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UNDERSTANDING HOW THE NATIONAL TELEHEALTH NETWORK IN PERU HAS IMPROVED ACCESS TO HIGH QUALITY SPECIALTY CARE

Presented to the Ministry of Health in Peru (MINSA)

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

In 2017, the Ministry of Health in Peru (MINSA) implemented the National Telehealth Network to extend high-quality specialty care to remote and rural populations in Peru. Since its establishment, the network has been rapidly expanding, with the number of telehealth sites, teleconsultations, and participation in tele-education (*telecapacitaciones)* increasing each year. However, there had not yet been a study to assess the success of the program.

Thus, in partnership with MINSA, Dartmouth's Global Health Policy Lab (GHPL) looked at the National Telehealth Network's impact on health care delivery in Peru. Specifically, MINSA asked the GHPL to assess the role of telehealth and tele-education in achieving the following outcomes:

1. Increasing the ability of medical professionals to provide care.
2. Increasing the ability for patients to access care
3. Reducing the financial burden for patients
4. Improving the range of services offered by the National Telehealth Network and the telehealth experience overall for both providers and patients
5. Increasing the effectiveness of the exchange of information between healthcare establishments and improving patient outcomes

To conduct its study of the National Telehealth Network, the GHPL utilized the American National Quality Forum's (NQF) Telehealth Measurement Framework. The NQF measurement framework includes four broad domains for the measurement of telehealth programs—access to care, financial impact/cost, experience, and effectiveness.

Our team created surveys and interview guides based on the four domains of the NQF measurement framework. We distributed two surveys-one directed at telehealth coordinators and the other directed at telehealth providers-nationally. We also interviewed providers, coordinators, and patients in urban and rural regions to complement our survey results and to gain a deeper understanding of the impact of telehealth on the users and patients involved. Once we obtained the data, we analyzed it by the domains in the NQF measurement framework and also presented overall key findings and recommendations.

KEY FINDINGS

We present our overall key findings from the study. A more detailed version of ***Key Findings*** are located under the ***Discussion*** section.

Patients in rural regions are generally unaware of telehealth services: Many coordinators and providers in rural regions expressed the need to promote and advertise telehealth services to the local population.

Coordinator presence: Education and position matter: The level of provider engagement is related to the role and the position of the coordinator. The higher the status of the coordinator and their level of education, the higher the provider engagement.

Direct dynamic between providers during teleconsultations: Providers at lower-level establishments felt that teleconsultations tended to focus only on how to handle the specific case at hand, not teaching them how to handle other cases in the future.

Technology is sufficient for conducting teleconsultations: While lower-level establishments could benefit from more stable WiFi and higher quality imaging devices, technology is not a significant barrier to conducting teleconsultations and providing care to patients.

Similar provider and coordinator perspectives on specialties and schedules: Providers and coordinators overall perceive that the same specialties generate the most teleconsultations: internal medicine, pediatrics, OB-GYN, endocrinology, and gynecology. The only difference is that providers also included general surgery and coordinators included dermatology. Furthermore, both telehealth coordinators and providers wanted schedules for specialist teleconsultations ahead of time.

Confusion about telecapacitaciones: The majority of providers we interviewed in the field struggled to explain what *telecapacitaciones* were and often confused them with the explanations they received from specialists during teleconsultations.

RECOMMENDATIONS

Based on analysis of the survey and interview data, we have compiled six key recommendations that we believe would benefit and improve teleconsultations and tele-education services. A more detailed version of the ***Recommendations*** is located under the ***Discussion*** section, as well.

1. ***Utilize the radio in rural regions***

2. ***Implement telehealth technology training for providers***

3. ***Increase patient follow-up and provider teamwork***

4. ***Improve quality of internet and equipment for lower-level healthcare establishments***

5. ***Create weekly teleconsultation schedules based on specialty availability***

6. ***Create monthly tele-education schedules with region-specific themes***

CONCLUSION

The GHPL team has analyzed MINSA's National Telehealth Network within the four domains of the telehealth measurement framework, presented key findings, and offered recommendations based on these findings. We hope that these recommendations, if implemented, will benefit and contribute to the growth and success of MINSA's National Telehealth Network.

1. INTRODUCTION

Peru, like many middle-income countries, has made great strides in building its national health system and increasing access to care. Yet, Peru's complex geography represents a significant barrier to the extension of specialty care to remote, rural populations. Peru's Ministry of Health has pioneered the use of telehealth to address this issue. In 2017, Peru established the National Telehealth Network as part of a national strategy to extend access to care using telehealth. Since its inception, Peru's National Telehealth Network has rapidly expanded, showing a growing number of consultations for telehealth and participation in tele-education (*telecapacitaciones)*. The number of telehealth sites has increased from just 121 total sites in 2017 to 2,094 total sites in 2020. The number of teleconsultations is rapidly increasing per year, as well, with 788 teleconsultations in 2017, 2,391 teleconsultations in 2018, 6,170 teleconsultations in 2019, and 3,523 teleconsultations by March of 2020.

MINSA has a significant amount of data on telehealth sites and consultations, but they had not yet undertaken a study to understand the impacts of the network on health care delivery and health outcomes. As MINSA continues to develop the National Telehealth Network, it is essential to generate evidence on improvements in access to care and health outcomes, document key successes of the network, and develop new strategies to improve access to care for the most remote, rural regions with significant infrastructure investments.

Thus, the Dartmouth Global Health Policy Lab (GHPL) worked in partnership with MINSA's National Telehealth Network to document the network and its impact on health care delivery in Peru. This paper describes initial outcomes and best practices and lessons from the program.

Research Objectives

MINSA's National Health Network leadership seeks to document improvements in health and healthcare resulting from telehealth and tele-education (*telecapacitaciones).* Specifically, MINSA asked the GHPL to measure the role of telehealth and tele-education in achieving the following outcomes:

1. Increasing the ability for medical professionals to provide care
2. Increasing the ability for patients to access care
3. Reducing the financial burden for patients

4. Improving the range of services offered by the National Telehealth Network and the telehealth experience overall for both providers and patients
5. Increasing the effectiveness of the exchange of information between healthcare establishments and improving patient outcomes

Conceptual Framework and Study Approach

Extensive research was undertaken to measure the impact of telehealth programs across the world; however, several gaps exist in telehealth research and evaluation. Most studies that have been undertaken examine discrete programs on a specific area of clinical care or on an isolated set of outcomes. Studies of the impact of telehealth on health systems performance and/or across a range of specialty areas are limited. Standardized tools or frameworks for use across settings are described in the literature. Moreover, most telehealth research has been conducted in high-income settings with more robust health information systems (HIS), electronic health records (EHR), and research infrastructures.

Recognizing the limitations of existing research on telehealth research and evaluation, the GHPL utilized the Telehealth Measurement Framework to conduct its study of the National Telehealth Network. This framework was developed by a multi-stakeholder committee (the Telehealth Committee) within the American National Quality Forum (NQF) in 2017 and identified high-priority areas for measurement.[1] The NQF measurement framework includes four broad domains for the measurement of telehealth programs—access to care, financial impact/cost, experience, effectiveness. For each of these domains, the framework describes a set of sub-domains and measurement concepts (see Table 1.1 and Appendix I).

TABLE 1.1
DOMAINS AND SUBDOMAINS OF THE TELEHEALTH MEASUREMENT FRAMEWORK

Domain	Subdomain(s)
Access to Care	Acces for patient, family, and/or caregiver Access for care team Access to information
Financial Impact/Cost	Financial impact to patient, family, and/or caregiver Financial impact to care team Financial impact to health system or payer Financial impact to society
Experience	Patient, family, and/or caregiver experience Care team member experience Community experience
Effectiveness	System effectiveness Clinical effectiveness Operational effectiveness Technical effectiveness

2. METHODS

Overview

The GHPL undertook a mixed-methods study, guided by the NQF Framework, to assess the impact of telehealth on the delivery of care at MINSA sites. Our approach combined a national survey of providers and telehealth coordinators distributed to all sites incorporated into the National Telehealth Network and field visits at Piura and Apurímac, two high-volume telehealth sites selected in consultation with MINSA. During these field visits, we gathered in-depth information from interviews with telehealth coordinators, providers engaged in telehealth, as well as a select number of patients that have benefited from telehealth. An overview of the broad domains, and the methodology employed to assess the impact on each of these domains, is detailed in the Table 2.1 below.

TABLE 2.1
NQF DOMAINS: ASSESSMENT METHODOLOGIES

Domain	Survey	Provider and Telehealth Coordinator Interviews	Patient Interviews
Access	✓	✓	✓
Financial/Cost	✓	✓	✓
Experience	✓	✓	✓
Effectiveness	✓	✓	✓

The national survey was designed based on the NQF domains, each question can be traced back to at least one of the four domains: access, financial, experience, or effectiveness. There were two surveys distributed, one directed at healthcare personnel and providers and another directed at telehealth coordinators (see Appendix II). They both had 40 and 41 questions, respectively. Out of the total questions, 22 questions in both of the surveys were mapped back to one or more of the domains in order to conduct our assessment.

- 13 questions were related to access to care
- one question was related to finance
- 10 questions were related to user experience
- 16 questions were related to perceived effectiveness

These questions, in different ways, delved deeper into the countless facets of a single domain, according to the NQF Framework (see Appendix I).

In order for us to address the gaps in the data survey, semi-structured interview guides were created to document the perspective of users (*teleconsultantes* and *teleconsultores*), coordinators, and patients (see Appendix III) at two of the highest performing regions in Peru's National Telehealth Network, Piura and Apurímac. The guide for users of telehealth, both for *teleconsultantes* and *teleconsultores,* focused on the experience and effectiveness domains. While also hearing from telehealth coordinators, this guide focused on experience and effectiveness from the administrator perspective. Finally, the patient guide focused on access to care and the financial/cost domain.

Study Methods

National Surveys on Telehealth at Remote Telehealth Sites

The Global Health Policy Lab (GHPL) conducted two online surveys through the Qualtrics platform of all active MINSA sites in the National Telehealth Network to collect data on program utilization and impacts. One survey was designed for telehealth coordinators and another for providers engaged in telehealth services. Both surveys were originally written in English and then translated to Spanish, taking into account the specific terminology used by MINSA and making sure it was easy to understand by respondents of any region. The telehealth coordinator survey had a total of 41 questions, 33 of these were closed-ended (six were Yes/No and 27 were multiple choice) and the remaining eight were open-ended questions. The provider survey had a total of 40 questions, 31 were closed-ended (four were Yes/No and 27 were multiple choice) and the remaining nine were open-ended questions.

