PCP network members and IDIs with PCP network leads.

#### **Patterns in Health Service Use and Preference—Quantitative Component**

Of the total 500 households that participated in the survey, 34% reported that at least one household member had been ill in the four weeks preceding the survey; of these, about 88% sought care for their illness (Table 2). Forty percent of those who sought care did so at subdistrict health facilities; 38% in district health facilities; 7% in regional health facilities; 4% in CHPS compounds; and 11% in other facilities, such as private health facilities, drug stores, or traditional healers. The majority of those who sought care from other facilities went to drug stores. Of 22 households that did not seek care, the main reasons were that the illness was not considered critical (n = 7) or lack of funds (n = 7). Other reasons included self-medication (n = 4), distance to facility (n = 2), no accompanier (n = 1), other (n = 1) (see Appendix C).

#### Health Service Use by Equity Groups

The majority (88.4%) of households with a member who reported illness or injury in the four weeks preceding the survey sought care (Table 2). Data on the use of a health service were similar among poorer and wealthier households. However, data disaggregated by wealth quintile indicated difference in the type of health care facility these households accessed. For instance, more than 50% of those in the third to wealthiest quintiles sought health care from district-level facilities compared with 18% and 21% of those in the poorest and second quintiles, respectively (Figure 5). The majority of those who accessed “other” facilities were in the poorest quintile (8 out of 17); 3 of these sought care at the drug store (Appendix C).

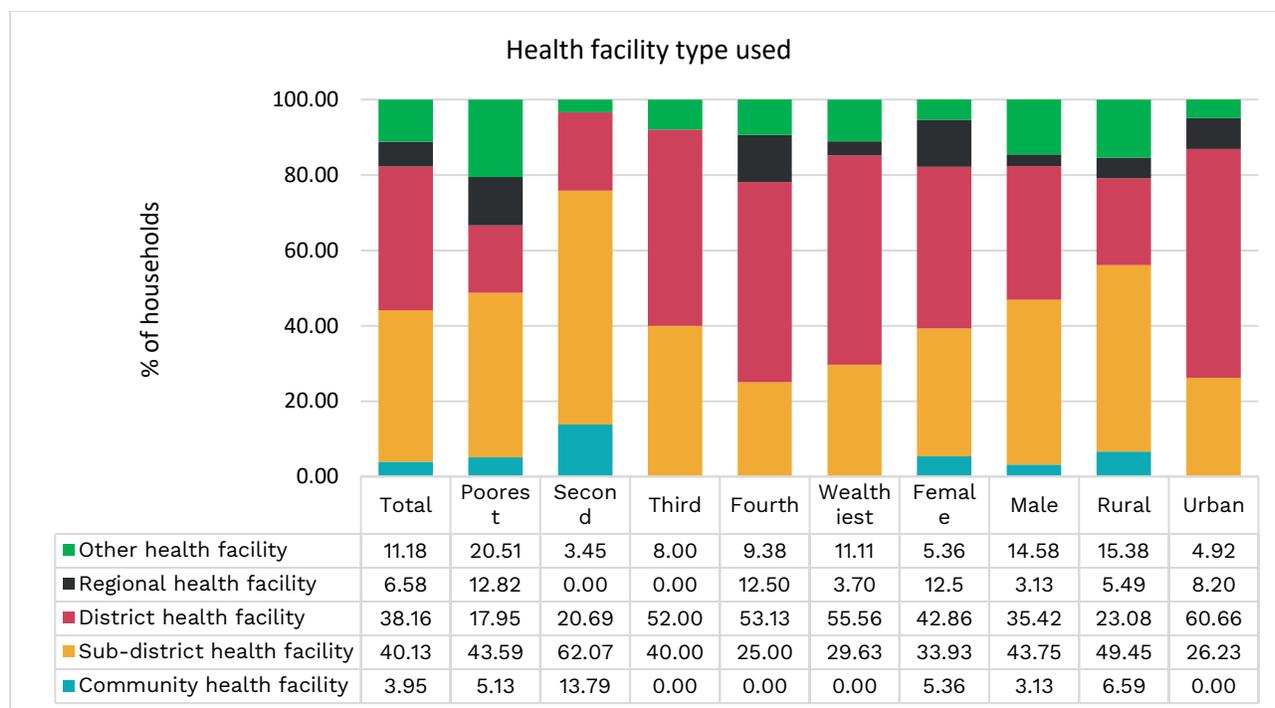


Figure 5: Health facility type used by equity groups

Note:

- *N* = 152.
- The category community health facility = CHPS compounds; subdistrict health facility = public health centers and mission/nongovernmental organization clinics; district health facility = municipal hospitals; regional health facility = regional public hospital; other health facility = private clinics, private hospitals, private pharmacies, self-medication, and drug stores.
- These findings indicate that wealthier households, which also tend to be located in the urban areas, tend to use district hospitals. Less wealthy and rural households mainly patronize subdistrict facilities, which tend to be the hub of the PCP networks. The use of CHPS for curative care is quite limited, which may be due to a perception that CHPS compounds only provide preventive care or to service availability and readiness concerns.

Care-seeking among female- and male-headed households was similar (Table 2). Most female-headed households sought care at district health facilities (43%), followed by subdistrict health facilities (34%). Most male-headed households sought care at the subdistrict facilities (44%), followed by district health facilities (35%) (Figure 5).

Ninety-five percent of those from rural households sought care after reporting illness, compared with 80% of those from urban households. Almost half of those from rural households who sought care went to subdistrict facilities compared with 26% from urban households (Figure 5). The majority of those from urban households sought care in district hospitals (61%). All households that indicated using CHPS compounds were in rural locations. The majority of patrons of “other facilities” came from rural households (14 out of 17), and the majority of these used drug stores, followed by self-medication (see Appendix C).

### Preference for Facilities by Equity Variables

A plurality of respondents from the sample reported proximity to a facility (46.7%) as the main reason for using it. The next most frequently cited reasons were the facility being the respondents' regular source for treatment (11.2%) and the good quality of care (7.9%). More than half (53%) of those who sought health care for their illness said they would have preferred a different health facility. Of these, 82% would have preferred going to a district health facility, followed by a subdistrict health facility (7.5%) and the regional hospital (4.5%) (See Appendix C).

Of those in the poorest wealth quintile, 28% indicated proximity as the main reason for choosing a facility, compared with 48% of those from the highest quintile. Those in the lowest quintile also cited good quality of care (12%), only facility available (12%), and low charges (10%) as reasons for choosing the facility they visited (Table 3). When asked if they would have preferred to use a different facility than the one they accessed, the majority of those in the poorest quintile (93%) would have preferred going to a district health facility compared with 64% of those in the highest wealth quintile. Among the reasons provided for this preference, 35% of those in the lowest quintile cited the availability of modern facilities and 21% cited good quality of care as the main reasons.

Proximity to the health facility was the most cited reason for service utilization by 41.1% of female heads of households and 50.0% of male heads. No statistically significant gender difference was found ( $p = 0.309$ ).

Of rural households, 44% cited proximity as the main reason for visiting a facility; 50% of urban households cited this as the main reason. Almost 10% of rural households reported choosing a facility because it was the only one available. In contrast, none of the urban households cited this as a reason for choosing a facility. More respondents from rural households (88%) would have preferred to go to a district hospital compared with those from urban households (75%). Among reasons provided for this preference, more rural households than urban households indicated availability of modern facilities (23% versus 15%) and availability of drugs (11% versus 6%) as the main reasons.

Table 2: Health service use patterns

Reported illness /Injury in last 4 weeks	Total	Household quintile classification					Gender of head of household		Household location	
		Poorest	Second	Third	Fourth	Wealthiest	Female	Male	Rural	Urban
<b>Yes (n)</b>	172	44	30	31	38	29	64	108	96	76
<b>%</b>	34.4	31.21	31.91	34.07	39.58	37.18	35.56	33.75	32.00	38.00
<b>No (n)</b>	328	97	64	60	58	49	116	212	204	124
<b>%</b>	65.60	68.79	68.09	65.93	60.42	62.82	64.44	66.25	68.00	62.00
<b>Total (n)</b>	500	141	94	91	96	78	180	320	300	200
<b>%</b>	100.00	100.00	100.00	100.00	100.00	100.00	36.00	64.00	100.00	100.00

Sought care for illness	Total	Poorest	Second	Third	Fourth	Wealthiest	Female	Male	Rural	Urban
Yes (n)	152	44	30	31	38	29	56	96	91	61
%	88.37	31.21	31.91	34.07	39.58	37.18	87.50	88.89	94.79	80.26
No (n)	20	5	1	6	6	2	8	12	5	15
%	11.63	11.36	3.33	19.35	15.79	6.90	12.50	11.11	5.21	19.74
Total (n)	172	44	30	31	38	29	64	108	96	76
%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 3: Reasons for choosing the facility visited

Cited reasons	Total	Household quintile classification					Gender of head of household		Household location	
		Poorest	Second	Third	Fourth	Wealthiest	Female	Male	Rural	Urban
Good quality of care (n)	12	5	1	2	2	2	6	6	5	7
%	7.89	12.82	3.45	8.00	6.25	7.41	10.71	6.25	5.49	11.48
Good reputation (n)	7	3	1	1	1	1	6	1	6	1
%	4.61	7.69	3.45	4.00	3.12	3.70	10.71	1.04	6.59	1.64
Availability of doctors (n)	3	—	—	—	2	1	1	2	—	3
%	1.97	—	—	—	6.25	3.70	1.79	2.08	—	4.92
NHIS provider (n)	1	—	—	—	—	1	1	—	—	1
%	0.66	—	—	—	—	3.70	1.79	—	—	1.64
Nice health workers (reception) (n)	2	1	—	1	—	—	—	2	2	—
%	1.32	2.56	—	4.00	—	—	—	2.08	2.20	—
Regular source of treatment (n)	17	2	1	4	5	5	5	12	5	12
%	11.18	5.13	3.45	16.00	15.63	18.53	8.93	12.50	5.49	19.67
Availability of drugs (n)	7	1	1	1	2	2	2	5	4	3
%	4.61	2.56	3.45	4.00	6.25	7.41	3.57	5.21	4.40	4.92
Availability of modern facilities (n)	6	3	3	—	—	—	2	4	6	—
%	3.95	7.69	10.34	—	—	—	3.57	4.17	6.59	—
Low charges (n)	6	4	1	—	1	—	3	3	6	—
%	3.95	10.26	3.45	—	3.12	—	5.36	3.13	6.59	—
Only facility available (n)	9	5	—	1	3	—	4	5	9	—

%	5.92	12.82	—	4.00	9.38	—	7.14	5.21	9.89	—
<b>Proximity (n)</b>	71	11	21	12	14	13	23	48	40	31
%	46.71	28.21	72.41	48.00	43.75	48.15	41.07	50.00	43.96	50.82
<b>Short waiting time (n)</b>	2	—	—	1	—	1	1	1	—	2
%	1.32	—	—	4.00	—	3.70	1.79	1.04	—	3.28
<b>Other reasons (n)</b>	9	4	—	2	2	1	2	7	8	1
%	5.92	10.26	—	8.00	6.25	3.70	3.57	7.29	8.79	1.64
<b>Total (n)</b>	152	39	29	25	32	27	56	96	91	61
%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

### BOX 1: Perceived quality of care

The quantitative survey examined household perceptions of the quality of health care they received using a four-scale measure: very satisfied, satisfied, somewhat satisfied, and not satisfied. The survey assessed dimensions of quality, including waiting time at a health facility, friendliness of health staff, attentiveness of health staff, availability of staff and drugs, and the overall referral system.

Households reported general satisfaction with the quality of care they received. The majority of respondents reported that they were satisfied across all categories. The availability of drugs received the highest dissatisfaction rating among 13.79% of respondents. No statistically significant difference was observed in findings across any of the equity groups, except in respondents' satisfaction with the availability of staff—74.4% of the poorest households said they were “satisfied” with this dimension versus 55.6% of the wealthiest households. This finding contradicted findings from the qualitative component on service availability at the community level, where respondents noted significant gaps in the availability of services, as well as instances of poor staff attitude towards users. The researchers associated this with the fact that the quantitative survey respondents had visited mainly subdistrict and district facilities, whereas the qualitative component respondents spoke of health service supply issues at the community level. The responses may have been due to the respondents' courtesy bias too.

See the Appendix C tables from the quantitative survey for more details.

### *Distance to Health Facility Visited*

One of the equity-promoting features of PCP networks is that they have the potential to promote and enable health service use closer to communities. The quantitative survey examined the distance that households traveled to facilities to seek care for a reported illness. For the 131 participants whose travel distance to a health care facility was determined, the majority of households traveled less than 1 km (31%) or 1 to 5 km (39%) to use a health service. Inequities emerged when the results were disaggregated by wealth quintile and location: 48% of the households in the wealthiest quintile traveled less than 1 km to the health facility compared with 20% of households in the poorest quintile (Figure 6). The results also showed that more urban households (45%) traveled less than 1 km to health facilities than rural households (21%). The majority of rural households (42%) traveled from 1 to 5 km to the health facility. An almost equal proportion of female-headed and male-headed households traveled

less than 1 km to health facilities, but more female-headed than male-headed households journeyed more than 10 km to health facilities.



Figure 6: Household distance to facility visited

Poorer and rural households traveled further to visit facilities than wealthier and urban ones. Most of these poorer and rural households visited subdistrict or district facilities—bypassing the CHPS compounds and undermining the equity-promoting intent of PCP networks.

#### Factors That Determine Health Service Use

A pooled analysis of factors that influenced health service utilization within PCP network catchment areas showed that persons with secondary- or vocational-level education were about twice as likely to use health care services when ill (odds ratio [OR] = 2.07) than those with no formal education. Likewise, those with valid health insurance were a unit more likely to use health services than those without valid health insurance [OR = 1.67]. Furthermore, those in the wealthiest quintile were about 1.4 times more likely to use health services when ill than those in the poorest quintile [OR = 1.38]. Additionally, a distance of less than 1 km to a health care facility was about twice more likely to motivate use of health services than other distances [OR = 2.2].

Table 4: Pooled regression analysis of the determinants of health service use

Variable	Overall OR [95% CI]	p value
Wealth status (poorest quintile = reference)		
Second quintile	1.16 [0.66–2.06]	0.511
Third quintile	0.99 [0.55–1.79]	0.888
Fourth quintile	1.31 [0.75–2.29]	0.295
Wealthiest quintile	1.38* [0.76–2.51]	0.041
Household location (urban = reference)		
Rural	1.01 [0.69–1.49]	0.302

Gender of household head (male = reference) <i>Female</i>	0.95 [0.64–1.41]	0.503
Distance to health facility accessed (>10 km = reference) <i>&lt;1 km</i>	2.20* [1.09–4.49]	0.018
<i>1–5 km</i>	0.66 [0.41–1.04]	0.372
<i>6–10 km</i>	0.79 [0.39–1.58]	0.525
Age of household head (years) (<30 years = reference) <i>30–40 years</i>	0.82 [0.39–1.74]	0.573
<i>41–50 years</i>	1.41 [0.68–2.91]	0.373
<i>&gt;50 years</i>	1.20 [0.64–2.48]	0.559
Marital status (single = reference) <i>Married</i>	0.94 [0.61–1.44]	0.712
Highest school grade completed (none = reference) <i>Basic school</i>	1.19 [0.66–2.16]	0.480
<i>Secondary/vocational</i>	2.07* [1.01–4.29]	0.010
<i>Tertiary</i>	1.06 [0.51–2.21]	0.987
Has a valid health insurance (yes = 1)	1.67* [1.06–2.62]	0.007
<i>Note:</i>		
● <i>CI, confidence interval; OR, odds ratio</i>		
● <i>A relatively small sample size of 500 households led to wider CIs in the regression analysis</i>		
* <i>p</i> < 0.05		

### Patterns in Health Service Use and Preference—Qualitative Component

The quantitative data highlighted the nature of health service use in the two study districts. The qualitative data provided contextual information on health service use in the study communities from the perspectives of community members, PCP network members, and PCP network leads (see Appendix D for questionnaires). Responses in the qualitative component provided a picture of community members' health service use and challenges.

Both orthodox and traditional health services were available to community members, and both were employed by community members to meet their health care needs. Service use often involved both self-medication as well as consultation of trained personnel.

*What we do normally is that, when you are ill, we buy paracetamol or some pain killer and take [it]. And if it does not work, then we go to the community clinic here; we then rush to the clinic. **FGD with male community members, South Dayi***

Generally, Ghana aims to make the formal health care system more responsive to the health needs of the population. The formal health system in Ghana is organized in a hierarchical structure with community health posts/centers/clinics at the base and tertiary hospitals at the apex. In the gatekeeping system inherent in this structure, it is assumed that clients start from

the bottom of the structure and are then referred upward as necessary (Awoonor-Williams et al. 2016b). Study findings showed, however, that community members’ health service use did not follow this clear structure; some started from lower-level health facilities (community health center) and moved up if their condition did not improve, whereas others started from the hospital. Users tended to use higher-level facilities (e.g., hospitals) with higher quality of care and better availability of drugs and services.

