



GCRF demonstrate impact in developing countries: Round
2, Phase 1
Project 73108

**“Innovative Access to Healthcare for Impact in Remote
Communities”**

Loswaki Remote Telehealth Consultation Trial Report

March 2021

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(project internal use only)



Introduction

Two remote consultation clinics for villagers in Loswaki village were run in January/February 2021. The dates and times were chosen with Dr Tumaini, the local doctor in Terat dispensary, and advertised in advance to village members with the assistance of the village chairperson. The first trial was held on Friday 29/1/21, beginning at 11am, and the second held on Tuesday 02/02/21 from 11am. Each remote clinic was meant to last for only 2 hours, although they overran significantly. The reason for doing two trials in the same place was to try and get a more accurate estimate of demand for the service, as it was expected that patients may not trust the service until having first tried it, and it may take some time for word to spread about the service availability. In addition, it turned out that the date of the first trial coincided with a significant funeral in the village, so many community members would be busy. The doctor gave his time for free, not charging for consultations, although the cost of medicines was to be covered by the patients. STI4D paid the cost of transportation for the medicines, and the additional operators and labour required to run the service were provided by OMASI and STI4D.

This report summarises the key findings from the remote telehealth consultation trials, including detail on the health trial set-up, the sequence of activities for each, the number of patients that attended, and how the requirement for medicines to be transported to the patients was fulfilled. Patients were interviewed before and after the consultation, and their feedback is included in this report, giving clear user experience data and user feedback for the SVRG human centred approach. The results from this report feed into the Telehealth Beta-System Design Priorities.

Clinic set-up

A tent with two chairs was set-up in one of the few locations found to have sufficient phone signal to hold a video call, since these community sessions were held before the installation of higher-quality connectivity equipment under the project. The video quality using the existing mobile data signal was quite pixelated, as can be seen from the image below. The video was found to only work using a phone with a SIM card directly, as attempting to hotspot from another device weakened the signal.



This location with a phone signal would act as the consultation point. One side of the tent was left open to enable air-flow, whilst the other sides were kept shut to enable patient privacy. Solar lights were hung in the tent to improve the video.

As patients arrived, they were greeted at a desk where their name, age, temperature, blood pressure (adults only), and blood oxygen (for those with difficulty breathing) was taken. This information was passed to the doctor, along with their arrival time. A set of research questions were asked at this point pre-consultation to understand the distances the patients had travelled and their current preconceptions about the remote health system etc. The patients would then be directed to a bench set at some distance to wait until the doctor was ready to see them.



Once ready, the doctor would specify which patient he needed to see and that patient would be directed to the tent. For male patients, a male operator entered the tent to assist in operating the technology and holding the phone if preferred. A female operator assisted female patients.



Following the consultation patients were directed to a second table where they were asked some follow-up research questions. Patients that had been prescribed medicines would then wait nearby until the medicine was delivered. The doctor packaged the medicines up with instructions, patient names and costs, and they were driven over to the remote clinic on a motorbike. Patients that had booked follow-up in-person appointments, or had their complaints addressed simply through the consultation, were free to leave.

Trial 1 - Friday 29/01/21

The first patient arrived 5 minutes early for the 11am start time, and other patients arrived spread-out throughout the day. There were 11 patients in total, a mixture of women and men, including one child and one drunk male youth who had severely cut his hand and needed medical attention which the remote clinic could not provide. This provided us with one of many key learnings from the trial, that *it would be beneficial for future operators to not only be trained in taking basic health measurements, but also in basic first-aid for treating injuries.*

Patients waited over an hour for medicine to arrive after the final patient was seen (resulting in a 3.25 hour wait for the first patient seen requiring medicine). There was concern that particularly for the more elderly patients who ended up lying down in the grass to wait, it was thought they may have preferred to leave and return later. This was asked to a few of the waiting patients, who said this wait time was totally normal and what they'd expect at the Terat dispensary. As some of them had paid transport fees to reach the remote clinic (although much less than going to Terat), this meant they would rather not make the journey twice. All patients were interviewed immediately after the consultation, but for future trials, *it would be interesting to get patient satisfaction both before and after having waited for medication, to verify whether this wait time truly was acceptable for all patients.*

