

*Achieving value: A case study of the One Family Health care delivery model in
the Context of Rwanda's Vision for Universal Health Coverage*

by

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Duke Global Health Institute
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Date: March 24, 2021

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Jennifer Headley

Krishna Udayakumar

Thesis submitted in partial fulfillment of
the requirements for the degree of
Master of Science in Global Health
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ABSTRACT

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Abstract

Background: Healthcare systems such as that of Rwanda face barriers in terms of infrastructural, financial, human, and technical resources. The value-based care framework offers an approach to examining health delivery systems facing resource-constraints and to highlight areas for greater progression towards maximizing impact on health outcomes given resource limitations.

Methods: A qualitative approach was used to explore One Family Health's care delivery model and its challenges and successes using value-based care as an underlying analytic framework. Primary data in the form of 8 qualitative semi-structured interviews were combined with secondary data from 14 previously conducted semi-structured interviews. Thematic analysis was applied to analyze the data.

Results: Successes indicate OFH contribution to expanding access to care in Rwanda and challenges of the OFH health post model point to financing model and its relation to Rwanda's recent financing changes. Quality of service delivery at the OFH health post approximately indicate strengths in patient-centeredness and equity and weaknesses in safety and efficiency. An anecdotal exploration of health outcomes suggest that individual patients improve as a result of visiting the health post and that the health post contributes to community wellbeing particularly in terms of health education and reducing the burden on health centers. Barring a small and biased sample, OFH nurses seem to be

satisfied with the health post model, though their experience could be improved with routine training and increased supervision. Insights in integration and alignment in the context of the public-private partnership were also discussed.

Conclusions: The One Family Health qualitative case study utilizing the value-based care framework offers several lessons for One Family Health, Rwanda Ministry of Health as it continues to contract with private sector entrepreneurs, and for further research that involves the application of the value-based care framework. These lessons include aligning its financial model with the aims of government financing initiatives, providing infrastructural and financial supports, and routine monitoring of health outcomes centered on patients as well as provider satisfaction and support.

Dedication

I would like to dedicate this small work to frontline health workers all over the world, including my mother, who have risked their lives to continue to deliver healthcare through the COVID-19 pandemic. I especially recognize the work of the nurse-franchisees and technical representatives of One Family Health in their communities. It is upon their shoulders that this work stands.

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1. Introduction

When Rwanda began to build its development strategy post the Rwandan genocide in 1994, it was a low-income country ravaged by civil war with severe resource limitations. Therefore in its first postwar development strategy, a document that became known as *Vision 2020*, Rwanda stressed the development of its private sector and investment in human resources including health as important building blocks. It sought middle-income status and universal health coverage at the policy level as a way of reducing poverty and eliminating the gap in access to healthcare services. Rwanda further defined its health mission to “provide and continually improve affordable promotive, preventive, curative and rehabilitative health care services of the *highest quality*, thereby contributing to the reduction of poverty and enhancing the general wellbeing of the population.” It also offered three guiding principles to orient the provision of health services: 1) patient-centered care; 2) integrated services; 3) sustainable services (Rwanda Health Sector Policy 2015). Subsequent health sector policies and strategic plans were developed between 2015 and 2020 that address three simultaneous rapid transitions occurring in Rwanda: epidemiologic, demographic, and economic.

Epidemiological Transition. As with other developing countries, Rwanda is currently undergoing an epidemiological transition. While communicable diseases are primarily responsible for Rwanda’s morbidity and mortality rates, the rise of noncommunicable diseases such as hypertension are doubling the burden of disease (Nahimana, M, et al 2018). This shift is a result of changes to lifestyle patterns that emerge

as a result of Rwanda's developmental progress, which inherently is not bad. However, improvements to the population's socioeconomic status are also coupled with rates of diabetes mellitus, congestive heart failure, and high blood pressure (Nahimana, M. et al, 2018). Available health facility data show that people approaching facilities for hypertension increased from 1.9% in 2009 to 6.4% in 2014 (Nahimana, M. et al, 2018)—a major indicator of the rise of noncommunicable diseases and long-term care and continuous management required to treat such conditions.

Demographic Transition. Rapid improvements to the health system, infrastructure, and social programming in Rwanda has contributed to a demographic transition. The country has moved from high mortality rates and fertility to lower ones (Ndahindwa, V. et al 2014)—from 6.1 births to 4.6 births per woman in 2010. However, Rwanda still has the highest population density of any country in Africa with an annual population growth rate of 2.6% and a density ratio of 416 persons per square kilometer (National Institute of Statistics Rwanda 2012). This large growth rate, which Rwanda aims to decrease to 1.4 by 2050 (Rwanda Vision 2050) especially with the recent uptake and tracking of family planning education and methods in 2018, is enough to overwhelm the health system. Additionally, as the average life expectancy increases in Rwanda from 55 years (Rwanda Demographic Health Survey 2010) to 65 years (Rwanda Demographic Health Survey 2015), the long-term care of ageing and elderly populations must also be considered as adding strain on the health system.

Economic Transition. In the past twenty years, Rwanda has developed its economy significantly. It achieved its set target to attain middle-income country status by 2020, for which it needed to have obtained a GDP growth rate of 7% (*Rwanda Vision 2020*). However, it still has much room to grow considering that many of its reforms are still heavily reliant on donor aid. Rwanda has expanded the middle-class and private sector, yet much work still remains to integrate the private sector into the national health financing model in order to reduce the dependency on foreign aid. To progress towards its goal of sustainable development, Rwanda recently created its next development strategy—*Rwanda Vision 2050*, which will be used by Rwanda to achieve high-income country status by the year 2050 and to achieve universal health coverage. To decrease the remaining gap in access to health services, Rwanda will need to innovate in terms of mobilizing domestic resources it has yet to consider, as well as in terms of sustainable financing for health.

Aware of the lack of public funds required to completely implement universal health coverage, the government of Rwanda partnered with external health development partners to reduce the access gap. In Rwanda, over 60 such organizations have been formally recognized online by the Ministry of Health as supporting health service delivery. Their value and overall contributions to Rwandan healthcare should therefore be critically examined. One Family Health (OFH) contracted with Rwanda Ministry of Health in 2012 in the nation's first public-private partnership and has seen Rwanda

through its period of contracting private organizations for service delivery. It therefore offers a rich case study of the role of the public-private partnership model in realizing the vision for universal health coverage.

The rise of public-private partnerships in healthcare ecosystems worldwide is the result of innovating to eliminate the gap in access to care (Kosycarz, E. et al 2019). Integration around public and private financing and service delivery systems has allowed for the expansion of access to quality essential health services, particularly in low-income countries. To increase investment, innovation, and integration nations participating in public-private partnerships are 1) shifting away from paying for services to paying for outputs or outcomes; 2) building capacity for long-term capturing and tracking of patient-centered data; and 3) using subsidies to steer innovations towards ones that produce the best population health outcomes (McClellan, M. et al 2019). Nations that are undergoing such efforts are said to be pursuing “value-based care.”

More formally, value-based care is a framework for restructuring healthcare with the overarching goal of creating value for patients. While multiple frameworks for value-based care exist, general key features 1) include metrics that are patient-centered and track health outcomes, 2) address quality of delivery services including their impact on healthcare access, and 3) aim to be cost-effective and even to reduce excess healthcare spending. The value-based care framework was first proposed by Michael Porter and Elisabeth Teisberg at Harvard Business School in 2006 as a means of solving the problem

of excess costs in U.S healthcare spending. Porter and Teisberg defined value as outcomes (health status achieved, care experience, long-term health functioning/costs (resources – time, people, products, capital–used) (Porter and Teisberg 2006). Another commonly used model of value-based care was created by Donald Berwick of Institute for Health Improvement in 2008. Called the Triple Aims, this framework describes improving the individual experience of care; improving the health of populations; and reducing the per capita costs of care (per capita spending) for populations (Berwick et al 2008). A fourth arm of value-based care, the Quadruple Aim was later added to the Triple Aims – that of provider wellbeing or sense of joy and purpose – as a major predictor of long-term success of a health delivery model. Later on, ISPOR a leading professional society for health economics research, wrote of several other considerations for the next generation of value-based assessment (2018), among them equity and labor force productivity. Although value-based care originated as a framework for exploring the issue of excessive spending with lack of comparable improvement in health outcomes within the U.S. healthcare system, it is a useful framework for understanding health delivery systems working in resource-constrained settings as it emphasizes cost reduction in making improvements to health financing and payment systems.

Value-based care can be applied as a framework of analysis or theory of change to three elements of a healthcare system: policy, management, and delivery.

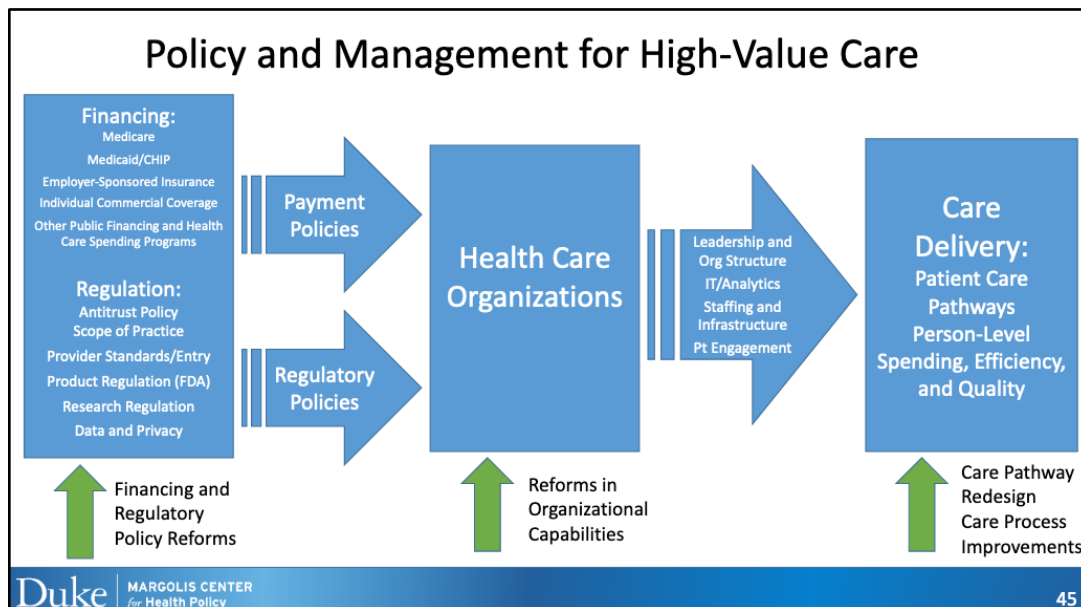


Figure 1. Levels of Value-Based Care Application (McClellan, High Value Healthcare Reform Course Lecture 1, 2021)

At the top health financing and regulatory reforms can combine with reforms in organizational capabilities and process improvements in care delivery to optimize for the triple or quadruple aims.