*The government hospital is a big facility. There are some drugs which are in the hospital but not in the health center; because of that, majority of us who know that or the kind of sickness we have, we all go to the hospital if the drugs are there and not at the clinic. FGD with female community members, South Dayi*

### Health Service Use Challenges from Equity Perspective—Qualitative Component

The qualitative component of the study examined challenges to the utilization of health services from the perspective of community members, PCP network members, and PCP network leads. In particular, it examined if different equity groups faced different challenges in using health care services. Respondents spoke about general challenges, noting that some of the challenges were exacerbated for some vulnerable groups. The general challenges in health service utilization included lack of money (poverty), transportation barriers, service delivery issues such as inadequate health infrastructure and services, poor staff attitude, and lack of NHIS credentialing<sup>1</sup> of some health facilities (especially CHPS compounds). The challenges identified by various respondent groups are highlighted in Table 5.

Issues specific to select equity groups included poor economic empowerment/independence for women and geographical inaccessibility and transportation challenges for people living in hard-to-reach areas. Women's poor financial status tended to limit their decision-making autonomy and further reduced their use of health services. On the other hand, people living in hard-to-reach areas tended to face increased transportation challenges (both in terms of cost and time), which tended to limit health service use.

Table 5: Challenges to health service utilization from various respondent categories

Theme	Category of respondents		
	Community members	Network members	Network leads
Key challenges in health service utilization among the poor, women and communities	<ul style="list-style-type: none"> <li>● Lack of money</li> <li>● Poor transportation and lack of emergency transport</li> <li>● Poor staff attitude</li> </ul>	<ul style="list-style-type: none"> <li>● Fear and anxiety in accessing health care due to poverty (psychological fear and anxiety)</li> <li>● Having to pay cash at non-credentialed facilities</li> </ul>	<ul style="list-style-type: none"> <li>● Absence of national or community provision for the poor</li> <li>● Having to pay cash at non-credentialed facilities and drugs/services not</li> </ul>

<sup>1</sup> Credentialing refers to the process whereby NHIA assures that facilities are able to meet minimum requirements to provide health service to NHIS members. All facilities must be credentialed in order to submit claims and receive NHIS reimbursements for services. More information can be found [here](#).

<p>living in hard-to-reach areas</p>	<ul style="list-style-type: none"> <li>● Lack of accommodation for nurses</li> <li>● Lack of drugs, equipment, logistics at CHPS compound</li> </ul>	<p>and drugs/services not covered by the scheme (NHIS credentialing)</p> <ul style="list-style-type: none"> <li>● Lack of equipment at facilities</li> <li>● Lack of staff at facilities</li> <li>● Transportation cost for communities in hard-to-reach areas</li> <li>● Geographical inaccessibility for those living in hard-to-reach areas</li> </ul>	<p>covered by the scheme (NHIS credentialing)</p> <ul style="list-style-type: none"> <li>● Financial constraints (poverty)</li> <li>● Lack of staff at facilities</li> <li>● Inadequate infrastructure for service delivery</li> <li>● Financial dependence on spouses</li> <li>● Lack of economic empowerment for women</li> </ul>
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Community Perspective

Community members encountered various challenges in accessing health care, ranging from lack of money and poor transportation to poor staff attitude, to inadequate health care infrastructure and services. Some communities were far from health facilities, and people often had to travel long distances to access care. Poor road networks and lack of emergency transport often made it difficult for community members to get to the health facilities in times of need.

*Most often, in the cases of the poor, wherever they attend—whether this facility or that of [sub-district]—they must cough out money. Even if not for the drugs, they still need money to board a car. And so in that state, they try all kinds of herbal concoctions for the sick children to see if they will be fine. But if it is not working, the worst things happen to the child. This is the reason why the poor can’t access health care. **FGD for female community members, South Tongu***

Besides the difficulty in getting to the health facility, respondents encountered various challenges when they arrived at the facility. These included the poor attitude of staff as well as lack of drugs, equipment, and logistics at the facilities.

*All that my people have said is true. But just as I said earlier, customer relation is a major problem. . . . I think that also prevents people from accessing health care in that facility. **FGD, male community members, South Tongu***

Network Members’ Perspective

PCP network members cited challenges to health care utilization from their perspective as providers of health services in the communities. They, like the community members, also highlighted the problems of poverty, geographical inaccessibility, and poor transportation. In addition, they noted some supply-side issues, such as inadequate health infrastructure, absence of equipment and supplies at health facilities, inadequate number of staff, and lack of

credentialing of some facilities. These factors tended to limit the range of services available at some facilities and discourage clients from patronizing such facilities. More often than not, these problems were more pronounced at the lower-level facilities, which were closer to community members and could easily be used by vulnerable populations.

*Inadequate staff is also not enabling us to offer equitable services to all our people because we are not enough as expected. So, we will not be able to visit our clients as expected in a particular area because of the location. **FGD, network member, South Dayi***

*I said earlier Kikpo[CHPS Compound], we are not on NHIS [i.e., facility is not credentialed], and majority of people are on NHIS. So, because of that, the poor person comes to me and I say I can't take the card [i.e., cannot provide care using the NHIS card]. It means the person has to go to Agbakorfe [Health Center]. And, if the person has no money to take car or motor, then the person has to go back home and get paracetamol or do self-medication. **FGD, network member, South Tongu***

### Network Leads' Perspective

PCP network leads reiterated the challenges identified by community members and PCP network members. They pointed to the absence of provisions for the poor and an option for cash payment at noncredentialed facilities, inadequate health care infrastructure, and poor financial independence for women as additional challenges.

*I said it early on that, in the community, there is no provision for the poor. So that in case of drugs, we help that person? No. In the community where we are, there's nothing like that. And at the facility too, without the NHIS, there is nothing at the facility. **IDI, network lead, South Tongu***

A range of health facilities and services were available to and used by communities in the South Tongu and South Dayi districts. Community members chose services based on a number of factors, including their health condition and financial situation and the services available at the facility. Community members and health care providers both identified lack of transport, poor staff attitude, lack of money, lack of drugs/equipment/logistics at facilities, and infrastructure challenges as challenges that community members encountered in their efforts to use health care services. All of these challenges undermined the equitable provision and use of health care services.

### **The Role of Networks in Supporting Equitable Provision and Use of Services**

One of the reasons for the formation of PCP networks was to ensure more access to a wider range of health services and providers. In discussing the role of PCP networks in promoting equitable service delivery, PCP network members and leads and district managers alluded to improvements in service delivery enhancing the availability of a wider range of services and providers. Resource pooling and sharing within the network coupled with improved outreach and

referral services provided community members easier access to a broader range of personnel and services than any single facility provided.

PCP networks have improved networking and interpersonal relations among health care providers within networks, which in turn have enhanced communication and sharing of information. Respondents believed that client referrals have improved largely due to improved communication among providers within networks. Providers communicated prior to referring a client, which ensured that the accepting facility already knew of the case before the client's arrival. There also was good feedback on the referral after treatment.

*So, it has improved our referral. In case you want to refer a case, you call the other colleague that you are referring such a case, so that the person will prepare for you before the case comes. **FGD, network member, South Tongu***

Disruptions in service delivery activities were avoided as staff moved across networked facilities to provide care. Additionally, facilities within the network were able to obtain supplies easily from sister facilities to ensure uninterrupted service delivery.

*Human resource is shared among facilities, especially when facilities experiences staff shortages. Staffs from other facilities are moved to other facilities [to] help the facility experiencing the shortages, so that the needed service(s) are rendered to clients. **FGD, network member, South Dayi***

*But with the network now, they told me the situation has improved because if any of the facilities don't have drugs and others do, they just call them to supply them. So, we don't receive such complaints again, and directly that is the result of the PCP network. **IDI, NHIS manager, South Dayi***

Outreach to hard-to-reach communities and for specialized services also enhanced vulnerable groups' access to health services.

*Because of the network, we go for outreach clinics so that we will be able to reach out to those who wish to come to the health center. But because of the distance, they are not able to come. **FGD, network member, South Dayi***

Within PCP networks, facilities and staff shared resources (both human and material), exchanged knowledge and information, and combined forces to conduct community outreach and service delivery. This enabled networks to enhance the provision of equitable essential health services to their catchment population.

## Objectives 2 and 3: Identify factors that enable PCP networks to provide equitable services; identify factors that impede PCP networks from delivering equitable services, and determine how these factors could be addressed

To better understand how implementation has affected PCP networks, the study examined the factors that enhanced PCP networks' ability to provide equitable services as well as those factors that impeded the networks from equitably providing services. The following sections present PCP network members, network leads, and district managers' perspectives on these two issues.

### **Factors That Enable Networks to Provide Equitable Services**

This section focuses on enablers of equitable service provision among the PCP networks. Perspectives from the three respondent groups were similar; thus, the results are not disaggregated in the narrative. The main enabling factors were financial resources, resource sharing, collaboration among staff, the reduction of access barriers, soft skills, and factors related to administrative issues (Table 6).

### **Resource Sharing and Collaboration**

Resource sharing was a key factor that enabled networks to provide equitable services. Facilities in PCP networks shared expertise and other resources. For example, facilities without midwives leveraged midwives from other facilities within their PCP network to provide outreach services and bring the required services closer to the clients.

*For instance, if we are here, you know, we have a clinic within our network. The clinic is within our network. So, when we lack some basic drugs, we can fall on them. And we have been doing that as a network already. So that's what we have been doing, yes. **IDI, network lead, South Dayi***

*We have one CHAG [Christian Health Association of Ghana] facility and [it] is part of the network. So, we liaise with them. Maybe if you're coming to do durbar [type of health outreach service], we tell them, they come and help. **IDI, network lead, South Tongu***

### Outreach Services

The organization of PCP network facilities to provide more outreach services was one of the main equity-enhancing features of the PCP network approach. Outreach services helped to reduce access barriers, as they enabled health care providers to reach those who required services but were unable to go to a health facility for a variety of reasons. The respondents highlighted the benefits of joint outreach, especially as it related to educating communities on major health issues, following-up with existing clients, and detecting new cases for further follow-up,

*Yeah, community outreach and engagement, like I said, we did one early this year or last year. . . . If you don't go there, most of them will stay in.*

*And sometimes when you go, it surprises you that people are sick. They have [high] temperatures and they are home, but when you go there then they come out. . . . When you go there, you pick cases and it's actually helping us. **IDI, network lead, South Tongu***

Soft Skills

Teamwork contributed to the provision of equitable services in PCP network communities. It ensured the distribution of expertise to less-endowed facilities. It also facilitated collaboration between the hub and lower-level facilities. For example, if a particular staff member was unavailable, their colleagues could attend to the client or make efforts to reach the provider for help.

Availability of Financial Resources to Implement PCP Network Activities

Respondents noted that some PCP network activities—like outreach services—required additional funds for implementation. These funds came from local governments or nongovernmental organizations (NGOs). Providers specifically highlighted the ability to leverage funding from the Maternal, Child Health and Nutrition Project (MCHNP), which was funded by the World Bank, to conduct outreach services.

*With the help of the MCHNP funds, we are able to organize the durbars. At first when MCHNP was not coming, it was only the community health nurses that organized themselves and did something, but even that was not enough to motivate the people that come there. But with the help of the NGOs, MCHNP [funds] within the network, we are able to increase the number of durbars we conduct. **FGD, network member, South Tongu***

Table 6: Enablers to PCP network provision of equitable health services

Themes	PCP network members/leads	District-level managers
<b>Resource sharing</b>	Improved availability of facilities through shared resources and teamwork	Availability of services through shared resources
<b>Collaboration</b>	Teamwork, openness of staff, professionalism Improved communication during referrals	Teamwork approach among facilities
<b>Outreach services</b>	Home visits and outreach services	Doorstep provision of health services
<b>Soft skills</b>	Teamwork, openness of staff, professionalism	Teamwork approach among facilities
<b>Additional funding</b>	Outreach activities funded with external funds (Maternal, Child Health and Nutrition Project or nongovernmental organizations) or District Health Management Teams	

## Factors That Impede PCP Network Provision of Equitable Services

The main factors that impeded the ability of PCP networks to provide equitable services were financial resources, health-seeking behaviors, unavailability of resources and infrastructure at CHPS compounds, and transportation challenges. Each of the three respondent groups largely raised the same issues, as outlined in Table 7 below.

### Lack of Financial Resources

Lack of funds was considered to be one of the key barriers to the PCP networks' ability to deliver equity-promoting services. Without funds, providers were unable to organize community outreaches and durbars<sup>2</sup>. As one PCP network lead explained, even though the network activities and collaboration among facilities were parts of their routine work, they still needed funds to move within the network catchment area to support each other.

*If you are trying to do this collaborative work and there is no money in it, sometimes you see that a staff that is instructed to do this will not do [it] because the person says I have no money to travel from [one] point to the other to come and supervise this person. **IDI, network lead, South Dayi***

### NHIS Credentialing

The NHIS required health care facilities in Ghana to obtain NHIS credentialing for the scheme to reimburse them for services they render to NHIS members; not all facilities, however, had NHIS credentialing—especially many CHPS compounds. Since PCP networks were originally designed, technical experts have advocated for NHIS to credential PCP networks as one entity, but this has not yet materialized. As a result, NHIS clients who visited facilities that were not credentialed were disadvantaged because they were expected to pay out of pocket, as one PCP network provider explained:

*Because I'm not NHIS accredited [credentialed], those who come to me with insurance, I don't provide service but explain to them. And [if] they say they don't have money, I don't provide service to them, and they go. Only those who come with money or cash receive health service from me. **FGD, network member, South Tongu***

There were also concerns about the long NHIS credentialing process and renewal process for facilities that were already credentialed. PCP network members were supposed to support one another in getting credentialed, but study participants did not mention any such support.

### Inadequate Staff, Resources, and Infrastructure

PCP network providers and their leads as well as district managers identified inadequate resources and infrastructure, especially at the CHPS level, as a barrier to the provision of

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<sup>2</sup> Durbars are a type of community outreach activity, that brings together community leaders and members on a shared platform to do various development activities. Health services use community durbars for health promotion and education interventions, immunization and minor diagnostic and curative interventions.

equitable care. These included lack of electricity and water, poor lighting system and security in facilities, unavailability of qualified personnel, and lack of drugs, logistics, and medical supplies at the CHPS level.

Some network leads were of the view that the medicine supply system was an impediment to service provision. For example, the delayed delivery and inadequate supply of medicines happened primarily because requisitions made to the medical stores were sometimes not fully met. Most times, the quantity and type of medicines requested were unavailable. Consequently, clients were given prescriptions to purchase outside the facility. Also, sometimes within a network, no facility had spare supplies, so it was impossible to call on any other facility to assist.

*The consumables are very key, so we are begging, if they want us to provide adequate services to our clients, the consumables should be available all the time. . . . Sometimes we do not have gloves and you have no other option than to tell the client to go and buy gloves. And because we are tired of borrowing and not replacing, we were advised to refer and give nonavailability of gloves as reason for the referral.*  
**FGD, network member, South Dayi**

Another impeding factor was poor infrastructure and security. Some facilities had poor lighting systems, streetlights were inadequate, and security staff were lacking. As a result, providing services at night was risky.

*Let's say a pregnant woman in labor can come to you at any time even in the night. So, I'm suggesting that within the network, at least, at the places where there are midwives and they are doing the deliveries at night, there should be two securities assigned to those places.* **FGD, network member, South Tongu**

Lack of adequate infrastructure also affected the privacy of clients—an important quality-of-care consideration. Sometimes, clients who had challenges that they wanted to discuss with the provider were reluctant to share information about their condition when they felt others could hear.

*So, at times, you see that the clients, they are having some challenges, but because there is someone around, they can't express themselves.*  
**FGD, network member, South Tongu**

### Transportation Challenges

Transportation challenges were considered key impediments to the provision of equitable health services – especially in geographically remote or difficult to access areas. Health workers were often unable to render services in **hard-to-reach areas**. Health workers sometimes had to rely on the benevolence of community members for transport to outreach programs.

*If you talk about the logistics—let’s talk about the motorbikes for instance that will aid their movement. If it is not available, it becomes difficult for [network members] to render those services. Even some of the communities—at times if the PA [physician’s assistant] cannot move as a result of pressure at his end, then you now have to move the patient to the PA. If there is no motorbike for that community, even moving the client or patient to the next level, it becomes a challenge. **IDI, district manager, South Tongu***

*Transport for health workers. . .to visit to the village, for example. These days that I don't have money, it was the CHMC [Community Health Management Committee] man who has released his motor for the nurses to enable them to reach the hinterlands. . . So, had it not been the assembly man who has given his motor to us, how do we reach those people, as me too, I don’t have money? **IDI, network lead, South Dayi***

Lack of transportation also impacted the uptake of referrals negatively. Clients were reportedly unable to honor referrals because of the high cost of transportation.