Medicines were packaged and sent from the Terat dispensary with some additions from private pharmacies when the Terat dispensary did not have enough stock. The patients were meant to pay for the medicines even though the trial was free, but many did not bring the money (despite prior community engagement making it very clear that medicines would be sold at cost). As the medicine had already been sent, for these patients we gave the medicine away for free, although there are concerns this would impact people's perception of the service as free in the future. The importance of advertising the free consultation but patients paying for medication was stressed to the village chairperson for the next trial.

The doctor had some emergencies during the intended 2 hour consultation period, and was not available for 45 minutes, and again later had a 10 minute delay. This resulted in some patients almost giving up and leaving before being seen. The trial overran by 1 hour (the last patient was seen at 2pm, not 1pm), and the medicines didn't arrive until 3.15pm. The doctor later said that he'd had an unusually busy Friday at the dispensary and patients there couldn't understand why he wasn't seeing them. Once the tele-health system is more established, it may be easier for him to juggle dispensary patients and remote patients as they will both understand the demands on him to treat patients in two locations.

Trial 2 - Tues 02/02/21

Upon arrival at 10am for setup, there were already 4 patients to be seen. By 10.30am, another 13 boarding school children arrived, having been brought by their headteacher who had heard of the availability of a doctor. Due to the number of students and limited consultation time, and the

absence of any parents to pay for medicines if the children did require it, it was agreed only the 6 most sick patients would be seen by the doctor, and STI4D would cover their medicine cost. The teacher was requested to oversee the consultation process, although the medicine was given directly to the students once it arrived.

There were 23 patients in total, including one man who left before being seen by the doctor as he was forced to wait too long. The adult patients were all seen by 2.20pm, with 11 patients requiring medicine which arrived at 3.15pm. The students were seen last, at 3.50pm, with all 6 receiving medicine, which arrived at 4.45pm.

Unfortunately, the non-donor situation was still not clearly communicated, and several patients did not bring sufficient money. 2 patients said they would bring the money when they went to the Terat market on Thursday, and another lady insisted we pay for her daughter as we were paying for the other students from the school. One woman mentioned a free health clinic and how she had thought we were doing the same service. We think she may have been referring to the CACHA outreach health visits, which explains why community members expect the services to be free, as historically they have had free health assistance from foreigners.

Other than the tent starting to blow over during the student's consultations (the tent lacked hooks to tie it to the ground), the day was a success. The doctor saw an additional 15 patients in his own dispensary along with the 22 patients at the telehealth hub. On a typical non-market day in the dispensary, he sees 15-20 patients, so it was extremely impressive that he found time for so many patients.

Pharmacy support

Not all medicines could be supplied by the dispensary due to stock limitations. Dr Tumaini negotiated with other pharmacies in Terat to collect all the necessary medicine each day, and send it to the telehealth hub in Loswaki.

Following the first trial, a visit was made to 3 of the main pharmacies in Terat, one of which was owned by Dr Tumaini. There also existed another large pharmacy which was shut on the day we visited, and another smaller one which we decided not to visit.





All pharmacies were happy to be involved with a telehealth system, in which they would send their medicine to a village via motorbike, and receive payment after. Dr Tumaini spoke both with the pharmacy owners, and the staff who would be present day-to-day and would have to help with packaging up and sending the medicine.

Dr Tumaini believed the pharmacies should pay for the motorbike fee, as they would get business and sales from the process (the cost of 1-2 medicines is approximately the same as the cost of a motorbike, so if there are enough patients it should be worthwhile for them).

In any system, medicines would be sent preferentially from the government dispensary due to the subsidised prices. Only in the case that medicines were unavailable, would alternative private pharmacies be sought.

