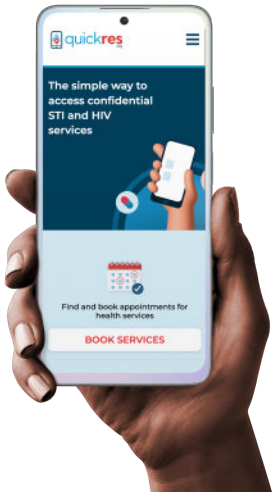
Can Telehealth Improve Maternal Retention in Postnatal Care?

2024 PILOT RESULTS | KAMPALA, UGANDA

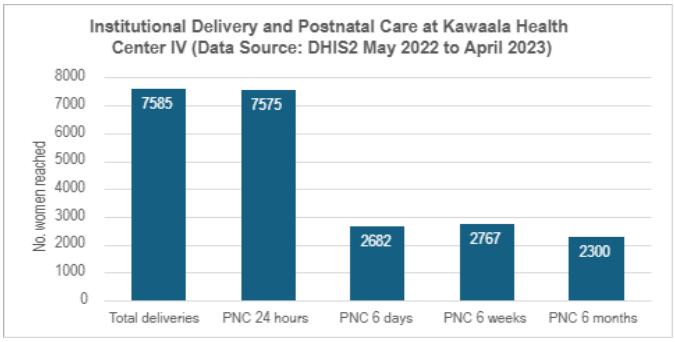
Background

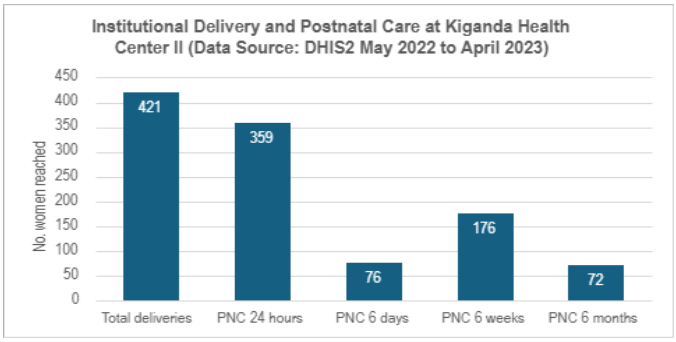


Postnatal care (PNC) is critical to maternal and newborn health. Globally, 60 percent of maternal deaths occur postpartum and 75 percent of neonatal deaths occur within the first week of life.[1,2] PNC enables providers to treat childbirth-related complications, refer mothers and babies for specialized care, monitor newborn growth and health status (including communication regarding the importance of childhood immunizations), facilitate breastfeeding, offer counsel on family planning options, and screen for postpartum depression. PNC coverage is generally low in Uganda; only 50 percent of women receive PNC within the recommended two days of childbirth.[3] Prior to this pilot project, PNC retention at two sites in Kampala, Uganda, decreased over time (see Figure 1). A lack of information on the importance of PNC, prioritization of the infant's health over that of the mother, and a lack of linkages between PNC and childhood immunization services were identified as key issues during a root cause analysis to inform quality improvement.

FHI 360 funded the adaptation and piloting of an existing telehealth webapp called QuickRes in Uganda to increase PNC retention by offering streamlined PNC appointment scheduling and SMS appointment reminders and simplifying maternal access to virtual support. Since its inception in 2017, this webapp software has been used in about 40 countries as an online reservation and case management app for HIV, sexual and reproductive health, and mental health services.

Figure 1. PNC retention rates at two pilot project sites before intervention (District Health Information Software 2—DHIS2)





Implementation

FHI 360 held in-country consultations with the Kampala Capital City Health Authority (KCCA) in September 2022 to discuss the pilot project and select sites. Four sites were visited and assessed, and two were selected in collaboration with the KCCA: the Kawaala Health Centre (HC) IV in Rubaga Division and Kiganda Maternity Centre in Kawempe.

Between October 2022 and January 2023, QuickRes was adapted for PNC service delivery and data collection based on global standards and discussions with the KCCA, program managers from the USAID-supported Maternal and Child Health and Nutrition (MCHN) project, and frontline health workers. After user testing, FHI 360 held a two-day training event for pilot project facility staff, including midwives, nursing staff, village health team members, a records assistant, and a laboratory technician. These staff members were oriented to the use of QuickRes and received instructional guidance and hands-on practice with the system. Standard operating procedures (SOPs) were created, printed, and provided to staff members at both facilities, and a local consultant was recruited to offer continuous technical support for the health facility teams.