The GHPL team developed the questionnaire based on the NQF Framework as well as other indicators developed by program implementers and researchers. Utilization questions attempted to understand the degree to which providers participate in telehealth activities, clinical areas, and the context in which they utilized telehealth. Questions on enabling factors or barriers explored factors that have supported the utilization of telehealth. Impact was measured using the four broad domains included in the NQF Framework and encompassed the four broad domains--access to care, financial impact/cost, experience, effectiveness.

Topics in the survey included the following:

- Utilization of telehealth and tele-education activities
- Enabling factors or barriers to utilization
- Perception of the impact of telehealth and tele-education

In collaboration with MINSA, the GHPL distributed the surveys via WhatsApp and by email. Due to the lack of technological infrastructure and more specifically, an email directory, WhatsApp was the best way to share and continuously promote the surveys among local regional health officials. In addition to daily reminders sent via WhatsApp group messages, physicians working at MINSA were responsible for making follow-up phone calls to healthcare professionals assigned to regions assigned to them.

The surveys were open online to receive responses for 26 days (January 23, 2020 to February 18, 2020).

Telehealth Site Visits

In addition to the national survey of the THN, GHPL conducted three in-depth research visits at sites with the highest rates of utilization of telehealth usage. At these sites, the research team utilized a combination of qualitative methods to explore telehealth impacts on patients, providers, and sites. The first visit was to sites in Lima that were highly engaged with telehealth services, these were the following:

1. Instituto Nacional de Niño Breña (III-2)
2. Hospital Cayetano Heredia (III-1)
3. Hospital Villa El Salvador (II-2)

MINSA identified the two remaining sites for field visits out of the capital, Piura and Apurímac. These sites had the highest volume of telehealth activity, were accessible during the research period, and were willing to host our visit for the research activities. The GHPL team conducted 5-day visits to both of these sites and scheduled their visits to the individual healthcare centers and hospitals on the day each site was hosting a telehealth campaign event, designed to increase the number of patients they were able to connect with specialists on a single day (see Table 2.2 for the list of establishments and Appendix IV for images of field visits).

TABLE 2.2
SITES VISITED OUTSIDE OF LIMA

Piura	Apurímac
Centro de Salud - Tambogrande (I-2/I-3)	Centro de Salud - Curahuasi (I-4)
Centro de Salud - Sechura (I-4)	Centro de Salud - Pueblo Joven (I-4)
Centro de Salud - Canchaque (I-4)	Centro de Salud - Pacucha (I-2)
Hospital de Apoyo - Sullana (II-2)	Centro de Salud - Talavera (I-4)
Hospital de Amistad Perú - Corea Santa Rosa de Piura (II-2)	
Hospital - Chulucanas (II-1)	

Provider and Telehealth Coordinator Interviews

The GHPL conducted semi-structured interviews with telehealth coordinators and providers engaged in telehealth at remote sites in Piura and Apurímac as well as in the sites in Lima. Interview guides included questions about the following topics:

- General characteristics of patients at the site, including burden of disease, geographic and financial access to care;
- Factors enabling or inhibiting the use of telehealth;
- Experience of utilizing telehealth at the site;
- Clinical areas as well as modalities and conditions under which telehealth is currently being employed;
- Perceived changes in provider ability to deliver care at facility;
- Perceived changes in patient experience in receiving or accessing care;
- Perceived changes in site effectiveness.

The GHPL conducted a total of 31 interviews of providers and telehealth coordinators in our visits to Lima, Piura, and Apurímac.

Patient Interviews

The GHPL team asked telehealth coordinators and providers at the two remote field sites to identify a few patient stories that, to them, illustrated the impact of telehealth on patient experience. The team then conducted semi-structured interviews with patients and/or caregivers to develop case studies of these patients' experience receiving care through telehealth. These interviews were conducted in the health establishment or in some cases, at the patient's home.

3. RESULTS

Overview

The survey for coordinators received a total of 389 responses and the survey for providers received a total of 497 responses. The respondents of these surveys represent a variety of demographics: women and men from their early 20s to their late 60s, from Level 1 to Level 3 category hospitals, and from about 30 different regions. Both surveys sought to understand patterns of utilization of telehealth activities, identify factors that enable or impede utilization, and measure perceived impacts of telehealth and telehealth activities on the provision of care and patient access and outcomes according to the NQF framework.

Semi-structured interviews complemented survey data and provided richer information about the experience of telehealth and its perceived impacts on providers and patients. The interviews as expected helped us document improvements of care as well as the impact of telehealth on reducing barriers, including distance and direct and indirect healthcare-related costs.

4. ACCESS TO CARE

Increasing access to care for patients is the main goal of teleconsultations and is a critical domain to assess. Table 4.1 and 4.2 depict the coordinator and provider survey responses within the Access to Care Domain. We focused on two significant points to consider regarding this section.

TABLE 4.1
ACCESS DOMAIN

Question	User group	6 (%)	5 (%)	4 (%)	3 (%)	2 (%)	1 (%)	Mean score (SD)
How often do health personnel use the telemedicine service (e.g. teleconsultation, telediagnosis, etc.)? (6)			Over utilized	Completely utilized	Utilized occasionally	Rarely utilized	Not utilized at all	
	Provider		3.2	19.4	46.0	18.5	13.0	2.81 (0.996)
	Coordinator		1.9	17.1	54.5	17.4	9.1	2.85 (0.876)
		Excellent	Very good	Good	Regular	Deficient	Very deficient	
How would you rate the functionality of technological equipment and the applications that facilitate teleconsults? (7)	Provider	5.3	13.7	35.8	27.0	11.6	6.5	3.55 (1.212)
	Coordinator	6.2	20.6	34.6	26.2	11.3	1.1	3.81 (1.111)
		Totally accepted	Accepted by almost everyone	Accepted by majority	Accepted by some	Accepted by minority	Totally unaccepted	
How would you rate the acceptance of teleconsults as a valuable support for your ability to provide quality care for patients? (8)	Provider	20.6	19.4	27.3	20.1	10.0	2.5	4.13 (1.354)
	Coordinator	15.4	13.4	27.5	30.3	11.5	2.0	3.85 (1.293)

TABLE 4.2
ACCESS DOMAIN

Questions	User group	Strongly agree (%)	Moderately agree (%)	Undecided (%)	Moderately disagree (%)	Strongly disagree (%)	Mean score (SD)
The majority of patients are aware that we provide telehealth services at this healthcare establishment. (9)	Provider	4.8	28.2	28.2	29.6	9.2	2.90 (1.063)
	Coordinator	7.2	31.0	25.6	30.5	5.7	3.03 (1.065)
The healthcare personnel is trained in the use of equipment and applications that facilitate the teleconsults. (10)	Provider	7.2	38.0	22.6	25.7	6.5	3.14 (1.081)
	Coordinator	8.3	46.0	20.3	22.6	2.9	3.34 (1.008)
Teleconsults lead to more accurate diagnosis and timely treatments for patients. (15)	Provider	16.4	64.7	14.0	3.7	1.2	3.91 (0.745)
	Coordinator	24.6	58.7	12.9	2.9	9.0	4.03 (.754)
The availability of telehealth services at the healthcare establishment reduces the cost of providing medical care for patients. (16)	Provider	12.0	51.5	26.2	6.4	3.9	3.61 (0.918)
	Coordinator	19.9	53.9	20.2	4.6	1.4	3.86 (0.835)
The telehealth technology available in the healthcare establishment is sufficient to facilitate full access and use in teleconsults. (17)	Provider	3.4	36.3	24.1	26.5	9.7	2.97 (1.075)
	Coordinator	9.0	34.0	18.9	32.0	6.1	3.08 (1.123)
The telehealth service has facilitated coordination and teamwork for the diagnosis and treatment of patients. (20)	Provider	10.3	62.1	20.4	5.2	2.0	3.74 (0.790)
	Coordinator	17.4	61.6	17.2	2.6	1.2	3.92 (0.741)
The quality of care provided by the healthcare establishment is improved through the incorporation of telehealth into our continuum of care for patients. (21)	Provider	8.8	62.2	22.4	3.9	2.7	3.71 (0.792)
	Coordinator	18.0	60.0	17.1	3.5	1.4	3.90 (0.782)
Teleconsultations reduce the time to get an appointment and receive specialized care at the health facility. (34)	Provider	12.6	57.3	19.8	6.9	3.3	3.69 (0.899)
	Coordinator	26.1	54.1	12.6	5.7	1.5	3.98 (0.867)
You consider there is an improvement in the quality of life of patients because the medical services are now provided closer to home. (35)	Provider	10.8	57.5	24.2	5.4	2.1	3.70 (0.814)
	Coordinator	21.6	55.3	17.6	4.9	6.0	3.92 (0.789)

Lack of patient awareness and acceptance of telehealth

In order for patients to utilize telehealth, they must be aware of the offered services and accept its use as a means of care delivery. Both surveys targeted this issue by asking if the majority of patients are aware of telehealth services provided by the healthcare establishment. Both providers and coordinators alike varied in their responses, having a fairly even distribution between “agree,” “disagree,” and “undecided” (see question 9).

In our field research interviews, the response was much more unanimous "disagree." Those in Level 1 or Level 2 healthcare establishments explained that while "Campaign Days" are fairly successful in bringing patients to the healthcare establishments, many local residents are not aware of the telehealth services offered. A common theme was that instead of patients seeking help from doctors, medical staff would have to go to local villages to seek out patients to treat. This is a trend that rural healthcare establishments would like to see reversed.

To promote and advertise telehealth services, the most popular suggestion was to broadcast information through the radio. Many people in rural regions do not have a television, but we were told that the majority listen to radio streams. This avenue of communication seems like the best way to distribute information about the telehealth services offered at local healthcare establishments.