The discussion with pharmacists highlighted the need for a license to stock medicines, given by the district pharmacy. Although Dr Tumaini says this license is not hard to get, in order to sell the medicine you must be trained as a nurse (any one of the three levels of training) and then do another one month training to become a pharmacist. This would require significant extra effort and cost to set up with the tele-health centre if we intend to employ local operators. It will almost certainly be better to work with existing pharmacies to send over the medicines.

Trial Data and Patient Feedback

Patient number and Age

In total, across the two days, 34 patients sought treatment, with ages ranging from 5 to 65. Several elderly women did not know their age when asked. The majority of patients (excluding the students aged 9 to 13), fell into the 30-50 age bracket.

Medications

16 patients received medication, plus 6 students. The total cost of medicines for the two days was just over 100,000TSH (approximately £30), which is negligible in comparison to the cost of medicines in the UK. This was paid to the doctor at the end of the final day. The cheapest medicine was free (the patient had insurance) and the most expensive medicine cost 11,500TSH. Several patients suggested the service would be improved if the medicines were readily available at the remote health point. Initial research indicates this would require special licensing and qualified people to dispense the medicines, but more investigation is needed to determine whether when combined with a virtual doctors consultation and prescription, this requirement could be side-stepped to avoid additional operator training.

Service satisfaction and potential improvements

Before even meeting the doctor virtually, every patient that arrived believed their illness would be treatable by the doctor remotely, and that the telehealth system was as good as if not better than an in-person consultation, due to the reduced costs and time taken to travel. Immediately following their consultation, every patient rated the system as very good or good, and said they would use the service again in the future, recommending it to their friends and family. Several patients specifically mentioned the pre-consultation tests, and it was clear these gave them extra confidence in the service and quality of diagnosis. Patients were familiar with Dr Tumaini and felt comforted by hearing his voice and seeing him on screen. Even the 9 out of 34 patients who were required to have a follow-up in-person in Terat, still rated the remote health service highly. They felt assured that the journey to Terat would be necessary, and were able to make an appointment with the Doctor for their in-person visit.

Almost all patients were happy with the quality of the video call. Only 1 patient had difficulties with the connection dropping.

Some patients were confused why a tent was being used when buildings were available (this occurred due to the lack of phone signal at the location of the buildings), and wanted a more permanent system to be set up. Several more patients showed interest in having the system available 24 hours. There were concerns that if the service was made permanent and became more widely known, there would be too many people for a small remote consultation clinic to cope. This tied in with the majority of patients' requests for a full hospital, rather than a remote clinic, which is unfortunately beyond the scope of this project, or the government funding available, but shows the clear need for a better healthcare infrastructure in their area. (The most pressing issue was labour emergencies for pregnant women as transporting them effectively to the nearest hospital/dispensary is extremely difficult and mothers occasionally die in the process). This opinion was even more strongly reinforced during the focus groups prior to the remote consultation trial, but the trial showed that if a hospital was unavailable, community members would still value a tele-health system.

Advertising

The occurrence of the trial had clearly not been advertised widely enough, as a few patients claimed they did not know the event was taking place until they stumbled upon it in passing, and that it would have been better if more people knew about it.

Efforts were made to communicate a week in advance about the trial through the village Chairman and other committee members, and they were asked to spread the word. The feedback suggests that information transfer in such a rural community is sporadic and not thorough, and this should be given thought going forward when organising the next stage of trials, to ensure maximum reach.