QuickRes was launched at the two participating sites in May 2023. Women were offered the option to be registered in QuickRes during their first PNC visit, which should occur within 48 hours after birth. If a woman opted to be registered, providers created a record in QuickRes, which automatically booked all subsequent PNC visits. Women received confirmation of their appointments by SMS, and the system sent out appointment reminders 48 and 24 hours prior to appointments. When mothers attend their PNC appointment, QuickRes sends them an SMS with a link to complete a short satisfaction survey that they can complete if they have a smartphone. If a client does not have a smartphone, a health care worker will help her complete the survey at the site using a computer or tablet. This was not feasible in the pilot project given the number of women. The case management interface allows providers to see the daily schedule and filter for clients who have missed appointments, so they can call them to rebook. There are also real-time data visuals, so the staff at the clinics can monitor progress and use data to improve services.

Based on discussions with program partners, a childhood immunization function was included in the system that allowed service providers to register newborn children and schedule their immunization visits. This feature allowed women to leave the facility with a schedule for both their own PNC visits and the immunization visits for their infants, with the six-week PNC and immunization visits scheduled for the same day.

ADDITIONAL ACTIVITIES

In parallel with the introduction of QuickRes at the two pilot sites, the following quality improvement activities were conducted through the Maternal and Child Health and Nutrition (MCHN) project to improve PNC attendance:

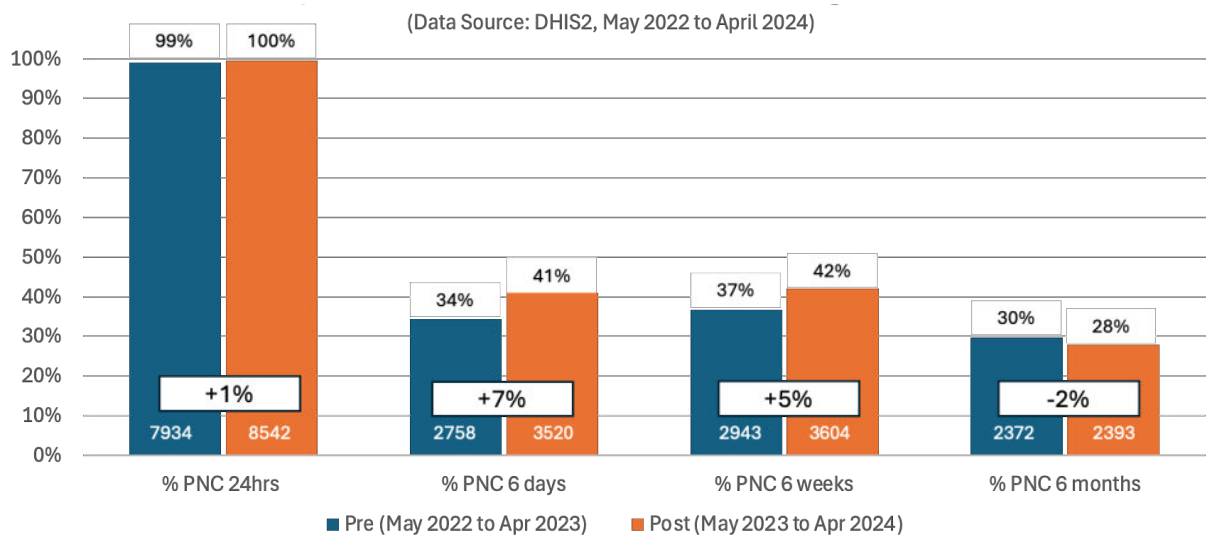
- Demand generation through audiovisual family health campaigns in antenatal care, delivery, and PNC wards.
- Reorganization of clinic spaces and client flows to enable the integration of young child clinics, PNC, and postpartum family planning services.
- Integration of PNC services into routine MCHN outreach activities.
- Technical assistance on how to correctly complete the information needed for the PNC register.
- Weekly data reviews at sites to proactively identify any issues.

Results

OVERALL FACILITY RESULTS

Standard facility-reported service delivery data showed an increase in overall PNC attendance after QuickRes implementation, particularly for visits six days and six weeks after delivery (Figure 2). A slight decline in PNC visits at six months was noted. The total number of women who gave birth at both facilities in each annual period was used as the denominator to calculate the attendance percentage. Because cross-sectional data were used, the total number of women who gave birth was not necessarily the same as the number of women who attended each PCN visit in the same annual period.

Figure 2. Comparing PNC visit attendance pre- and post-QuickRes implementation



Note: Chart combines results for both pilot project facilities (Kawaala HC IV and Kiganda HC II).