There was also an interesting finding about patient perception of telehealth. Many patients, even when aware of the telehealth services, were not able to describe what they are. When we interviewed patients at rural healthcare establishments who were waiting for, or even had already received, a teleconsultation, only a few were able to accurately describe what telehealth was. Many knew that the service involved a computer and camera but did not fully understand that providers from their establishment were receiving advice from providers from different healthcare establishments.

Great user ability to provide timely and quality care to the patient

On the other hand, an overwhelming 83.3 percent of coordinators and 81.1 percent of providers either agreed or strongly agreed that teleconsultations lead to more accurate diagnosis and timely treatments for patients (see question 15). Interviews conducted with coordinators and providers at Level 1, 2, and 3 healthcare establishments yielded positive responses, as well. Providers giving advice believed their medical suggestions changed the course of treatment for patients, and providers receiving the information believed that teleconsultations have made a positive impact on the diagnosis and treatment of their patients.

A case we heard about in the Curahuasi Center of Health helps illustrate this point. An 18-year-old man with leg pain was being treated by pain killers and physical therapy at this establishment. After the teleconsultation, the patient's providers understood that while they were treating the symptoms, they were not treating the cause. The patient ultimately had knee surgery and was subsequently pain-free. This is one documented example of how telehealth led to a more

accurate diagnosis and timely treatment for the patient, as he was able to have surgery early enough that he made a full recovery.

In fact, the survey further indicated that timely care was a major benefit of telehealth. 69.9 percent of providers and 80.2 percent of coordinators agreed or strongly agreed that teleconsultations reduce the time to get an appointment and receive specialized care (see question 34). In the field, we heard from patients and providers alike that without telehealth, patients may have to wake several weeks or even months for a specialty care appointment at a higher-level facility. Telehealth allows patients to receive specialized care within days.

With more accurate diagnosis and more timely care, many field interviews yielded that the quality of care has certainly increased through the incorporation of telehealth into the continuum of care for patients. Many patients reported that the quality of their life has subsequently increased as well, both health-related and financially, the latter which is discussed in the following section. These sentiments of increased quality of care and life for the patient resulting from telehealth are mirrored in the surveys overall positive responses (see questions 21 and 35).

Thus, if more patients are aware of telehealth and seek treatment at their local healthcare establishments, the impact of this service can be tremendous.

5. FINANCIAL IMPACT/COST

In addition to assessing if telehealth improves access to care, the financial impact or cost of telehealth is an important domain to consider. While financial impact can refer to the impact on both the healthcare establishments and the patient, our study focused on if telehealth reduces the financial burden on the patient. In particular, we sought to understand the direct impact telehealth has on the lives of patients that would not be able to access or afford specialty care otherwise.

The surveys included one question on financial cost for patients from the provider and coordinator perspective. Table 5.1 illustrates the provider and coordinator response to the survey question targeting this domain. To address the lack of the patient perspective, we included three questions in our interviews for patients regarding financial impact, as well.

TABLE 5.1
FINANCIAL DOMAIN

Question	User group	Strongly agree (%)	Moderately agree (%)	Undecided (%)	Moderately disagree (%)	Strongly disagree (%)	Mean score (SD)
The telehealth service at the healthcare establishment reduces the overall cost of healthcare delivery for our patients. (16)	Provider	12.0	51.5	26.2	6.4	3.9	3.61 (0.918)
	Coordinator	19.9	53.9	20.2	4.6	1.4	3.86 (0.835)

Telehealth reduces financial burden for patients

When asked if they believed the telehealth service reduced overall costs of healthcare delivery for patients, 63.5 percent of providers and 73.8 percent of telehealth coordinators agreed or strongly agreed that it did reduce the cost (see question 16). Our interviews in Piura and Apurímac with both providers and coordinators support this positive finding.

Moreover, our interviews with patients exposed how financial constraints determine their ability to seek out the care they need. Our semi-structured interviews with patients included the following three questions that demonstrate the reality these patients face when they need to see a specialist:

1. If you did not have telehealth services in your healthcare establishment close to you, what alternatives would you have?

2. If the telehealth service was not available, how would it have affected you?
3. How far would you have had to travel to receive treatment if you did not have teleconsultation services at your local healthcare establishment?

These questions allowed us to assess the impact of telehealth directly on the lives of patients. In case they did not have the telehealth services available and therefore not have the specialty care they needed, they had two options: (1) visit a larger healthcare establishment or (2) not receive the care they needed. Option 1 had a series of financial implications for patients, such as the following:

- Losing a day of work
- Travel expenses
- Food expenses
- Shelter cost
- Lost time with family and children

All of the patients we interviewed recognized the value of being able to consult a specialist at a distance from their local healthcare establishment or hospital. These patients usually went to the nearest hospital if they could not find the care they required at the nearby lower-level establishment. However, the majority of the patients reported that transportation kept them from seeking out the care they needed. In the visited regions, patients could travel on moto-taxis, donkey, or by foot. Cars and taxis were a commodity only a handful of patients were able to access. The majority of those interviewed reported they did not have the money to cover the costs of transportation, such as the moto-taxi. This group of patients was left with no options; if telehealth services were not available nearby, they would either not receive care or travel by foot or on donkeys for approximately two to four hours to the closest healthcare establishment.

The availability of telehealth services at their nearby healthcare establishments allows for them to receive the care they need when they need it. A 60-year old male we interviewed that had been diagnosed with Rotator Cuff Syndrome after dealing with a chronic shoulder in his dominant arm. He worked in the construction industry in a remote part of Piura, El Higueron, and had been unable to work for months now because of the pain. He had traveled from El Higueron to Canchaque for the campaign at the Centro de Salud of Canchaque. When asked what other alternatives he would have had if he had not been able to receive the attention at the establishment the patient responded: “Pain forces you [...] but since it’s nearby, it is possible [to come] but further away it would not be possible. That’s how it is.”

When asked about how it would impact him to seek care at another establishment or hospital further away, he said he would have lost time at work and time with his family. However, the factor he emphasized the most was lack of transportation, “More than anything [else], it’s about having money to mobilize yourself. Without money, you can’t do anything.”

We closed the interview by asking him about his experience after the teleconsultation he was a part of in at the Centro de Salud of Canchaque:

> “For me, today is for giving thanks to the state that is giving us the facilities that before did not exist and now recently they do...For me, it’s a wonder [...] that we have a place where we are treated as patients and in an emergency situation, we can be treated immediately...what if there’s nobody to treat us? We just die in the same place because it’s not possible to transfer us to Piura when before there have not even been cars available...The situation is complicated here.”

That day, he was able to have a teleconsultation with a traumatologist and rheumatologist from Hospital Cayetano Heredia in Lima. He was given new medication and a new treatment plan by the specialists. Telehealth services are a novelty for patients, but they are certainly enthusiastic and grateful to be able to receive the care they need nearby because the financial burden in these cases simultaneously impacts them emotionally.

6. EXPERIENCE

This domain considers the overall experience of telehealth regarding technology and teamwork. Tables 6.1 and 6.2 depict the coordinator and provider survey responses within the Experience Domain. We discuss main findings regarding telehealth technology and provider teamwork.

TABLE 6.1
EXPERIENCE DOMAIN

Question	User group	6 (%)	5 (%)	4 (%)	3 (%)	2 (%)	1 (%)	Mean score (SD)
		Excellent	Very good	Good	Regular	Deficient	Very deficient	
How would you rate the technological preparation of health personnel regarding the telehealth service? (5)	Provider	6.9	21.2	39.0	19.6	10.4	2.8	3.86 (1.156)
	Coordinator	4.5	20.4	38.0	27.9	7.8	1.4	3.82 (1.034)
How would you rate the functionality of technological equipment and the applications that facilitate teleconsults? (7)	Provider	5.3	13.7	35.8	27.0	11.6	6.5	3.55 (1.212)
	Coordinator	6.2	20.6	34.6	26.2	11.3	1.1	3.81 (1.111)
			Over utilized	Completely utilized	Utilized occasionally	Rarely utilized	Not utilized at all	
How often do health personnel use the telemedicine service (e.g. teleconsultation, telediagnosis, etc.)? (6)	Provider		3.2	19.4	46.0	18.5	13.0	2.81 (0.996)
	Coordinator		1.9	17.1	54.5	17.4	9.1	2.85 (0.876)
		Totally accepted	Accepted by almost everyone	Accepted by majority	Accepted by some	Accepted by minority	Totally unaccepted	
How would you rate the acceptance of teleconsults as a valuable support for your ability to provide quality care for patients? (8)	Provider	20.6	19.4	27.3	20.1	10.0	2.5	4.13 (1.354)
	Coordinator	15.4	13.4	27.5	30.3	11.5	2.0	3.85 (1.293)

TABLE 6.2
EXPERIENCE DOMAIN

Question	User group	Strongly agree (%)	Moderately agree (%)	Undecided (%)	Moderately disagree (%)	Strongly disagree (%)	Mean score (SD)
The healthcare personnel is trained in the use of equipment and applications that facilitate the teleconsults. (10)	Provider	7.2	38.0	22.6	25.7	6.5	3.14 (1.081)
	Coordinator	8.3	46.0	20.3	22.6	2.9	3.34 (1.008)
The telehealth technology available in the healthcare establishment is sufficient to facilitate full access and use in teleconsults. (17)	Provider	3.4	36.3	24.1	26.5	9.7	2.97 (1.075)
	Coordinator	9.0	34.0	18.9	32.0	6.1	3.08 (1.123)
The telehealth service has facilitated coordination and teamwork for the diagnosis and treatment of patients. (20)	Provider	10.3	62.1	20.4	5.2	2.0	3.74 (0.790)
	Coordinator	17.4	61.6	17.2	2.6	1.2	3.92 (0.741)
Telehealth network connectivity is clear and timely for both providers and patients. (36)	Provider	8.5	28.5	19.0	28.7	15.4	2.86 (1.229)
	Coordinator	11.7	37.0	16.3	26.8	8.1	3.17 (1.186)

Underdeveloped user relationship with technology

The user experience, for both providers and coordinators, begins with the technology used to conduct the teleconsultation. Considering the NTN began in 2017, it has been a rapidly moving process for the currently 2,094 establishments incorporated into the network to this day. That being said, not all of them have had the necessary preparation and training needed to meet the technological demands associated with telehealth.