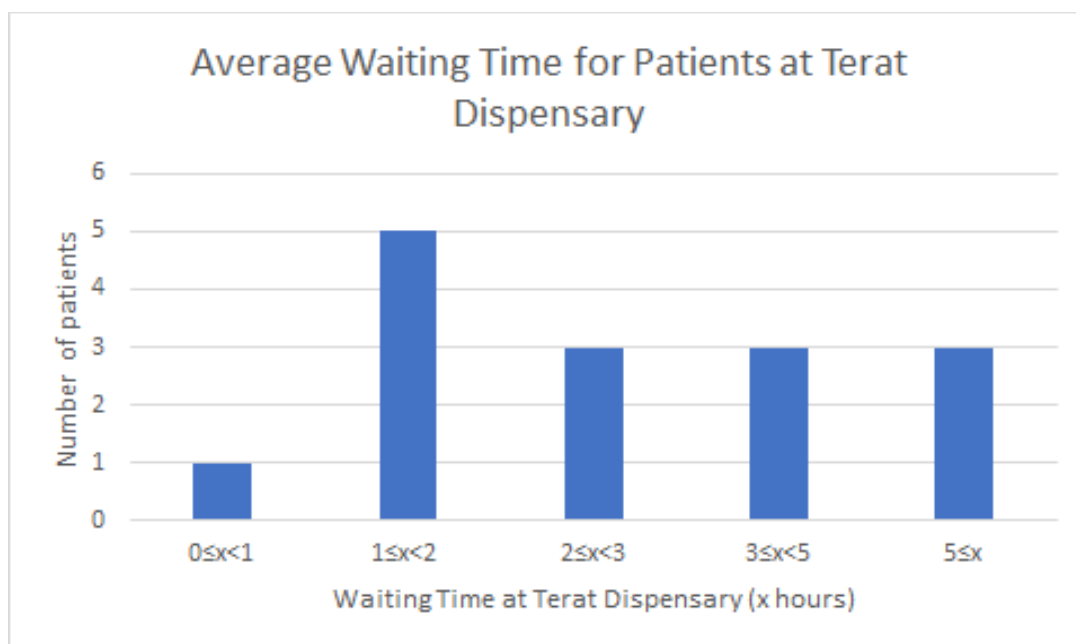
In particular, advertising must be carefully and thoroughly implemented to communicate that the remote telehealth clinic is not a free service - this was a common misconception and will ultimately much reduce financial viability of the service.

Consultation Fees

Patients currently pay between 2000 and 5000 to see the government doctor in Terat, and 10,000 to see a private doctor. For those patients with insurance (only about 1 in 10), consultations and medicines are free. Interviewed patients said they would be happy to pay the same price for a remote consultation as for an in-person consultation.

Wait time

There were concerns that the length of time patients were forced to wait to both see the doctor, and receive medicines, would make them unsatisfied with the service. This did not appear to be the case. During the second trial, patients were asked how long they typically wait at the dispensary when seeking treatment. As can be seen from the table below, the wait times are significant, with most patients spending an average of 2-3 hours at the dispensary, and likely another hour or two travelling.



This information is concerning, as if the wait times are already so long, this would indicate the doctor is already overloaded and would be unable to additionally see patients at a remote clinic. However, it must be remembered that the majority of patients only visit the doctor on market day (Thursday) when the journey into Terat is already necessary to buy and sell goods. A remote consultation system may enable a more equal spread of consultations throughout the week, thus reducing the average waiting time.