Because value-based care can be applied to health systems and policy, and healthcare delivery organizations, it is a useful framework for understanding a care delivery model such as One Family Health which works directly within the context of a national health policy. In Rwanda, where elements of value-based care—patient-centered care, high quality, integrated and sustainable delivery services, population wellbeing—had been written into its guiding policy documents for achieving universal health coverage since 2000 with *Rwanda Vision 2020*—the framework is also applicable to the national health context.

In this paper, I present a qualitative case study from Rwanda in which I explore One Family Health's care delivery model in conjunction with Rwanda's national policies aimed towards achieving universal health coverage using value-based care as an underlying analytic framework. For the purpose of this study, I selected the Quadruple Aim mentioned above as the framework for analysis.

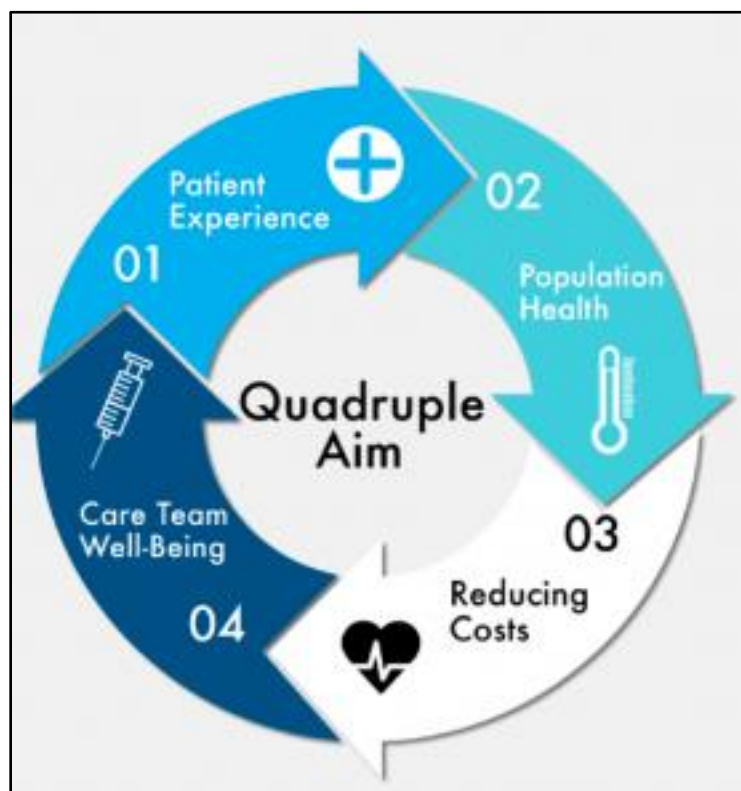


Figure 2. Quadruple Aim

The quadruple aim focuses on the patient experience of care (quality), population health (outcomes), cost reduction, and provider experience (also described as provider satisfaction, wellbeing, or sense of purpose) in an overall approach to shift thinking towards value-based care. It was chosen for its fourth arm's wave to sustainability.

Hereafter use of the phrase “value-based care framework” refers to the Quadruple Aim unless otherwise specified.

The study aims to combine secondary data and primary data from key informant interviews to understand challenges and successes of the OFH nurse-franchisee health post model. It also aims to use contextually relevant constructs from existing frameworks for value-based care to identify characteristics of the model that emulate value-based care as well as to highlight areas for greater progression to value-based care.

In order to conduct the study, it was assumed that as a public-private partnership with Rwanda Ministry of Health, One Family Health openly communicates with Ministry of Health officials at regular intervals where lessons learned from the implementation experience are heard by Ministry of Health officials. This assumption was later strengthened by the fact that several interviewees, especially those of the “technical representative” stakeholder group, referenced meeting with district health officials in describing characteristics of collaboration with them. It was also verified by internal documentation of a recent financing agreement signed jointly by the Ministry of Health and One Family Health, among other national and international stakeholders. Lastly, Rwanda Ministry of Health website lists One Family Health among its health development partners.

2. Methods

This case study uses qualitative methods, data from 14 previously conducted semi-structured key stakeholder interviews from One Family Health, and 8 originally conducted semi-structured key stakeholder interviews from One Family Health. The value-based care framework was used to extract key structural and emergent themes from the key stakeholder interviews.

2.1 Setting

One Family Health is a nongovernmental organization founded in 2012 with its in-country headquarters in Kigali, Rwanda and operates in partnership with Rwanda Ministry of Health in the country's first public-private partnership. It is a social enterprise that operates a franchise of nurse-owned and operated primary care clinics in underserved communities in rural areas without access to health services. Its 125 currently operating clinics, called health posts, are located in 14 of Rwanda's 30 districts (see List 1 below). Members of its leadership team are currently based outside Rwanda in the U.S. and U.K, while an in-country team manages daily operations in Rwanda.

The Rwandan health sector is pyramidal in structure and consists of three levels: the central level, the intermediary level, and the peripheral level (HSSP4 MOH). The central level comprises the Ministry of Health, Rwanda Biomedical Center, and national referral and teaching hospitals. Referral and provincial level hospitals form the intermediary level. Private practices operating in districts containing these hospitals also

form part of the intermediary level. The peripheral level is represented by the health district and each of Rwanda's 30 districts consists of an administrative office (DHU), a district hospital (DH), and a network of health centers and health posts (HCs/HPs). The health post provides services such as immunization, family planning, growth monitoring, and antenatal care. At the village level, community health workers (CHWs) provide prevention, promotion, and some curative health services (HSSP 4 MOH).

Table 1. Rwandan Districts with One Family Health Presence

List of Rwandan Districts with One Family Health Presence
Gasabo
Gicumbi
Kamonyi
Kayonza
Musanze
Nyabihu
Nyagatare
Rubavu
Burera
Gakenke
Nyanza
Gisagara
Rulindo
Gatsibo

2.2 Participants

Participants from 2015 secondary data found in the OFH Customer Satisfaction Survey included 14 key stakeholders consisting of OFH leaders (1), employees (3 nurse-franchisees and 3 technical representatives), and district officials (7). They were chosen to supplement quantitative data from health posts in 8 of the 14 districts in which OFH was operating. The 8 districts were chosen as a representative sample spanning each of Rwanda's five provinces: North, South, East, West, Kigali with consideration given to regions with greater OFH presence.

Participants from 2020 primary data collection included 8 stakeholders consisting of OFH leaders (3) and employees (2 nurse-franchisees and 3 technical representatives). For this set of stakeholders, the following participant recruitment steps were employed:

Selection criteria. The goal of recruitment for the 2020 key-informant interviews was to obtain a sample that represented 1) the breadth of districts in Rwanda containing OFH operations; 2) the range of internal and external stakeholders associated with OFH health post model; 3) the depth and diversity of perspectives of the OFH model within a particular district.

Sampling. A purposive sampling methodology was therefore employed that included mindful outreach to OFH employees of districts from each of Rwanda's five provinces (East, West, North, South, Kigali), from each stakeholder group (OFH leaders, District Officials, OFH Technical Representatives, OFH nurse-franchisees, OFH users,

community health workers and other community members), and from particular districts with long-term OFH involvement. In theory, a total sample size of at least 32 interviews (8 interviews for each stakeholder group) was considered appropriate. In practice, I aimed to conduct 15 interviews which would enable a snapshot view of participants across the range of criteria mentioned above; 15 also approximated the number of participants for the qualitative component of the 2015 survey (14), suggesting that this sample size was more likely possible to obtain. Due to the onset of COVID-19 pandemic and inability to communicate directly with people on the ground in Rwanda, in addition to a language barrier, I was able to recruit and conduct remote interviews with 8 participants, all of whom were internal stakeholders and OFH employees. This was a major limitation to the study given the potential for biased representation of OFH work.

Recruitment. Recruitment strategy and sampling were formulated and then shared with OFH leaders. OFH Leaders agreed to interview and later helped recruit participants of other stakeholder groups through initial purposive and later snowball sampling. A list with contact information was finalized and sent to the first author, who then sent participants a recruitment email with a description of the project and invitation to participate in the interview. The list included a contact at the Ministry of Health who did not respond to the request for interview. Dates for interviews were coordinated via email and WhatsApp correspondence. A total of 8 interviewees were found after the initial outreach to OFH leadership.

2.3 Procedures

Procedures for the 2015 interview set involved separating the transcripts from quantitative data also contained in the Customer Satisfaction Survey. Procedures from the Survey report steps as including: the translation of tools from English to Kinyarwanda; training of enumerators and key informant interview facilitators on the developed data collection tools, and a pilot test to ensure that enumerators and facilitators were familiar with the data collection tools and methods. There is a note that states that enumerators had “received previous training on research ethics, informed consent, and gender-sensitive research and that these were reviewed for this field research process,” but does not explicitly state that informed consent was obtained prior to interviews (2015 Customer Satisfaction Survey). The Customer Satisfaction Survey evaluation did not undergo formal review by a university institutional review board. Transcripts were then de-identified. Interview transcripts were then read and reviewed.

A sample of the 2020 interview guide can be found in the Appendix. An informed consent form was sent along with the email confirming the date and time of the interview and at least 24 hours in advance of the interview time as per protocol approved by the Duke Institutional Review Board. This was signed before the interview or within 24 hours post interview. Regardless the informed consent form was read and reviewed and verbal consent obtained prior to recording any interview as per IRB protocol. Interviews were

conducted through different virtual platforms including: 2 via Zoom, 5 via WhatsApp, and 1 via email due to connectivity issues. All interviews were conducted in English.

The interview meeting itself opened with a brief introduction to the project's background. The informed consent form was read and reviewed. Participants were allowed to ask any questions regarding either the form or project. Questions from the interview guide were then asked at first sequentially. Then as participants touched on additional topics, the questions pertaining to those topics were asked in the order that they came up naturally in conversation. Interviews lasted between 45-60 minutes, depending on the availability of the participants and interview pace. All interviews were conducted by the author. Participant responses were collected via audio recording using Zoom's recording feature and Audacity, a sound editing platform. Data was collected on author's laptop which was encrypted as per IRB requirements. All research was performed according to the study protocols approved by Duke University Campus Institutional Review Board (IRB #2021-0101 and #2021-0132).

Transcription. Some audio recordings (2) were later transcribed using the software Sonix.ai and then reviewed and edited by hand. Others (5) were transcribed directly by author. Still another (1) was reviewed electronically. All participant names were stripped during the transcription and translation process.

Limitations. Both language issues and internet connectivity issues impacted ability to fully engage with some participants' responses.

2.4 Measures

The secondary qualitative data used in this study was collected through the key informant interview guide from the OFH 2015 Customer Satisfaction Survey. The same interview guide was adapted in 2020 to capture additional constructs relevant to the study's research aims.