When asked to rate the technological preparation of health personnel to use the technology needed for telehealth (see question 5), 60.2 percent providers rated it as very good or good. Telehealth coordinator responded similarly, 58.4 percent rated it as very good or good. However, 32.2 percent of providers and 25.5 percent of coordinators disagree that healthcare personnel are trained in the use of equipment and applications that facilitate the teleconsults (see question 10).

Healthcare personnel used the telemedicine service occasionally, according to 46.0 percent of providers and 54.5 percent of coordinators (see question 6). While answering this question is partially dependent on the level of demand in the user's establishment, it also depends on that individual user's level of comfort using technology. The providers that used technology very frequently and were interested in fully incorporating it into their daily tasks and responsibilities reported feeling very comfortable with the technology. However, there were also providers that according to coordinators, shied away from the technology and saw it as an additional task in their already busy workload. In other words, learning and training to use the technology for the teleconsult was too much work when this had not ever been a part of their original job description. This was very evident among new employees and older providers. Coordinators suggested additional training was needed for this group of employees to become engaged with the telehealth service.

Mixed user perception of technology

Although the usage frequency varies based on technological preparedness of the healthcare personnel, the acceptance of teleconsults as a valuable tool supporting the healthcare personnel's mission to provide high quality care is high. 67.3 percent of providers and 56.3 percent of coordinators expressed very high levels of acceptance (see question 8). It is worth noting there is still an existing group , although small, that is completely unaccepting of the service: 2.5 percent of providers and 2.0 percent of coordinators report that it is not accepted nor seen as a valuable support for providing quality care at their healthcare establishment (see question 8).

Technology itself has proven to not be a significant barrier for conducting teleconsults between healthcare establishments, hospitals, and specialized institutes. 39.7 percent of providers and 43.0 percent of coordinators agree that the current technology available to them is sufficient to provide full access and use during teleconsults (see question 11). When asked to rate the functionality of technological equipment for teleconsults, 49.5 percent of providers and 55.2 percent of coordinators rated them as good or very good (see question 7). This supports our findings in the field during our interviews. The general consensus is that most healthcare

establishments are able to function with the level of technology they have and the personnel is satisfied with the level of technology that they have at their disposal.

The major technological problem is the stability, reliability, and speed of the internet at the establishments. 44.1 percent of providers and 34.9 percent of telehealth coordinators disagree that the connectivity is clear and timely for both providers and patients (see question 36). For the provider survey, higher-level establishments reported they had less connectivity issues than the lower-level establishments. The lower-level establishments in particular the most remote ones in the mountains of Apurímac reported that their internet stability depended not only on the Mbps of the internet itself, but on the weather conditions that at times left them completely disconnected from other establishments. At times the conditions were so dire, providers used their personal phones and their mobile data to conduct the teleconsult in urgent cases. Even in these cases, providers and coordinators at all levels did the best with the technology they had available, whether it was a personal device or if it belonged to the institution. The healthcare personnel had one priority—to provide the best quality care possible for their patients and they optimized their resources to achieve this.

Lack of provider teamwork

The teleconsult experience is a social interaction that is completely dependent on the cooperation and collaboration between two medical professionals and other healthcare personnel focused on the same goal: providing high quality care for their patients.

Almost three-quarters (72.4 percent) of providers and 79.0 percent of coordinators agree that the telehealth service has facilitated teamwork between professionals for the diagnosis and treatment of patients (see question 20). The providers we interviewed fully agreed that the consultation with the specialists helps them confirm diagnosis and determine treatment plans. However, the team observed in Apurímac that some providers in lower-level healthcare establishments felt their interaction with specialists was at times, humiliating. They felt a condescending tone from specialists and general physicians or physicians in training at these establishments were now afraid to present cases and propose possible diagnosis during the teleconsult because if it was wrong, the physician would respect them less and tell them what to do with the little to no explanation. The coordinator at this health establishment was working to convince them to step out of the comfort zone and see it as a learning experience instead, but it was difficult to get the physicians to make time to participate.

This contradicted our interviews with specialists in the capital that reported they enjoy taking the time to teach and share their knowledge with the physicians out in the provinces because they are collaborating to provide the highest quality of care possible in the circumstances.

7. EFFECTIVENESS

In this domain, we focus on the effectiveness of providers to exchange information with each other and to treat patients with telehealth, such that the patients have favorable medical results. Tables 7.1 and 7.2 illustrate the provider and coordinator responses for the Effectiveness Domain.

TABLE 7.1
EFFECTIVENESS DOMAIN

Question	User group	6 (%)	5 (%)	4 (%)	3 (%)	2 (%)	1 (%)	Mean score (SD)
How often do health personnel use the telemedicine service (e.g. teleconsultation, telediagnosis, etc.)? (6)			Over utilized	Completely utilized	Utilized occasionally	Rarelu utilized	Not utilized at all	
	Provider		3.2	19.4	46.0	18.5	13.0	2.81 (0.996)
	Coordinator		1.9	17.1	54.5	17.4	9.1	2.85 (0.876)
		Excellent	Very good	Good	Regular	Deficient	Very deficient	
How would you rate the functionality of technological equipment and the applications that facilitate teleconsults? (7)	Provider	5.3	13.7	35.8	27.0	11.6	6.5	3.55 (1.212)
	Coordinator	6.2	20.6	34.6	26.2	11.3	1.1	3.81 (1.111)
		Totally accepted	Accepted by almost everyone	Accepted by majority	Accepted by some	Accepted by minority	Totally unaccepted	
How would you rate the acceptance of teleconsults as a valuable support for your ability to provide quality care for patients? (8)	Provider	20.6	19.4	27.3	20.1	10.0	2.5	4.13 (1.354)
	Coordinator	15.4	13.4	27.5	30.3	11.5	2.0	3.85 (1.293)

TABLE 7.2
EFFECTIVENESS DOMAIN

Question	User group	Strongly agree (%)	Moderately agree (%)	Undecided (%)	Moderately disagree (%)	Strongly disagree (%)	Mean score (SD)
The majority of patients are aware that we provide telehealth services at this healthcare establishment. (9)	Provider	4.8	28.2	28.2	29.6	9.2	2.90 (1.063)
	Coordinator	7.2	31.0	25.6	30.5	5.7	3.03 (1.065)
The use of teleconsultations reduces the need for patient referral. (11)	Provider	15.7	48.4	19.9	11.6	4.4	3.60 (1.026)
	Coordinator	21.0	49.7	17.3	9.7	2.3	3.78 (0.963)
The use of teleconsultations reduces the need for hospitalization of patients. (12)	Provider	5.6	40.5	27.7	21.6	4.6	3.21 (0.994)
	Coordinator	11.4	45.3	26.5	0.0	16.8	3.34 (1.211)
The telehealth service facilitates the exchange of information among health personnel to assist in decision making about patient diagnoses and treatments. (13)	Provider	30.0	56.5	8.9	2.2	2.4	4.09 (0.828)
	Coordinator	38.2	54.4	5.1	1.4	0.9	4.28 (0.701)
Teleconsults lead to more accurate diagnoses and timely treatments for patients. (15)	Provider	16.4	64.7	14.0	3.7	1.2	3.91 (0.745)
	Coordinator	24.6	58.7	12.9	2.9	0.9	4.03 (.754)
Teleconsults allow us to record and transmit images, data, and other information between establishments easily and effectively. (18)	Provider	11.2	57.9	20.2	8.5	2.2	3.67 (0.864)
	Coordinator	19.8	57.9	13.5	7.7	1.1	3.87 (0.855)
Teleconsults have contributed to significantly better results for patients. (19)	Provider	9.1	55.9	26.4	6.4	2.2	3.63 (0.823)
	Coordinator	18.4	58.3	18.7	4.1	0.6	3.90 (0.760)
The quality of care provided by the healthcare establishment is improved through the incorporation of telehealth into our continuum of care for patients. (21)	Provider	8.8	62.2	22.4	3.9	2.7	3.71 (0.792)
	Coordinator	18.0	60.0	17.1	3.5	1.4	3.90 (0.782)
You consider that the current use of the telehealth network has avoided complications and adverse results. (32)	Provider	7.7	52.6	31.0	7.2	1.5	3.58 (0.797)
	Coordinator	14.2	56.5	23.0	5.4	0.9	3.78 (0.789)
As a result of teleconsults, medical staff can treat patients with complex problems more efficiently. (33)	Provider	11.0	60.0	22.1	4.9	2.1	3.73 (0.800)
	Coordinator	18.1	62.0	13.9	5.4	0.6	3.92 (0.765)
You consider there is an improvement in the quality of life of patients because the medical services are now provided closer to home. (35)	Provider	10.8	57.5	24.2	5.4	2.1	3.70 (0.814)
	Coordinator	21.6	55.3	17.6	4.9	0.6	3.92 (0.789)

Decent ability to exchange information

As we saw in the Access to Care domain, telehealth does aid in making more accurate diagnoses and administering timely treatments. Here, we see that this fact is true because the telehealth

service is able to effectively facilitate the exchange of information. A whopping 86.5 percent of providers and 92.5 percent of coordinators agree or strongly agree that the telehealth service is able to effectively facilitate the exchange of information among health personnel to assist in decision making (see question 13).

However, non-verbal data exchange can be improved. While the survey shows an overall positive response for the ability of teleconsultations to record and transmit images and data (see question 18), this response was not true when interviewing providers and coordinators in the field. Specifically, higher-level healthcare establishments complained that the images they were receiving from lower-level healthcare establishments (e.g., x-rays, mammograms, etc.) were sometimes of such poor quality that they could not use them. Lower-level healthcare establishments also voiced that they would like better imaging equipment so they could share more useful data when asking for medical advice for their patients. Despite the room for this technological improvement, the vast majority of providers and coordinators agreed or strongly agreed that as a result of teleconsultations, medical staff can treat patients with complex problems more efficiently (see question 33). Overall, if lower-level healthcare establishments were equipped with better imaging devices, the quality of exchange of information can be even further improved.

Telehealth leads to positive results for patients

A critical aspect of the Effectiveness Domain is to consider whether the teleconsultations lead to effective treatment and better results for patients. We can assess this issue by asking *directly* if teleconsultations have contributed to significantly better results for patients and if the current use of the telehealth network has avoided complications and adverse results. We can also gauge this issue *indirectly* by asking if the use of teleconsultations reduces the need for patient referral and hospitalizations, which indicate effective treatment and better medical results.