*People go to a particular health center, and most of them when they are referred, they don't go. . . Because of the cost of transportation, they can't afford it. **IDI, manager, South Dayi***

CHPS compounds and health centers were vital components of PHC delivery in Ghana, and these facilities were at the core of the PCP network concept. However, due to inadequate infrastructure, equipment, supplies, and human resources, the majority of these facilities were unable to provide the appropriate health services to the population. Equipping and resourcing CHPS compounds and health centers will greatly advance the equitable provision of health services.

Table 7: Barriers to PCP network provision of equitable health services

Themes	PCP network members/leads	District-level managers
<b>Financial resources</b>	Unavailability of funds to do community outreach or mentoring of lower-level facilities	Delayed financial flows to facilities
<b>NHIS credentialing</b>	Lack of NHIS credentialing	Inability to credential PCP networks
<b>Inadequate staff, resources, and infrastructure at CHPS compounds</b>	Space limitation (lack of privacy in the facility) Lack of electricity/water Poor lighting system/security in facilities Unavailability of qualified personnel Lack of drugs and medical supplies at the CHPS level	Unavailability/inadequacy of drugs and medical supplies

<b>Transportation challenges</b>	Unavailability of transport for service delivery/emergency transport Poor road networks	Transportation issues (no motorbike/vehicle/ambulance) Poor road networks
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**Other Issues Raised**

During the study discussions, respondents brought up enablers and barriers to equitable service provision in the study districts in general. Although these factors were not specific or unique to PCP network operations, they presented an important context that should be considered when designing and implementing community-level service delivery efforts. Enablers mentioned included existing subsidies for the poor and priority clients—like health care providers’ efforts to accommodate the financial situation of the poorest households and the free maternal health policy of the NHIS. Barriers included general poverty in the communities, poor understanding of NHIS coverage, challenges in NHIS membership renewal, and poor health-seeking behavior informed by lay or religious misconceptions.

**Objective 4: Examine the role of nonpublic facilities and the stakeholder context in advancing equitable health care delivery**

This section presents the perspectives of communities, PCP network practitioners (members and leads), and managers on the roles of nonpublic (i.e., Christian Health Association of Ghana, other nonprofit, and for-profit) facilities and the community and district stakeholder context in advancing equitable health care delivery within PCP networks.

**Nonpublic Facilities**

All three respondent groups suggested that nonpublic facilities should play an important role in equitable service provision, be part of PCP networks, and support resource-sharing efforts by providing logistics and equipment. Nonpublic facilities can provide laboratory and imaging services, join outreach services, and align with the Ghana Health Service service-provision standards.

*We have one private facility in town with a well-equipped laboratory. . . . Because their prices are higher, we have agreed with them that if it’s a referral from a network facility—instead of the patient going to the district [hospital] for the labs and probably wait for two days or three days, go back for the results . . . they give a discount. They are really of help to us. **FGD, network members, South Dayi***

The respondents also highlighted NGOs as an important stakeholder in supporting PCP network activities, especially by providing logistics, infrastructure, and transport including ambulances for emergency care.

**Local Stakeholders**

Local stakeholders, like communities and governments, have played a critical role in the implementation of PHC initiatives, including PCP network models (Javanparast et al. 2019;

Meier et al. 2012). Local stakeholders were key determinants of the context in which the PCP networks were implemented. The study therefore explored respondents' perspectives on the role of community members, leaders, and traditional authorities as well as the local government in supporting the equity objectives of PCP networks.

### Communities, Community Leaders, and Religious/Traditional Leaders

Study respondents discussed the extensive role that communities and community/religious leaders could play in advancing health equity in the study districts, especially through PCP networks. Specific and prominent topics that came up included donation of logistics, monitoring of PCP network activities and service quality, establishment of community funds for the poor, facilitation of transport, provision of security for health staff, conduct of health education and outreach, and provision of support infrastructure at CHPS compounds.

Communities sometimes provided various equipment and logistics to support health service provision. In many areas, community members provided spaces for outreach clinics and *durbars*. Such support could further strengthen PCP networks' outreach efforts and decrease costs.

*When we need some things to help us provide our services, we talk to them. They help—like giving us places for outreaches. **FGD, network member, South Dayi***

*They should provide basic things like tables and chairs for nurses to use during outreach programs. **FGD, network member, South Tongu***

Respondents noted that the community volunteers and community surveillance teams contributed to health care by alerting health staff about the existence of conditions that need medical attention. Community members were able to advocate for and mobilize others to patronize the services offered by the health facilities. They sometimes supported and encouraged clients to comply with referrals.

*In the community, we have the volunteers and community surveillance team, and their work is to alert the health staff in case there is any condition that needs medical attention. . . . With the referral system, when we the health staff refer them, they do not go, but when the community [volunteer] comes in, they go. **FGD, network member, South Dayi***

Study participants also highlighted the important role that community stakeholders can play in monitoring PCP network activities and service quality. Participants identified community leader visits to health facilities as an important way to learn about activities and challenges in the health facilities and to offer support or assistance.

*Chiefs visiting the clinic is even very important. His visit is to check if there is a need for any maintenance. . . . The clinic is a community clinic,*

*and therefore we have a role to play to ensure that the clinic is doing well. FGD with male community members, South Dayi*

PCP network members and leads as well as district health managers expressed the desire for communities to support transportation for referrals. For example, community members can collaborate and negotiate with local private transport unions to ensure availability of a transport service when it is needed, especially for emergency referrals. Another suggestion was for community members who can afford it to contribute toward a transportation fund for those in need.

*With the case of referral, they [community members] can come together with the [transport union], talk to a few drivers so that we arrange with them. In case of referrals, they can either get a particular person who will take the cases to the hospital at a reduced cost or, like we all want, for free. FGD, network member, South Dayi*

Communities can also address infrastructure challenges that PCP network member facilities face. For example, they can provide a safe working environment for providers by contributing toward the hiring of security personnel for facilities, particularly facilities in peripheral areas. Communities can organize communal labor to keep the compound clean.

*Our safety is in [the community chief's and leader's] hand. The Queen Mother told me that [for us], the staff, they are our parents. So, if there's anything, we should ask. . . . So, our safety first. IDI, network lead, South Dayi*

*If you are alone and you are doing deliveries and doing ANC and all other things by yourself, sometimes it's difficult cleaning the floors very well. . . . And bushy environments like this produce snakes and other things, which scare off some of the patients who are coming. So, when the place is cleared and looks very neat, it will rather encourage people to access us. FGD, network member, South Tongu*

Infrastructure support can also be in the form of staff accommodation and structures at the CHPS compound. Communities usually assisted health staff to find affordable living accommodation in the communities.

*If a nurse comes with accommodation problem. They help a lot. . . . They would make sure you get a place. IDI, network lead, South Tongu*

In addition, well-resourced individuals in the community can support the efforts of the district authorities to construct structures for health service delivery. Sometimes, community members could allow use of their buildings for health service delivery, albeit on a temporary basis.

Respondents brought up other contextual issues that less directly affected PCP network implementation but provided an important environment for them to function. These included

provision of financial subsidies for the poor (community health funds and direct payments) and health education.

Local Government—District Assembly

Community members expected district assemblies to support community sensitization, provide infrastructure and logistics support, and facilitate ambulance transport for emergency services.

From the perspective of PCP network members and leads, district assemblies can support organization of health activities in the communities, motivate staff by visiting health facilities, interact with staff to know their challenges, as well as provide incentives. In addition, they expected district assemblies to provide infrastructure and transport support to health facilities in their catchment areas. District assemblies were believed to be in the position to facilitate NHIS membership enrollment and renewal for community members. They could also provide financial and logistic resources, including paying for facility security.

District managers affirmed some of the roles community members and network providers assigned to the district assemblies. These included infrastructure support and provision of supplies, particularly items needed when visiting hard-to-reach areas, such as life jackets. In addition, district managers believed district assemblies should facilitate ambulance transport and mobilize financial resources for health services.

*Table 8: The role of stakeholders in the provision of equitable health services*

Themes	Community members	PCP network members/leads	Managers
<b>Role of communities and community/religious/traditional leaders</b>	Janitorial services Donation of logistics Monitoring and support of activities Community fund for vulnerable communities and payments for the poor	Staff accommodation CHPS facility and security Janitorial services Transport for referral and outreach (negotiation with transport unions) Help with organization of <i>durbars</i> and reduce cost of outreach Support for infrastructure, water, and roads for CHPS zones Encouragement of members to use community facilities Health education	Facilitation of transport for referrals Security for health staff Health education of the community Advocacy for resources Monitoring of the quality of health care Encouragement of members to use community facilities Transport for referrals
<b>Role of local government (district health authority)</b>	Community sensitization Infrastructure and logistics support Facilitation of ambulance transport	Supervision of assemblymen Organization of/participation in health community activities Motivation of staff (visitation and incentivization) Infrastructure support Transport support	Infrastructure support Provision of supplies (e.g., life jackets when visiting hard-to-reach areas by lakes) Facilitation of ambulance transport Mobilization of financial resources

		NHIS liaison for membership and renewal Provision of financial and logistical resources Payment for facility security	
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**Objective 5: Examine the policy environment for scaling up PCP networks in Ghana**

The network approach to service delivery is gaining attention in Ghana as the country scales up PCP networks as part of efforts to achieve UHC. This drive will be informed by networks’ potential role in advancing UHC goals.

Experiences from the pilot in South Dayi and South Tongu reinforced the idea that networks have the potential to advance equity in health care delivery. To inform the national scale-up process, the sections below highlight observations and findings from this study that require policy attention, mainly those related to policy alignment, stakeholder engagement, and service availability and quality (or readiness) issues.

**Policy Alignment**

The network approach to service delivery at the primary care level was a recent development that did not necessarily align well with some existing policies, especially those related to the financing of health care. NHIS policies represented one such example: NHIS only reimbursed the cost of services incurred by facilities that were credentialed, but not all facilities within PCP networks were credentialed. Facilities that were not credentialed could not attend to clients who were NHIS members unless these clients were willing to pay cash. Effectively, this deprived some individuals of needed health care.

The NHIS did not recognize the networks as entities for credentialing. To PCP network members and leads, this was the greatest challenge to the networks. The current system of credentialing and payment for health care delivery was tied to specific entities providing services. This did not encourage staff of higher-level facilities to provide outreach services to lower-level facilities. There is therefore a need to review and modify existing policies to promote the equity potential of PCP networks.

*For now, the National Health Insurance Scheme does not recognize PCP network, so it's an issue. . . . Because if they are credentialed as a network, somebody who works at the health center wouldn't hesitate to work at the CHPS compound and bill NHIS because it will recognize the person that is still within the network. One of the barriers is the lack of recognition by the NHIA [National Health Insurance Authority]. **IDI, manager***

Another issue that further complicated PCP network operations was the policy that prohibited networks from having a joint bank account for efficient financial management.

*We agree that it will help the network function effectively if we have a network account and decide who to manage it. To date, however, they have not opened even one account because the existing policy does not allow it, and that is a hindrance already. It can only be solved from the top. ... So, the responsiveness of the policy system should be very key to the success of this network as we are extending it across the country.*

***IDI, manager***

### **Stakeholder Engagement**

Health is multidimensional, and effective health care delivery requires commitment and involvement of all stakeholders. As demonstrated by the study respondents, various challenges confront equitable health care delivery. It would take various actors within and across sectors and agencies to resolve these challenges. In implementing PCP networks, efforts should be made to engage and mobilize relevant stakeholders to support the initiative.

Key stakeholders, such as communities and beneficiaries of health initiatives, need to be engaged in the implementation of PCP networks. In the case of the two study districts, communities had not been sensitized about the networks and how the operation of networks influenced the availability of services at the community level. Implementers of the networks ought to educate the community on the new approach to health care delivery and the expected role of the community. At the district and subdistrict levels, staff need to be empowered to mobilize communities and other stakeholders for health care delivery.

In the pilot districts, private facilities appeared to have limited involvement in the networks. In view of the critical role of private facilities in health care delivery, their exclusion compromises the equity potential of networks. In the scale-up of PCP networks, every effort should be made to ensure that private health facilities are integrated in the networks.

### **Service Availability and Quality**

Primary health facilities (CHPS compounds and health centers) are the foundation of PHC service delivery. However, many of these facilities face challenges that undermine their ability to meet the health needs of the population.

The quantitative data in this study indicated that many households preferred to seek care at the district hospital and poor households often had to travel further than wealthier households to seek care. The qualitative data indicated significant gaps in service availability and quality that may have pushed communities to bypass primary health facilities and use higher-level facilities as the first point of care.

Respondents also spoke of inadequate numbers of health staff, especially for sharing of higher-level personnel among network members. This gap frequently has been associated with inequities in the distribution of health staff in Ghana (Asamani et al. 2021); it was not unique to PCP networks or the study districts. Rural and lower-level facilities were often at a disadvantage and lacked the right mix of staff to provide appropriate care. Although facilities within a PCP

network could share human resources, there was a limit to what they could do because staff were inadequate in number and mix.

Based on the findings of this study and the available literature, the distribution of staff, especially to rural facilities, needs to be improved to enable networks to achieve their equity potential. However, this is a policy imperative that goes well beyond the scope of the PCP networks intervention and requires political commitment and action from national and subnational levels of the Ghana Health Service.

## V. Discussion: Understanding PCP Networks' Role in Improving Equity

This implementation research explored ways in which the PCP network model can promote equitable access to and utilization of quality essential health services among vulnerable, underserved, and priority populations. It investigated the context of and factors that have affected PCP network implementation and the health-seeking patterns and preferences in the study districts. In order to understand the implications of the study findings on the equity-enhancing potential of PCP networks, this section refers back to the logic model from the Figure 2 in Background and Introduction section. The logic model hypothesized that PCP network practices that promote collaboration, coordination, and capacity-building would improve services at the community level, nudge the community to patronize CHPS compounds, and thus minimize access, time, and financial barriers for the poor and vulnerable population groups.

This section will discuss the study findings in relation to the implementation of network practices, reported and observed implications on communities, and anticipated equity benefits.

### 1. Implementation of PCP network practices:

PCP network members, network leads, and district and regional managers indicated that the network approach has improved service provision at the community level. They cited several network practices from the logic model as key enablers to equitable service provision. These included routine visits to CHPS compounds and empowerment of community health officers by midwives and physician assistants from the network hub (a health center or larger CHPS facility at the subdistrict level); resource pooling and sharing, which have ensured service availability and continuity of care; improved referral system and communication, which has improved timeliness of treatment of referred clients; and last, but not least, joint outreach services in communities.

#### 1.1. Factors affecting equitable implementation of PCP network practices

Network practitioners and managers also spoke of features of network implementation that enabled or hindered their equity-promoting potential. The main enablers included soft skills like improved collaboration, communication, and sense of teamwork. Availability of additional funds for network operations, such as funds from donors or district health authorities to

conduct outreach services, was a key factor in ensuring community doorstep provision of services. Existing financial subsidies for clients, such as the NHIS' free maternal care program and occasional funding subsidies for the poor, were highlighted as well. As for the barriers, on the supply side, respondents across all groups listed the unavailability of services, drugs, supplies, and logistics as well as poor infrastructure at CHPS compounds as key prohibitors of equitable provision of care. Lack of NHIS credentialing of certain facilities within PCP networks created additional financial barriers for insured users. Unavailability of referral transport or funds seemed to undermine the benefits obtained from improved referral coordination.

The PCP networks in South Dayi and South Tongu seemed to have implemented all anticipated practices, except task-shifting and private-sector engagement. The respondents of this study did not explicitly discuss these two practices, but they were observed as key missing pieces in policy briefs produced at the end of the pilot in 2019.

Service availability and quality issues were not unique to PCP networks or the study districts. They were systemic issues for health care in Ghana (Agbenyo et al., 2017; Awoonor-Williams et al., 2013; Ministry of Health Ghana et al., 2015) that pushed even insured patients visiting NHIS-credentialed facilities to pay out of pocket for needed care (Akweongo et al., 2021). Quality of care (at least the service availability and readiness dimensions of it) emerged as a key factor for PCP networks' equity-promoting potential. The PCP networks were designed to improve service availability by pooling and sharing resources (financial; human capital; drugs, logistics, and other supplies). However, in practice, network member facilities could not share what they did not have. So, while the study highlighted some resource-sharing examples, the prevalence of resource sharing as a **barrier** to equitable health delivery raised questions about PCP networks' ability to improve services through the current model of enhanced collaboration and resource exchange. Future implementation research should aim to understand PCP network's influence on the availability and quality of services and its expected equity benefits, as well as systemic changes that need to complement this to realize the benefits.

## 1.2. Community and stakeholder context for equitable implementation of PCP networks' practices

When the study probed on the stakeholder context, the role of communities and community and religious leaders in supporting PCP network's equity aspirations surfaced prominently. Respondents across all groups noted that community awareness should be increased, and community leaders continuously engaged in PCP network operations. Community members themselves noted that the community should be empowered as the accountability structure for network implementation and general quality of care. Respondents also pointed to specific ways that community engagement can help to solve barriers related to the context and operating environment that PCP networks face in equitably providing services, mainly to encourage use of CHPS compounds, actively monitor PCP network performance, provide support for housing and travel of personnel, facilitate referral transport, sensitize communities, and provide funding for the poor.

