

Brief on Appointment Booking Apps for HIV Services in the Philippines: AwraSafely and QuickRes

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Purpose

Two client-facing HIV service apps used in the Philippines are AwraSafely and QuickRes. The first is supported and implemented by The Global Fund Philippines' Response to Optimizing Testing, Empowered Communities, Treatment and Sustainability (PROTECTS) project. The second is managed by FHI 360 and used in more than 20 countries by the United States Agency for International Development (USAID)- and U.S. President's Emergency Plan for AIDS Relief (PEPFAR)-supported Meeting Targets and Maintaining Epidemic Control (EpiC) project. The status and features of each app are described here to assist the Philippines Department of Health (DOH) with decisions about their future use for more efficient, impactful, and sustainable HIV service delivery.

This brief was developed by FHI 360 under the Differentiated Service Delivery Strategic Initiative (financed by The Global Fund) in collaboration with the Pilipinas Shell Foundation, Inc. (PSFI), PROTECTS project, and EpiC Philippines.

Background

AwraSafely and QuickRes enable clients to find and book appointments online for HIV-related and other services within the network of service providers who are using the apps. AwraSafely and QuickRes are implemented in their respective project sites, some of which are shared for PROTECTS and EpiC. Some private/nongovernment facilities are using other appointment booking platforms, but at varying scale.

Facilities using either app have reported improvements in uptake of services and efficiency in managing client flow, but some issues have arisen from having two project-based apps being implemented and developed independently, including the following:

- *Duplication of effort from service providers and app developers:* Some facilities are using both apps and must navigate between the two, depending on which one the client used to book a service. AwraSafely and QuickRes have many common features, including those planned for development, such as integration with the DOH's surveillance systems. The effort and resources spent for continuing development and maintenance of the two separate apps is duplicated.



- *Streamlining client engagement:* Both apps allow clients to look for facilities providing their desired services and book appointments for them within the network of facilities using each app. Clients may need to be aware of both apps to have a wider range of service options and providers that offer online appointment booking.
- *Sustainability of project-supported apps:* As implementation and development of both apps are currently supported by external funding, sustainability—or at least the functions they provide—beyond project duration must be considered. One option for sustainability is for DOH to take on hosting and management of a common integrated app.

These issues have led to the consideration of integrating the two apps to have one common appointment booking app that both projects and other facilities can use. PROTECTS and EpiC have been in discussion since March 2023 regarding the possibility of integrating the two apps. However, agreement between the two projects on the pathway to be pursued could not be reached. The DOH, through its stewardship role, can provide guidance on the pathway that is aligned with the direction of the country's virtual health intervention strategy.

Possible pathways for integration of appointment booking apps

	Options	Pros	Cons
A/B	Build new app from base code of either QuickRes or AwraSafely; add few missing functions; add legacy client data from both apps (AwraSafely and QuickRes); rebrand and relaunch; discontinue both previous apps	<ul style="list-style-type: none"> • Saves time and money in development • Efficient: builds on existing functions and legacy data • Leverages global experience in more than 35 countries (QuickRes); AwraSafely in the Philippines (11 regions across 82 facilities) 	<ul style="list-style-type: none"> • Time to decide on base code • Both prior apps would be discontinued • Moderate refresher training required
C	Build new app from scratch	<ul style="list-style-type: none"> • Prevents competition between existing apps 	<ul style="list-style-type: none"> • Costly • Time consuming • Significant training effort required
D	Maintain use of two separate apps, add interoperability layer within OHASIS	<ul style="list-style-type: none"> • Quick • Low cost (short term) 	<ul style="list-style-type: none"> • Unsustainable: project funding will eventually end • Duplication for facility-level use