Survey questions that directly asked about effective treatment had overwhelmingly positive responses, indicating that providers and coordinators alike believe teleconsultations result in more favorable results for the patients (see question 19 and 32). This finding is interesting, as in the field, it was difficult to document responses to these questions. All of the patients we interviewed either had not received their teleconsultation yet, or had just received it that day, so we were not able to get an indication for how the telehealth service will affect their medical results. In addition, many providers told us that they only see their patients once, the day they visit for the teleconsultation, and then do not know how the patients responded to the treatment afterwards. Thus, perhaps the validity of these survey responses should be assessed with caution.

Looking at the number of referrals and hospitalizations may be a more accurate way to gage the effectiveness of treatment and improved results for patients. 64.1 percent of providers and 70.7 percent of coordinators agreed or strongly agreed that teleconsultations reduce the need for patient referral (see question 11). This finding was indeed replicated in the field, with providers and coordinators alike explaining that the information and advice exchanged through the telehealth service reduces the need to refer patients, as lower-level healthcare establishments can now handle a larger range of issues. In the field, we also learned that in addition to reducing

referrals, telehealth also facilitates direct referrals when they are necessary, as the providers from both healthcare establishments have a line of communication with each other. This communication itself leads to better results for the patients even if a referral is needed.

In regard to hospitalization, 46.1 percent of providers and 56.7 percent of coordinators agreed or strongly agreed that the use of telehealth reduces the need for patient hospitalization (see question 12). These numbers are not as great as for the previous question, and this reality was mirrored in the field. Providers and coordinators were not as certain that telehealth reduces hospitalization as they were with reducing referrals. Overall, especially given the survey and interview data on referrals, it seems the use of the telehealth service does lead to positive results for patients.

8. TELE-EDUCATION *(Telecapacitaciones)*

MINSA's main strategy for providing education for healthcare providers remotely is through *telecapacitaciones*. *Telecapacitaciones* are transmitted live through Zoom video conferencing software and later posted on the "Telesalud Minsa '' YouTube channel where they can be accessed at any time.

Both surveys for healthcare professionals and coordinators included eight questions (22-30) exclusively about *telecapacitaciones* to address the following points:

- Awareness and general knowledge about the service
- Current and potential engagement with the service
- Frequency of engagement with the service
- How helpful and/or beneficial the service is for healthcare personnel
- Recommendations on topics of the healthcare personnel's interest

Overall, coordinators responded more positively to the service in terms of awareness and general engagement. 93.5 percent of telehealth coordinators and 78.3 percent of providers reported knowing what *"telecapacitaciones"* conducted by the Ministry of Health were. Moreover, 73.1 percent of telehealth coordinators reported knowing about Telesalud Minsa's YouTube channel and 88.5 percent had watched some type of "*telecapacitación*" on the channel. On the other hand, 51.0 percent of providers knew about the channel and 79.5 percent reported they had watched a "*telecapacitación*" on the channel (see Table 8.1).

TABLE 8.1
TELECAPACITACIONES

Question	User Group	Yes (%)	No (%)
Do you know what the "telecapacitaciones" of the Ministry of Health are? (22)	Provider	78.2	21.8
	Coordinator	93.5	6.5
Are "telecapacitaciones" conducted in your region and province? (23)	Provider	61.1	38.9
	Coordinator	74.1	25.9
Do you know the YouTube channel "Telesalud Minsa"? (24)	Provider	51.0	49.0
	Coordinator	73.1	26.9
If yes, have you watched any "telecapacitación" on this YouTube channel? (25)	Provider	79.5	10.0
	Coordinator	88.5	11.5

On our field visits, we encountered a different reality when asking providers, the following question during the interview: "Do you believe *'telecapacitaciones*', if you have received them, have influenced your abilities to provide care for your patient? How?" Many expressed confusions about what the service really was and what it entailed. Providers believed the teleconsult itself served as a *telecapacitación* and some had no idea of the actual service being something separate to the teleconsult. All telehealth coordinators properly defined *telecapacitaciones* and what the service is. However, the majority of interviewees (including coordinators) knew they were transmitted live via Zoom, but they did not know there was a YouTube channel where these transmissions were later posted.

To continue, 33.7 percent of telehealth coordinators reported participating in *telecapacitaciones* from time to time and 26.5 percent reported they participated only occasionally. However, the most popular answer for providers was never participating in a *telecapacitación* (see Table 8.2). These responses support what we saw in the regions we visited. Coordinators were more engaged and informed about *telecapacitaciones* while providers expressed great interest but due to time constraints and other responsibilities could not engage, as seen in their reported participation.

One of the most important points we sought to address was precisely how beneficial the *telecapacitaciones* were for both healthcare providers and coordinators. When asked how the *telecapacitaciones* impacted their abilities to treat patients in a timely and effective manner, 58.9 percent of providers and 69.8 percent reported they had been "very beneficial" (see Table 8.2). All of the providers we interviewed that had participated in a *telecapacitación* reported that they had been very helpful in improving their current abilities and providing them with more tools to treat their patients. The healthcare establishments and hospitals we visited lacked specialists and therefore, general physicians in particular benefited from *telecapacitaiones* greatly.

The future of *telecapacitaciones* was specifically assessed in the surveys when asked about their willingness to promote and lead their own *telecapacitaciones* from their regions and provinces. The majority (62.1 percent) of provider respondents reported being "very willing." Interestingly, 59.1 percent of telehealth coordinators reported being "willing" to making their own

telecapacitaciones (see Table 8.2). These responses match the enthusiasm and excitement we observed by the providers and telehealth coordinators pushing for telemedicine and *telecapacitaciones* to be able to learn from specialists at more complex healthcare establishments and be able provide better care for their patients in rural, remote areas, who need the most.

TABLE 8.2
TELECAPACITACIONES

Question	User Group	%	%	%	%	%
		Very frequently	From time to time	Occasionally	Rarely	Never
How frequently have you participated in the "telecapacitaciones" lead by the Ministry of Health? (26)	Provider	5.9	21.4	25.1	19.4	28.3
	Coordinator	16.0	33.7	26.5	11.9	11.9
		Very beneficial	Somewhat beneficial	Not very beneficial	Not beneficial at all	
How beneficial do you find "telecapacitaciones" to be in regards to your ability to treat patients in a timely and effective manner? (28)	Provider	58.9	36.2	3.3	1.5	
	Coordinator	69.8	27.8	1.5	0.9	
		Very willing	Willing	Not willing		
Would you be willing to promote and lead your own "telecapacitaciones" from your region and province? (30)	Provider	62.1	26.0	12.0		
	Coordinator	31.5	59.1	9.4		

Our study also asked providers and coordinators what *telecapacitaciones* they have watched in the past, and what recommendations they have for new ones.

The most popular topics of the *telecapacitaciones* did not vary greatly between providers and coordinators. Both users reported having participated in similar topics. The most popular themes were related to the following categories (see Table 8.3):

- Outbreaks (*e.g.,* Guillain-Barré syndrome, Dengue, Zika, and Coronavirus)
- Telemedicine and teleconsultations
- Common conditions in the country (*e.g.,* Anemia, Diabetes, Hypertension, Tuberculosis, Asthma, etc.)
- Emergency management (general emergencies and Obstetrics related)
- Instruction on properly filling out documentation (*e.g.,* FUAs, HIS, etc.)

Providers and coordinators had many recommendations on how to improve *telecapacitaciones* to increase engagement and interest nationally. One of the most common responses that we also received in the regions we visited was to adjust the themes to address the region's specific needs. This was very prevalent at the lower levels (level I-II and I-III) that requested that *telecapacitaciones* present pathologies of cases they frequently see and would be able to treat at their level of care, with the help of the *telecapacitación* (see Table 8.3).

TABLE 8.3
TELECAPACITACIONES

Question	Providers	Coordinators
What are the topics of the "telecapacitaciones" you have watched in the past year? Please list them. (27)	Telemedicine and teleconsults	Telemedicine and teleconsults
	Guillain-Barré syndrome	Guillain-Barré syndrome
	Coronavirus	Coronavirus
	Dengue and Zika	Dengue and Zika
	Anemia	Anemia
	Diabetes and hypertension	Diabetes and hypertension
	Obstetric emergencies	Obstetric emergencies
	Respiratory conditions (TB, Asthma, etc.)	Respiratory conditions (TB, Asthma, etc.)
	Filling out FUAs and HIS forms	Filling out FUAs and HIS forms
	Mental Health	Oncology related
	Dermatology	Seguro Integral de Salud, Aseguramiento Universal de Salud
	Emergency management	REFCON
What recommendatiosn would you give the Ministry of Health in terms of topics and the frequency of the "telecapacitaciones"? (29)	Adjust the topics to the region and their needs	Adjust the topics to the region and their needs
	Better scheduling (*i.e.* not during work hours or past noon)	Better scheduling (*i.e.* not during work hours or past noon)
	Inform them beforehand of the topics and time (*e.g.* monthly schedule)	Inform them beforehand of the topics and time (*e.g.* monthly schedule)
	Send them via email to providers	Send them via email to coordinators
	Engage the entire healthcare personnel	Engage the entire healthcare personnel
	Present pathologies seen at the first level of care	Present pathologies seen at the first level of care
	Recognition for personnel that opt into the "telecapacitaciones"	Virtual certification through an evaluation/scoring process
	Want to ask questions in real time	Longer time for questions from viewers

The most popular recommendation we received in the surveys and during our interviews was better scheduling. Many complaints from both user groups was that the live transmissions took place in the morning when they were doing patient rounds and treating patients. The solution to this issue seemed to be conducting them in the afternoon or after regular work hours. Many of those that knew there was a YouTube channel they could watch on their own time, but they wanted to ask questions in real time following the lecture and this was not possible on the channel as comments with questions left on the video often received no response.

In addition to afternoon scheduling, both user groups expressed the need for an annual or monthly schedule that listed the specific times and themes that would be discussed in the *telecapacitaciones.* This was particularly important for telehealth coordinators attempting to promote and engage the busy physicians on their telehealth team with the *telecapacitaciones* programming.