Community is integral in the design and implementation of primary care initiatives that are equitable and responsive to users (McEvoy et al. 2019; World Health Organization 2008b). This study showed that communities and community leaders could alleviate many of the supply- and demand-side barriers to equitable provision and use of services, which were cited by the respondents themselves. The format and framework for effective and consistent participation of communities in service delivery, however, continue to be undefined (Draper et al. 2010; Meier et al. 2012).

This report puts forth several recommendations from PCP network practitioners on strengthening communities' role in network operations (see Recommendations section below). Further implementation research should focus on the framework and role for community engagement in the setup and deployment of PCP networks in Ghana.

The study respondents called on district health authorities, the private sector, and NGOs to provide support for logistics and infrastructure at CHPS, as well as transport for referrals. Additionally, the literature has shown that collaboration with local governments can promote population health planning and focus on social determinants of health (Javanparast et al. 2019)—a critical determinant of equity in health (World Health Organization 2008a). Findings of this study underscored the importance of local governments and private stakeholders' role in addressing health systems and environmental barriers to equitable access to services.

## 2. Effect on communities

PCP network practitioners and managers highlighted networks' specific benefits, including PCP network services being more available to community members and having a wider range of services available. Additionally, through PCP networks, communities had access to higher-level providers at CHPS zones—midwives and physicians' assistants who traveled to support community health officers.

The expected effect on CHPS use as the first point of care, however, has not been observed. All equity groups showed a definite preference for subdistrict and district facilities. They cited proximity to these facilities as the main determinant for this choice, followed by quality of care and the facility being the regular source of treatment. For urban communities, which also tended to be wealthier households, this can be explained by close location to district hospitals. Poorer and rural households, in contrast, seemed to bypass their closest community facility and visit the subdistrict facilities, which usually served as the network hub. The trend to bypass the nearest facility for better availability of services has been observed elsewhere in Ghana (Bell et al., 2020), and it has led to higher out-of-pocket payments. The tendency of the study sample group to bypass CHPS compounds may have been due to a general assumption that CHPS provided only preventive/promotive care, or the service availability issues. The bottom line was that poorer households traveled further to receive care from network hubs or outside of network facilities—which undermined the equity-promoting potential of networks outlined in Figure 2 above.

### 3. Expected Equity Benefits

The results of the equity analysis of this study were quite mixed. The multivariate regression analysis showed that the wealthiest households were 1.38 times more likely to visit a facility when seeking care compared to the poorest households. Additionally, those who lived closest to a facility (within a 1 to 5 km distance) were more likely to visit the facility than those living more than 10 km away. Results also showed that poorer and rural households traveled further to receive care than richer and urban ones. The latter two also tended to patronize higher-level facilities (e.g., district hospitals) that are perceived to have better availability of drugs and services. At the same time, the quantitative survey did not detect any major inequities in general health service use among female and male household heads or rural and urban households. This absence of inequities could not be attributed directly to the PCP networks because there had been no baseline and comparable data from the pre-network period in the study districts. This study can serve as an important baseline and inform areas of focus for PCP network's equity-enhancing initiatives in the future.

Inequities did emerge in the qualitative component and in health-seeking patterns from the quantitative component—with poorer and rural households traveling further and preferring higher-level facilities, presumably due to service availability and readiness issues. Although the quantitative survey did not specifically probe on the travel and time associated with health service use, global research has indicated that the longer distances and associated cost will ultimately disproportionately affect the poor and those living further from facilities (Laokri et al. 2018; Masiye and Kaonga 2016; Mwale et al. 2021). In Ghana, poverty and rural residence are associated with worse maternal and child health outcomes (Ghana Statistical Service et al. 2018)

From the qualitative component respondents' perspective, all equity groups faced similar barriers in accessing care: lack of money, transportation issues, poor service availability, poor staff attitude, and out-of-pocket payments in facilities with no NHIS credential. Issues specific for select equity groups included lack of economic empowerment/independence for women and geographical inaccessibility and transportation costs for people living in hard-to-reach areas.

This study was the first to analyze equity in health service use for various groups in the PCP network catchment areas. Continuous monitoring of health service use patterns in future research is essential to understanding the true impact of the PCP network model on equity in PHC use and delivery, especially after the recommendations from this study are adopted in pilot districts and during the PCP network scale-up.

### Challenges and Study Limitations

The findings of this implementation research should be interpreted in light of select implementation challenges and limitations, listed below:

- Due to absence of a consistent definition of “hard-to-reach areas” in the study districts, the research team was not able to use this as a binary variable for quantitative analysis; instead, the team used the location (rural/urban) and distance traveled to facility to estimate geographic accessibility challenges faced by communities. In addition, respondents in the qualitative component may have meant different settlements when referring to hard-to-reach areas: some may have referred to remote areas, whereas others to areas with difficult terrain and accessibility.
- Questions in the quantitative tool probed on the use of curative care, and the results may not depict the utilization of CHPS for preventive/promotive care.
- As key players in PCP networks, network members and leads are likely to speak positively of the network arrangement. This may have biased their perspectives on the role of the networks in equitable service delivery. The courtesy bias may have contributed to positive assessments of satisfaction with received care in the quantitative survey as well, which contradicted key findings on service availability and readiness in the qualitative component.
- Finally, the lack of community sensitization and awareness about the PCP networks’ existence and benefits made it difficult for researchers to tease out network-specific implications and recommendations from the most important equity stakeholders—the beneficiaries. Future PCP networks should address community engagement from the very onset of implementation.

## VI. Conclusions and Recommendations

PHC is fundamental to achieving equity in the implementation and distribution of UHC benefits at the community level and among the most underserved and vulnerable populations. Ghana launched the PCP network model in the South Dayi and South Tongu districts of the Volta region to address systemic deficiencies in the provision of health services at the PHC level. This implementation research was commissioned to understand how PCP networks could promote equity at the community level and how implementation factors affected networks from their pilot to the existing model.

While the quantitative data on service use patterns in the districts showed few significant inequities in the use of care, patterns of health service use appeared to be inconsistent with PCP networks’ expected equity benefits. The poorest households tended to travel further to receive care. Additionally, poor and rural households preferred district-level facilities when in need of curative care, pointing to the inappropriateness of CHPS as the first point of curative care.

Network members, network leads, and managers indicated that there had been improvements in select service delivery practices that could support equity in the communities. However, significant demand- and supply-side barriers existed that likely prohibited the networks from achieving their full equity-enhancing potential. Continued investments to remove these barriers are needed to improve equity at the PHC level.

## Recommendations

Study participants proposed numerous recommendations on how some of the contextual challenges could be managed at the implementation and policy levels. To supplement these, the research team held a cocreation workshop with PCP network practitioners and managers to formulate concrete recommendations based on key study findings. This section outlines key recommendations that emerged from the study and the cocreation workshop, including areas of action at the implementation and policy levels and the need for further evidence.

At the implementation level, PCP network practitioners and managers should:

- Educate clients and communities about PCP networks, including their responsibilities in the use of the network services. Set up customer care procedures to deal with concerns raised by patients and communities.
- Engage all stakeholders in efforts to better understand PCP networks and empower communities to get more involved and demand accountability. Consider community score cards as a tool to engage chiefs and community members in addressing their health problems and needs.
- Work closely with community health management committees to identify priority households for targeted services. Identify transport for emergency and referral purposes.
- Communities and network teams should work together to raise support funds for the poor and conduct more outreach for remote and hard-to-reach areas.
- Designate a model health center as the hub in every network. Equip and staff existing hubs to provide the required range of basic services.
- Routinely assess functioning of the PCP networks.

At the policy level, policymakers and financial and implementing partners should:

- Align PCP network practices and policies with other health care policies, especially:
  - Formulate a policy to credential networks as entities for health service delivery and NHIS reimbursement. Networks should be credentialed at the level of the highest cadre.
  - Align PCP network policies with Ghana Health Service outreach policies and NHIS credentialing and reimbursement regulations so that outreach services can be reimbursed based on the cadre of staff and facility/location for service delivery.
- Provide a functional definition of “equity” and its indicators for all providers of health services.
- Define the standards for a model health center (a hub) and establish a national hub for technical support and coordination of the scale-up of PCP networks.
- Review, revise, and implement staffing policies to achieve the right mix of staff and ensure that networks can operate effectively in the districts.
- Review, revise, and disseminate current referral guidelines to take account of the role and operations of networks and the communities they serve.

- Focus on technical assistance and capacity building efforts to enhance stakeholder engagement initiatives among Network managers and implementers.

As PCP networks are scaled up, more implementation research is necessary to:

- Monitor and conduct trend analysis of equity in service use—specially to monitor the effect of changes to network operations that are enacted based on this study. Establish baseline data and regular assessments as PCP networks are rolled out across the country.
- Understand the effect of PCP networks on the availability and quality of services.
- Explore the role and involvement of nonpublic (Christian Health Association of Ghana and self-financing), NGO, and non-orthodox facilities in networks.
- Explore the role of communities in ensuring accountability in PCP network implementation, including the networks' potential to alleviate select demand- and supply-side barriers that were identified in the study, quality, and equitable provision of care.
- Conduct comparative or case-control analysis with districts that are not implementing the network approach to understand the impact of networks on equity, quality and efficiency of health service delivery in Ghana.

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## Appendix A: COVID-19 Awareness and Ability to Cope

### Background

Ghana confirmed its first two cases of COVID-19 on March 12, 2020;<sup>3</sup> since then, it has recorded 116,441 positive cases and 991 deaths.<sup>4</sup> The data for this implementation research were collected in the midst of the pandemic and ongoing outbreak in Ghana. The researchers used the fieldwork as an opportunity to get a better understanding of the households' COVID-19 awareness and self-reported ability to protect themselves during the household survey. The researchers found that socioeconomic status highly influenced the likelihood of awareness, as well as the risk of contracting COVID-19. Other studies have shown that socioeconomic status, education, asset ownership (especially media like television and mobile phones), geographic location, and even race can affect awareness of and ability to cope with the COVID-19 pandemic.<sup>5,6,7</sup> Thus, the researchers tried to explore any existence of disparities in knowledge and ability to cope with the pandemic among the poor and non-poor.

### Methods

The data were collected during the quantitative survey of 500 randomly selected households that were sampled for the study. A separate section on COVID-19 was added to the existing questionnaire. The respondents were asked about their knowledge of the three categories of COVID-19 symptoms based on the classification by the World Health Organization in July 2020: common symptoms, less common symptoms, and symptoms of serious concern. The respondents also were asked about the main self-protection mechanisms they used. Concerns regarding getting infected with COVID-19 and effect of COVID-19 on respondents' health-seeking behavior were explored as well. The data were disaggregated by household wealth quintile using the Equity Tool. Responses were cross tabulated against households' wealth quintiles, and Chi-square tests were used to estimate the significance of differences observed.

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<sup>3</sup> Kenu E, Frimpong JA, Koram KA. 2020. Responding to the COVID-19 pandemic in Ghana. *Ghana Med J.* 54(2):72–73. <https://doi.org/10.4314/gmj.v54i2.1>.

<sup>4</sup> Worldometer. 2021. Ghana: Coronavirus cases. Worldometer website. <https://www.worldometers.info/coronavirus/country/ghana/>. [Live updates]. Accessed August 27, 2021.

<sup>5</sup> Lau LL, Hung N, Go DJ, Ferma J, Choi M, Dodd W, Wei X. 2020. Knowledge, attitudes and practices of COVID-19 among income-poor households in the Philippines: a cross-sectional study. *J Glob Health.* 10(1):011007. <https://doi.org/10.7189/jogh.10.011007>.

<sup>6</sup> Alabed AAA, Elengoe A, Anandan ES, Almahdi AY. 2020. Recent perspectives and awareness on transmission, clinical manifestation, quarantine measures, prevention and treatment of COVID-19 among people living in Malaysia in 2020. *J Public Health.* <https://doi.org/10.1007/s10389-020-01395-9>.

<sup>7</sup> Wolf MS, Serper M, Opsasnick L, et al. 2020. Awareness, attitudes, and actions related to COVID-19 among adults with chronic conditions at the onset of the US outbreak: a cross-sectional survey. *Ann Intern Med.* 173(2):100–109. <https://doi.org/10.7326/m20-1239>.

## Key Findings

### General Knowledge

Out of 500 household heads surveyed, 98% said they were aware of the outbreak and 96% said they knew how to prevent COVID-19. Wealthier households had slightly higher general knowledge and awareness about the COVID-19 outbreak and transmission prevention (Table A1). Most respondents were also able to identify at least one of the three most common symptoms and prevention methods, with no significant difference among different wealth quintiles (Box A1).

Table A1: Knowledge of COVID-19 outbreak and prevention methods

Household responses	Poorest	Second	Third	Fourth	Wealthiest	p value
Aware of the COVID-19 outbreak (n = 500)	97%	97%	98%	100%	100%	0.201
Knows how to prevent COVID-19 transmission (n = 490)	96%	92%	96%	98%	99%	0.031

Box A1: Knowledge of symptoms and prevention methods

<b>Identification of common symptoms</b>	<ul style="list-style-type: none"> <li>● 81% of households correctly identified cough, 49% correctly identified fever, and 4% correctly identified tiredness as common symptoms of COVID-19.</li> <li>● Only seven households (1%) listed all three common symptoms; all of them were in the fourth and wealthiest quintiles.</li> <li>● The difference among wealth quintiles was not significant.</li> </ul>
<b>Identification of effective prevention methods</b>	<ul style="list-style-type: none"> <li>● 91% identified handwashing/sanitization, 74% identified wearing a mask, and 28% identified social distancing as ways to prevent COVID-19 transmission.</li> <li>● The majority of households were able to frequently sanitize/wash hands (91%) and wear a mask (52%) on a daily basis. Only 13% were able to maintain social distancing.</li> <li>● The difference among wealth quintiles was not significant.</li> </ul>

### Concerns and Health-Seeking Behavior

Out of 490 households that said they were aware of the COVID-19 outbreak, 59% were either very concerned (39%) or concerned (20%) that the household member may get COVID-19. A bigger proportion of poorer households were concerned compared with wealthier ones: About 34% of households that were very concerned were in the poorest quintile, compared with only

about 14% in the wealthiest quintiles. Similarly, about 28% of concerned households were in the poorest quintile, compared with only about 15% in the wealthiest.

Table A2: Concern that a household member may get COVID-19

	Quintile classification						p value
	Total	Poorest	Second	Third	Fourth	Wealthiest	
Very concerned	192	65	35	35	31	26	0.033
(%)	(100.00)	(33.85)	(18.23)	(18.23)	(16.15)	(13.54)	
Concerned	98	27	18	15	23	15	
(%)	(100.00)	(27.55)	(18.37)	(15.31)	(23.47)	(15.31)	
Somewhat concerned	73	22	19	15	12	5	
(%)	(100.00)	(30.14)	(26.03)	(20.55)	(16.44)	(6.85)	
Not very concerned	50	8	7	8	12	15	
(%)	(100.00)	(16.00)	(14.00)	(16.00)	(24.00)	(30.00)	
Not concerned at all	77	14	12	16	18	17	
(%)	(100.00)	(18.18)	(15.58)	(20.78)	(23.38)	(22.08)	
Total	490	136	91	89	96	78	
(%)	(100.00)	(27.76)	(18.57)	(18.16)	(19.59)	(15.92)	

The outbreak did not seem to affect the health-seeking behavior of households. About 59% of all households had not visited a health facility since the onset of the outbreak, but only 3% stated COVID-19 as the reason for this. These respondents were from both poorer and wealthier households, with no significant difference observed among the quintile groups.

## Appendix B: Demography of Survey Population

The descriptive statistics of the participants are presented in Table A3. In total, the survey covered 500 households. Out of a total of 2,457 household members, females constituted 52%. Persons aged 15 years and older who were either married or in a consensual union accounted for 54%. About 32% of the household members were either heads (500) or spouses to the head (286). Of those who were household heads, 36% were female. More than 88% of household members had some level of formal education. Approximately 79% said they had ever signed up for health insurance. However, only about 66% possessed valid health insurance (i.e., were insured at the time of the survey). Overall, rural households were about 60%.

For the age distribution, about 47% of the household members were under the age of 20 years. When the sample is restricted to only females, 41% of them were under 20 years. For the male members, about 52% were under 20 years (Table A4). For the age distribution among household heads, the majority were older than 50 years; many more female household heads were in this age bracket (55%) compared with male household heads (Table A5).