Features and implementation status of QuickRes and AwraSafely

		
Overview	<p>QuickRes is a comprehensive out-of-the-box online application facilitating self-care and telehealth (i.e., virtual client engagement in health services); used globally and in the Philippines.</p> <p>QuickRes can be used by clients, providers, and other staff through a web browser on smartphone, tablet, or laptop. QuickRes allows clients to assess their HIV and sexually transmitted infection (STI) service needs, find and book nearby health services, receive appointment reminders, provide feedback on their appointments, and refer other people for services anonymously. Service providers and other program staff have functions for managing appointments and service delivery, client feedback and complaint tracking, client referrals, longitudinal case management (e.g., for antiretroviral therapy [ART], pre-exposure prophylaxis [PrEP], and COVID), and granular tracking of outcomes of online demand creation and marketing efforts.</p> <p>QuickRes includes sophisticated functions for HIV programs, but is also broadly relevant across health areas, such as STIs, TB, postnatal care, family planning, mental health, and psychosocial support.</p>	<p>AwraSafely consolidates all the options on how clients in Philippines can protect themselves from HIV tailor fit to the operational setup in facilities. Sites provide services such as free condoms and lubricant, pre-exposure prophylaxis (PrEP), HIV testing, and HIV treatment.</p> <p>It weaves together HIV services of the government and the many nongovernmental organizations at the forefront of HIV response in the country such as TLF Share, PinoyPlus, LoveYourself, Inc., etc.</p> <p>One of the objectives of AwraSafely is to integrate it with the country's HIV reporting system, OHASIS, and is currently on the right track in the development process before the end of 2023 or start of 2024.</p> <p>In 2024, it will include virtual clinics / telemedicine that will be handled by community-based organization partners to provide tailor-fit solutions to clients seeking different types of HIV care services.</p>

Background	<p>QuickRes is a multi-country deployment of the Online Reservation App (ORA) software. ORA was developed by FHI 360 in 2015 and is now used by health service delivery programs in more than 35 countries. QuickRes was deployed in 2020 in response to an urgent need to facilitate self-care and telehealth during COVID and is currently used by 20 countries.</p> <p>FHI 360 provides technical assistance to local community partners and ministries of health to use QuickRes or to design, deploy, and manage their own country-specific version of ORA.</p> <p>Several local or national entities have successfully transitioned to managing and sustaining their own ORA platforms, including NSACP in Sri Lanka, the Ministry of Health in Senegal, University of West Indies in Jamaica, and ANOVA Health Institute in South Africa.</p>	<p>AwraSafely started out as a campaign in February 2020 in response to the restrictions and limited access to HIV services caused by the COVID-19 pandemic.</p> <p>Development began in 2021, and launch occurred in February 2023. In a short time, it reached a reactivity rate of 16% (peaking at 22%) that had never happened before with any other platform or testing approach. One significant meaning is that the app found hard-to-reach key affected population members to test or access the system to request different HIV care services.</p> <p>AwraSafely was designed to be interoperable with OHASIS with the use of application programming interfaces (APIs) hence the use of the HIV testing services (HTS) form and similar risk assessment format. It was designed to be a supplementary tool to eventually be integrated in OHASIS.</p>
Use case in the Philippines	<p>QuickRes includes a comprehensive set of functions to facilitate client engagement in health services virtually. Because each program and country using QuickRes has access to customize their settings and permissions, the use cases vary globally.</p> <p>In the Philippines, the EpiC project has used QuickRes since February 2022 for providing HIV self-test kits, HIV testing and treatment services including PrEP and ART, client referral and social and sexual network testing (SSNT) services; sending automated SMS client appointment confirmations and reminders; and</p>	<p>Currently being used in 11 regions of the country since deployment in selected sites in February 2023.</p> <p>AwraSafely is specifically designed to cater to the HIV program, incorporating access to HIV services with provision for human-rights-related services at the same time.</p>

	conducting data analysis and data reporting. The QuickRes use case will be expanded to collect client feedback on services received, provide virtual case management services, etc.	
Implementation results	<p>Results of QuickRes implementation in the Philippines (February 2022 through July 2023)</p> <ul style="list-style-type: none"> • Active sites/providers: 47 • Unique web visits: 266,974 • Total appointments: 11,884 • Arrived: 7,071 (60% arrival rate) • HIV tests: 5,797 • Case-finding rate: 6% • Service Provider Feedback Survey score: 9 	<p>Results of AwraSafely implementation in the Philippines (February 2023 through July 2023)</p> <ul style="list-style-type: none"> • Active sites/providers: 68 (82 trained sites) • Total appointments/service requests: 3,084 • Total completed service requests: 1,862 (60%) • HIV tests: 1,167 • Reactivity rate: 16% • ART enrollment rate: 83% • Satisfaction Survey Reporting score: 8.78
Client-facing features		
HIV and health assessment	Clients can complete an optional anonymous 10-question assessment that provides tailored HIV and STI service recommendations that can be booked on QuickRes.	Clients are required to complete a health assessment as part of the process to “request HIV services;” it is also crucial data for integration in OHASIS (see below).
Chat support	Clients can start a chat with a staff member who can provide them real-time support to book appointments, learn about services, or help them determine their service needs. Chat support is managed on any common messenger platform (such as Viber, WhatsApp, Facebook Messenger, etc.)	Clients can directly access the link to initiate live chat with TLF Share and PinoyPlus for human rights and legal concerns.
Finding health services	Clients can quickly find the health services they want by selecting “book now” and filtering by:	Clients can use the “facility locator” tool to get a list of facilities in their area by choosing the service and their geographic location. This function shows an interactive map where the