2.4.1 OFH 2015 Customer Satisfaction Survey Interview Guide

The 2015 guide was developed per the international evaluation criteria of Relevance, Effectiveness, Impact, and Sustainability (details are contained in the 2015 report). It was developed in order to gauge customer (nurse-franchisee) and patient satisfaction with the OFH health post model (see appendix for full interview guide): The guide served as a structural reference to allow participants to describe challenges and successes of the health post model but the questions were open-ended. After developing the tools, preparation for data collection included 1) translation of tools from English to Kinyarwanda back to English; 2) training of survey enumerators and facilitators on data collection procedures including the usage of an Android tablet to capture data and how to obtain consent; and 3) a pilot test. The test was conducted in one of the districts, Gasabo district, after which the interview guide was revised with feedback from respondents (who were not part of the actual study). The Customer Satisfaction Survey evaluation did not undergo formal review by a university institutional review board. The 2015 semi-structured interview guide, which served as the foundation for the 2020 guide, contained

questions on challenges faced by the health post, successes especially with regard to collaborations, and recommendations for improving the health post model.

2.4.2 2020 Key Informant Interview Guide

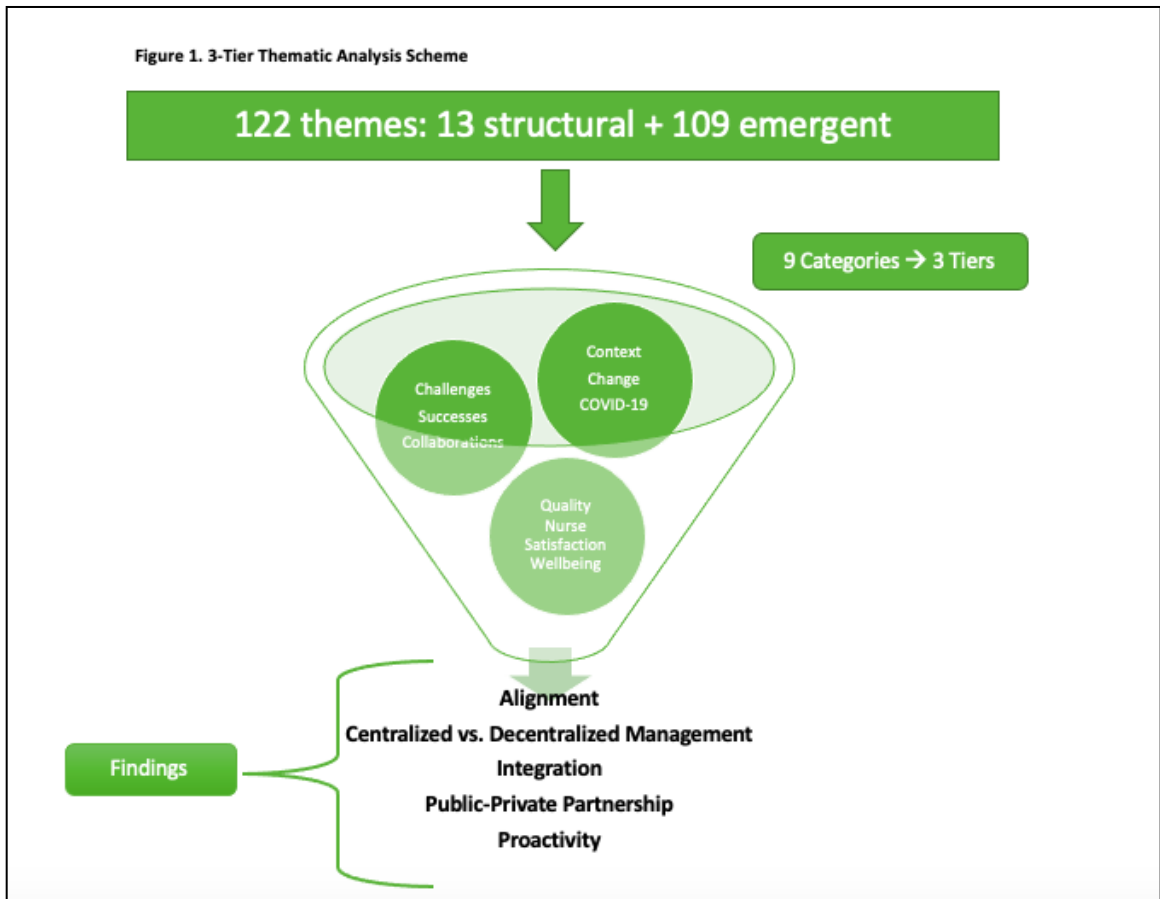
The 2020 interview guide was developed with 2015 interview guide serving as its foundations. Captured in both 2015 and 2020 interview guides were questions on interviewee characteristics, challenges faced by health post, successes of the health post especially in collaboration with other stakeholders, and perceptions on the contribution of the health post to community wellbeing. To this foundational set of questions, additional questions that pertain to value-based care and the 2020 context were incorporated. Such questions asked about nurse-franchisee satisfaction, health outcomes, recent policy changes and effects on health post operations, and the impact of COVID-19. The guide was written in English.

2.5 Analysis

Interview transcripts were imported into NVivo 12 for coding and then read. A hybrid approach for thematic analysis was chosen for this study, as outlined by Fereday and Cochrane in 2006, as it blended an approach using structural codes developed a priori and emergent codes for themes that emerged in response to the interview process (Fereday & Cochrane 2006). Structural codes were developed a priori according to the aims of this study and the interview guides. 13 structural codes were developed which were then grouped into 9 categories and then further condensed into 3 tiers. Responses

were coded within each of the 9 main categories and the range of responses identified (see Figure 1 below). Themes that emerged within each category were given emergent codes. Coded text was read and reviewed for similar patterns and groupings. Groups or patterns of words that pertained to the same subject were categorized as of the same theme/code. For example, the theme of "Measurement" was captured through the following two mentions from two different interviews: "If resources weren't a limitation, I would love to, you know, launch a really comprehensive study in the field to measure actual health outcomes" and "Because, recently, we haven't really had the resources to do any meaningful measurements, we cannot." As each new piece of information yielded a new insight or characteristic of the OFH care delivery model that addressed the study's aims, a single comment was considered as important as those that were repeated across the various interviews. Themes were noted for frequency of appearance as well as the stakeholder group(s) from which they emerged.

Figure 3. 3-Tier Thematic Analysis Scheme



3. Results

The foundational tier contains descriptive themes providing the information on contextual factors including characteristics of the interviewee (e.g. number of years interviewee worked at OFH), changes in the health sector in the past five years, and health post activity during the COVID-19 pandemic. The primary tier contains categories and their respective themes that most directly addressed the first aim of this study and the questions from main sections of both 2015 and 2020 semi-structured interview guides: challenges, successes, collaboration, and recommendations. The 'Recommendations' section was at this stage excluded from further analysis as it described suggestions and not actual OFH activity. The secondary tier contains categories and their respective themes that explore aim two of this study, or value-based care components: nurse satisfaction, community wellbeing, and quality of services delivered. See Figure 2 for all the themes included in each category. Once these three tiers of themes were extracted, remaining themes were considered in a 'final tier' of the analysis: alignment, centralized vs. decentralized management, integration, public-private partnership, proactivity.

Foundational Tier: Context, Changes, COVID-19

Context (Sample Characteristics)
Biggest health issue
bad coughs
Influenza
<u>Lack_beds</u>
Malaria
Maternity care
Worm Infection
Classification (insurance)
<u>Districts_working</u>
Position
<u>Role_OFH</u>
<u>Year_joined</u>

Change (past 5 years)
Changes
Malaria
<u>policy_change</u>
<u>types_HPs</u>

COVID-19
Covid-19

Primary Tier

Challenges
Challenges
<u>admin_paperwork</u>
bad location
<u>building_infrastructure</u>
Communication
compliance
<u>delays_stock_ordering</u>
<u>electricity_water</u>
<u>few_customers</u>
financial
RSSB
<u>flood_inaccessibility</u>
hp closures
<u>HP_unfamiliarity</u>
Implementation
EHR system
<u>Lack_adequate_personnel</u>
<u>Lack_coordination_hc</u>
<u>Lack_space</u>
<u>Medicine_kit_supply</u>
No supervision standards
<u>Operation_steps</u>
Participation
<u>Price-setting_benefits_package</u>
<u>Testing_use</u>
Too much to do
Funding

Successes
<u>Success_factors</u>
<u>Accept_mutuelle</u>
Adequate supply
Better access
<u>Coordination_district_officials</u>
<u>Family_planning</u>
<u>Infrastructure_setup</u>
Location
<u>No_stay_at_home_when_sick</u>
<u>Nurse_presence</u>
<u>Achieving_standards</u>
Reporting
<u>Visits_supervision</u>

Collaboration
Collaboration
<u>Feedback_forum</u>
HP_CHWs
<u>HP_Community</u>
<u>HP_District</u>
<u>Lack_same_operating_standards</u>
Supervision
Supervision
<u>Hygiene_Security</u>
<u>Support</u>
Training
<u>Transfers_Referrals</u>

Secondary Tier		
Quality	Wellbeing	Nurse Satisfaction
entrepreneurship	Patient Outcomes	Nurse satisfaction
Free care	Community Wellbeing	
HP expansion	Public health	
HP service package	Reducing HC burden	
Primary care	Patient satisfaction	
Quality		
Services offered		
Stock supply		

Figure 4. Themes by Category, Tier

3.1 Foundational Tier

Sample Context & Characteristics. The total sample interviewed in 2015 and 2020 combined includes 23 stakeholders affiliated with the OFH health post model. There were 7 district officials, 4 OFH leaders, 6 technical representatives, and 5 nurse-franchisees. Of those that disclosed the districts in which they work, participants drew insights from their experiences in health post operations in 8 different districts: Gicumbi, Nirwavu, Burera, Musanze, Gakenke, Gasabo, Kayonza, and Retiro. The range of joining dates of interviewees spanned from 2012 to 2017 of those that disclosed the number of years that they had worked at OFH (thus participants ranged in experience from 3 to 8 years). 2015 participants cited malaria, worm infection, and bad coughs as the largest health issues faced at the community level by the health posts, while also noting influenza, the need for labor support for mothers giving birth, and lack of beds as secondary issues.

Table 2. Sample Context & Characteristics

Stakeholders	2015	2020
Stakeholder Type	1 OFH leader, 7 district officials, 3 technical representatives, 3 nurse-franchisees	3 OFH leaders, 0 district officials, 3 technical representatives, 2 nurse-franchisees is enough.
Districts	Kamonyi (2), Nyabihu, Nyayarurembo, Bugambira, Mwiyanike, Kamagire, Ruguerero, Yaramba,	Gicumbi, Nirwavu, Burera, Musanze, Gakenke, Gasabo, Kayonza, and Retiro
Years at OFH	Not asked in 2015	3-8
Biggest health issue faced at community level by the health posts	Malaria, Worm infections, bad coughs, influenza, need for labor support, and lack of beds	Not asked in 2020

Recent Changes in Health. 2020 participants were asked about changes in the health environment in the past five years. OFH leaders noted the following: an increase in malaria outbreaks for which nurses do not have an adequate supply of medication; the effect of global warming and the increased incidences of health post flooding and landslides so that patients are not able to access the clinic; the 2014 Ebola outbreak in the Congo and its effects on health posts located on the western border; health posts on the eastern border are also impacted by the wave of refugees fleeing from civil war in Burundi and establishing refugee settlements. Technical representatives and nurses responded with comments on the impact of COVID-19 (below) when specifically prompted about the recent pandemic.