Table A3: Socioeconomic characteristics of household members by district

	Overall		South Dayi		South Tongu		p value
	N	%	N	%	N	%	
<b>Gender of household members</b>							
<i>Female</i>	1,266	51.53	620	51.54	646	51.52	0.991
<i>Male</i>	1,191	48.47	583	48.46	608	48.48	
<i>Total</i>	2,457	100.0	1,203	100.00	1,254	100.00	
<b>Marital status ≥15 years</b>							
<i>Married/consensual union</i>	882	54.21	436	55.19	446	53.29	<0.001
<i>Divorced/separated</i>	48	2.95	24	3.04	24	2.87	
<i>Single/never married</i>	588	36.14	280	35.44	308	36.80	
<i>Widowed</i>	109	6.70	50	6.33	59	7.05	
<i>Total</i>	1,627	100.00	790	100.00	837	100.00	
<b>Household composition</b>							
<i>Child/adopted/foster/stepchild</i>	1,329	54.09	683	56.78	646	51.52	<0.001
<i>Head/spouse of head</i>	786	31.99	409	33.99	377	30.07	
<i>House help/nonrelative</i>	310	12.61	93	7.74	217	17.31	
<i>Parent/parent-in-law</i>	12	0.49	6	0.50	6	0.48	
<i>Son-in-law/daughter-in-law</i>	20	0.81	12	1.00	8	0.64	
<i>Total</i>	2,457	100.00	1,203	100.00	1,254	100.00	
<b>Ever signed up for health insurance</b>							
<i>Yes</i>	1,934	78.71	941	78.22	993	79.19	0.559
<i>No</i>	523	21.29	262	21.78	261	20.81	
<i>Total</i>	2,457	100.00	1,203	100.00	1,254	100.00	
<b>Type of insurance ever registered with</b>							

<i>NHIS</i> <i>Private health insurance</i>	1,933 1	99.95 0.05		940 1	99.89 0.11	993 —	100.0 0 —	0.304 —	
<b>Currently insured</b>									
<i>Yes</i>	1,274	65.87		743	78.96	531	53.47	<0.001	
<i>No</i>	660	34.13		198	21.04	462	46.53		
<i>Total</i>	1,934	100.00		941	100.00	993	100.00		
<b>Highest school grade completed</b>									
<i>None</i>	260	11.12		74	6.47	186	15.55	<0.001	
<i>Preschool/primary school</i>	1,099	50.31		575	50.31	524	43.81		
<i>Middle school/Junior High School</i>	514	21.98		241	21.08	273	22.83		
<i>Secondary/vocational</i>	314	13.42		165	14.44	149	12.46		
<i>Tertiary</i>	152	6.50		88	7.70	64	5.35		
<i>Total</i>	2,339	100.00		1,143	100.00	1,196	100.00		
<b>Household location</b>									
<i>Rural</i>	300	60.00		150	60.00	150	60.00	<0.001	
<i>Urban</i>	200	40.00		100	40.00	100	40.00		
<i>Total</i>	500	100.00		250	100.00	250	100.00		
<b>Gender of household head</b>									
<i>Male</i>	320	64.00		176	70.40	144	57.60	0.003	
<i>Female</i>	180	37		74	29.60	106	42.40		
<i>Total</i>	500	100.00		250	100.00	250	100.00		
<b>Wealth quintile</b>									
<i>Poorest</i>	141	28.20		64	25.60	77	30.80	<0.001	
<i>Second</i>	94	18.80		50	20.00	44	17.60		
<i>Third</i>	91	18.20		44	17.60	47	18.80		
<i>Fourth</i>	96	19.20		53	21.60	43	17.20		
<i>Wealthiest</i>	78	15.60		39	15.60	39	15.60		
<i>Total</i>	500	100.00		250	100.00	250	100.00		
<b>Household size (number of people)</b>	4.8 [N = 500]			4.6 [N = 250]			5.0 [N = 250]		
<b>Mean age (years)</b>	27 [0–99]			27 [0–91]			27 [0–99]		

Table A4: Age and sex distribution of household members

Age (years)	Overall		Female		Male		Chi <sup>2</sup> p value
	N	%	N	%	N	%	
<10	584	23.77	252	19.91	332	27.88	<0.001
10–20	589	23.97	291	22.99	298	25.02	
21–30	383	15.59	224	17.69	159	13.35	
31–40	305	12.41	162	12.80	143	12.01	
41–50	238	9.69	135	10.66	103	8.65	

51–60	162	6.59	84	6.64	78	6.55
>60	196	7.98	118	9.32	78	6.55
Total	2,457	100.00	1,266	100.00	1,191	100.00

Table A5: Age distribution of household heads

Age group	Overall	Female	Male	Chi <sup>2</sup> p value
<30 years	51	17	34	0.001
%	10.20	9.44	10.63	
30–40 years	114	32	82	
%	22.80	17.78	25.62	
41–50 years	115	31	84	
%	23.00	17.22	26.25	
>50 years	220	100	120	
%	44.00	55.56	37.50	
Total	500	180	320	
	100.00	100.00	100.00	

## Gender Distribution

The descriptive analysis included cross-tabulations between the gender of the household heads and a number key variables. For education, overall, there was a larger proportion of female household heads without a formal education compared with male household heads, and there was a significant difference between the two groups. However, 26% of female household heads attained primary school education compared with 24% of male household heads. A larger number of male household heads had tertiary education (19%) compared with female household heads (9%) (Table A6). The majority of male household heads were married (86%), whereas only 42% female household heads were married. However, a larger proportion of female household heads were widowed (34%) compared with male household heads (3%) (Table A7).

About 60% of both male and female household heads lived in rural areas (Table A8). The proportion of female household heads with valid health insurance was 61%; the proportion of male household heads with valid health insurance was 56%. Thus, in proportionate terms, more female household heads than males were likely to have financial risk protection in the PCP networks catchment area (Table A9).

Table A6: Educational level and gender of household heads

Educational level	Overall	Female	Male	Chi <sup>2</sup> p value
None	69	48	21	<0.001
%	13.80	26.67	6.56	
Middle school/Junior High School	156	55	101	

	%	31.20	30.56	31.56
	<i>Preschool</i>	11	8	3
	%	2.20	4.44	0.94
	<i>Primary school</i>	123	47	76
	%	24.60	26.11	23.75
	<i>Secondary/vocational</i>	64	6	58
	%	12.80	3.33	18.13
	<i>Tertiary</i>	77	16	61
	%	15.40	8.89	19.06
	<i>Total</i>	500	180	320
	%	100.00	100.00	100.00

Table A7: Marital status and gender of household heads

Marital status	Overall	Female	Male	Chi <sup>2</sup> p value
<i>Consensual union</i>	9	4	5	<0.001
%	1.80	2.22	1.56	
<i>Divorced</i>	19	13	6	
%	3.80	7.22	1.88	
<i>Married</i>	352	76	276	
%	70.40	42.22	86.25	
<i>Never married</i>	1	1	0	
%	0.20	0.56	0.00	
<i>Separated</i>	10	8	2	
%	2.00	4.44	0.63	
<i>Single</i>	38	16	22	
%	7.60	8.89	6.88	
<i>Widowed</i>	71	62	9	
%	14.20	34.44	2.81	
<i>Total</i>	500	180	320	
%	100.00	100.00	100.00	

Table A8: Residential location by gender of household head

Location	Overall	Female	Male	Chi <sup>2</sup> p value
Rural	300	110	190	0.704
%	60.00	61.11	59.38	
Urban	200	70	130	
%	40.00	38.89	40.63	
Total	500	180	320	
%	100.00	100.00	100.00	

Table A9: Gender and health insurance

	Ever registered with any health insurance	Chi <sup>2</sup>
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Gender of Household Head	Yes	No	Total	<i>p</i> value
Female (%)	160 (88.89)	20 (11.11)	180 (100.00)	<0.001
Male (%)	229 (71.56)	91 (28.44)	320 (100.00)	
Total (%)	389 (77.80)	111 (22.20)	500 (100.00)	
<b>Type of insurance ever registered with</b>				
Gender	NHIS	Private insurance	Total	
Female (%)	160 (100.00)	0 —	160 (100.00)	0.403
Male (%)	228 (99.56)	1 (0.44)	229 (100.00)	
Total (%)	388 (99.74)	1 (0.26)	389 (100.00)	
<b>Currently insured</b>				
Gender	Yes	No	Total	
Female (%)	97 (60.62)	63 (39.38)	160 (100.00)	0.353
Male (%)	128 (55.90)	101 (44.10)	229 (100.00)	
Total (%)	225 (57.84)	164 (42.16)	389 (100.00)	

### Wealth Quintile Distribution

The wealth quintile distribution showed that 15% of the households were in the wealthiest quintile and 28% were in the poorest quintile. For the quintile distribution between male- and female-headed households, the data showed that about 33% of female household heads and 26% of male household heads were in the poorest wealth quintile (Table A10). About 44% of the rural households were in the poorest quintile compared with about 5% of the urban households. Also, 33% of urban households were in the wealthiest quintile compared with 4% of their counterparts in rural settings (Table A11). These results were significant and implied that households in the rural areas were much poorer than those in the urban areas.

Table A10: Wealth quintile classification by gender of the household head

Wealth quintile	Total		Female-headed households		Male-headed households		<i>p</i> value
	N	%	N	%	N	%	
Poorest	141	28.20	59	32.78	82	25.62	0.254
Second	94	18.80	26	14.44	68	21.25	
Third	91	18.20	35	19.44	56	17.50	
Fourth	96	19.20	33	18.33	63	19.69	
Wealthiest	78	15.60	27	15.00	51	15.94	
Overall	500	100.00	180	100.00	320	100.00	

Table A11: Wealth quintile classification by household location (rural/urban)

National quintile	Overall		Rural		Urban		Chi <sup>2</sup> p value
	N	%	N	%	N	%	
Poorest	141	28.20	132	44.00	9	4.50	<0.001
Second	94	18.80	72	24.00	22	11.00	
Third	91	18.20	47	15.67	44	22.00	
Fourth	96	19.20	38	12.67	58	29.00	
Wealthiest	78	15.60	11	3.66	67	33.50	
Total	500	100.00	300	100.00	200	100.00	

## Appendix C : Tables from Quantitative Survey

Objective 1: Examine the use of health services in PCP network catchment areas to identify existing inequities and the role of PCP networks in addressing them.

### Equity Variable—Household Wealth

Table A12: Health-seeking patterns by wealth quintile

First preference for health care	Quintile classification						p value
	Overall	Poorest	Second	Third	Fourth	Wealthiest	
<b>Reported illness/injury<sup>a</sup></b>							
Yes	172	44	30	31	38	29	0.679
(%)	(34.40)	(31.21)	(31.91)	(34.07)	(39.58)	(37.18)	
No	328	97	64	60	58	49	
(%)	(65.60)	(68.79)	(68.09)	(65.93)	(60.42)	(62.82)	
Total	500	141	94	91	96	78	
(%)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	
<b>Sought health care for illness</b>							
Yes	152	39	29	25	32	27	0.279
(%)	(88.37)	(88.64)	(96.67)	(80.65)	(84.21)	(93.10)	
No	20	5	1	6	6	2	
(%)	(11.63)	(11.36)	(3.33)	(19.35)	(15.79)	(6.90)	
Total	172	44	30	31	38	29	
(%)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	
<b>Would have preferred another health facility</b>							
Yes	67	14	8	12	19	14	0.143
(%)	(52.76)	(45.16)	(38.10)	(54.55)	(73.08)	(51.85)	
No	60	17	13	10	7	13	
(%)	(47.24)	(54.84)	(61.90)	(45.45)	(26.92)	(48.15)	
Total	127 <sup>b</sup>	31	21	22	26	27	
(%)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	

<sup>a</sup> During four weeks prior to survey

<sup>b</sup> 25 respondents did not answer

Table A13: If YES, from where did you first seek care for this illness/injury?

Health care facility accessed	Quintile classification						p value
	Overall	Poorest	Second	Third	Fourth	Wealthiest	
Community health facility <sup>a</sup>	6	2	4	—	—	—	
(%)	(3.95)	(5.13)	(13.79)				

Subdistrict health facility <sup>b</sup> (%)	61 (40.13)	17 (43.59)	18 (62.07)	10 (40.00)	8 (25.00)	8 (29.63)	<0.001
District health facility <sup>c</sup> (%)	58 (38.16)	7 (17.95)	6 (20.69)	13 (52.00)	17 (53.13)	15 (55.56)	
Regional health facility <sup>d</sup> (%)	10 (6.58)	5 (12.82)	—	—	4 (12.50)	1 (3.70)	
Other health facility <sup>e</sup> (%)	17 (11.18)	8 (20.51)	1 (3.45)	2 (8.00)	3 (9.38)	3 (11.11)	
Total (%)	152 (100.00)	39 (100.00)	29 (100.00)	25 (100.00)	32 (100.00)	27 (100.00)	

<sup>a</sup> Community-based Health Planning and Services (CHPS) compounds

<sup>b</sup> Public health centers, mission/NGO clinics

<sup>c</sup> Municipal hospital (public), municipal hospital (Mission)

<sup>d</sup> Regional public hospital

<sup>e</sup> Includes private clinic, private hospital, private pharmacy, self-medication, drug store

Table A14: Disaggregation of “other” facilities

Other facility accessed	Quintile classification						p value
	Overall	Poorest	Second	Third	Fourth	Wealthiest	
<i>Drug store</i>	7	3	1	1	1	1	0.824
%	41.18	37.50	100.00	50.00	33.33	33.33	
<i>Private pharmacy</i>	1	1	0	0	0	0	
%	5.88	12.50	0.00	0.00	0.00	0.00	
<i>Private hospital</i>	4	1	0	0	1	2	
%	23.53	12.50	0.00	0.00	33.33	66.67	
<i>Self-medication</i>	3	2	0	0	1	0	
%	17.65	25.00	0.00	0.00	33.33	0.00	
<i>Traditional healer</i>	2	1	0	1	0	0	
%	11.76	12.50	0.00	50.00	0.00	0.00	
<i>Total</i>	17	8	1	2	3	3	
%	100.00	100.00	100.00	100.00	100.00	100.00	

Table A15: If you did not seek care at the onset (e.g., days >1), what was the main reason?

Reported reasons for not accessing health care facility	Quintile classification						p value
	Overall	Poorest	Second	Third	Fourth	Wealthiest	
Initial self-medication at home (%)	4 (18.19)	—	—	2 (33.34)	2 (40.00)	—	0.360
Illness not considered critical (%)	7 (31.82)	3 (42.86)	—	1 (16.67)	2 (40.00)	1 (50.00)	
Lack of funds (%)	7 (31.82)	3 (42.86)	2 (100.0)	1 (16.67)	1 (20.00)	—	
Long distance to facility (%)	2 (9.09)	—	—	2 (33.33)	—	—	
No accompanier (%)	1 (4.55)	1 (14.29)	—	—	—	—	

Other reasons (%)	1 (4.55)	—	—	—	—	1 (50.00)	
Total (%)	22 (100.00)	7 (100.00)	2 (100.00)	6 (100.00)	5 (100.00)	2 (100.00)	

Table A16: Why was care sought from this source [facility]?

Reasons for accessing health care facility	Quintile classification						p value
	Overall	Poorest	Second	Third	Fourth	Wealthiest	
Good quality of care (%)	12 (7.89)	5 (12.82)	1 (3.45)	2 (8.00)	2 (6.25)	2 (7.41)	0.240
Good reputation (%)	7 (4.61)	3 (7.69)	1 (3.45)	1 (4.00)	1 (3.12)	1 (3.70)	
Availability of doctors (%)	3 (1.97)	—	—	—	2 (6.25)	1 (3.70)	
NHIS provider (%)	1 (0.66)	—	—	—	—	1 (3.70)	
Nice health workers (reception) (%)	2 (1.32)	1 (2.56)	—	1 (4.00)	—	—	
Regular source of treatment (%)	17 (11.19)	2 (5.13)	1 (3.45)	4 (16.00)	5 (15.63)	5 (18.53)	
Availability of drugs (%)	7 (4.61)	1 (2.56)	1 (3.45)	1 (4.00)	2 (6.25)	2 (7.41)	
Availability of modern facilities (%)	6 (3.95)	3 (7.69)	3 (10.34)	—	—	—	
Only facility available (%)	9 (5.92)	5 (12.82)	—	1 (4.00)	3 (9.38)	—	
Proximity (%)	71 (46.71)	11 (28.21)	21 (72.41)	12 (48.00)	14 (43.75)	13 (48.15)	
Short waiting time (%)	2 (1.32)	—	—	1 (4.00)	—	1 (3.70)	
Low charges (%)	6 (3.95)	4 (10.26)	1 (3.45)	—	1 (3.12)	—	
Other reasons (%)	9 (5.92)	4 (10.26)	—	2 (8.00)	2 (6.25)	1 (3.70)	
Total (%)	152 (100.00)	39 (100.00)	29 (100.00)	25 (100.00)	32 (100.00)	27 (100.00)	

Table A17: What was this facility? (Those who answered “Yes” to “Was there any facility you would have preferred to attend for this illness/injury if chance was given?”)