	<ul style="list-style-type: none"> • Health service (e.g., HIVST, HTS, STI, hepatitis, tuberculosis [TB], or call-back appointment) • Location and geography (including sorting available providers from nearest to furthest from their current location) • Delivery modality (i.e., virtual consult, home-delivered service, or in-person visit to clinic) 	client can see the exact location of the facility along with its schedule and contact information.
Booking services	<p>After finding a provider/clinic following the steps above, clients can immediately book an appointment by:</p> <ul style="list-style-type: none"> • Selecting a date and time • Confirming/updating appointment details (selected in prior steps) • Entering contact information, including name/nickname, phone number, gender/sex, date of birth, and an optional demographic question 	Clients can submit a request for services such as HIV testing, request support from a community-based supporter (CBS), schedule a facility visit, schedule delivery/pickup of an HIVST kit, enroll in dispensing of PrEP or antiretroviral (ARV) medication, condoms, and lubricants.
Client notifications	<p>Clients receive customizable appointment reminders and follow-up messages by SMS that do not include sensitive health information:</p> <ul style="list-style-type: none"> • Appointment booking confirmation • Two appointment reminders (24 hours and two hours before scheduled time) • 15-minute reminder for virtual consult appointments with link to start session with provider • Notification when diagnostic/lab results are available (e.g., HIV or viral load [VL] testing) • Link to QuickRes online survey to provide feedback on their appointment/provider • Link to QuickRes client referral tool to refer friends, family, or partners anonymously • Update of appointment date, time, or provider 	<p>Clients receive the following types of notifications:</p> <ul style="list-style-type: none"> • Prevention: SMS/email reminders are sent to nonreactive clients every 90 days • Adherence: reminders are sent to clients on ART/PrEP • Suppression: Viral load testing reminder (for deployment)

	<ul style="list-style-type: none"> • Enrolled in a PrEP, ART, or COVID cohort (for case management) • Low supply or have exhausted last PrEP or ART refill 	
Client feedback	<p>Clients receive an SMS after their service provider reports they arrived for their appointment booked on QuickRes. It has a link to an online feedback survey with three questions, one open-ended question, and an optional complaint form. Clients can also decide if they want their feedback to be recorded anonymously on QuickRes. See more on client feedback in the service provider section. This feature has not been activated in Philippines.</p>	<p>Clients can provide response via the “360-feedback mechanism” on their overall experience of online services. Survey questions can also be modified from the backend.</p>
Client referral	<p>Online peer referral, SSNT, index testing: Clients can use a tool to anonymously refer their peers, family, or partners to also access services on QuickRes. The client enters the phone number of each person they want to refer, and the referral is assigned to a case manager on the backend to follow up and confirm the appointment for each referred client.</p>	<p>Clients who request services can enter a “referee code,” which is entered into the database to track who referred the client (no function exists for clients to refer other clients).</p>
Other client-facing features	<p>Client self-reporting of HIVST results: Clients who book an appointment on QuickRes for HIVST, and are dispensed a kit, are sent an SMS with a link to return to QuickRes’ HIVST self-reporting portal where they enter their kit number or phone number and can report their result and be linked to additional services. This function is in development to be launched in December 2023.</p>	<p>Submission of self-testing results: Clients can submit their HIVST results by logging in.</p>