Impact of COVID-19. At the leadership level as described by two OFH leaders, COVID-19 affected financing. Additional financing efforts were required to acquire personal protective equipment for the nurses. The leaders mentioned the financial burden put on nurses as health posts saw reduction in the number of patients utilizing the health post as per government restrictions. At the decentralized level as described again by OFH leaders, slight operational changes were made as nurses were trained in prevention efforts set by the Ministry of Health: “the government centralized the sort of the testing and treatment, not at the health [post] level” (OFH leader). At the health post level, one technical representative noted that a minor challenge due to COVID-19 was not having an adequate supply of ThermoFlash thermometers (no-contact infrared thermometers) to prevent the transmission of COVID-19. The technical representative observes, “...many of our health posts, they don’t have that Thermoflash. They use that old thermometers where you put in arms to take thermometer which is not good in this period of COVID-19. It’s a big challenge we have in the health post here now, but we have the mask, the gloves ...but that is big challenge they have at health post level.” When asked about the impact of COVID-19 on their work, the nurses who were interviewed did not seem to experience the reduction in the number of patients as described by leadership: “we cannot say that because I was working and the patient was continuing to come here to the health posts. There is no infection [impact] that you can say is negative,” (nurse-franchisee). The other nurse who was interviewed noted only a slight operational change to their daily

function: “we check every patient who come to our health post,” (nurse-franchisee), suggesting adherence to the Ministry of Health’s COVID-19 protocols.

3.2 Primary Tier

This tier of analysis explored participant responses that directly addressed success and challenges of the health post model as described in the first aim of this study. It also explores the nature of OFH collaborations with other community stakeholders because successes and challenges of the collaborations were also asked about and documented, particularly in 2015.

Challenges. 26 unique challenges faced by the health post model and those that operate it were captured in this category from both 2015 and 2020 interviews. 2015 challenges ranged from infrastructural challenges including the lack of electricity and running water, poor building quality, lack of adequate space to procedural challenges such as the redundancy of paperwork, and lack of adequate and qualified personnel assisting the nurses. Challenges uniquely mentioned in 2020 were fewer but focused on inaccessibility to health posts due to flood and heavy rains and challenges of implementing an electronic health record system. Challenges observed in both 2015 and 2020 included financial challenges with Rwanda Social Security Board (RSSB) and the inadequate supply of medicines. A particularly salient sub-category mentioned across most stakeholder groups and in both 2015 and 2020 was the enormous financial challenge

posed by delayed payments from RSSB. The payment delays fuel many of the issues at the health post level as they create downstream effects including nurses being unable to pay back their loans, pay OFH which then uses that payment to purchase essential medicines and supplies that nurse use to treat their patients. Another challenge reported by three participants in 2015 was that health post providers lacked either sufficient communication or familiarity with the public sector health centers. This seemed to be noteworthy as lack of trust may be an underlying cause for other findings. These challenges, mentioned in 2015, is best illustrated in an anecdote told by a district health official of an ambulance that did not know to transfer patients from the health post to health centre and back:

Even the ambulance cannot partner with the HP because they said they don't know them. For example, there was an incident where the patient who was unconscious was brought to the health post and the health post called me asking to bring an ambulance to transport the patient to the hospital. But when I called the ambulance, they refused to go there and said they have no information about the HP, what they know is the HC only. There was no other way of transporting that patient and the patient passed away. (district health director)

This example suggests that without stronger connections to the local public sector health system, the OFH health post is limited in its ability to make an impact on health outcomes. As four participants have observed, the OFH health post is also limited due to the exclusion of OFH nurses from participating in routine trainings because they are deemed as the private sector by their district officials. The exclusion of nurses in public trainings was an observation made again in 2020 by one technical representative. As

described by one OFH leader, the incorporation of the OFH nurses into public training is more successful in districts where the level of partnership at the local government is really active.

Successes. Respondents were asked about their successes in the 2015 and 2020 interviews in two ways: 1) What factors enable the success of health post performance? and 2) What successful contributions did the health post make to the health sector? The most common successes included a nurse-franchisee who is responsible and always present (mentioned by 4 participants, 1 in 2015 and 3 in 2020), and quality of supervision by OFH leadership and technical representatives (mentioned by 3 participants in 2015 and 3 in 2020). Health post contributions include increased access to quality health services (mentioned by two participants), acceptance of Mutuelle (community health insurance; mentioned particularly by the district officials as being an important successful contribution), and the fact that patients no longer stay at home sick because quality healthcare is easier to reach (mentioned by two interviewees).

Collaborations. Collaboration was a key theme throughout the interviews. The 2015 and 2020 interview guides both asked about collaboration in the following manner regarding each partner of the health post model: “As one of the stakeholders of the Health Post, what do you think have been the most and least successful components of your

collaboration with other partners?” Collaboration between the health post and each of the following were briefly discussed in each of the interviews: health center, community health workers, district officials, and the community. A challenge with district collaborations was described as unfamiliarity with the health post and its operating standards. As per the public-private partnership agreement, health centers are to supervise health posts, but because of differences in operating standards, there is lack of coordination.

3.3 Secondary Tier

Quality of Care. While quality was mentioned indirectly throughout most interviews particularly in terms of access to care, one participant, a district official in the role of “cell executive” took a moment to reflect distinctly on quality at his cell’s health post: “The quality of health care has improved. For example, we even have people who came from Nsheke and other places, and all those places have either a health center or a health post, but they prefer to come here because this health post provides better service.” Though only one interviewee addressed the theme of quality, it is important to include exploration of the quality of health delivery services as a key component of value-based care, which is further elaborated in the discussion section below.

Another way that quality was indirectly explored was through questions posed to nurse-franchisees about the kinds of services they offer at their health post (2020) and whether they would like to add additional services (2015).

Nurse-Satisfaction. Participants across stakeholder groups were asked whether they thought the nurses were satisfied in their roles as nurse-franchisees and health post managers. Leadership at OFH speculated that nurse-franchisees were indeed satisfied, stating the public sector nurse experience as the alternate reality: “I mean, the other thing we can point to, of course, is, there are there are nurses who are franchisees and they report a sense of empowerment and preference for working in this environment, maybe over previous other options, such as working in the public sector,” (OFH leader). There was also acknowledgement of financial challenges faced by nurse-franchisees from interviews from both OFH leadership and technical representatives (nurses’ supervisory entities):

You know, on the level of moderate challenges, we know there are some things where we need to better support the nurses. There...was an incredibly difficult financial time when one family health tried to bridge the gap. But we weren't able to fully insulate the franchises from that financial hardship. And even in the midst of all of that, the number of franchisees that left was just was just minimal, and I think their dedication in the context of hard times is really a testament to their satisfaction, (OFH leader).

A technical representative noted the satisfaction of nurses is tempered by one thing: “...they are happy but the services they give are limited. The HP the package are limited

so most of them they need that the government can increase the package of services that are delivered at HP level” (technical representative). To the question of their satisfaction, most/all nurses expressed satisfaction. As one nurse said in 2020, “I’m happy. [I don’t have any] problem with One Family Health. We collaborate together.” The second of the 2020 nurse respondents said “...at this time I’m satisfied here.”

Community Wellbeing. Four essential themes emerged out of the question put to all interviewees on whether the health post contributes to the wellbeing of the community: public health education, patient outcomes, and reduction of burden to health centers. In 2015, three participants remarked that nurses play a large role in “sensitizing” or educating the community regarding common health concerns and practices: “When there is a local community meeting, we invite the nurse to talk in the meeting and sensitize the community on health issues,” (district official). When asked how they knew whether or not they were making patients better, a nurse replied,

Our patient(s) get better because local health counsel work with us and provide information about our patient after. So they told us they were in good condition. Then also some of them come back to thank to us and orient other patients to our post. And also we check the total of patients monthly. (nurse-franchisee).

OFH health post contributions to community wellbeing were captured by a district official as reducing of burden on health centers as a result of the health post:

I can confirm that the HP is helping us to provide health care service to the community, when you look at our patient numbers, you can see that they have

reduced since the opening of the HP; and when the HP has a problem of medicine or any other issue, we get a big number of patients on that day and when you ask the patients why they are many, they tell us that the HP doesn't have medicine which is why they had to come here at the HC. That shows how the HP is contributing to the wellbeing of the community especially by reducing the travel distance for the patients to access health care. (district official—director of health center).

The reduction of burden to higher level health facilities is also mentioned by OFH leadership as being one of the more salient contributions of the OFH health post model to the health ecosystem in Rwanda, mentioned second only to the model's contributions to reducing the distance to the nearest health facility.

3.4 Final Tier

Alignment. Alignment of different incentives emerged as a unique property of this model that is both public and private. It was a key theme that emerged primarily from interviews with OFH leaders. One leader notes,

I think the model is sort of where it begins trying to bring in line the incentives of one family health and of the nurse franchisees themselves and of local government partners. All of these interests are not always fully aligned and the nurses that work for one family health are based in the community and have financial incentives in addition to just sort of ethical incentives to make themselves available to have the clinic be open at convenient hours. The franchise model and having this a for profit business is just fundamentally part of, I think, what creates alliance, [it] helps to align those incentives and create that starting point. (OFH leader).

The argument that the for-profit business model helps to nurses' incentives was supported by an observation by a technical representative who remarked in response to nurse wellbeing, "I know the health of them has been improved when they work in health

post. And the figure can show you it's relevant that when we have a HP that need nurses many nurses come to pass the exam because they are informed about those who already have it they explain to them that they think the health post with OFH is good and it's profitable. As you know everyone needs something which is profitable so the health post is profitable." The idea of alignment also emerged in a conversation with a separate OFH leader on financial challenges due to government policy changes. In response to the change to directly pay nurses rather than OFH, the leader speaks of the scramble due to misalignment with the Rwandan government. The interviewee notes,

That's why now we have ended up spending more time focusing on trying to negotiate, lobby, align, realign the way this model was designed with what the government wants, because ultimately they want us to do it, they want us to succeed, it's critical. Otherwise it won't work. However, because there are multiple players involved in policy changes, so policy cannot change overnight...So it's been that challenging...So the issue of realigning the name, the financing system with what is actually happening on the ground. It's critical. (OFH leader).

Alignment as an emergent theme in this analysis covers interactions between the care delivery organization and government policy, between the franchisee and franchisor, and the internal interaction of financial and ethical incentives of the care provider.

Centralized v. Decentralized Management. Centralization and decentralization are recurring themes in this interview sample. Management pertains to either finance or healthcare, and two separate trends bring out this theme. The first, as described by an OFH leader, is OFH's plan to decentralize management to the district level in a direct

mirror to Rwanda's health system. She explores the theme of decentralized management in the following:

"You know, it's a lot of those relationships are managed at a decentralized level, and that's, I think, important and the nature of a franchised organization. You know, as a result, we don't have the same level of close coordination and strong partnership, probably with every different every district or every local government. So there's a little bit of variability. And I mean other elements operationally, I think, you know, back to just sort of how the model is designed. I mentioned earlier that, you know, oversight and management is fairly decentralized. That's part of again, I think it's there are pluses and minuses to decentralization, but our field [technical] representatives are out. You know, having close contact with the nurses, having close contact with district partners and so forth, they're really kind of embedded in the in sort of the territory that they represent. And I think that helps them to be really plugged in to the challenges and successes and to help sort of spread and diffuse learnings from one franchisee to another," (OFH leader).