9. DISCUSSION

Overview

MINSA's National Telehealth Network has expanded greatly in the last two years and has been overall successful in its ability to extend access to high-quality specialty care to patients across the nation. The ***Results*** section presents the main findings associated with each domain and tele-education. In the ***Discussion***, we offer overall Limitations, Key Findings, and Recommendations for MINSA regarding their telehealth network.

10. LIMITATIONS

While conducting our research in Lima and the two remote regions we visited, Piura and Apurímac, we faced a series of limitations that need to be considered in terms of potential impacts to our results and for future assessments.

Surveys

The first limitation the team encountered was the language barrier. The original survey was drafted in English and it underwent countless translations from English to Spanish and vice versa. No questions were eliminated or drastically changed, but it is an important limitation to consider in our assessment.

When it came time to distribute the survey, we encountered two main issues:

- No institutional email directory
- No centralized directory with other contact information, such as phone numbers

This led to a delay in survey distribution and finding out creative ways to quickly and consistently reach out to providers and coordinators region by region and province by province. The best method we found was distributing the survey via WhatsApp. This was the most popular method of communication between the Ministry of Health and the healthcare establishments and

hospitals. They had created WhatsApp group messages with hundreds of staff members (including administrative members and providers) from each individual network.

The Communications team at the Ministry of Health created an informative graphic to accompany the text (see Figure 1), which contained the links for both surveys and other details. It was sent every couple of days in the group messages early on in the distribution process and the frequency increased as time went on.

Figure 1. Informative Graphic for National Surveys

Considering emails were not possible and if utilized, they would have not been effective. The team at MINSA made daily phone calls for several weeks to telehealth coordinators to ask them to incentivize and promote the survey among their team at the healthcare establishment or hospital. However, these follow ups depended on each team member's availability to make the calls. Therefore, they were not programmed in a systematic manner.

Interviews

The principal limitation we encountered before and during our interviews was also the language barrier. Our initial interview guides were in English and they were translated back and forth between English and Spanish many times. Additionally, we encountered multiple language barriers during our interviews with patients, in particular. The Spanish terminology and syntax of our questions was at times, too convoluted for the patients to fully comprehend. Neither of the team members of the GHPL spoke the Quechua language. In that case, we fully relied on a nurse that translated from Spanish to Quechua and vice versa.

11. KEY FINDINGS

With the limitations in mind, here we present key overall findings from our research.

Patients in rural regions are generally unaware of telehealth services: Many coordinators and providers in rural regions expressed the need to promote and advertise telehealth services to the local population. Many times, the doctors at the healthcare establishment will seek out patients instead of patients seeking out care at the establishment.

Coordinator presence: Education and position matter: The presence of the coordinator played an important role in the success of a telehealth program and the number of teleconsultations done. The level of education of the coordinator and the powers granted to them by the establishment's or the hospital's administration made a significant difference in provider engagement. This was evident in two hospitals: one was a specialized institute in Lima and the other was a hospital in Piura. In Lima, the co-coordinators were a specialized physician and a lawyer, and their team was very engaged and receptive to telehealth. In Piura, the coordinator was a nurse and she complained that there was less acceptance of the telehealth services by her team. Evidently, the level of provider engagement is related to the role and the position of the coordinator.

Direct dynamic between providers during teleconsultations: During our interviews, we heard from providers at lower-level healthcare establishments that they loved learning from the specialists at higher-level establishments and hospitals during the teleconsultations. On the other hand, specialists claim to like teaching, but not all providers from the other side felt that was true because at times the consults were rushed. They felt the teleconsultation's focus was only on handling the case at hand, but not teaching them how to handle other cases in the future.

Technology is sufficient for conducting teleconsultations: At all the healthcare establishments we visited, technology was sufficient for conducting teleconsultations. They overcame technology constraints because demand was met with the technology, they had available. Both coordinators and providers expressed that it would be ideal to have more laptops, but they all had a greater need - better internet service. They prioritized internet stability and speed over technological needs. Additionally, they could benefit from better imaging technology for the diagnostic aspect of teleconsultations.

Similar provider and coordinator perspectives on specialties and schedules: From the provider's perspective, the specialties that generate the most teleconsultations are internal medicine, pediatrics, OB-GYN, endocrinology, gynecology, and general surgery. From the coordinator's perspective, the specialties that generate the most teleconsultations are internal medicine, pediatrics, OB-GYN, endocrinology, gynecology, and dermatology. Although each provider and coordinator filled the survey out independently, they both perceived their healthcare establishment's telehealth services to focus on the same specialties, with the only difference being general surgery for providers and dermatology for coordinators.

Furthermore, telehealth coordinators and providers wanted schedules for specialist teleconsultations ahead of time. Many times, teleconsultations were delayed on the teleconsultant's side (i*.e.,* the one asking for the teleconsultation) while they waited on the specialist to have time. This resulted in lost time for the physician, the patient needing the teleconsultation (if they had come in), and other patients that could have been treated by the physician during that time (including ones with previous appointments). In particular, the coordinators emphasized the need for a schedule. When their team of physicians had to wait for the specialist to join the teleconsultation, it was difficult for coordinators to motivate them to try again later.

Confusion about telecapacitaciones: The survey for both providers and coordinators asked eight questions related to *telecapacitaciones*. Although results were overall positive, interviews told a different story. Coordinators were able to define and clearly explain what *telecapacitaciones* were, but providers could not. The majority of providers struggled to explain what *telecapacitaciones* were and often confused them with the explanations they received from specialists during teleconsultations.

12. RECOMMENDATIONS

Based on analysis of the survey and interview data, we have compiled six key recommendations that we believe would benefit and improve teleconsultations and tele-education services.

1. ***Utilize the radio in rural regions***

   There is a need to increase awareness of telehealth services in rural regions. To increase awareness, we recommend the utilization of local radio streams. The majority of coordinators and providers in rural regions agreed that this would be the best avenue of communication. We suggest that lower-level establishments create a short advertisement explaining what telehealth is and how it can benefit patients, and then broadcast this advertisement to the local population to increase patient awareness of telehealth services.

2. ***Implement telehealth technology training for providers***

   At both rural and urban healthcare establishments and hospitals, it would be beneficial to implement telehealth technology training for providers. Not everyone is comfortable using the technology associated with the telehealth service, and thus the number of providers who are willing to use telehealth is limited by this factor. If technology training is offered, especially to older providers and new providers, it has the potential to increase provider acceptance and utilization of telehealth.

3. ***Increase patient follow-up and provider teamwork***

Currently, providers at higher-level hospitals do not follow up with patients for whom they have had teleconsultations, and even providers at lower levels often do not have a lasting relationship with their patients. We suggest attempting to incorporate follow-up visits for patients, where both providers at the higher-level and lower-level establishment can check in on the patient, continue their care, and learn from each experience.

Furthermore, we suggest that teleconsultations have a stronger learning aspect to them. From our interviews, we have seen that many teleconsultations are focused on the specific case, but not focused on training the provider at the lower-level establishment to handle other similar situations. The telehealth system can benefit from a more educational culture where there is more focus on teaching. This would result in lower-level providers being able to handle a wider range of cases of their own and reduce unnecessary teleconsultation traffic.

4. ***Improve quality of internet and equipment for lower-level healthcare establishments***

Lower-level healthcare establishments would benefit from improved internet quality and better imaging equipment. While providers and coordinators are motivated to use telehealth despite the challenges of using weak and inconsistent internet and lower quality devices, the effectiveness of the exchange of information would greatly increase with these implementations.

5. ***Create weekly teleconsultation schedules based on specialty availability***

Providers from lower-level establishments often have to wait many hours, or even days, to receive a teleconsultation from a higher-level establishment. This delay makes it difficult to schedule teleconsultations and reduces provider motivation to try again in the future. To make the telehealth system more efficient, we suggest that higher-level establishments distribute a weekly schedule for lower-level establishments that they consult so the latter knows in advance which specialties are available at which time.

6. ***Create monthly tele-education schedules with region-specific themes***

Providers who use tele-education (*telecapacitaciones)* find it beneficial. However, many providers do not use tele-education because it is currently offered at inconvenient times or teaches themes that are not relevant to their practice. We suggest creating a monthly tele-education schedule with region-specific themes so that providers know well in advance when these sessions will take place and are motivated to attend. In addition, we

advise that most tele-education sessions should take place in the afternoon or after regular hours, when more providers are free and can utilize this service.

13. CONCLUSION

The GHPL team has analyzed MINSA's National Telehealth Network within the four domains of the telehealth measurement framework, presented key findings, and offered recommendations based on these findings. We hope that these recommendations, if implemented, will benefit and contribute to the growth and success of MINSA's National Telehealth Network.

APPENDICES

Appendix I. Domains of the Telehealth Measurement Framework

NQF Creating a Framework to Support Measure Development for Telehealth (8/31/17)

Figure 2. Visual Depiction of the Four Domains of the Telehealth Measurement Framework

Domain 1: Access to Care.

1. Affordability – For providers, what are the costs of providing telehealth services, and what is its effect on their practice? For patients, are there any additional costs of telehealth services?
2. Availability – Does telehealth provide access to a provider that specializes in the type of care required by the patient? When it is required or desired by the patient? Does telehealth results in a quicker diagnosis and/or faster delivery of interventions?

3. Accessibility – Is the technology necessary for a telehealth consultation accessed and used by members of the care team (both on the referral side and on the specialist side)? Is there access to sufficient "actionable information" to aid the specialist in decision making and management?
4. Acceptability – Do members of the care team (at both ends of the consult), (and patients when involved), accept the use of telehealth as a means of care delivery?

Domain 2: Financial Impact/Cost.

1. The potential cost savings and benefits of telehealth such as less travel time to see a provider, less time lost at work, and less out-of-pocket costs.
2. Financial costs associated with investment in specialized equipment and internet access.
3. The financial impact to the care team including the opportunity costs and both direct and indirect costs associated with providing care using a telehealth modality.
4. The financial impact to the health system including cost avoidance and opportunity costs.
5. The financial impact to society including the impact on healthcare workforce shortages, on hospitals of services provided at a distance, the overall health status of a community, the economic productivity, and averted care.

Domain 3: Experience.