Preferred health care facility	Quintile classification						p value
	Overall	Poorest	Second	Third	Fourth	Wealthiest	
Community health facility <sup>a</sup>	4	—	—	1	1	2	

(%)	(5.97)			(8.33)	(5.26)	(14.29)	0.530
Subdistrict health facility <sup>b</sup> (%)	5 (7.46)	1 (7.14)	—	—	2 (10.53)	2 (14.29)	
District health facility <sup>c</sup> (%)	55 (82.09)	13 (92.85)	8 (100.00)	11 (91.67)	14 (73.68)	9 (64.29)	
Regional health facility <sup>d</sup> (%)	3 (4.48)	—	—	—	2 (10.53)	1 (7.14)	
Total (%)	67 (100.00)	14 (100.00)	8 (100.00)	12 (100.00)	19 (100.00)	14 (100.00)	

<sup>a</sup> Community-based Health Planning and Services (CHPS) compounds

<sup>b</sup> Public health centers, Mission/NGO clinics

<sup>c</sup> Municipal hospital (public), Municipal hospital (Mission)

<sup>d</sup> Regional public hospital

Table A18: What was the reason for preferring this facility?

	Overall	Quintile classification					p value
		Poorest	Second	Third	Fourth	Wealthiest	
<i>Good quality of care</i>	14	3	0	3	5	3	0.090
%	20.90	21.43	0.00	25.00	26.32	21.43	
<i>Good reputation</i>	12	2	0	2	5	3	
%	17.91	14.29	0.00	16.67	26.32	21.43	
<i>Low charges</i>	1	0	0	0	1	0	
%	1.49	0.00	0.00	0.00	5.26	0.00	
<i>Nice health workers</i>	1	0	0	1	0	0	
%	1.49	0.00	0.00	8.33	0.00	0.00	
<i>Regular source of treatment</i>	4	0	2	1	1	0	
%	5.97	0.00	25.00	8.33	5.26	0.00	
<i>Availability of drugs</i>	6	0	2	1	2	1	
%	8.96	0.00	25.00	8.33	10.53	7.14	
<i>Availability of modern facilities</i>	13	5	2	2	1	3	
%	19.40	35.71	25.00	16.67	5.26	21.43	
<i>Only facility available</i>	1	0	0	0	1	0	
%	1.49	0.00	0.00	0.00	5.26	0.00	
<i>Proximity</i>	13	2	2	2	3	4	
%	19.40	14.29	25.00	16.67	15.79	28.57	
<i>Other reasons</i>	2	2	0	0	0	0	
%	2.99	14.29	0.00	0.00	0.00	0.00	
<i>Total</i>	67	14	8	12	19	14	
%	100.00	100.00	100.00	100.00	100.00	100.00	

Table A19: Health facility accessed by distance

Distance to health facility	Wealth quintile						p value
	Overall	Poorest	Second	Third	Fourth	Wealthiest	
<1 km	41	7	8	8	6	12	0.582

(%)	(31.30)	(20.59)	(32.00)	38.10	(23.08)	(48.00)	
1–5 km (%)	51 (38.93)	14 (41.18)	9 (36.00)	9 42.86	12 (46.15)	7 (28.00)	
6–10 km (%)	16 (12.21)	5 (14.71)	5 (20.00)	2 9.52	2 (7.69)	2 (8.00)	
>10 km (%)	23 (17.56)	8 (23.53)	3 (12.00)	2 9.52	6 (23.08)	4 (16.00)	
Total (%)	131 (100.00)	34 (100.00)	25 (100.00)	21 100.00	26 (100.00)	25 (100.00)	

Table A20: How long did you wait before seeking care, from the onset of the illness/injury?

Waiting time before visiting health care facility	Quintile classification						p value
	Overall	Poorest	Second	Third	Fourth	Wealthiest	
Less than a day (%)	74 (48.68)	17 (43.59)	9 (31.03)	10 (40.00)	21 (65.63)	17 (62.96)	0.026
1–5 days (%)	65 (42.76)	19 (48.72)	17 (58.62)	11 (44.00)	8 (25.00)	10 (37.04)	
6–10 days (%)	8 (5.26)	—	3 (10.34)	2 (8.00)	3 (9.38)	—	
Above 10 days (%)	5 (3.29)	3 (7.69)	—	2 (8.00)	—	—	
Total (%)	152 (100.00)	39 (100.00)	29 (100.00)	25 (100.00)	32 (100.00)	27 (100.00)	

Table A21: How satisfied were you with the services received during the last visit to the health facility? (aggregated result)

Overall assessment	Quintile classification						p value
	Overall [%]	Poorest [%]	Second [%]	Third [%]	Fourth [%]	Wealthiest [%]	
Waiting time at health facility							
Satisfied	124 [85.5]	34 [87.2]	25 [92.6]	18 [72.0]	24 [88.9]	23 [85.2]	0.201
Not satisfied	21 [14.5]	5 [12.8]	2 [7.4]	7 [28.0]	3 [11.1]	4 [14.8]	
Total	145 [100.0]	39 [100.0]	27 [100.0]	25 [100.0]	27 [100.0]	27 [100.0]	
Friendliness of health staff							
Satisfied	128 [88.3]	36 [92.3]	23 [85.2]	20 [80.0]	26 [96.3]	23 [85.2]	0.372
Not satisfied	17 [11.7]	3 [7.7]	4 [14.8]	5 [20.0]	1 [3.7]	4 [14.8]	
Total	145 [100.0]	39 [100.0]	27 [100.0]	25 [100.0]	27 [100.0]	27 [100.0]	
Attentiveness of health staff							
Satisfied	125 [86.2]	35 [89.7]	23 [85.2]	19 [76.0]	24 [88.9]	24 [88.9]	0.401
Not satisfied	20 [13.8]	4 [10.3]	4 [14.8]	6 [24.0]	3 [11.1]	3 [11.1]	
Total	145 [100.0]	39 [100.0]	27 [100.0]	25 [100.0]	27 [100.0]	27 [100.0]	
Availability of health staff							
Satisfied	126 [86.9]	38 [97.4]	20 [74.1]	16 [64.0]	27 [100.0]	25 [92.6]	0.029
Not satisfied	19 [13.1]	1 [2.6]	7 [25.9]	9 [36.0]	—	2 [7.4]	
Total	145 [100.0]	39 [100.0]	27 [100.0]	25 [100.0]	27 [100.0]	27 [100.0]	
Availability of drugs							

Satisfied	111 [76.6]	33 [84.6]	20 [74.1]	19 [76.0]	18 [66.7]	21 [77.8]	0.183
Not satisfied	34 [23.4]	6 [15.4]	7 [25.9]	6 [24.0]	9 [33.3]	6 [22.2]	
Total	145 [100.0]	39 [100.0]	27 [100.0]	25 [100.0]	27 [100.0]	27 [100.0]	
Referred to another facility							0.170
Yes	14 [9.7]	4 [10.3]	6 [22.2]	1 [4.0]	1 [3.7]	2 [7.4]	
No	131 [90.3]	35 [89.7]	21 [77.8]	24 [96.0]	26 [96.3]	25 [92.6]	
Total	145 [100.0]	39 [100.0]	27 [100.0]	25 [100.0]	27 [100.0]	27 [100.0]	
Referral system assessment							0.594
Satisfied	9 [64.3]	2 [50.0]	3 [50.0]	1 [100.0]	1 [100.0]	2 [100.0]	
Not satisfied	5 [35.7]	2 [50.0]	3 [50.0]	—	—	—	
Total	14 [100.0]	4 [100.0]	6 [100.0]	1 [100.0]	1 [100.0]	2 [100.0]	
Overall assessment <sup>a</sup>							0.691
Satisfied	10 [71.4]	3 [75.0]	3 [50.0]	1 [100.0]	1 [100.0]	2 [100.0]	
Not satisfied	4 [28.6]	1 [25.0]	3 [50.0]	—	—	—	
Total	14 [100.0]	4 [100.0]	6 [100.0]	1 [100.0]	1 [100.0]	2 [100.0]	

<sup>a</sup> Overall assessment of the referred facility

Table A22: How satisfied were you with the services received during the last visit to the health facility? (disaggregated result)

Overall assessment	Quintile classification						p value
	Overall [%]	Poorest [%]	Second [%]	Third [%]	Fourth [%]	Wealthiest [%]	
Waiting time at health facility							0.186
Very satisfied	24 [16.55]	9 [23.08]	4 [14.81]	2 [8.00]	3 [11.11]	6 [22.22]	
Satisfied	100 [68.97]	25 [64.10]	21 [77.78]	16 [64.00]	21 [77.78]	17 [62.96]	
Somewhat satisfied	11 [7.59]	3 [7.69]	—	4 [16.00]	—	4 [14.81]	
Not satisfied at all	10 [6.90]	2 [5.13]	2 [7.41]	3 [12.00]	3 [11.11]	—	
Total	145 [100.0]	39 [100.0]	27 [100.0]	25 [100.0]	27 [100.0]	27 [100.0]	
Friendliness of health staff							0.313
Very satisfied	38 [26.21]	12 [30.77]	5 [18.52]	4 [16.00]	7 [25.93]	10 [37.04]	
Satisfied	90 [62.07]	24 [61.54]	18 [66.67]	16 [64.00]	19 [70.37]	13 [48.15]	
Somewhat satisfied	13 [8.97]	3 [7.69]	2 [7.41]	3 [12.00]	1 [3.70]	4 [14.81]	
Not satisfied at all	4 [2.76]	—	2 [7.41]	2 [8.00]	—	—	
Total	145 [100.0]	39 [100.0]	27 [100.0]	25 [100.0]	27 [100.0]	27 [100.0]	
Attentiveness of health staff							0.419
Very satisfied	28 [19.31]	9 [23.08]	2 [7.41]	2 [8.00]	8 [29.63]	7 [25.93]	
Satisfied	97 [66.90]	26 [66.67]	21 [77.78]	17 [68.00]	16 [59.26]	17 [62.96]	
Somewhat satisfied	15 [10.34]	4 [10.26]	2 [7.41]	5 [20.00]	2 [7.41]	2 [7.41]	
Not satisfied at all	5 [3.45]	—	2 [7.41]	1 [4.00]	1 [3.70]	1 [3.70]	
Total	145 [100.0]	39 [100.0]	27 [100.0]	25 [100.0]	27 [100.0]	27 [100.0]	
Availability of health staff							0.001
Very satisfied	30 [20.69]	9 [23.08]	3 [11.11]	2 [8.00]	6 [22.22]	10 [37.04]	
Satisfied	96 [66.21]	29 [74.36]	17 [62.96]	14 [56.00]	21 [77.78]	15 [55.56]	
Somewhat satisfied	12 [8.28]	1 [2.56]	4 [14.81]	7 [28.00]	—	—	
Not satisfied at all	7 [4.83]	—	3 [11.11]	2 [8.00]	—	2 [7.41]	
Total	145 [100.0]	39 [100.0]	27 [100.0]	25 [100.0]	27 [100.0]	27 [100.0]	
Availability of drugs							0.189
Very satisfied	21 [14.48]	5 [12.82]	2 [7.41]	3 [12.00]	4 [14.81]	7 [25.93]	
Satisfied	90 [62.07]	28 [71.79]	18 [66.67]	16 [64.00]	14 [51.85]	14 [51.85]	
Somewhat satisfied	14 [9.66]	3 [7.69]	2 [7.41]	4 [16.00]	1 [3.70]	4 [14.81]	
Not satisfied at all	20 [13.79]	3 [7.69]	5 [18.52]	2 [8.00]	8 [29.63]	2 [7.41]	
Total	145 [100.0]	39 [100.0]	27 [100.0]	25 [100.0]	27 [100.0]	27 [100.0]	

Referred to another facility								
Yes	14 [9.7]	4 [10.3]	6 [22.2]	1 [4.0]	1 [3.7]	2 [7.4]		
No	131 [90.3]	35 [89.7]	21 [77.8]	24 [96.0]	26 [96.3]	25 [92.6]	0.132	
Total	145 [100.0]	39 [100.0]	27 [100.0]	25 [100.0]	27 [100.0]	27 [100.0]		
Referral system assessment								
Very satisfied	1 [7.14]	1 [25.00]	—	—	—	—		
Satisfied	8 [57.14]	1 [25.00]	3 [50.00]	1 [100.0]	1 [100.0]	2 [100.0]	0.584	
Somewhat satisfied	5 [35.71]	2 [50.00]	3 [50.00]	—	—	—		
Not satisfied at all	—	—	—	—	—	—		
Total	14 [100.0]	4 [100.0]	6 [100.0]	1 [100.0]	1 [100.0]	2 [100.0]		
Overall assessment <sup>a</sup>								
Very satisfied	1 [7.14]	1 [25.00]	—	—	—	—		
Satisfied	9 [64.29]	2 [50.00]	3 [50.00]	1 [100.0]	1 [100.0]	2 [100.0]	0.677	
Somewhat satisfied	4 [28.57]	1 [25.00]	3 [50.00]	—	—	—		
Not satisfied at all	—	—	—	—	—	—		
Total	14 [100.0]	4 [100.0]	6 [100.0]	1 [100.0]	1 [100.0]	2 [100.0]		

<sup>a</sup> Overall assessment of the referred facility

## Equity Variable—Household Location

Table A23: Reported illness by residential location

	Total	Rural	Urban	p value
No	328	204	124	0.166
%	65.60	68.00	62.00	
Yes	172	96	76	
%	34.40	32.00	38.00	
Total	500	300	200	
%	100.00	100.00	100.00	

Table A24: Sought care for reported illness by residential location

	Overall	Rural	Urban	p value
No	20	5	15	0.003
%	11.63	5.21	19.74	
Yes	152	91	61	
%	88.37	94.79	80.26	
Total	172	96	76	
%	100.00	100.00	100.00	

Table A25: Prefer another facility by residential

	Total	Rural	Urban	p value
No	60	37	23	0.216
%	47.24	52.11	41.07	
Yes	67	34	33	

%	52.76	47.89	58.93	
<i>Total</i>	127	71	56	
%	100.00	100.00	100.00	

Table A26: Preferred health care facility by residential location

	Overall	Rural	Urban	<i>p</i> value
<i>Community health facility</i>	4	2	2	0.462
%	5.97	5.88	6.06	
<i>Subdistrict health facility</i>	5	1	4	
%	7.46	2.94	12.12	
<i>District health facility</i>	55	30	25	
%	82.09	88.24	75.76	
<i>Regional health facility</i>	3	1	2	
%	4.48	2.94	6.06	
<i>Total</i>	67	34	33	
%	100.00	100.00	100.00	

Table A27: Health facility assessed by residential location

Health facility accessed	Residential location			<i>p</i> value
	Overall	Rural	Urban	
Community health facility <sup>a</sup>	6 3.95	6 6.59	—	<0.001
Subdistrict health facility <sup>b</sup>	61 40.13	45 49.45	16 26.23	
District health facility <sup>c</sup>	58 38.16	21 23.08	37 60.66	
Regional health facility <sup>d</sup>	10 6.58	5 5.49	5 8.20	
Other health facility <sup>e</sup>	17 11.18	14 15.38	3 4.92	
<i>Total</i>	152 100.00	91 100.00	61 100.00	

<sup>a</sup> Community-based Health Planning and Services (CHPS)

<sup>b</sup> Includes public health centers, Mission/NGO clinics

<sup>c</sup> Municipal hospital (public), Municipal hospital (Mission).

<sup>d</sup> Regional public hospital

<sup>e</sup> Includes private clinic, private hospital, private pharmacy, self-medication, drug store.