The second trend is one aimed at revoking decentralization of the finance sector, as described by a technical representative: "...in 2013 those institutions financial institutions which pay them it was called CBHI and it was local and then the government make them centralized not decentralized. Means the nurse do the business and submit the invoice at the central level and get paid. However, before it was decentralized to submit to nearest officers and they pay them. And government mentioned it doesn't work well and improve them in order to be decentralized it make it centralized. But now it works better more now than before. It's better now. Because it's centralized they control everything." With the recent centralization of the financial sector and currently decentralized health system, OFH leadership has had to develop innovative funding strategies that involved seeking realignment with Rwanda government initiatives.

Integration. Integration emerged as a theme in two different contexts of two different interviews: 1) outside of OFH in relation to work done with development partners and 2) within OFH in relation to the “network” feature of OFH’s management. To the former, a OFH leader observed, “I think that there's probably more integration that could have been done or could be done with other development partners in our other partners funded by USAID and other donors that are working on objectives similar to or complementary to what we're doing. So I think there's more integration that could probably be happening.” (OFH leader). This comment on integration among development actors and suggested resulting interactions mirrors an observation about integration occurring at the decentralized level:

an advantage of our system that it is a network model where innovations or successes that are happening with one franchisee can be shared with others and similarly challenges that one or two of them are having. It helps us identify the challenges that others could be having and or that others maybe have solved and that we can... it's just they're not isolated clinics trying to make their way on their own or isolated nurses trying to run their own businesses without support. That network structure really helps as a foundation. And then we've been working as an organization to try to better leverage that and to really actively help to diffuse sort of lessons learned and best practices. (OFH leadership).

At the decentralized level, the network model allows for integration.

Public-Private Partnership. The advantages and disadvantages of the public-private partnership model were both directly and indirectly stated by each of the interviewees. Some of the major advantages and disadvantages are summarized below in Table 3:

Table 3. Advantages and Disadvantages of the PPP Model as Described by Participants

	OFH PPP Advantage	OFH PPP Disadvantage
Patient Level	Allows for both sets of patients: those who are able and willing to pay and those who cannot afford to pay.	
Provider Level	The model allows for “the alignment of both financial and ethical incentives for nurses” Nurses are paid better/are more satisfied than public sector nurses	Nurses have 2 systems of paperwork to fill out (duplicate reporting), “causes disincentive for nurses to keep reporting” Nurses don’t always get to participate in public trainings /supervision
Organizational Level	Benefits from both the network model and supervisory function from the private side AND the trainings + supervision from the public side Benefit from both the public infrastructure and private medical supplies	“Variability in strength of integration with public sector across HPs based on “activeness of partnership at local government level”
Coordination with public sector	Allows for multiple funding sources to be mixed	HCs/District officials are supposed to supervise but cannot because health posts do not share the same (or any) operating standards Health centers are still unfamiliar with HPs especially due to different standards for operations

Proactive Experimentation [for realignment]. While only one OFH leader spoke of the importance of being proactive when the care delivery organization fell out of alignment with government priorities, it is important to include as it offers lessons on a confronting and overcoming the barrier of misalignment in order to re-establish alignment. In speaking of the recent changes in Rwanda's financing policies that have affected OFH's financing model, the OFH leader spoke of the importance of being proactive in finding realignment with government priorities:

So with all that, we are actually trying to be proactive in terms of how to handle the changing situation, because it's really been a steep learning curve... It's been tricky. But what we have done is we've been proactive in terms of following the trends, in terms of financing in health care. And we've been experimenting, trying to find out if we can change the model of financing to innovative financing for the model... So now we have a proposal going on together with the government to try and look further at this possibility of ...changing the way we fund these projects in such a way that it would support both the OFH health posts, of course, and the government health posts. (OFH leader).

4. Discussion

The tiered-approach of this thematic analysis allowed for the separation of resulting themes according to relevance to the research aims of the study. The foundational tier provided details on participant characteristics and contextual themes. The primary tier yielded an exploration of the OFH health post model including in terms of its challenges and successes as stated in the study's first aim. The secondary tier produced results that expanded understanding of the care delivery model through the framework of value-based care as stated in the study's second aim. The final tier captured themes that remained to be explored further after the framework's application.

Care Model: Successes & Challenges

The primary aim of this study was to explore the OFH care delivery model with a particular focus on its successes and challenges.

Successes as mentioned by participants focused on OFH health post contributions to providing healthcare in areas where access to care formerly required long journeys to the nearest health facility or an ability to pay. Qualitatively, this is captured in this set of interviews by the idea that "no one gets sick and stays at home without going to seek medical care," repeated by two participants in 2015 and OFH leader in 2020. Quantitatively, OFH health post contributions are captured in the distance walked to the nearest OFH health post which is 1.5km or a 14-minute walk (OFH Customer Satisfaction

Report 2015). This is in comparison to 2.5km to another clinic, over 5.5 km to the nearest health centre, or 10.5km to the nearest district hospital (OFH Customer Satisfaction Report 2015). Average walking distance and time to the nearest health facility is an important metric as it is also how progress in access to care is being measured by Rwanda Ministry of Health. In its Fourth Health Sector Strategic Plan, the Ministry of Health shared the following baselines and targets for this indicator (by time): 56.5 minutes in 2016, 50 minutes in 2020, and 45 minutes in 2024 (Rwanda Ministry of Health HSSP IV, 2018). As OFH customers experience only one fourth of this time spent on walking to the nearest health post in 2015, it seems that OFH health post model is contributing to Rwanda's aim to bring healthcare closer to the people and to increase health equity in terms of access. As Rwanda progresses towards its target of establishing a health post for every cell (2,148) in Rwanda, the expansion of OFH services will be crucial to achieving that goal. One Family Health plans to expand to 500 health posts (it is currently at 125) before it transitions leadership and management to the Rwandan team. If both organizational and national targets are met, One Family Health will be serving almost one fourth of Rwanda's population.

Financing. Participants in both 2015 and 2020 observed challenges of the OFH health post model to be, if not directly related to financing and delayed reimbursements, then otherwise indicative of resource-constraints particularly with regard to infrastructure, citing frequent moments without electricity and water, lack of available

space in the health post, some health posts' need overall for renovation. Here in connection to value-based care it is worth considering the financial structure of OFH and its coordination with Rwanda's payment system, though it is important to note that apart from emerging through challenges, financing was not a primary aim of this study.

At the core of One Family Health is a financing model that operates like a social franchise. It is primarily financed in part by USAID and other external donors. It is also funded by a portion of the revenue generated by nurses as a result of seeing patients who have *Mutuelle* or community-based health insurance (Global Innovation Exchange Site, One Family Health page). Nurses take a small portion of their earnings and use it to pay back any outstanding loans or payments to the organization. Recent changes to Rwanda's payment system and consequently its financial coordination with OFH have contributed to the "delayed payments" that many participants spoke of as the major challenge faced by nurses at the health post, with upstream consequences for OFH as an organization. In 2018 Rwanda National Payment System called for a new strategy with the following vision: to build a cashless Rwanda through a world-class payment system that is secure, reliable, efficient, scalable, innovative, and promotes financial inclusion (Rwanda Payment System Strategy 2018-2024). The creation of this and subsequent strategy documents aligning with this one including RSSB Action Plan 2020-2021, returned the nation to a more centralized approach for managing money flows. The shift from decentralized to more centralized financing in Rwanda, as mentioned in the results,

affected the way nurses were getting paid. The shift also necessitated that OFH, in the words of one OFH leader, react quickly to adapt its own funding system to re-align with that of Rwanda Government.

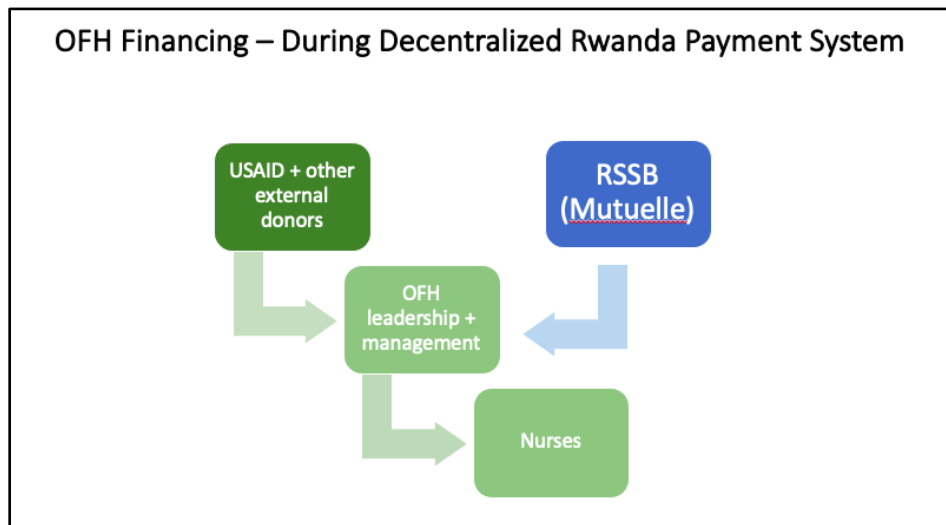


Figure 5. OFH Financing—During Decentralized RNPS

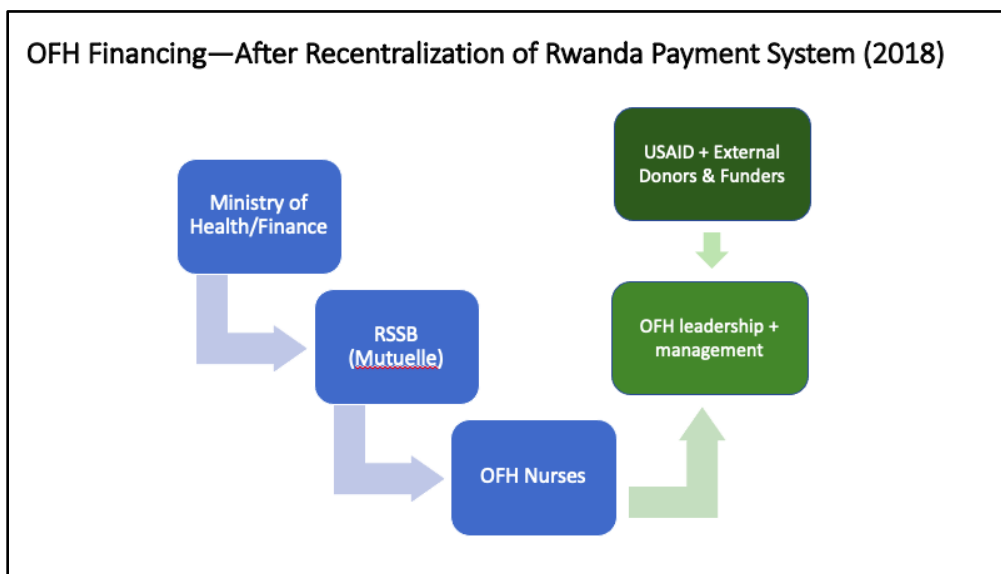


Figure 6. OFH Financing—After Recentralization of RNPS

An example of OFH's recent forays into innovative financing is shared by a recent United Nations Concept Note that brought together Rwanda Ministry of Health, Rwanda Ministry of Finance, One Family Health along with other health and solar energy entrepreneurs, with various departments of the United Nations to draft a plan for an innovative financing model created to facilitate the rapid expansion and solarization of the health post model (UN Concept Note May 2020). As One Family Health works to refine its own financing model to close its financial gap given its resource limitations, it moves further along its progression towards value-based care.