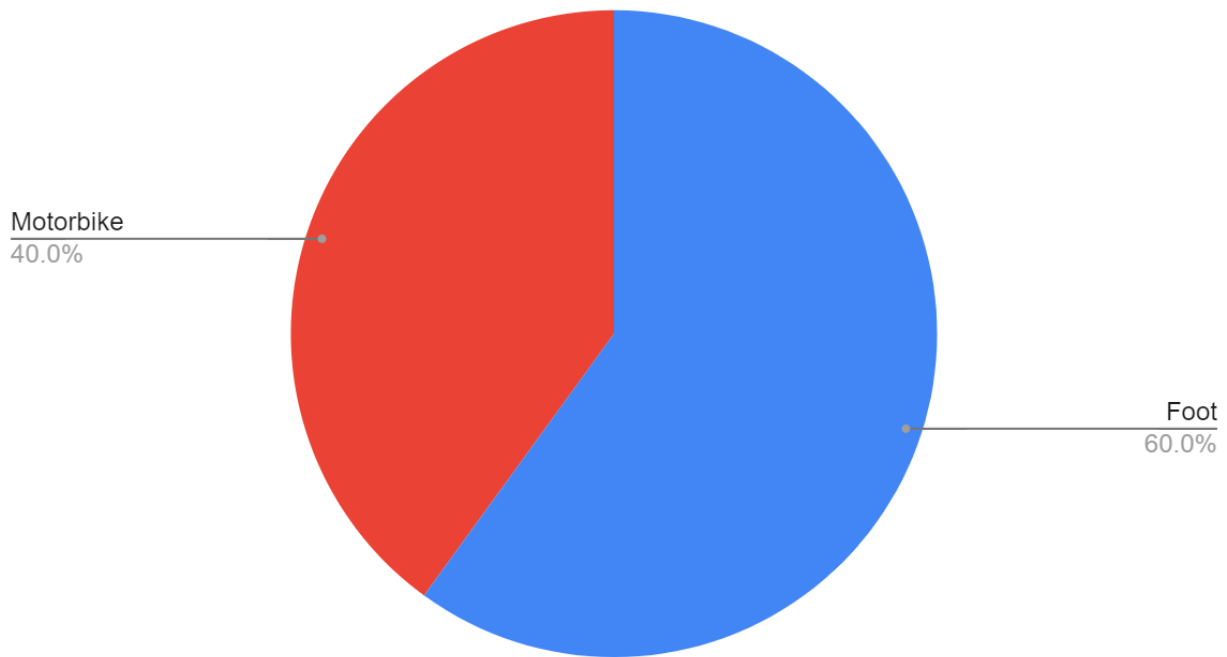
Distance and cost to reach telehealth hub

The following graphs show how patients reached the remote health clinic on the second trial day. The key statistics are:

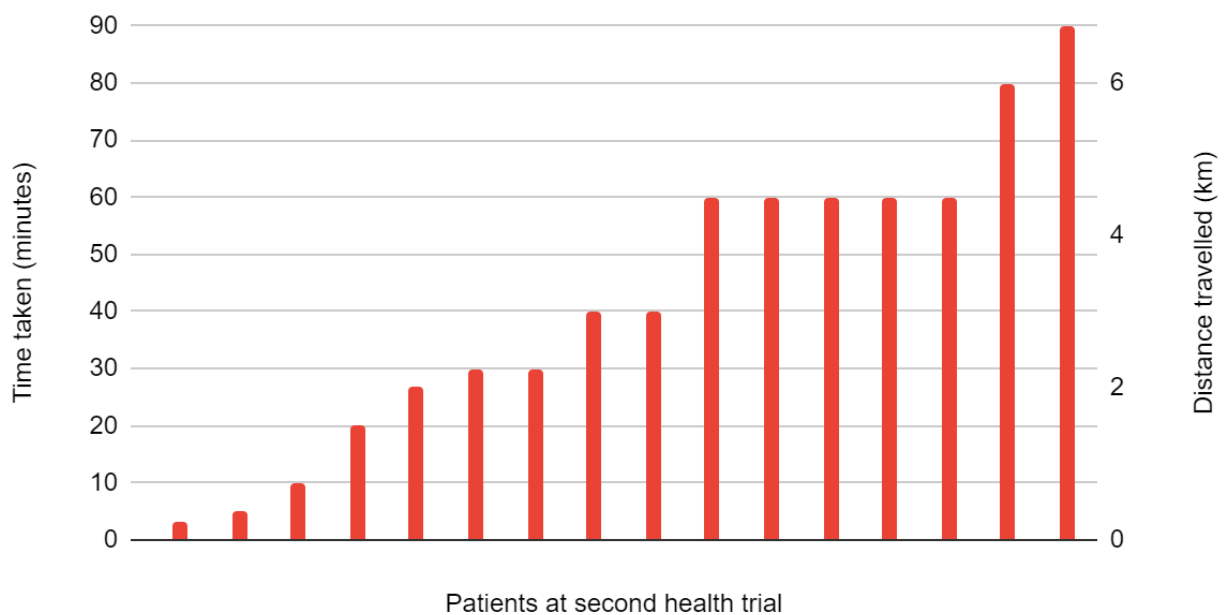
- 60% of patients walked, while 40% took a motorcycle
- 1 patient had a free motorcycle ride from a relative, but would have needed to pay to take a motorbike into Terat
- All patients would have paid to take a motorbike to reach the Terat dispensary, the cost of which would have been higher than the cost incurred to reach the telehealth hub
- The average time spent walking was 42 minutes