Table A28: Health facility assessed by residential location

Other facility accessed	Overall	Rural	Urban	<i>p</i> value
<i>Drug store</i>	7	6	1	0.377
%	41.18	42.86	33.33	
<i>Private pharmacy</i>	1	1	0	

	%	5.88	7.14	0.00
<i>Private hospital</i>		4	2	2
	%	23.53	14.29	66.67
<i>Self-medication</i>		3	3	0
	%	17.65	21.43	0.00
<i>Traditional healer</i>		2	2	0
	%	11.76	14.29	0.00
<i>Total</i>		17	14	3
	%	100.00	100.00	100.00

Table A29: Reasons for health facility accessed by residential location

	Overall	Rural	Urban	<i>p</i> value	
<i>Good quality of care</i>	12	5	7	<0.001	
	%	7.89	5.49		11.48
<i>Good reputation</i>	7	6	1		
	%	4.61	6.59		1.64
<i>Availability of doctors</i>	3	0	3		
	%	1.97	0.00		4.92
<i>NHIS provider</i>	1	0	1		
	%	0.66	0.00		1.64
<i>Nice health workers (reception)</i>	2	2	0		
	%	1.32	2.20		0.00
<i>Regular source of treatment</i>	17	5	12		
	%	11.18	5.49		19.67
<i>Availability of drugs</i>	7	4	3		
	%	4.61	4.40		4.92
<i>Availability of modern facilities</i>	6	6	0		
	%	3.95	6.59		0.00
<i>Low charges</i>	6	6	0		
	%	3.95	6.59		0.00
<i>Only facility available</i>	9	9	0		
	%	5.92	9.89		0.00
<i>Proximity</i>	71	40	31		
	%	46.71	43.96		50.82
<i>Short waiting time</i>	2	0	2		
	%	1.32	0.00		3.28
<i>Other reasons</i>	9	8	1		
	%	5.92	8.79		1.64
<i>Total</i>	152	91	61		
	%	100.00	100.00	100.00	

Table A30: Reasons for preferred facility by residential location

	Overall	Rural	Urban	p value
<i>Good quality of care</i>	14	5	9	0.544
%	20.90	14.71	27.27	
<i>Good reputation</i>	12	5	7	
%	17.91	14.71	21.21	
<i>Low charges</i>	1	0	1	
%	1.49	0.00	3.03	
<i>Nice health workers (good reception)</i>	1	1	0	
%	1.49	2.94	0.00	
<i>Regular source of treatment</i>	4	2	2	
%	5.97	5.88	6.06	
<i>Availability of drugs</i>	6	4	2	
%	8.96	11.76	6.06	
<i>Availability of modern facilities</i>	13	8	5	
%	19.40	23.53	15.15	
<i>Only facility available</i>	1	1	0	
%	1.49	2.94	0.00	
<i>Proximity</i>	13	6	7	
%	19.40	17.65	21.21	
<i>Other reasons</i>	2	2	0	
%	2.99	5.88	0.00	
<i>Total</i>	67	34	33	
%	100.00	100.00	100.00	

Table A31: Distance traveled by residential location

Km	Overall	Rural	Urban	p value
<1 km	41	17	24	0.010
%	31.30	21.79	45.28	
1–5 km	51	33	18	
%	38.93	42.31	33.96	
6–10 km	16	14	2	
%	12.21	17.95	3.77	
>10 km	23	14	9	
%	17.56	17.95	16.98	
<i>Total</i>	131	78	53	
%	100.00	100.00	100.00	

## Equity Variable—Gender of the Household Head

Table A32: Reported health service utilization and treatment seeking by gender of the household head

Gender of household head	Reported illness/injury in 4 weeks prior to survey			p value
	Yes	No	Total	
Female	64	116	180	0.683
%	35.56	64.44	100.00	
Male	108	212	320	
%	33.75	66.25	100.00	
Total	172	328	500	
%	34.40	65.60	100.00	
Gender of household head	Sought health care for illness			p value
	Yes	No	Total	
Female	56	8	64	0.784
%	87.50	12.50	100.00	
Male	96	12	108	
%	88.89	11.11	100.00	
Total	152	20	172	
%	88.37	11.63	100.00	
Gender of household head	Prefers another facility			p value
	Yes	No	Total	
Female	20	23	43	0.313
%	46.51	53.49	100.00	
Male	47	37	84	
%	55.95	44.05	100.00	
Total	67	60	127	
%	52.76	47.20	100.00	

Table A33: Health facility accessed by gender of household heads

	Overall	Female	Male	p value
Community health facility <sup>a</sup>	6	3	3	0.056
%	3.95	5.36	3.13	
Subdistrict health facility <sup>b</sup>	61	19	42	
%	40.13	33.93	43.75	
District health facility <sup>c</sup>	58	24	34	
%	38.16	42.86	35.42	
Regional health facility <sup>d</sup>	10	7	3	
%	6.58	12.50	3.13	
Other health facility <sup>e</sup>	17	3	14	
%	11.18	5.36	14.58	
Total	152	56	96	
%	100.00	100.00	100.00	

<sup>a</sup> Community-based Health Planning and Services (CHPS) compounds

<sup>b</sup> Public health centers, mission/NGO clinics

<sup>c</sup> Municipal hospital (public), municipal hospital (Mission)

<sup>d</sup> Regional public hospital

<sup>e</sup> Includes private clinic, private hospital, private pharmacy, self-medication, drug store

Table A34: Health facility accessed by gender of household heads

Other facility accessed	Overall	Female	Male	p value
Drug store	7	2	5	0.444
%	41.18	66.67	35.71	
Private pharmacy	1	0	1	
%	5.88	0.00	7.14	
Private hospital	4	0	4	
%	23.53	0.00	28.57	
Self-medication	3	0	3	
%	17.65	0.00	21.43	
Traditional healer	2	1	1	
%	11.76	33.33	7.14	
Total	17	3	14	
%	100.00	100.00	100.00	

Table A35: Reasons for health facility accessed by gender of household heads

Reasons for health facility accessed	Overall	Female	Male	p value
<i>Good quality of care</i>	12	6	6	0.309
%	7.89	10.71	6.25	
<i>Good reputation</i>	7	6	1	
%	4.61	10.71	1.04	
<i>Availability of doctors</i>	3	1	2	
%	1.97	1.79	2.08	
<i>NHIS provider</i>	1	1	0	
%	0.66	1.79	0.00	
<i>Nice health workers (reception)</i>	2	0	2	
%	1.32	0.00	2.08	
<i>Regular source of treatment</i>	17	5	12	
%	11.18	8.93	12.50	
<i>Availability of drugs</i>	7	2	5	
%	4.61	3.57	5.21	
<i>Availability of modern facilities</i>	6	2	4	
%	3.95	3.57	4.17	
<i>Low charges</i>	6	3	3	
%	3.95	5.36	3.13	
<i>Only facility available</i>	9	4	5	
%	5.92	7.14	5.21	

<i>Proximity</i>	71	23	48
%	46.71	41.07	50.00
<i>Short waiting time</i>	2	1	1
%	1.32	1.79	1.04
<i>Other reasons</i>	9	2	7
%	5.92	3.57	7.29
<i>Total</i>	152	56	96
%	100.00	100.00	100.00

Table A36: Waiting time before accessing health care by gender of household head

	Overall	Female	Male	p value
<i>Less than a day</i>	74	23	51	0.340
%	48.68	41.07	53.13	
<i>1–5 days</i>	65	29	36	
%	42.76	51.79	37.50	
<i>6–10 days</i>	8	3	5	
%	5.26	5.36	5.21	
<i>Above 10 days</i>	5	1	4	
%	3.29	1.79	4.17	
<i>Total</i>	152	56	96	
%	100.00	100.00	100.00	

Table A37: Reported reasons for not accessing health care

	Overall	Female	Male	p value
<i>Initial self-medication</i>	4	0	4	0.282
%	18.18	0.00	28.57	
<i>Illness not considered important</i>	7	2	5	
%	31.82	25.00	35.71	
<i>Lack of funds</i>	7	4	3	
%	31.82	50.00	21.43	
<i>Long distance to facility</i>	2	1	1	
%	9.09	12.50	7.14	
<i>No accompanier</i>	1	0	1	
%	4.55	0.00	7.14	
<i>Other reasons</i>	1	1	0	
%	4.55	12.50	0.00	
<i>Total</i>	22	8	14	
%	100.00	100.00	100.00	

Table A38: Was there any facility you would have preferred to attend for the reported illness

	Overall	Female	Male	p value
No	60	23	37	0.313
%	47.24	53.49	44.05	
Yes	67	20	47	
%	52.76	46.51	55.95	
Total	127	43	84	
%	100.00	100.00	100.00	

Table A39: Preferred health care facility by gender of household head

	Overall	Female	Male	p value
Community health facility <sup>a</sup>	4	1	3	0.492
%	5.97	5.00	6.38	
Subdistrict health facility <sup>b</sup>	5	2	3	
%	7.46	10.00	6.38	
District health facility <sup>c</sup>	55	15	40	
%	82.09	75.00	85.11	
Regional health facility <sup>d</sup>	3	2	1	
%	4.48	10.00	2.13	
Total	67	20	47	
%	100.00	100.00	100.00	

<sup>a</sup> Community-based Health Planning and Services (CHPS) compounds

<sup>b</sup> Public health centers, mission/NGO clinics

<sup>c</sup> Municipal hospital (public), municipal hospital (Mission)

<sup>d</sup> Regional public hospital

Table A40: Reasons for preferred facility by gender of household head

	Overall	Female	Male	p value
Good quality of care	14	6	8	0.065
%	20.90	30.00	17.02	
Good reputation	12	2	10	
%	17.91	10.00	21.28	
Low charges	1	1	0	
%	1.49	5.00	0.00	
Nice health workers (good reception)	1	0	1	
%	1.49	0.00	2.13	
Regular source of treatment	4	2	2	
%	5.97	10.00	4.26	
Availability of drugs	6	2	4	
%	8.96	10.00	8.51	

<i>Availability of modern facilities</i>	13	0	13
%	19.40	0.00	27.66
<i>Only facility available</i>	1	1	0
%	1.49	5.00	0.00
<i>Proximity</i>	13	6	7
%	19.40	30.00	14.89
<i>Other reasons</i>	2	0	2
%	2.99	0.00	4.26
<i>Total</i>	67	20	47
%	100.00	100.00	100.00

Table A41: Distance to health facility by gender of household head

Distance to health facility	Overall	Female	Male	p value
<1 km	41	13	28	0.052
%	31.30	30.23	31.82	
1–5 km	51	11	40	
%	38.93	25.58	45.45	
6–10 km	16	7	9	
%	12.21	16.28	10.23	
>10 km	23	12	11	
%	17.56	27.91	12.50	
<i>Total</i>	131	43	88	
%	100.00	100.00	100.00	

Table A42: Mode of transport to health facility by gender of household head

Mode of transport	Overall	Female	Male	p value
<i>Bicycle</i>	3	2	1	0.047
%	2.29	4.65	1.14	
<i>Car/bus/truck</i>	47	21	26	
%	35.88	48.84	29.55	
<i>Foot</i>	21	7	14	
%	16.03	16.28	15.91	
<i>Motorcycle</i>	60	13	47	
%	45.80	30.23	53.41	
<i>Total</i>	131	43	88	
%	100.00	100.00	100.00	

Table A43: How satisfied were you about the services received during the last visit to the health facility?

Responses	Overall [%]	Female [%]	Male [%]	p value
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Waiting time at health facility				
<i>Very satisfied</i>	24 [16.55]	7 [13.21]	17 [18.48]	0.521
<i>Satisfied</i>	100 [68.97]	40 [75.47]	60 [65.22]	
<i>Somewhat satisfied</i>	11 [7.59]	4 [7.55]	7 [7.61]	
<i>Not satisfied at all</i>	10 [6.90]	2 [3.77]	8 [8.70]	
<i>Total</i>	145 [100.00]	53 [100.00]	92 [100.00]	
Friendliness of health staff				
<i>Very satisfied</i>	38 [26.21]	15 [28.30]	23 [25.00]	0.442
<i>Satisfied</i>	90 [62.07]	34 [64.15]	56 [60.87]	
<i>Somewhat satisfied</i>	13 [8.97]	4 [7.55]	9 [9.78]	
<i>Not satisfied at all</i>	4 [2.76]	—	4 [4.35]	
<i>Total</i>	145 [100.00]	53 [100.00]	92 [100.00]	
Attentiveness of health staff				
<i>Very satisfied</i>	28 [19.31]	10 [18.87]	18 [19.57]	0.678
<i>Satisfied</i>	97 [66.90]	38 [71.70]	59 [64.13]	
<i>Somewhat satisfied</i>	15 [10.34]	4 [7.55]	11 [11.96]	
<i>Not satisfied at all</i>	5 [3.45]	1 [1.89]	4 [4.35]	
<i>Total</i>	145 [100.00]	53 [100.00]	92 [100.00]	
Availability of health staff				
<i>Very satisfied</i>	30 [20.69]	11 [20.75]	19 [20.65]	0.634
<i>Satisfied</i>	96 [66.21]	37 [69.81]	59 [64.13]	
<i>Somewhat satisfied</i>	12 [8.28]	4 [7.55]	8 [8.70]	
<i>Not satisfied at all</i>	7 [4.83]	1 [1.89]	6 [6.52]	
<i>Total</i>	145 [100.00]	53 [100.00]	92 [100.00]	
Availability of drugs				
<i>Very satisfied</i>	21 [14.48]	7 [13.21]	14 [15.22]	0.132
<i>Satisfied</i>	90 [62.07]	39 [73.58]	51 [55.43]	
<i>Somewhat satisfied</i>	14 [9.66]	3 [5.66]	11 [11.96]	
<i>Not satisfied at all</i>	20 [13.79]	4 [7.55]	16 [17.39]	
<i>Total</i>	145 [100.00]	53 [100.00]	92 [100.00]	
Referred to another facility				
Yes	14 [9.66]	3 [5.66]	11 [11.96]	0.216
No	131 [90.34]	50 [94.34]	81 [88.04]	
Total	145 [100.0]	53 [100.0]	92 [100.0]	
Referral system assessment				
<i>Very satisfied</i>	1 [7.14]	—	1 [9.09]	0.844
<i>Satisfied</i>	8 [57.14]	2 [66.67]	6 [54.55]	
<i>Somewhat satisfied</i>	5 [35.71]	1 [33.33]	4 [36.36]	
<i>Not satisfied at all</i>	—	—	—	
<i>Total</i>	14 [100.0]	3 [100.0]	11 [100.0]	
Overall assessment <sup>a</sup>				
<i>Very satisfied</i>	1 [7.14]	—	1 [9.09]	0.346
<i>Satisfied</i>	9 [64.29]	3 [100.0]	6 [54.55]	
<i>Somewhat satisfied</i>	4 [28.57]	—	4 [36.36]	
<i>Not satisfied at all</i>	—	—	—	
<i>Total</i>	14 [100.0]	3 [100.0]	11 [100.0]	

<sup>a</sup> Overall assessment of the referred facility

## Appendix D: Study Tools

### Qualitative Guides

#### Focus Group Discussion (FGD) Guide—Community Members

##### A. DEMOGRAPHIC INFORMATION

1. Where do you live (name of community)? Number of years spent in the community:
2. Age:
3. Occupation:
4. Level of Education:

Questions
<p>1. Where do people in this community usually go to seek health care?</p> <p><b>Probe for:</b> reasons for preference for that choice (facility or other)</p>
<p>2. What are the things that make it difficult for people to use health care in this facility/community?</p> <p><b>Probe for:</b> <i>transport, distance, work, availability of drugs and providers, trust, service fee expectation, satisfaction with care, mode of payment, insurance package, other non-health-facility cost</i></p>
<p>3. How do these difficulties affect different people?</p> <p><b>Probe for:</b> <i>Who are vulnerable groups in your community? What difficulties do they face?</i></p> <p><b>Probe for:</b> <i>the poor, women, and households in hard-to-reach areas as vulnerable groups</i></p>
<p><i>Let's talk about equitable service delivery—by that I mean everyone has the same chance at using health services, doesn't matter their wealth, where they live, how old they are, education, what religion they are, or whether they are a man or a woman. In</i></p>

*this case, we have considered the poor, women, and households living in hard-to-reach areas to be vulnerable groups and a focus for our equity discussion.*

4. What are the things that make it difficult for these vulnerable groups to use health care in this facility/community?

***a) the poor, b) women, c) people living in hard-to-reach areas***

**Probe for:** *transport, distance, work, availability of drugs and providers, trust of providers, service fee expectation, satisfaction with care, mode of payment, insurance package, other non-health-facility cost*

5. What can be done to make health services easily available to vulnerable population groups?

***a) the poor, b) women, c) people living in hard-to-reach areas***

**Probe for:** *improved community services, availability of services at CHPS and health centers, availability of transport for referrals, more reliance on informal providers, nonpublic providers, financial support*

6. How can the following stakeholders support health care delivery in this community?

- a) Community
- b) Nongovernment health facilities
- c) NGOs
- d) Local government
- e) Traditional authorities, etc.
- f) Other

7. What **more needs** to be done to improve health services and access for the community and especially the vulnerable population groups?

*a) the poor, b) women, c) people living in hard-to-reach areas*

## Focus Group Discussion (FGD) Guide—Health Providers

### A. DEMOGRAPHIC INFORMATION

1. Provider category:
2. Name of facility/network:
3. Number of years spent in the facility/network:
4. Provider age:
5. Level of education:

Question
<p>1. What is your understanding (or perception) of the PCP network in providing primary health care?</p> <p>Probe for aim/objective, design, etc.</p>
<p>2. In your opinion how has the PCP network affected service utilization in this community?</p> <p><i>Probe: improved referral services, improved availability of services, joint community outreach, improved planning, sharing knowledge, sharing resources</i></p>
<p><i>In this study, we are focusing on the disadvantaged and vulnerable households in the communities.</i></p> <p><i>By that we mean <b>a) the poor, b) women, and c) people living in hard-to-reach areas.</b></i></p>
<p>3. How do you perceive the provision of medical care to vulnerable groups at the moment?</p> <p><b><i>a) the poor, b) women, and c) people living in hard-to-reach areas.</i></b></p>
<p>4. In your experience, how can services be brought closer to communities effectively?</p>
<p>5. How can the networks be better supported to improve the patronage/use of services?</p> <p><b><i>Probe for the role of:</i></b></p>

<ul style="list-style-type: none"> <li>a) Community</li> <li>b) Nongovernment health facilities</li> <li>c) NGOs</li> <li>d) Local government</li> <li>e) Traditional authorities, etc.</li> <li>f) Other</li> </ul>
<p>6. What factors enable networks to provide equitable services?</p> <p><i>Probe for openness and accessibility, community outreach services, extension to remote areas, support to ease financing burden, etc.</i></p>
<p>7. What factors impede networks from delivering equitable services?</p>
<p>8. How can these factors be addressed?</p>
<p>9. What <b>more needs</b> to be done to make the PCP network more <b>beneficial to patients/clients/communities</b> in Ghana?</p>

Thank you very much for your participation!