Apart from cost reduction in financing value-based care, other themes such as the quality of delivery services, population health outcomes, and provider satisfaction are explored in the following sections as explored by the study's second analysis tier and aim.

Quality of Delivery Services

One participant described the quality of care at the health post as "offering better services" than the nearby health center in an emerging theme. Apart from this, because of the biased sampling limitation, in which the providers of the services in question were the interviewees, a question directly addressing the quality of health services was not incorporated into the 2020 interview guide and therefore direct mentions of quality were not captured. Instead, an understanding of quality of OFH delivery services emerged

primarily through structural and emerging themes that could serve as proxies for the six domains of quality (see Figure 7).

Quality is characterized by the Institute of Medicine by six domains: Patient-Centeredness, Effectiveness, Efficiency, Safety, Equity, Timeliness (Crossing the Quality Chasm Report 2001).

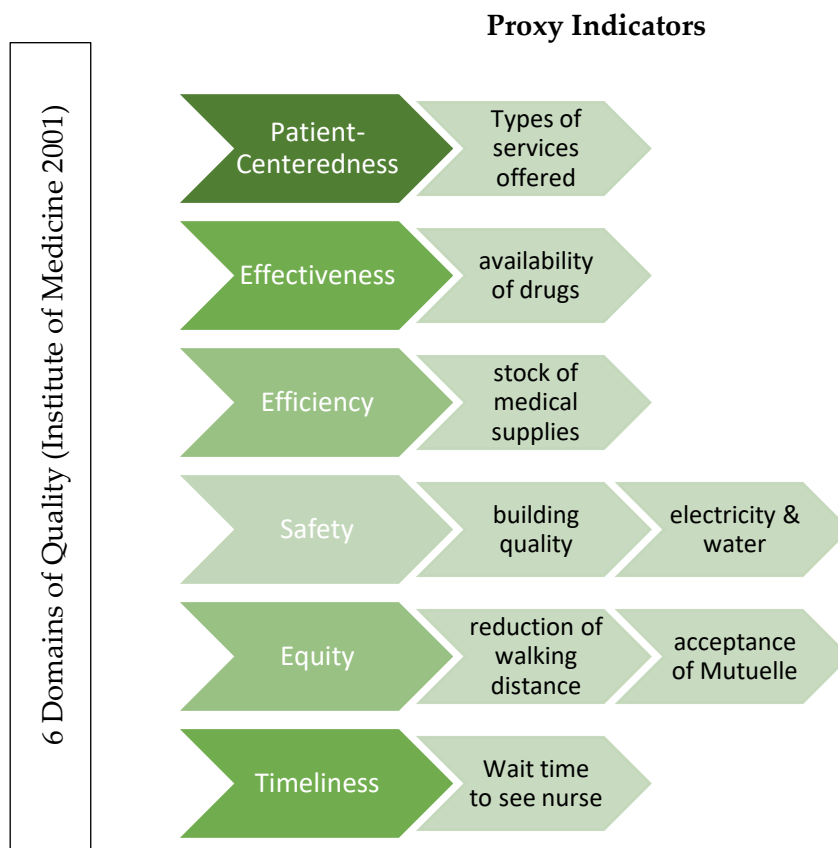


Figure 7. Six Domains of Quality and Proxy Indicators

Types of services offered can serve as a proxy for patient-centeredness, the availability of medicines as effectiveness and stock of medical supplies as efficiency. The question and responses on services offered at the health post can be framed in the context

of the health post services package set at the policy level, which according to a 2015 participant, “is still small and lacking essential materials.” In 2020, a OFH leader mentions that Rwanda Ministry of Health is “looking at” the health post services package, the work OFH has done to advocate for the expansion of health post services, and the “incredibly slow” nature of making this policy change. A few of the nurses who answered the question on the availability of medicines spoke of working together with the district pharmacy (2 nurses) or health center (1 nurse) to acquire needed supplies when they run out. Even with this arrangement, delays and transportation difficulties make a constant supply of medicines and medical supplies difficult to achieve.

In addition to the aforementioned three structural themes, emerging themes in this study found in the primary tier, such as various infrastructural challenges, serve as a proxy for safety; access to care due to *Mutuelle* and reduction of walking distance as a proxy for equity. The challenges and successes reported by participants points to strengths in the OFH health post model in terms of equity and patient-centeredness, but weaknesses in other elements of quality, including safety and efficiency. The domain of timeliness was not captured in the key informant interviews. However, the quantitative component of the OFH Customer Satisfaction Report 2015 reveals that 83.3% of those who answered the question thought that the time waited to see the nurse is reasonable. A separate item shows that 61.94% of those who responded did not have to wait at all to see the nurse (OFH Customer Satisfaction Report 2015).

The recent establishment of the health post accreditation standards in May 2020 promotes standards for the improvement of health post operations which in turn affects the quality of services delivered. Two of five risk areas for which standards were developed are 'safe environments for staff and patients' and 'improvement of quality and safety.' With increased tracking of quality metrics and OFH implementation of the aforementioned standards, it is possible that the quality of delivery services of the OFH health post model will improve.

Population Health Outcomes

A signature characteristic of value-based care is its emphasis on improving patient-centered health outcomes. An underlying implication to this is knowing how such outcomes are measured. To better qualitatively understand outcomes related to the OFH health post, two questions were asked. One concerned "contributions to the wellbeing of the community;" the other asked "Do patients get better? How do you know?" Both questions yielded overwhelmingly positive responses in both 2015 and 2020. The second question produced anecdotes. In 2020 one nurse succinctly puts her response to the latter question as: "Our patient(s) get better because local health counsel work with us and provide information about to our patient after. So they told us they were in good condition. Then also some of them come back to thank to us and orient other patients to our post. And also we check the total of patients monthly."

In addition to qualitative anecdotes, two participants, both OFH leaders mention the lack of current capacity to measure patient-centered health outcomes as desired. While OFH tracks its total number of patients and number of patient visits among other metrics, it is still looking for more informative ways to capture health outcomes beyond the DALYs and deaths averted. However, its current capacity to capture patient-centered metrics such as DALYs and deaths averted outpaces the Ministry of Health, for which the primary method of data collection of national health (that is publicly available) is the Demographic Health Surveys, followed by more recent publications of Health Management Information Systems data. These data contain prevalence estimates across diseases of interest to the Ministry of Health, information on access to care, health utilization rates, and sources for health education—many performance and even quality indicators, but not patient-centered health outcomes. OFH’s implementation of its own electronic health record system, may be a factor that allows it to capture additional information.

Two OFH leaders mention recent technical challenges in the past five years associated with the electronic record system that has caused the system to revert to reporting via paperwork and consequently slow progress. The past year has seen these challenges largely resolved and the beginning of reintegration of the electronic reporting system with the care delivery component. The ‘patient-centeredness’ of the electronic system remains to be tested in the years to come.

Provider Satisfaction

On the theme of nurse satisfaction, all 2020 participants agreed that, barring certain challenges of daily operations such as payment delays and exclusion from training, the nurses were satisfied. Both nurses who were interviewed in 2020 and asked the question on their satisfaction replied that they were satisfied—"at this time" was added by one of the two. Both nurses had joined One Family Health in 2017 and were working in their third year with the organization. Given the number of aforementioned challenges potentially faced by these nurses, the willingness to stay speaks to either the need for employment or satisfaction with the model. The OFH leaders offered autonomy, acquisition of entrepreneurial skills, and empowerment, as potential explanations for this satisfaction.

The unanimous response on nurse satisfaction may have occurred due to sampling bias. Since participants were recruited with the help of OFH leadership, bias in selection of nurses who would report favorably on OFH may be present. Another potential source of bias that may have resulted in unanimous consensus is the social desirability bias associated with being interviewed to speak on behalf of an employer organization. Though the study was framed from the perspective of internal process improvement and therefore participation would cause minimal risk to employees who spoke about OFH, concerns on sharing negative feedback may have been present.

Quantitative data captured in 2015 asked nurses whether being a self-employed nurse with OFH or being a public servant is better (OFH Customer Satisfaction Report

2015). In five of seven districts nurses reported unanimously that being self-employed is better than working as a public sector nurse; in one district 50% of participants responded there was “no difference” between working as an OFH nurse and working as a public nurse; 33% of respondents in another district responded that being employed in the public service is better (OFH Customer Satisfaction Report 2015). With the recent financial challenges and duplicate manual reporting due to technical challenges with the electronic record system, it is especially important to interview additional nurses on their satisfaction to give significance to the finding that nurses are indeed satisfied to work within the OFH model.

The themes of supervision and trainings appeared as emerging themes across several interview questions and point to ways provider satisfaction may be strengthened. As comments from both 2015 and 2020 suggest, having regular supervision sessions and trainings by the health center would allow nurses perhaps feel more supported, to continue to expand their knowledge, and to coordinate better with the nearby health center on the care of patients.

Final Tier: Other Value-Based Care Components

While the Quadruple Aim framework was taken to be the primary value-based care framework used in this study, it does not lend itself to an interpretation of findings from the final tier: integration, alignment, proactive experimentation [for re-alignment],

decentralized vs. centralized management, public-private partnership. A review of components of other value-based care frameworks show “systems integration” as one of six elements of Porter and Teisberg’s value-based care framework (Porter and Teisberg, 2006). Systems integration emphasizes integration of services across the life cycle, integration of primary care with specialized care, as well as geographic integration in the process of expansion. The network model of OFH as described in the results addresses the third form of integration. Also described in the results is the need to improve integration. Considering the other two forms of integration as detailed by Porter and Teisberg’s value-based care framework may afford OFH opportunities to improve integration across the life cycle of patients and between primary and specialized care.

That financing and payment models ought to bring “alignment” between systems and providers is a component of the value-based care framework proposed by Duke Margolis Center for Health Policy. Although alignment as an emerging theme in this study was viewed in terms of which actors—franchisees, franchisor, government, organization—were brought together in the discussion of shared values, the Margolis framework puts an emphasis on the shared goal that brought these actors together: financing and payment. The shift in framing from actors involved to the value that aligns them allows one to see that OFH’s primary role in Rwanda’s vision to achieve universal health coverage is to reduce government spending in the expansion of accessible and equitable delivery services. So long as OFH continues to reduce government spending on

health services, it is providing a value-add to Rwanda's health sector. The latest published estimate of savings to Rwanda government when OFH is fully scaled is US \$9 million (Doshi, P. et al 2021).