1. The ability to use the technology.
2. Whether the care delivered through various telehealth modalities is comparable to the quality of the care services they would receive during an in-person encounter.
3. The ability of telehealth to facilitate teamwork and the ongoing care of a patient
4. The utility of the technology to provide necessary information to assist in the provision of care.
5. The acceptance and consistent use of telehealth.
6. Did telehealth promote patient self-efficacy and disease management?

Domain 4: Effectiveness.

1. The ability of telehealth modality to assist in the coordination of care across various healthcare settings.
2. The ability of telehealth to assist providers in reaching targets for population-based care.
3. The ability of telehealth to facilitate the sharing of information between providers to aid in decision making.
4. The impact of telehealth on health outcomes or process measures of quality.
5. The comparative effectiveness of telehealth vs. services provided in person.
6. How clinically integrated telehealth is within a hospital or other care setting.

7. The ability of the telehealth system to record and transmit images, data, and other information accurately to members of the care team, as well as the system's ability to exchange information between stakeholders seamlessly.
8. Were the instructions and/or recommendations clear?
9. Was the regional/local system able to effectively provide the care that was recommended?
10. Did telehealth reduce the need for transfer and/or hospitalization

Appendix II. Surveys for Providers and Coordinators

Both Provider and Coordinator Surveys were made on Qualtrics. Below are visual representations of the surveys printed in a PDF format.

Provider Survey

PERÚ Ministerio de Salud | Red Nacional de TeleSalud | DARTMOUTH

Encuesta para el personal de salud en establecimientos de salud

La presente encuesta está dirigida al personal de salud que utiliza los servicios de Telesalud-Telemedicina en los establecimientos de salud del Ministerio de Salud. Esta es realizada en marco de una colaboración de investigación en materia de telesalud entre la Dirección General de Telesalud, Referencia y Urgencias del Ministerio de Salud y Dartmouth College.

La presente encuesta es anónima y se agradecerá su llenado de la forma más sincera y completa posible.

Sus respuestas serán un importante insumo para la mejora y expansión de la Red Nacional de Telesalud del Ministerio de Salud, del cual forma parte su establecimiento de salud.

Block 1

P.1. **¿Cuánto tiempo ha trabajado utilizando los servicios de Telesalud-Telemedicina en el establecimiento de salud? Por favor conteste en número de años y meses.**

Años

Meses

P.2. **Durante los últimos 6 meses, ¿aproximadamente cuántas teleconsultas se realizaron en el establecimiento de salud?**

P.3. **Según su estimación, ¿qué especialidades son las más solicitadas para teleconsulta (*ej.*, ginecobstetricia, pediatría, medicina interna, cirugía, etc.)? Indique las tres primeras:**

Especialidad 1

Especialidad 2

Especialidad 3

P.4. **¿Cuál de las siguientes afirmaciones representa mejor las circunstancias bajo las cuales se llevan a cabo las teleconsultas en el establecimiento de salud?**

- Todas se realizan bajo condiciones de emergencia.
- La mayoría se realizan bajo condiciones de emergencia.
- Las teleconsultas se dividen de manera bastante equitativa entre condiciones de emergencia y de no emergencia.
- La mayoría se realizan bajo condiciones de no emergencia.
- Todas las consultas se realizan en condiciones de no emergencia.

P.5. **¿Cómo calificaría la preparación tecnológica del personal de salud respecto al servicio de telesalud?**

- Excelente
- Muy Bueno
- Bueno
- Regular
- Deficiente
- Muy Deficiente

P.6. **¿Con qué frecuencia el personal de salud usa el servicio de telemedicina (*ej.* teleconsulta, telediagnóstico, etc.)?**

- Más allá de la oferta disponible
- Totalmente utilizado
- Utilizado ocasionalmente
- Raramente utilizado
- No utilizado en absoluto

P.7. **¿Cómo calificaría la funcionalidad de los equipos tecnológicos y las aplicaciones que facilitan las teleconsultas?**

- Excelente
- Muy bueno
- Bueno
- Regular
- Deficiente
- Muy Deficiente

P.8. **¿Cómo calificaría la aceptación de las teleconsultas como un apoyo valioso para su capacidad de brindar atención de calidad a sus pacientes?**

- Totalmente aceptado por el personal
- Aceptado por casi todo el personal
- Aceptado por la mayoría del personal
- Aceptado por algunos miembros del personal
- Aceptado por la minoría del personal
- Totalmente no aceptado por el personal

Continued Below…

Block 2

... A continuación, nos gustaría saber si está de acuerdo o en desacuerdo con las siguientes declaraciones.

P.9. **La mayoría de los pacientes saben que se brindan servicios de telesalud en este establecimiento de salud.**

- Totalmente de acuerdo
- De acuerdo
- Ni de acuerdo, ni en desacuerdo
- En desacuerdo
- Totalmente en desacuerdo

P.10. **El personal de salud se encuentra capacitado en el uso del equipamiento y las aplicaciones que facilitan las teleconsultas.**

- Totalmente de acuerdo
- De acuerdo
- Ni de acuerdo, ni en desacuerdo
- En desacuerdo
- Totalmente en desacuerdo

P.11. **El uso de las teleconsultas reduce la necesidad de referencia de pacientes.**

- Totalmente de acuerdo
- De acuerdo
- Ni de acuerdo, ni en desacuerdo
- En desacuerdo
- Totalmente en desacuerdo

P.12. **El uso de las teleconsultas reduce la necesidad de hospitalización de pacientes.**

- Totalmente de acuerdo
- De acuerdo
- Ni de acuerdo, ni en desacuerdo
- En desacuerdo
- Totalmente en desacuerdo

- Totalmente de acuerdo
- De acuerdo
- Ni de acuerdo, ni en desacuerdo
- En desacuerdo
- Totalmente en desacuerdo

P.18. **Las teleconsultas nos permiten registrar y transmitir imágenes, datos y otra información entre establecimientos de manera fácil y efectiva.**

- Totalmente de acuerdo
- De acuerdo
- Ni de acuerdo, ni en desacuerdo
- En desacuerdo
- Totalmente en desacuerdo

P.19. **Las teleconsultas han contribuido a resultados significativamente mejores para los pacientes.**

- Totalmente de acuerdo
- De acuerdo
- Ni de acuerdo, ni en desacuerdo
- En desacuerdo
- Totalmente en desacuerdo

P.20. **El servicio de telesalud ha facilitado la coordinación y el trabajo en equipo para el diagnóstico y el tratamiento de pacientes.**

- Totalmente de acuerdo
- De acuerdo
- Ni de acuerdo, ni en desacuerdo
- En desacuerdo
- Totalmente en desacuerdo

P.21. **La calidad de la atención brindada por el establecimiento de salud mejora a través de la incorporación de telesalud en el cuidado continuo de los pacientes.**

- Totalmente de acuerdo
- De acuerdo

P.13. **El servicio de telesalud facilita el intercambio de información entre el personal de salud para ayudarse en la toma de decisiones sobre diagnósticos y tratamientos de pacientes.**

- Totalmente de acuerdo
- De acuerdo
- Ni de acuerdo, ni en desacuerdo
- En desacuerdo
- Totalmente en desacuerdo

P.14. **Cuando la teleconsulta falla (*ej.* conectividad y coordinación), generalmente ocurre en el lado del teleconsultante y no del lado del teleconsultor.**

- Totalmente de acuerdo
- De acuerdo
- Ni de acuerdo, ni en desacuerdo
- En desacuerdo
- Totalmente en desacuerdo

P.15. **Las teleconsultas conducen a diagnósticos más certeros y tratamientos oportunos para los pacientes.**

- Totalmente de acuerdo
- De acuerdo
- Ni de acuerdo, ni en desacuerdo
- En desacuerdo
- Totalmente en desacuerdo

P.16. **El servicio de telesalud en el establecimiento de salud reduce el costo de la prestación de atención médica para pacientes.**

- Totalmente de acuerdo
- De acuerdo
- Ni de acuerdo, ni en desacuerdo
- En desacuerdo
- Totalmente en desacuerdo

P.17. **La tecnología de telesalud disponible en el establecimiento de salud es suficiente para facilitar el acceso completo y la utilización en las teleconsultas.**

- Ni de acuerdo, ni en desacuerdo
- En desacuerdo
- Totalmente en desacuerdo

Block 3

... Además de las teleconsultas dirigidas a los pacientes, también nos gustaría saber acerca de la capacitación del personal de salud en el establecimiento de salud a través de las telecapacitaciones realizadas por el MINSA.

P.22. **¿Conoce qué son las telecapacitaciones del Ministerio de Salud?**

- Sí
- No

P.23. **¿Se realizan telecapacitaciones en su región y provincia?**

- Sí
- No

P.24. **¿Conoce el canal de YouTube Telesalud Minsa?**

- Sí
- No

P.25.
Si es afirmativo, ¿ha visualizado alguna telecapacitación a través de este canal de YouTube?

- Sí
- No
- (No he visualizado)

P.26. **¿Con qué frecuencia ha participado en las telecapacitaciones realizadas por el Ministerio de Salud?**

- Muy frecuentemente
- De vez en cuando
- Ocasionalmente
- Raramente
- Nunca

P.27. **¿En qué temas de telecapacitaciones ha participado durante el año pasado? Por favor menciónelos.**

P.28. **¿Cuán beneficiosas piensa que son las telecapacitaciones para su capacidad de atender pacientes de manera más oportuna y efectiva?**

- Muy beneficiosas
- Algo beneficiosas
- No muy beneficiosas
- Nada beneficiosas

P.29. **¿Qué recomendaciones haría al Ministerio de Salud con respecto a la temática y la frecuencia de futuras telecapacitaciones?**

P.30. **¿Estaría dispuesto a promover y realizar sus propias telecapacitaciones desde su región y provincia?**

- Muy dispuesto
- Dispuesto
- No dispuesto

Block 4

... Finalmente, nos gustaría tener sus apreciaciones del resultado y la efectividad de la telesalud en su establecimiento de salud. Responda si está de acuerdo o en desacuerdo con las siguientes declaraciones.