## In-Depth Interview Guide—Network Leads

### Demographic Information:

1. Provider category:
2. Name of facility/network:
3. Number of years spent in the facility/network:

Question
<p>1. What is your understanding (or perception) of the role of the PCP network in providing primary health care to the community?</p> <p>Probe for aim/objective, design, etc.</p>
<p>2. In your opinion, how has the PCP network affected service utilization in this community?</p> <p><i>Probe: better reach of communities and vulnerable populations.</i></p>
<p><i>Let's talk about vulnerable groups in the communities. For this study, we consider the poor, women, and households living in hard-to-reach areas to be vulnerable groups.</i></p>
<p>3. How do you perceive medical care for these groups at the moment?</p> <p><b>Probe for:</b> <i>challenges they have in using health care—availability of services, distance from the facility, financial barriers, trust in the quality of care</i></p> <p><b>Probe for:</b> <i>Are their challenges different from other groups?</i></p>
<p>4. How could health care and health services be improved for these groups in the future?</p>
<p><i>Let's talk about equitable service delivery—by that I mean everyone has the same chance at using quality health services, doesn't matter their wealth, where they live, how old they are, education, what religion they are, or whether they are a man or a woman. For this study, we</i></p>

*focus on the poor, women, and households living in hard-to-reach areas and ensuring equity in health service use for them.*

5. What factors enable networks to provide equitable health services to these vulnerable groups?

***Probe for*** *openness and accessibility, extension to remote areas, more community outreach and engagement, support to ease financing burden, etc.*

6. What factors impede networks from providing equitable services to these vulnerable groups?

***Probe for:*** *How these factors could be addressed?*

7. In your experience, how can services be brought closer to these communities by PCP networks?

8. How can networks be better supported by following groups to be able to improve health care for these vulnerable groups

- a) Community
- b) Nongovernment health facilities
- c) NGOs
- d) Local government
- e) Traditional authorities, etc.
- f) Other

9. What do you see as barriers and enablers to adopting the PCP network approach to primary health care in the Ghana health system?

10. Is there anything else you would like to discuss with us about PCP networks and their role in advancing equity in the district?

**In-Depth Interview (IDI) Guide—District and Regional Health Managers**

Question
<p>1. What is your understanding (or perception) of the PCP network in providing primary health care?</p> <p><i>Probe for aim/objective, design, extent to which the networks respond to primary health care (PHC) priorities, etc.</i></p>
<p>2. What, if anything, have PCP networks done to better reach their communities and vulnerable populations?</p> <p><i>Probe for: the poor, women, and people living in hard-to-reach areas?</i></p>
<p>3. In your opinion, how has the PCP network affected service utilization in the network communities?</p>
<p>4. What factors affect networks’ ability to provide equitable services?</p> <p><i>Probe for a) the poor, b) women, and c) households living in hard-to-reach areas.</i></p>
<p>5. Now that you have experienced the PCP network model of providing primary health care, how can you/your institution support the advancement of PCP networks to their full potential for service provision to vulnerable groups?</p> <p><b>a) the poor, b) women, and c) households living in hard-to-reach areas?</b></p>
<p>6. What role have other stakeholders played in advancing equitable health care delivery?</p> <p>a) Community members</p> <p>b) Nongovernment health facilities</p>

- c) NGOs
- d) Local government
- e) Traditional authorities
- f) Other

7. As the PCP networks are introduced in new districts and regions, what should be done to ensure that they reach vulnerable groups?

**a) the poor, b) women, and c) households living in hard-to-reach areas?**

8. What do you see as barriers and enablers to adopting the PCP network approach to primary health care in the Ghana health system?

9. What **more needs** to be done to make the PCP network more **beneficial to patients/clients/communities** in Ghana? (areas for improvement)

Thank you very much for your participation!

## In-Depth Interview (IDI) Guide—National-Level Managers

Question
<p>1. What is your understanding (or perception) of the PCP network in providing primary health care? Probe for aim/objective, design, etc.</p>
<p>2. How does the PCP network model fit into the primary health care priorities in the country?</p> <p><b>Probe for:</b> equity and provision of services to women, the poor, and households from hard-to-reach areas.</p>
<p>3. What can be done at <i>the policy level</i> at <b>GHS, MOH, NHIS</b>, and others to</p> <ol style="list-style-type: none"> <li>a. better enable delivery of services close to communities and</li> <li>b. enable communities to use CHPS and health centers more</li> </ol> <p><b>Probe for:</b> <i>Human resource at the CHPS level, institutionalizing gatekeeping, taking services to communities, engaging nonpublic facilities, financing, etc.</i></p>
<p>4. What role can other stakeholders play in advancing equitable health care delivery?</p> <ol style="list-style-type: none"> <li>a) Communities</li> <li>b) Nongovernment health facilities</li> <li>c) NGOs</li> <li>d) Local government</li> <li>e) Traditional authorities, etc.</li> <li>f) Other</li> </ol>
<p>5. What do you see as barriers and enablers to adopting the PCP network approach to primary health care in the Ghana health system?</p>
<p>6. As the PCP networks are introduced in new districts and regions, what should be done to ensure that they reach vulnerable groups?</p>

**a) the poor, b) women, and c) households living in hard-to-reach areas?**

7. What **more needs** to be done to make the PCP Network more **beneficial to patients/clients/communities** in Ghana? (areas for improvement)

Thank you very much for your participation!

Quantitative Survey Questionnaire

**Section A: Household Roster/Socioeconomic Characteristics of Household Members**

PIN	A1: Write the complete list of all members of this household, starting with the <b>HEAD</b> of the household	A2: <b>M = 1</b> <b>F = 2</b>	A3: What is the relationship of <b>[NAME]</b> to head of household?	A4: Age in completed years <b>[Reference to the last birthday]</b> .  <b>&lt; 1 yr = 0</b>	A5: What was the highest school grade completed? <b>(≥3 yrs)</b> None .....1 Pre-school.....2 Primary school.....3 Secondary/Vocational .....4 Tertiary..... 5	A6: What is <b>[NAME's]</b> marital status? <b>[12 yrs or older]</b>	A7: Have you ever registered with any health insurance scheme?  <b>Yes.....1</b> <b>No.....2</b>	A8: Which type of insurance have you ever registered with?  <b>NHIS.....1</b> <b>Private health insurance.....2</b> <b>Other.....3</b>	A9: For ever registered members, are you currently insured?  <b>Yes.....1</b> <b>No.....2</b>
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**Section B: Service Utilization/Treatment Seeking for the Last Four Weeks**

PIN	<p><b>B1:</b> Have you or any member in the household suffered any illness/injury experienced in the last 4 weeks?</p> <p>Yes.....1 No.....2</p>	<p><b>B2:</b> Did you seek care for this illness/injury?</p> <p>Yes.....1 No.....2</p>	<p><b>B3:</b> If <b>YES</b>, from where did <b>you</b> first seek care for this illness/injury? [See source of treatment codes below]</p>	<p><b>B4:</b> Why was care sought from this source? [See reason for choice code below]</p>	<p><b>B5:</b> How long did you wait before seeking care, from the onset of the illness/injury?  [in days]</p>	<p><b>B6:</b> If you did not seek care at the onset (e.g., days &gt;1), what was the main reason? [See reasons for perceived delay code below]</p>	<p><b>B7:</b> Was there any facility you would have preferred to attend for this illness/injury if chance was given? Yes.....1 No.....2</p>	<p><b>B8:</b> If YES, what was this facility? [See source of treatment code]</p>	<p><b>B9:</b> What was the reason for this facility? [See reason for choice code below] <b>(For those who didn't seek care, skip to C22 after this question)</b></p>	<p><b>B10:</b> For those who sought care, what is the distance to the facility from your house? [in km] <b>(1 mile = 1.6093 km)</b></p>	<p><b>B11:</b> What was the mode of transport to the facility for treatment? Foot.....1 Bicycle.....2 Motor cycle.....3 Car/bus/truck.....4 Other (specify)....5</p>
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<p><b>B3: Where patients went for service</b></p> <ol style="list-style-type: none"> <li>1. Regional public hospital</li> <li>2. Municipal hospital (Public)</li> <li>3. Municipal hospital (Mission)</li> <li>4. Private hospital</li> <li>5. Public health center</li> <li>6. Private clinic</li> </ol>	<p><b>B4 &amp; B9: Reason for choice</b></p> <ol style="list-style-type: none"> <li>1. Proximity</li> <li>2. Only facility available locality</li> <li>3. NHIS provider</li> <li>4. Good reputation</li> <li>5. Availability of modern facilities</li> <li>6. Short waiting time</li> </ol>	<p><b>B6: Reasons for perceived delay</b></p> <ol style="list-style-type: none"> <li>1. Illness not considered serious</li> <li>2. Lack of funds</li> <li>3. Long distance to facility</li> <li>4. High cost of health care</li> <li>5. No body to accompany patient</li> <li>6. Initial self-medication at home</li> </ol>
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7. Mission/NGO clinic 8. CHPS 9. Private pharmacies 10. Drug store 11. Traditional/spiritual healers 12. Self-medication	7. Availability of drugs 8. Nice health workers (Good relationship) 9. Good quality of care 10. Low charges 11. Regular source of treatment to household 12. More likely to be attended to by a doctor 13. Other (specify)	7. Other (specify)
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**Section C: Perceived Quality of Care Relating to the Visit in the Last 4 Weeks**

How satisfied were you about the services received during the last visit to the health facility? (For all except C5, use codes below)

PI N	C1: Overall assessment of the waiting time at this facility	C2: Overall assessment of the friendliness of staff of this facility?	C3: Overall assessment of the attentiveness of staff of this facility?	C4: Overall assessment of the availability of staff?	C5: Overall assessment of the availability of drugs?	C6 Were you referred to another health facility?  Yes.....1 No.....2	C7: Overall assessment of referral system?	C8: What is your overall satisfaction with the services received from the facility during the latest visit in the last 4 weeks?
<b>Very satisfied.....1      Satisfied.....2      Somewhat satisfied.....3      Not satisfied at all .....4</b>								

## Section D: Awareness of COVID-19 Outbreak and Ability to Protect Themselves

PIN	<p style="text-align: center;"><b>D1:</b></p> <p>Are you aware of the recent coronavirus outbreak in Ghana, known as COVID-19?</p> <p>Yes.....1 No.....2</p> <p>If Yes, go to D2 If No, go to D6 and then directly to Section E</p>	<p style="text-align: center;"><b>D2:</b></p> <p>What are the common symptoms of coronavirus disease?</p> <p>Check if mentioned by the respondent</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%; vertical-align: top;"> <p><u>Most Common Symptoms:</u></p> <p>€ Fever</p> <p>€ Cough</p> <p>€ Tiredness</p> </td> <td style="width: 33%; vertical-align: top;"> <p><u>Symptoms of Serious Concern:</u></p> <p>€ difficulty breathing or shortness of breath</p> <p>€ chest pain or pressure</p> <p>€ loss of speech or movement</p> </td> <td style="width: 33%; vertical-align: top;"> <p><u>Less Common Symptoms:</u></p> <p>€ aches and pains</p> <p>€ sore throat</p> <p>€ diarrhea</p> <p>€ conjunctivitis</p> <p>€ headache</p> <p>€ loss of taste or smell</p> <p>€ a rash on skin, or discoloration of fingers or toes</p> </td> </tr> </table>	<p><u>Most Common Symptoms:</u></p> <p>€ Fever</p> <p>€ Cough</p> <p>€ Tiredness</p>	<p><u>Symptoms of Serious Concern:</u></p> <p>€ difficulty breathing or shortness of breath</p> <p>€ chest pain or pressure</p> <p>€ loss of speech or movement</p>	<p><u>Less Common Symptoms:</u></p> <p>€ aches and pains</p> <p>€ sore throat</p> <p>€ diarrhea</p> <p>€ conjunctivitis</p> <p>€ headache</p> <p>€ loss of taste or smell</p> <p>€ a rash on skin, or discoloration of fingers or toes</p>
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PIN	<p><b>D3: On a scale of 1 to 5 (1 being 'very concerned' and 5 'not concerned at all'), how concerned are you that you or any member of your household could be infected with the coronavirus?</b></p> <p style="text-align: center;"> <span style="margin-right: 20px;"><u>1</u></span> <span style="margin-right: 20px;"><u>2</u></span> <span style="margin-right: 20px;"><u>3</u></span> <span style="margin-right: 20px;"><u>4</u></span> <span><u>5</u></span> </p> <p style="text-align: center;"> <span style="margin-right: 150px;">Very concerned</span> <span>Not concerned at all</span> </p>				
PIN	<p style="text-align: center;"><b>D4:</b></p> <p>Do you know how to prevent you and your household from getting coronavirus?</p> <p>Yes.....1 No.....2</p> <p>If Yes, go to D5. If No, go to D6</p>	<p style="text-align: center;"><b>D5:</b></p> <p>What can you do to protect you and your household from getting coronavirus?</p> <p>Check if mentioned by the respondent</p> <p>€ Avoid leaving the house</p> <p>€ Wear a mask when leaving your house</p> <p>€ Avoid crowded areas</p>			

	<ul style="list-style-type: none"> <li>€ Avoid indoor spaces</li> <li>€ Maintain 2 meters (6 feet) distance from others</li> <li>€ Use a hand sanitizer, frequently wash hands with running water and soap</li> <li>€ Avoid touching the face (or eyes, nose, and mouth)</li> <li>€ Get updated information on the outbreak</li> </ul>		
<b>PIN</b>	<b>D6:</b> <b>Which of these things are you able to do on a regular (e.g., daily) basis:</b>		
	<ul style="list-style-type: none"> <li>€ Avoid leaving the house</li> <li>€ Wear a mask when leaving your house</li> <li>€ Avoid crowded areas</li> <li>€ Avoid indoor spaces</li> <li>€ Maintain 2 meters (6 feet) distance from others</li> <li>€ Use a hand sanitizer, frequently wash hands with running water and soap</li> <li>€ Avoid touching the face (or eyes, nose, and mouth)</li> <li>€ Get updated information on the outbreak</li> </ul>		
<b>PIN</b>	<b>D7:</b> <b><i>Have you been to health facility since the coronavirus outbreak began (March 2020)?</i></b> Yes.....1 No.....2  If Yes, go to Section E If No, go to D8	<b>D8:</b> <b>Did you not go to health facility because of coronavirus outbreak</b> Yes.....1 No.....2  If Yes, go to D 9 If No, go to Section E	<b>D9:</b> <b><i>Which of the following described the reason for not going to facility because of coronavirus best?</i></b> <ul style="list-style-type: none"> <li>€ <i>I'm afraid to get coronavirus if I leave my household</i></li> <li>€ <i>I'm afraid to get coronavirus at the facility</i></li> <li>€ <i>I cannot use the transport because of coronavirus to go to facility</i></li> <li>€ <i>Facilities are too busy now; there's no space for users who don't have coronavirus</i></li> <li>€ <i>Other</i></li> </ul>

### Section E: Household Wealth Status (Equity Tool)

PIN	<p><b>E1:</b> Does this household have: a radio?</p> <p><b>Yes.....1</b> <b>No.....2</b></p>	<p><b>E2:</b> Does this household have: a television?</p> <p><b>Yes.....1</b> <b>No.....2</b></p>	<p><b>E3:</b> Does this household have: a computer/tablet computer?</p> <p><b>Yes.....1</b> <b>No.....2</b></p>	<p><b>E4:</b> Does this household have: a refrigerator?</p> <p><b>Yes.....1</b> <b>No.....2</b></p>	<p><b>E5:</b> Does this household have: a cabinet/cupboard ?</p> <p><b>Yes.....1</b> <b>No.....2</b></p>	<p><b>E6:</b> Does any member of this household own a wristwatch?</p> <p><b>Yes.....1</b> <b>No.....2</b></p>	<p><b>E7:</b> Does any member of this household have a bank account?</p> <p><b>Yes.....1</b> <b>No.....2</b></p>
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PIN	<p><b>E8:</b> What is the main source of drinking water for members of your household?</p> <p><b>Sachet water.....1</b> <b>Other source of drinking water.....2</b></p>	<p><b>E9:</b> What kind of toilet facility do members of your household usually use?</p> <p><b>Flush to manhole/septic tank (not shared) .....1</b> <b>Other toilet facility.....2</b></p>	<p><b>E10:</b> What type of fuel does your household mainly use for cooking?</p> <p><b>Wood .....1</b> <b>LPG.....2</b> <b>Other source of cooking fuel.....3</b></p>	<p><b>E11:</b> What is the main material of the floor of your dwelling?</p> <p><b>Cement.....1</b> <b>Other.....2</b></p>
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