PNC RETENTION FOR WOMEN ENROLLED VIA QUICKRES

Women who enrolled for PNC care via QuickRes were tracked in a cohort, and Table 1 presents results for the same set of women from delivery through all PNC visits between May 2023 and April 2024. In this period, 64 percent of women who gave birth at these two facilities opted to enroll via QuickRes. Due to programmatic delays, QuickRes implementation paused between September and December 2023, and few women were enrolled in this period. However, during periods of routine QuickRes implementation (May-August 2023 and January-April 2024), enrollment via QuickRes stood at 89 percent. Those who opted out reported a lack of mobile phone access or had plans to access their PNC services elsewhere. These women were told verbally about the importance of returning for their follow-up appointments. In some areas, there were community health workers who would follow up with women in the community to determine whether they had accessed services and to promote services, provide some basic services, and make referrals.

Retention within the cohort of women enrolled via QuickRes was higher than cross-sectional retention data reported by facilities, based on pre- and post-intervention periods. Among women enrolled in and eligible for PNC services, 75 percent either attended their PNC visit at six days or were followed up with

virtually, 74 percent attended in-person at six weeks, and 70 percent attended in-person at six months. Notably, virtual follow-up six days after delivery allowed 34 percent of eligible women to stay engaged with their health provider to screen for additional care even though they could not attend their in-person PNC visit.

Table 1. PNC support provided to eligible women using QuickRes, May 2023–April 2024 (12 months)

	PNC 24 hours	PNC 6 days	PNC 6 weeks	PNC 6 months
Eligible: Women with an appointment booked on QuickRes (and eligible for service)	5,501 women	5,337 women	4,687 women	3,017 women
Arrived in-person	5,501 women (100%)	2,211 women (41%)	3,446 women (74%)	2,115 women (70%)
Virtual follow-up (in lieu of in-person visit)	N/A	1,801 women (34%)	26 women (0.5%)	0 women (0%)
Missed appointments (did not arrive in-person or receive virtual follow-up)	N/A	1,325 women (25%)	1,215 women (26%)	902 women (30%)
Total supported (either by in-person visit or virtual follow-up)	5,501 women (100%)	4,012 women (75%)	3,472 women (74%)	2,115 women (70%)

N/A = not applicable.

STREAMLINING CARE

The Ugandan Ministry of Health and Kampala Capital City Health Authority are prioritizing the revision of PNC and immunization policies nationally to coordinate appointments at six weeks. QuickRes automatically schedules a mother's PNC visit with her child's immunization service to be on the same day six weeks after delivery, simplifying service access for mothers. However, this practice of coordinating PNC and immunization visits was not systematically offered by health facilities prior to intervention.

In the year prior to QuickRes implementation, 37 percent (2,222) of women who gave birth at the pilot project facilities attended their PNC visit at six weeks, and 73 percent (4,410) of babies delivered at the pilot project facilities received their diphtheria, tetanus, and pertussis (DPT1) immunization at six weeks. These data show that mothers commonly prioritized attending their child's immunization visit over their own PNC visit when those services were not scheduled on the same day.

During the intervention period, among clients enrolled via QuickRes, attendance at children's immunization service at six weeks remained the same at 73 percent, while mothers attending their PNC visit at six weeks increased to 72 percent. The results demonstrate that coordinating appointments allowed women to greatly increase their access to PNC.

KEY RESULTS

Facility-wide results:

- 7-point increase in percentage of women attending PNC visits at 6 days (34% to 41%).
- 5-point increase in percent of women attending PNC visits at 6 days (37% to 42%).
- 64% enrollment via QuickRes among women who delivered at pilot sites (up to 89% when QuickRes was actively used).

Among women enrolled via QuickRes:

- 41% attended PNC visits at 6 days plus additional 34% received virtual follow-up (75% total).
- 74% attended PNC visits at 6 weeks.
- 70% attended PNC visits at 6 months.

CLIENT AND PROVIDER FEEDBACK

In-person interviews were conducted with clients (14) and providers (9) who participated in the pilot project to understand their experiences and perceptions using QuickRes. Clients liked the SMS appointment reminders, as this increased trust in services and made clients feel cared for. The ability to "call in" allowed mothers to reach out to their providers with additional health questions and concerns. Respondents overwhelmingly said there was "nothing" they did not like about using QuickRes.

Providers appreciated how QuickRes helped improve their workflow by providing a preview of upcoming and missed appointments, so they could anticipate the daily volume of clients who may walk in or require follow-up each day. Providers also reported that the system did increase their workload, requiring coordination with other providers responsible for completing client registration in the system to ensure data completion that would then facilitate subsequent follow-up for clients who missed appointments.