Service-provider-facing features		
Appointment management and reporting service delivery	Providers have backend access to view all appointments booked for their clinic. When clients attend their appointment, providers can identify the client's appointment record, mark it as "arrived," and document the health services provided to the client. They can also delete, reschedule, and create new appointments on behalf of clients.	Backend users of the platform have access to the list of clients who are scheduled to arrive at a specific appointment.
Virtual case management	Case managers have backend access to view all appointment records for clients assigned for their access. These case managers can manage adding new clients to an ART or PrEP cohort, close records, and actively track their client's live ART or PrEP stock and latest diagnostic results (VL and HTS). This information is used by the case manager to triage clients to appropriate care and tailor their individualized support (e.g., scheduling refill appointments, linkage to enhanced adherence counseling, etc.).	Clients can book appointments to be enrolled on ART.
Client feedback management	The same client feedback survey mentioned in the client-facing features section above can be offered and facilitated by providers or case managers on the backend. Additionally, case managers or client complaint coordinators have access to view complaints and report how each complaint is resolved. This feature has not yet been activated in Philippines.	Community-based monitoring and reporting tool: This tool collects data from different sources on case status (open/closed) vis-à-vis cyber-bullying, physical assault, indecent proposal.
Reports and data management	Clinic reporting, data cascade visualization: Clinicians can view charts that show clients who booked and arrived at their clinic, specific services provided during their appointment, client referral, and	Clinic reporting, data cascade visualization: Data can be exported to an Excel file for further analysis and reporting.

	<p>HIVST. Data (including client appointments, health assessment, case management, client feedback, etc.) can be exported from QuickRes in an Excel file. Further data analysis can be done for program improvement and reporting.</p> <p>Program management and data analysis: QuickRes program managers and administrators have access only to their country's data, not from projects in other countries. An administrator login ID, appointment records, clinics, and outreach tokens are assigned to a specific country with separate data access.</p>	
Inter-facility messaging		<p>Service providers can initiate a chat with other service providers to refer clients to other facilities also using the AwraSafely platform following the standard procedures of HTS client referral in the country.</p>
Data security and client privacy	<ul style="list-style-type: none"> • Secure web hosting by recognized high-capacity cloud-host vendors that maintain infrastructure with the newest versions and security patches. • Secure sockets layer (SSL) encryption on communication between the ORA server and clients to ensure data in transmission cannot be intercepted by bots, hackers, or malware. • ORA application maintenance, such as using well-regarded open-source components, libraries, and software elements updated to newest versions and patches helps avoid emerging vulnerabilities. • Limited identifying information: clients are not asked to provide real names, addresses, or government IDs; however, clients' mobile 	<ul style="list-style-type: none"> • Safety headers are used to configure security defenses. It makes it harder to hijack the site. • Different user roles have defined and different levels of access. • Two-factor authorization for users to log in to the backend. • Clients are not asked to provide identifying information to access services from the platform. • Comprehensive penetration testing was conducted by PSFI information technology (IT) staff, and developers contracted a third-party cyber security expert.

	<p>numbers are required to provide follow-up services.</p> <ul style="list-style-type: none"> • Client data are made secure through a staff interface that limits risks for exposure: hidden phone numbers. 	
Interoperability with DOH reporting systems	Interoperable with DOH OHASIS through APIs: QuickRes can connect and share data with DOH databases such as OHASIS through APIs.	Link to DOH HTS form: AwraSafely can export client data to DOH HTS form in a PDF format to be printed and signed by client.
Technical specifications		
	<ul style="list-style-type: none"> • QuickRes is written in PHP and Javascript. • Well-regarded open-source frameworks and libraries are used for functions such as application structure, authentication, and specific features. The main PHP framework is Laravel, and authentication management is handled by Sentinel. The user interface (UI) is managed with jQuery and Bootstrap. • Web application data are stored in MySQL database. • Web hosting is typically provided by cloud hosting vendors approved by local government requirements. • SMS messages are sent by API requests to SMS gateway vendors that meet local government requirements. • Integration with other systems and applications: modifications can be made to either provide new web APIs that will be called by external applications, or to call the APIs offered by other external applications to transmit certain data or perform other functions. 	<ul style="list-style-type: none"> • Postgre SQL: Backend data base for storage and data entry. • MongoDB: Indexing and persistence layer • ReactJS, NextJS, NodeJS: Javascript frontend • Java Springboot: Secure Microservice APIs • Express, NodeJS: RESTful APIs for invocation integration options • Native iOS via XCode: Native iOS app development and beta testing • Native Android via Android Studio: Native Android app development • Docker Kubernetes: Auto DevOps and Containerization • Git version control