P.31. **Considera que la utilización actual de la red de telesalud reduce los errores de diagnóstico.**

- Totalmente de acuerdo
- De acuerdo
- Ni de acuerdo, ni en desacuerdo
- En desacuerdo
- Totalmente en desacuerdo

P.32. **Considera que la utilización actual de la red de telesalud ha evitado complicaciones y resultados adversos.**

- Totalmente de acuerdo
- De acuerdo
- Ni de acuerdo, ni en desacuerdo
- En desacuerdo
- Totalmente en desacuerdo

P.33. **Como resultado de las teleconsultas, el personal médico puede tratar a pacientes con problemas complejos de manera más eficiente.**

- Totalmente de acuerdo
- De acuerdo
- Ni de acuerdo, ni en desacuerdo
- En desacuerdo
- Totalmente en desacuerdo

P.34. **Las teleconsultas reducen el tiempo para obtener una cita y recibir atención especializada en el establecimiento de salud.**

- Totalmente de acuerdo
- De acuerdo
- Ni de acuerdo, ni en desacuerdo
- En desacuerdo
- Totalmente en desacuerdo

P.35. **Considera que hay una mejora en la calidad de vida de sus pacientes debido a que los servicios médicos están más cercanos.**

- Totalmente de acuerdo
- De acuerdo
- Ni de acuerdo, ni en desacuerdo
- En desacuerdo
- Totalmente en desacuerdo

P.36. **La conectividad del centro de salud al internet es estable para el desarrollo del servicio de telesalud.**

- Totalmente de acuerdo
- De acuerdo
- Ni de acuerdo, ni en desacuerdo
- En desacuerdo
- Totalmente en desacuerdo

P.37.
¿Podría mencionar un caso que debido al uso de la telesalud haya habido un cambio positivo drástico para el paciente?

P.38. **¿Podría mencionar un caso en que el uso de la de telesalud haya tenido un resultado negativo drástico para el paciente?**

P.39. **¿Qué otras especialidades médicas considera necesarias para telemedicina? ¿Cuáles son?**

P.40.
Podría mencionar su evaluación acerca de la telemamografía por telemedicina en cuanto a su demanda; facilidades y dificultades; y aportes para la mejora de la atención/procesos.

Block 4

... Filiación

P.41. **Nombre (iniciales solamente):**

P.42. **Edad:**

P.43. **Sexo:**

- Femenino
- Masculino

P.44. **Profesión y/o especialidad:**

P.45. **Departamento:**

P.46. **Provincia:**

P.47. **Distrito:**

P.48. **Nombre de establecimiento:**

P.49. **Categoría:**

Toda su información es confidencial. Agradecemos su cooperación.
Equipo DIGTEL-Dartmouth

Powered by Qualtrics

Coordinator Survey

The only questions that are different for this survey are the wording for Question 1, and the content for Questions 39 and 40:

Encuesta para coordinadores de telesalud de los establecimientos de salud regionales del Ministerio de Salud

La presente encuesta está dirigida a los coordinadores de telesalud de los establecimientos de salud regionales del Ministerio de Salud. Esta es realizada en marco de una colaboración de investigación en materia de telesalud entre la Dirección General de Telesalud, Referencia y Urgencias del Ministerio de Salud y Dartmouth College.

La presente encuesta es anónima y se agradecerá su llenado de la forma más sincera y completa posible.

Sus respuestas serán un importante insumo para la mejora y expansión de la Red Nacional de Telesalud del Ministerio de Salud, del cual forma parte su establecimiento de salud.

Block 1

P.1. **¿Cuánto tiempo ha trabajado como coordinador de telesalud en el establecimiento de salud? Por favor conteste en número de años y meses.**

Años

Meses

p.39. **El coordinador de telesalud se encuentra apropiadamente capacitado para el uso de las herramientas de telesalud.**

- Sí
- No

p.40. **El coordinador de telesalud realiza actividades para promover el uso de los servicios de telesalud dentro del establecimiento.**

- Sí
- No

Appendix III. Guides for Providers, Coordinators, and Patients

Guía de Entrevista Semiestructurada para Médicos Consultores

1. ¿Cuánto tiempo lleva trabajando en la Institución? ¿Cuánto de este tiempo ha sido como Consultor de Telesalud?

2. ¿ Cómo ha evolucionado el número de teleconsultas luego de la implementación de Telesalud del MINSA?

3. ¿ Cómo ha influido el servicio de telesalud en la calidad del cuidado a los pacientes, en los médicos consultores?

4. ¿Ha cambiado aspectos de gestión, la coordinación y el trabajo en equipo, respecto a cómo se manejaba antes de Telesalud? ¿Cómo?

5. ¿Qué formas de promoción, estímulo u otro aspecto podría sugerir para mejorar y aumentar las Teleconsultas?

6. ¿Piensa que las telecapacitaciones, si las ha recibido, han influido en sus habilidades para brindar cuidado al paciente? ¿Cómo?

7. ¿Podría compartir un caso específico que la teleconsulta impactó drásticamente en la calidad y las opciones de tratamiento disponibles para un paciente?

8. ¿Tiene alguna recomendación para mejorar las teleconsultas?

9. ¿Tiene alguna recomendación para mejorar las telecapacitaciones?

10. ¿Qué necesidades y mejoras se podía hacer en el equipamiento, la conectividad y otros aspectos tecnológicos de Telesalud?

Guía de Entrevista Semiestructurada para Médicos Consultantes

1. ¿Cuánto tiempo lleva trabajando en la IPRESS? ¿Cuánto de este tiempo ha sido como Consultante de Telesalud?

2. ¿ Cómo ha evolucionado el número de teleconsultas luego de la implementación de Telesalud del MINSA?

3. Cuando las especialidades médicas no están disponibles en su región, ¿aproximadamente cuánta distancia y cuánto tiempo desde su establecimiento de salud tienen que viajar sus pacientes para acceder a estos servicios?

4. ¿ Cómo ha influido el servicio de telesalud en la calidad del cuidado a los pacientes, así como en la facilidad en proveerles atención?

5. ¿Ha cambiado su capacidad y la precisión de sus diagnósticos, como resultado de poder consultar a un especialista? ¿Cómo?

6. ¿Ha cambiado aspectos de gestión, la coordinación y el trabajo en equipo, respecto a cómo se manejaba antes de Telesalud? ¿Cómo?

7. ¿Qué formas de promoción, estímulo u otro aspecto podría sugerir para mejorar y aumentar las Teleconsultas?

8. ¿Piensa que las telecapacitaciones, si las ha recibido, han influido en sus habilidades para brindar cuidado al paciente? ¿Cómo?

9. ¿Podría compartir un caso específico que la teleconsulta impactó drásticamente en la calidad y las opciones de tratamiento disponibles para un paciente?

10. ¿Tiene alguna recomendación para mejorar las teleconsultas?

11. ¿Tiene alguna recomendación para mejorar las telecapacitaciones?

12. ¿Qué necesidades y mejoras se podía hacer en el equipamiento, la conectividad y otros aspectos tecnológic?

Guía de Entrevista Semiestructurada para Coordinadores

1. ¿Cuánto tiempo lleva trabajando en la Institución? ¿Cuánto de este tiempo ha sido como Coordinador de Telesalud?

2. ¿ Cómo ha evolucionado el número de teleconsultas luego de la implementación de Telesalud del MINSA?

3. ¿ Cómo ha influido el servicio de telesalud en la calidad del cuidado a los pacientes, en los médicos consultores?

4. ¿Ha cambiado aspectos de gestión, la coordinación y el trabajo en equipo, respecto a cómo se manejaba antes de Telesalud? ¿Cómo?

5. ¿Qué formas de promoción, estímulo u otro aspecto podría sugerir para mejorar y aumentar las Teleconsultas?

6. ¿Piensa que las telecapacitaciones, si las ha recibido, han influido en sus habilidades para brindar cuidado al paciente? ¿Cómo?

7. ¿Podría compartir un caso específico que la teleconsulta impactó drásticamente en la calidad y las opciones de tratamiento disponibles para un paciente?

8. ¿Tiene alguna recomendación para mejorar las teleconsultas?

9. ¿Tiene alguna recomendación para mejorar las telecapacitaciones?

10. ¿Qué necesidades y mejoras se podía hacer en el equipamiento, la conectividad y otros aspectos tecnológicos de Telesalud?

11. ¿Qué dificultades o problemas importantes encuentra en el manejo y registro de la Información?

    Por ejemplo**:** El manejo de los FAT, FUA., etc.

Guia de Entrevista Semiestructurada para Pacientes

1. Qué entiende usted cuando le hablan de un programa o servicio de Telesalud?

2. ¿Cómo se siente al ser tratado por especialistas médicos a distancia mediante una teleconsulta?

3. ¿Para qué utilizaron o van a utilizar el servicio de teleconsulta en su cuidados médicos y de salud? Si ya fue atendido, ¿cuál fue el diagnóstico?

4. ¿Cuál fue la especialidad del médico que lo atendió mediante la teleconsulta (como consultor)?

5. ¿Cuál fue su experiencia después de la teleconsulta? ¿Notó algún cambio en la calidad de su cuidado y/o su tratamiento ?

6. De no tener disponible el servicio de telesalud en el establecimiento más cercano a usted, ¿cuáles alternativas hubiese buscado?
   Por ejemplo:
   - Visitar hospital más grande en busca del cuidado de un especialista.
   - No me hubiera atendido.

7. Si el servicio no hubiera estado disponible, ¿de qué forma le hubiese afectado?Por ejemplo:
   - Hubiese perdido el día de trabajo
   - Hubiese incurrido en gastos transporte
   - Hubiese incurrido en gastos de comida
   - Hubiese incurrido en gastos de hotel
   - Hubiese perdido tiempo con la familia/los niños

8. ¿Cuánta distancia y tiempo hubiese viajado para recibir tratamiento de no tener el servicio de teleconsultas (es decir, no lo/a hubiesen podido atender en el establecimiento de salud más cercano a usted)? De no poder viajar, ¿hubiera buscado el cuidado que necesitaba?

9. Por favor, cuéntenos sobre su experiencia con el servicio de telesalud.

10. Luego de su experiencia con la teleconsulta, ¿haría sus visitas futuras a su establecimiento de salud más cercano?

Appendix IV. Endnotes

1. “Creating a Framework to Support Measure Development for Telehealth .” National Quality Forum, Aug. 2017, www.qualityforum.org/Publications/2017/08/Creating_a_Framework_to_Support_Measure_Development_for_Telehealth.aspx

Appendix V. Bibliography

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