Costing

To inform future scale-up, the various costs incurred were recorded. To the extent possible, existing infrastructure and human resources were used. Specifically, the pilot project was able to rely on existing internet services and some desktops available at sites.

In general, at facilities, costs to consider include internet (where not available), internet extenders (for larger facilities), a mobile phone for service areas, monthly credit top-up for the phone, SMS bundles to send confirmation and other messages to clients, and a laptop or tablet for patient registration (where not available). At the administrative/management level, costs to consider include annual system maintenance, updates to security certificates, system "bug" fixes, and server facilities. Technical assistance for the first year to ensure staff are trained on how to manage and update or adapt the system is critical to ensure local authorities and clinic-based staff can successfully use, maintain, and update the system as needed.

Table 2. Required infrastructure and equipment and associated costs

Required infrastructure	Cost*
Internet	US$600/year/facility
Internet extenders (for larger facilities)	US$41/facility
Mobile phone	US$75/facility
Mobile phone credits	US$2,978/year
SMS bundle	US$925/year/facility
Laptop	US$1,700/facility
System maintenance	US$1,000/year

* US$1=2,326,179 UGX (February 19, 2024)

"I am able to know how many clients to expect and able to plan."

- *Provider*

"When I received the SMS, it increased my trust in the services offered at the facility."

- *26-year-old client*

"In real time, one can see trends in service uptake, and this helps initiate discussion early in case things are not going well."

- *Provider*

"I was able to make call-ins each time I had a health concern, the doctor always picked up my calls."

- *23-year-old client*

"Mothers are seen to come back in high numbers when called."

- *Provider*

"The message reminders help us not to forget our appointments."

- *29-year-old client*

"In real time, one can see trends in service uptake, and this helps initiate discussion early in case things are not going well."

- *Provider*

Lessons

- **Impact:** Telehealth, particularly SMS reminders and provider follow-up calls, can improve maternal retention in PNC during critical periods associated with higher levels of maternal and neonatal mortality.

- **Accessibility:** Close to 90 percent of mothers had access (either shared or **their** own) to a cellular phone that allowed them to benefit from this telehealth approach. While health facilities have computers and internet access, these need to be functional and continuously available. In some cases, internet extenders may be needed in larger facilities to ensure the service area can access the health facility's internet. While providers have shown a willingness to follow up with clients to increase retention in care and document issues that arise in clinical records, they must have access to a phone that is supported by the health care facility and which remains at the facility for whoever is on duty to use for follow-up calls to clients who have missed appointments.

- **Workload:** When introducing new work processes, careful consideration of the impact on the existing workload is needed. In Kampala, while providers used the system consistently and did not report any impact on standard service delivery, many reported that registering the women was sometimes time-consuming **due to** the amount of information needed at registration. Because human resources are limited and overstretched, it may be necessary to consider alternative ways to follow up with clients, including assigning one provider during each shift to manage enrollment and make follow-up calls, especially at the six-day visit when women are more likely to miss an appointment.

There was an increase in the number of calls providers received from mothers seeking information about basic health questions or concerns. This resulted from follow-up calls which providers made to women who had missed an appointment, as the women then had the provider's phone number. This led to an increased workload on providers, although they also reported that it increased their ability to build a trusting relationship with the women. Moving forward, having specific staff assigned to phone follow-ups and triaging calls may assist in reducing the burden on any one provider.

Next steps

The project plans to share results with local and national health authorities. The project will seek support for a more rigorous evaluation and discuss the potential to scale this intervention to other sites, as well as use the data obtained to inform policy regarding PNC service delivery for women in Uganda. There are currently 27 countries (17 of which are in Africa) that use QuickRes for other services, and results from this pilot project will be shared with countries interested in integrating PNC and childhood interventions into their existing use of QuickRes.

Contact us

To learn more about QuickRes and the broader Going Online (telehealth) work at FHI 360, review our published resources here: https://linktr.ee/telehealthfhi360

Contact us for additional information or questions at GoingOnline@fhi360.org

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[1] World Health Organization. WHO recommendations on postnatal care of the mother and newborn. World Health Organization; 2014.

[2] World Health Organization. Counselling for maternal and newborn health care: A handbook for building skills. World Health Organization; 2010.

[3] Ndugga P, Namiyonga NK, Sebuwufu D. Determinants of early postnatal care attendance: analysis of the 2016 Uganda demographic and health survey. BMC Pregnancy Childbirth. 2020 Mar 16;20(1):163. doi: 10.1186/s12884-020-02866-3. PMID: 32178635; PMCID: PMC7076947.