The theme of centralized vs. decentralized management and the impact of both on OFH care model is important to mention. While the effect of Rwanda's shift from decentralized to recentralized financing on OFH operations is described in the financing section above, this theme describes the interplay between Rwanda's centralized management of financing with OFH's decentralized management of care delivery which mirrors Rwanda's management of health service delivery at the local level. Advantages to the decentralized management approach for care delivery may be that it allows for local expertise to drive local progress. Disadvantages may include coordination difficulties with higher level leadership, which key informants have pointed to. Irrespective of these, a new set of pros and cons emerge when considering the interaction effect of a centralized financing system with a decentralized delivery system. In the case of Rwanda and OFH, for whom both equitable access to care and cost savings to government were shared goals, this approach of centralized financing and decentralized service delivery align with those goals. The advantages and disadvantages to this approach have yet to be fully explored, and further research is needed to examine this interaction.

The theme of public-private partnership emerged as a descriptor of the OFH model often as an explanation for a particular phenomenon. For example, district health

officials in 2015 cited confusion around the public-private partnership model as the reason that health centers do not supervise or interact much with health posts. Public-private partnerships have been used to deliver healthcare where there are insufficient government funds to spark and facilitate innovations in the progression towards universal health coverage (Kosycarz et al 2019). A systematic review conducted in 2017 that asked whether public-private partnerships provide value in healthcare concluded that more research is needed to determine the model's benefits and drawbacks (Specchia, M. et al 2017). As applied in this case study of the OFH public-private partnership, the value-based care framework may provide greater insights into the advantages and disadvantages of different public-private partnership models used in resource-constrained settings.

In recent years, value-based care has been utilized in the international context including low- and middle-income countries to achieve greater health outcomes in spite of resource constraints. Relevant to the international progression to value-based care on the financing side is performance-based financing, a mechanism through which governments, donors, and other health system actors have begun to link payments to results (Turcotte-Tremblay, A. et al 2016). Using predefined performance indicators, health systems use this financing scheme to pay hospitals by provider performance (Turcotte-Tremblay, A. et al 2016). In Rwanda, performance-based financing became a key

pillar of health sector financing in 2015 as it sought opportunities to increase value for money (Rwanda Health Sector Policy 2015).

Academic and grey literature reveal that several value-based healthcare delivery models have been implemented in the international context (see Table 4). Most recently, the Leapfrog to Value group composed a report in 2019 that examined some of these models in the low- and middle-income country (LMIC) context, proposing that by following best practices in value-based care (track outcomes and true costs, bring care to communities, and reward financiers for value and equity), LMIC countries would experience an increase in both volume and value in the progression towards universal healthcare (Leapfrog to Value Report 2019). Earlier in 2016, the World Economic Forum launched the Value in Healthcare project to explore innovative ways to tackle the problem of value in healthcare (i.e. no association between money spent and health outcomes) (World Economic Forum Value in Healthcare Report 2018). Additionally after its 2019 Annual Meeting, the World Economic Forum created a public-private coalition—a collaboration between itself, leading healthcare stakeholders and the international organization for public-private cooperation called the Global Coalition for Value in Healthcare. Examples of models highlighted by the community as having undergone assessment for value-based care include Diabeter (Netherlands), Health Cluster Portugal Cataract Initiative (Portugal), NHS Wales (Wales, United Kingdom), and Steno Diabetes

Center Copenhagen (Denmark) (World Economic Forum Global Innovation Hub for Value in Healthcare Website accessed April 2021).

Identifying the ways in which LMICs incorporate public-private partnerships and value-based care elements of quality of service delivery, patient-centered outcomes, cost reduction, and provider satisfaction as examined in this study may provide a means of assessment for the evaluation of its impact and generate additional ideas for furthering that impact. This intranational impact can be strengthened with international collaboration around value-based care.

Table 4. Examples of International Value-Based Care Models

Model	Location	Description
Possible Health	Nepal	Community-based primary healthcare and public-private partnership with Nepal Government
Medica Santa Carmen	Mexico	Privately managed network that provides kidney disease treatment through 11 clinics
MomCare (PharmAccess)	Africa	MomCare incorporates three dimensions of care: a) financing for a package of maternal care, b) quality standards for its network of providers, and c) actionable data to improve and incentivize patient and provider behaviors.
Watsi	East Africa	Meso platform has a suite of mobile and web applications that facilitate end-to-end administration of health insurance enrollment, patient identification, claims submission, claims processing, and reporting.
Medic Mobile	m-health	m-health platform that offers the Community Health Toolkit for community health workers.
Clinicas del Azucar	Mexico	“one-stop shop” for diabetes care in Mexico that emphasizes the importance of lifestyle interventions to improve outcomes.

Jacaranda Health	Kenya	low-cost, private maternity hospital in Kenya that has designed patient-centered care pathways for expecting mothers.
Muso	Mali	360° Supervision deploys dedicated supervisors and uses dashboards to assess the coverage, quality, and speed of frontline health workers. Muso CHWs use a digital app to track patients they see in a catchment area.
Sevamob	India, South Africa, US	Uses pop-up clinics, artificial intelligence (AI) enabled triage, point of care diagnostics, and specialist telehealth services to deliver a primary care services.

*Examples were extracted from the Leapfrog to Value Report 2019.

4.1 Implications for policy and practice

The results of this study hold implications for the future of OFH practice and Rwanda Ministry of Health policy.

For One Family Health, findings from aim 1 of this study suggest that the organization’s most important role in Rwanda’s health sector is to primarily reduce government spending on health services. To this extent, One Family Health may consider increasing its prioritization of alignment with the financial goals of the Ministry of Health. One Family Health has already begun to innovate in partnership with other external funders and the Ministry of Health to align both financial strategy and innovations concerning the health post. Continuing such thinking will be important to its survival and growth. Findings from aim 2 of this study suggest for One Family Health to strengthen infrastructural and financial supports for the health posts that are already in operation to optimize for the provision of quality health services before continuing its expansion. This

is to ensure that each health post reflects success in each of the six domains of quality. A first step to this is to implement the health post accreditation standards published by Ministry of Health in 2020, as this will serve as a checklist to ensuring quality and aligning with government standards. Regarding patient-centered health outcomes, findings suggest that whether quantitatively or qualitatively performed, monitoring of health outcomes centered on patients should take place routinely. Regarding nurses' satisfaction, increased investment in the support of nurses through supervision and routine trainings, or else coordinating with district officials to ensure that OFH nurses are included in routine public trainings would increase satisfaction. Maintaining the OFH network model where nurses can share and learn best practices should also be continued.

Implications of these findings for Rwanda Ministry of Health would be to conduct routine sessions where private health development partners can offer feedback on the downstream effects, both positive and negative, of policy reforms and regulatory changes on their service delivery work. Allowing a space for those discussions might allow for a smoother transition for the organizations in the field and could pave the way for better alignment and integration once new policies are implemented.

4.2 Implications for further research

Further research needs to be conducted 1) as part of this case study in order to effectively meet its aims and 2) to expand upon the application of the value-based care

framework in research on service delivery organizations working in resource-constrained settings.

Next steps for this study would be to conduct a parallel qualitative analysis to be undertaken with the Rwandan Ministry of Health to capture perceptions from the public sector on challenges, successes, and value-based care characteristics of the OFH public-private partnership model. This is so as to capture the role of the Ministry of Health in the partnership—an actor whose absence is described below as a major limitation to this study. To fully apply the value-based care framework to OFH care model, additional steps would be to: add a quantitative component to this qualitative analysis to better understand the health outcomes; add a costing analysis to further understand the cost of implementing this model in a way that addresses the challenges it currently faces and to trace the process of receiving care at a health post to see whether there are more effective ways to use spending and whether the money spent can be traced directly to the patient's health outcomes; add a policy analysis to understand the downstream impacts of various policies on the OFH model particularly the extent to which they enable or constrict value-based thinking; to add a geospatial analysis to see whether at a population level, health outcomes could be traced to either the improved geographic accessibility of care due to the expansion of the OFH model and if possible to the quality of care received at the health post.

This case study shows the utility of applying the value-based care framework to resource-constrained settings. While there may be several gaps in data to complete the above suggested analyses, taken together within the context of the framework, they will provide a comprehensive understanding of the practical realities of healthcare delivery in such settings and best practices for continued improvement in spite of resource limitations. In order to advance this line of research involving the value-based care framework, a useful next step would be to create both a national and organizational value-based composite index to effectively compare across health service delivery systems and organizations with differing data collection abilities. Much as a dashboard of key indicators would do, each item of the index could be modified and tracked over time for continual internal improvement.

Further research is also needed more broadly to evaluate other types of public-private partnerships for their role in implementing value-based care. Preliminary case studies such as this one could allow for a first pass look at how public-private partnerships are innovating to improve health and reduce costs.

4.3 Study strengths and limitations

The results of this study must be considered in the context of its many limitations.

Inadequate Sampling. A major limitation to this study was its sampling frame. Four stakeholder groups—OFH nurses, OFH technical representatives, OFH leaders, and

District officials – were initially proposed to be surveyed in 2020 to match the stakeholder groups surveyed in 2015. Sampling for primary data collection in 2020 following typical data saturation points should have included at minimum a total of at least 8 to 12 participants per stakeholder group for a total of 32-48 interviews instead of the final 8 obtained (Guest G., et al 2006).

In the relevant tangential field of patient-report outcomes, it is important that qualitative research not only reach data saturation but also provide evidence that data saturation is reached (Cicely, K. 2010). In patient-outcomes research, saturation is defined as: “the point in the data collection process when no new concept-relevant information is being elicited from individual interviews or focus groups, or no new information is deemed missing during cognitive interviewing,” (Rothman, M. et al 2009). In this field, recommendations regarding the documentation of data saturation include aiming for 1) 20-30 interviews as has been demonstrated in practice to fit budgetary constraints and 2) a combination of saturation tables and documented codebook development to assess for both breadth and depth of content (Cicely, K. et al. 2010). While the suggested sample size was not able to be obtained, the suggested data saturation assessment tools were used to enhance understanding of the qualitative content.

At the very least, matching the number of participants from each stakeholder set from the 14 key informant interviews conducted in 2015 would have provided a basis for comparison between the two time points.

Recruitment Bias. Strategy for recruitment involved initial outreach to OFH leadership who agreed to interview. OFH leaders then provided recommendations and contact information for technical representatives who were available to interview, had access to internet connection, sufficient experience with OFH, and could speak English. Technical representatives then worked with OFH leadership to find and recruit nurses based on the same aforementioned criteria. After finding two nurses, the team was unable to recruit additional participants who matched criteria. As OFH leadership facilitated and led recruitment efforts, the sample of participants selected to interview were highly likely to be biased in favor of OFH operations.