It should be noted that the village the trial was held in (Loswaki) is significantly closer to the Terat than many of the other villages served by the main dispensary, so the cost and time savings for transport are towards the smaller end of the spectrum for potential benefits.

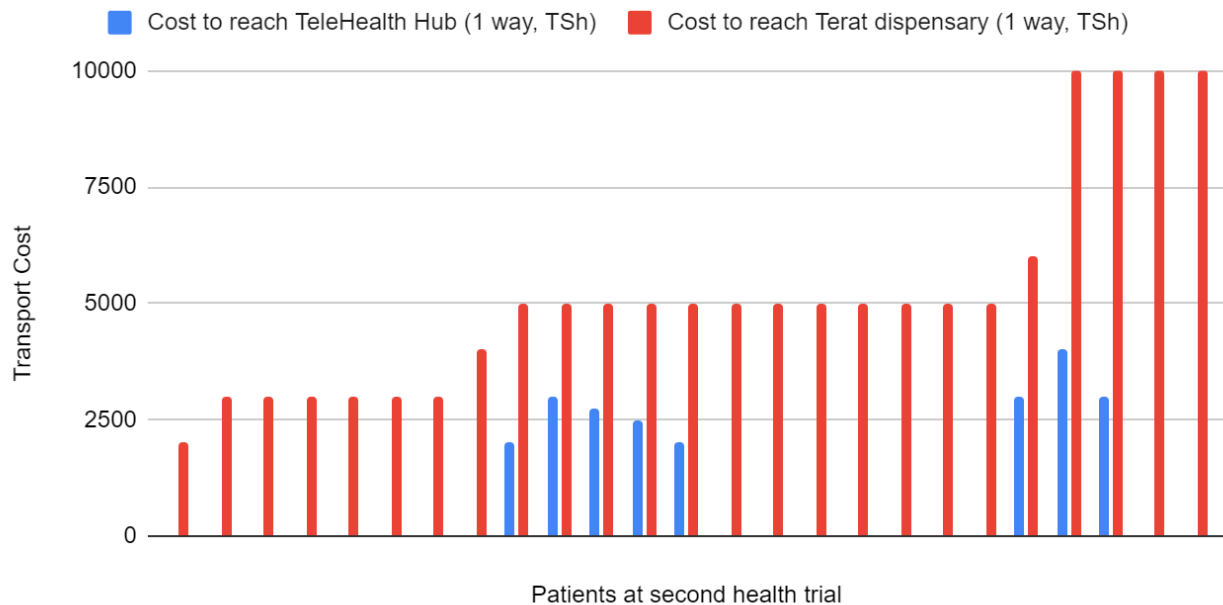
Method used by patients to reach second tele-health trial clinic



Distance and time taken to reach remote health clinic by foot (1 way)



Distance and cost of transport to tele-health hub vs Terat Dispensary



Conclusion

Overall, the trials were a huge success. A large number of key learnings were taken on how to improve the service, and the medicine delivery method proved viable. Patients were extremely happy with the service, despite their clear desires for a fully equipped hospital. Once we'd run one remote health clinic in Loswaki, we had multiple other different village community members asking us to do the same at their village too, even from villages that had previously shown severe scepticism towards the service when focus groups were run there. Patients struggled to believe how comprehensively they could be treated from a remote diagnosis with medicine delivery, until having spoken to, and assured by the doctor. We think that the novelty of the concept made it hard for them to fully understand the benefits when discussed in a focus group, but the implementation stage really showed its popularity and huge potential to provide medical services to otherwise severely underserved populations.