Interview Guide. In an effort to maintain a basis for comparison, the 2015 interview guide was used to compose the 2020 interview guide so many questions are similarly worded and written, if not identical. The original purpose of the 2015 survey was to measure satisfaction of both nurses and patients, which is not an aim of this study. However direct questions on challenges and successes of the health post model were asked to participants, and responses to these questions provided the data for this study's

analysis. Considerations for language barrier and the inability to pilot test the 2020 interview guide also informed this choice of sticking close to questions already adapted to the Rwandan context. However additional questions were added to 2020 to incorporate the value-based care framework that were never formally adapted to the Rwandan context nor pilot tested. In spite of this limitation, participants seemed to understand the additional questions well enough to respond. Additionally, while a question addressing each of three value-based care components were added to the 2020 interview guide, a fourth component—on cost reduction—was not included as an interview question as so little information relevant to the question was available to most participants except OFH leadership.

Procedures. The process for conducting interviews was approached differently in 2015 and 2020 and therefore are also likely to change the study. 2015 involved an interview format that was conducted in Kinyarwanda and then translated to English. The 2015 surveys were conducted in person by “enumerators,” people who were trained in data collection methods and informed consent. The 2020 version was conducted in English. Thus data collection could have been influenced by participants’, interviewers’ and translators’ (in 2015) understanding of English. 2020 interviews were conducted virtually with internet connection issues which compounded with any language barrier to make certain words harder to hear and understand than others. While internet

connection issues did not seem to affect overall understanding of questions, language barrier contributed to slight variations in responses.

Approach. The methodological approach for this case study involved combining secondary and primary qualitative data. Alternatives to this approach would have been to just use primary or just use secondary qualitative data at risk of losing even more stakeholders' perspectives. Slightly beyond purely qualitative methods were other approaches that could have been considered in contexts where data is limited and/or incomplete: mixed methods (qualitative-quantitative), secondary analysis of qualitative data, and quantitative secondary analysis. While each of these have their strengths the choice of combination of primary and secondary qualitative data arose from the need to balance perspectives of participants who worked within the OFH model to those working outside of the OFH model as part of the public health sector under Rwanda Ministry of Health. That qualitative responses could be described in terms of frequency and saliency, range, breadth and depth allow for an honest comparison of the two datasets in spite of the many variations described by the above limitations. To date there have not been many known studies using a combination of qualitative primary and secondary analysis. However within the context of secondary analysis of primary qualitative data, similar approaches of 'data sorting' rather than 'data sampling' (segregating subsamples of primary data to shift focus to particular groups of

informants and to limit the analysis to certain topics or themes) have been used to fit the purpose of the secondary analysis (Heaton, J. 2004). In her book titled *Reworking Qualitative Data*, Janet Heaton highlights another approach by researchers which had augmented secondary data with additional primary data. In this case researchers dealt with the data fit issue by exploring questions similar to and derived from a previous analysis of the same dataset, and then re-shaped the datasets so that they matched the aim of the secondary work (Heaton J, 2004). This approach would be most similar to the one employed by the present study. Rather than critiquing the approach, Heaton describes it as “epitomizing the flexible nature of qualitative inquiry and the pragmatic approach of many exponents and proponents of qualitative secondary analysis,” (Heaton, J.). As there are not many studies that combine secondary data and primary data in a qualitative analysis, the value for such a study is unclear. Nevertheless, in resource-constrained settings under circumstances such as a global pandemic, the ability to combine both secondary and primary qualitative data may potentially be considered both favorable and pragmatic.

COVID-19 Pandemic 2019-2020. The study as originally conceived involved considerations that would have addressed the limitations above. For example, the interviews were originally designed to be carried out in person and on site, allowing for increased opportunities for unbiased recruitment that would have yielded a larger

dataset. Secondary analysis of the 2015 dataset may not have been considered if thematic saturation was achieved during primary data collection. The COVID-19 pandemic disrupted opportunities to continue the study as originally conceived. Thus, a combined approach of primary data analysis along with secondary data was used in order to fill gaps in perspectives and number of participants.

5. Conclusion

The One Family Health qualitative case study utilizing the value-based care framework offers several insights for One Family Health, Rwanda Ministry of Health, other private sector health delivery innovators seeking to contract with national governments with national governments to make contributions of value to a nation's health sector via a public-private partnership, and for researchers interested in the application of the value-based care framework. Chief among those insights for any health service delivery organization are ensuring that the contracting organization contribute to reduced government spending by aligning its financial model with the aims of government financing initiatives; that infrastructural and financial supports are in place for the service delivery organization to provide quality health services; that monitoring of health outcomes centered on patients takes place routinely whether through qualitative community feedback or quantitative data collection via electronic record systems; that care providers are satisfied and supported through supervision, routine trainings, and networks where they can share and learn best practices.

The public-private partnership model is integral to achieving value-based care in settings where the public sector is resource-constrained. By strengthening the private sector of low-resourced countries, external partners can contribute to value-based care via expansion of access to quality health services for a greater share of the population and by stimulating its economy via employment of the health workforce. As various and greater

numbers of public-private partnerships models become established to fill gaps in healthcare globally, they ought to be studied in greater detail using the value-based care framework for evaluation and improvement—particularly with regard to public and private sector alignment and integration—in order to increase their impact on health outcomes.

Appendix A. 2015 Key Informant Interview Guide from Customer Satisfaction Survey

#2015009

KII with LA (Cell Executives)

Rugerero Cell Executive; Rugerero Cell

	Key questions
<p>Note all details about the partnership and clear roles of each institution involved in the functions of the Health Post. This will determine what satisfaction to expect from</p>	Details about the partnership
	Describe your relationship with One Family Health regarding the operations of the Health Posts.
	Role and responsibility
	What is your role/the role of your institution in the operations of the Health Posts?

<p>Relevance of the Health Post to the needs of the community as perceived by stakeholders</p>	<p>Perception on the contribution made by OFH Health Posts</p>							
	<p>What do you think is the contribution of OFH Health Post to the wellbeing of the community?</p>							
<p>Note challenges and successes of the collaboration to inform on the satisfaction of stakeholders, ownership and sustainability of results</p>	<p>Success of the collaboration</p>							
	<p>As one of the stakeholders of the Health Post, what do you think have been the most and least successful components of your collaboration with other partners?</p>							
	<table border="1"> <thead> <tr> <th>Partner</th> <th>Challenges</th> <th>Successes</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Partner	Challenges	Successes				
Partner	Challenges	Successes						
<p>Prompt for details on stock orderingng, compliance supervision, reporting.</p>	<p><i>For Cell Executives only*</i></p> <p>How you characterize your relationship with the health posts?</p> <p>How do you communicate with health posts, and how frequent does that communication happen?</p>							

	<p>What is the biggest health issue in your community?</p> <p>In your opinion, does the health post do an effective job in dealing with that health issue? Explain.</p> <p>Are there any health issues not currently treated by the health posts that you would like to see treated in the future?</p> <p>Has there been a change in the overall health of the community since the opening of the health post and how would you characterize that change?</p> <p>Do members of the community have better access to health care since the opening of the health post? Why, or why not?</p> <p>Is the quality of the health care received by community members better or worse, since the opening of the health center? Why, or why not?</p>
--	--

<p>Note the challenges in the implementation and the reporting channel</p>	<p>What are the challenges that you/your organization face regarding OFH Health Posts? How did you know about them? How are they addressed?</p>								
<p>Recommendations and way forward</p>	<p>What would you like to see in:</p> <table border="1" data-bbox="646 627 1414 846"> <thead> <tr> <th data-bbox="646 627 924 772">Partnership w/ OFH</th> <th data-bbox="924 627 1167 772">OFH HP</th> <th data-bbox="1167 627 1414 772">Other stakeholders</th> </tr> </thead> <tbody> <tr> <td data-bbox="646 772 924 846"></td> <td data-bbox="924 772 1167 846"></td> <td data-bbox="1167 772 1414 846"></td> </tr> </tbody> </table>			Partnership w/ OFH	OFH HP	Other stakeholders			
Partnership w/ OFH	OFH HP	Other stakeholders							

*A different set of questions was asked of each stakeholder group. They are listed below.

Nurse Franchisees

- What services, if any, are you qualified to offer, that you currently do not offer?
- What additional services, if any, would you like to offer?
- Are you offering any family planning services? If yes specify
- Would your customers be interested in family planning services (specifically IUD/implants) if made available?
- Do stock outs ever negatively impact your ability to serve customers? Explain.
- Are you able to keep Malaria treatments and Family Rapid Health Kits in stock?

Technical Representatives

- What are the steps of the operating procedures?
- What step do you think is better handled than others? Why?
- What step do you think needs the most improvement? Why?

OFH leader

[No additional questions asked]

District Official

- Did you ever have to close or caution a Health post? If yes, what were the reasons and what was the outcome?

Appendix B. 2020 Key Informant Interview Guide

DATE at TIME

#2020001

Participant District:

Participant Position/Role: OFH Leader

Date began role as [state role here]:

Background

- Describe your relationship with One Family Health regarding the operations of the Health Posts:
- What is your role/the role of your institution in the operations of the Health Posts?
- What do you think is the contribution of OFH Health Post to the wellbeing of the community?

Within OFH

- As one of the stakeholders of the Health Post, what do you think have been the most Challenges Success and least

Partners

(e.g OFH)

successful components of your collaboration with other partners (within, outside of, and intersectoral collaborators)?

- From your perspective and role as [state role here] what are the challenges to OFH health post performance? How did you know about them? How are they addressed? If they are not addressed, how can they be addressed?
 - What are the factors that make a health post successful?
-

Stakeholder Specific Questions—OFH Leaders*

- How does the quality of care provided at OFH health posts compare to the quality of care provided at non OFH government health posts? To government health centers?
 - What makes an OFH health post efficient, effective? What does a good (=high performing + high quality) OFH health post do well?
 - What does success or health impact look like for OFH?
 - How has OFH incorporated feedback from previous evaluations?
 - Apart from challenges mentioned above to individual health post, what are main implementation or scale-up challenges of the model as a whole and how does OFH address them?
-

- Do OFH health posts improve health outcomes? How do you know [outcomes measures]?
- Do you believe that OFH nurse-franchisees are overall satisfied with their role? Why or why not?

Changes in Rwanda Health System

- How would you characterize Rwanda’s health system performance, quality of services, and health outcomes more broadly as a nation? Has its health sector changed a lot in the past five years? If so, how?
- Have there been any healthcare policy or health financing reforms set by Rwanda government in the last five years (2015-2020)? If so, how have these affected OFH operations?

Outside of Health—Other Contextual Factors

- Have there been other social, environmental or other recent events affecting Rwanda in or beyond health system? How have these affected OFH operations?

* A different set of questions was asked of each stakeholder group in this section.

Questions for the other stakeholder groups are listed below.

Nurse Franchisee

- What does a OFH nurse do? At the health post?
- Which services do you offer at the health post?
- Are there any services that you do not offer that you would like to offer to your patients?
- Which type of family planning service do you offer?
- Do you have medicines and family rapid kits always available?
- Are you satisfied with your role?/are you happy as a nurse with One Family Health?
- Do your patients get better? How do you know?
- Did COVID-19 affect you and your health post?

Technical Representative

- What are the steps of the operating procedures?
- What step do you think is handled better than others? Why?
- What step do you think needs improvement? Why?

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