



 **Qode** *Lynx-HCT*
Product Guide



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QodeLynx-HCT



ANDROID APP



CLOUD SERVER



REPORTING PORTAL

Designed to be:

- ACCESSIBLE
- SUSTAINABLE
- CUSTOMISABLE
- REMOTELY UPDATED (IN THE FIELD)
- DESIGNED FOR ANDROID

The solution can be deployed at any location



CLINICS



MOBILE UNITS



DOOR-TO-DOOR CAMPAIGNS



AREAS WITH LIMITED CONNECTIVITY

QodeLynx-HCT Overview

QodeLynx-HCT software system is designed to maximise the quality of care and data captured at the point of care, when undertaking HIV rapid finger prick tests.

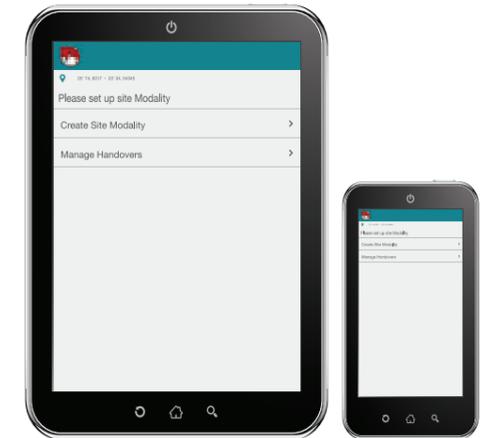
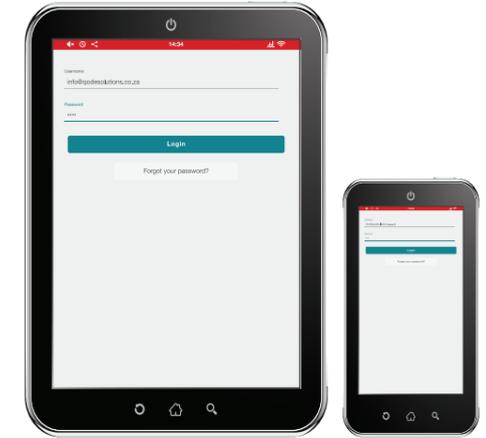
Human error is always an issue when using traditional paper-based methods of capturing data. By making use of an electronic system, all data is validated at the point of care using integrated algorithms to ensure that inputs are as accurate and relevant as possible. The addition of skip logic question flows, with relative dropdowns, further enhances the quality of the system. The QodeLynx-HCT mobile application include numerous modules and functionalities such as GPS position reporting, the ability to take photos of documents, signature capture and other functions associated with capturing data. Many processes and functions are automated thereby enhancing the user experience.

QodeLynx-HCT is designed to enable data capturing with subsequent 'real-time' analysis and reporting through the online portal, or by utilising the analysis and reporting services we provide. The mobile application also functions as a counselling aid that supports the counsellor in providing the best quality of service to the patient. Through the system logic incorporated into the app, quality assurance can be monitored and the impact of policy changes can be quantified more frequently.

Near real-time data collection is a reality with QodeLynx-HCT as the system makes use of a data connection for uploads. However, in areas with poor reception, QodeLynx-HCT can operate in an offline mode by storing data securely on the device. QodeLynx-HCT includes full security protocols by using the latest industry best practice and solutions.

The QodeLynx-HCT web dashboard enables management to monitor the project and draw the reports that they require. Reports can be generated in a static or dynamic manner, which means that the reports can either be pre-determined or more interactive. All reports are desensitised automatically.

Special mentions: During the data audit phase, the testing phase and roll-out phase of the system, it was found that QodeLynx- HCT had captured 100% of the tests done, while the paper based system had missing files and incorrect data entered in to the system. The QodeLynx-HCT version 1 system was the subject of a special mention from USAID at the USAID technology show-and-tell that took place in July 2016. According to statistics taken at the end of January 2017, the system has been used to capture more than 250 000 HIV counselling and testing sessions. The system has never failed or suffered any downtime.



Data Analysis and Reporting

The ability to perform sophisticated and innovative reporting and data analytics are becoming critical for all organisations. Timely data processing coupled with accurate reporting and analytical capabilities, provide organisations the enhanced ability to make more informed, evidence-based decisions. Incorporating the appropriate reporting, analytics and information delivery strategy into an organisation's data management processes, will have a significant impact on the organisation and fundamentally change the way people perform their jobs and make decisions.

In the past, reporting to funders was laborious and time consuming, often requiring data capturing and a vast number of staff to manage the Monitoring and Evaluation (M&E) processes. With the QodeLynx-HCT system, reporting becomes simple and efficient.

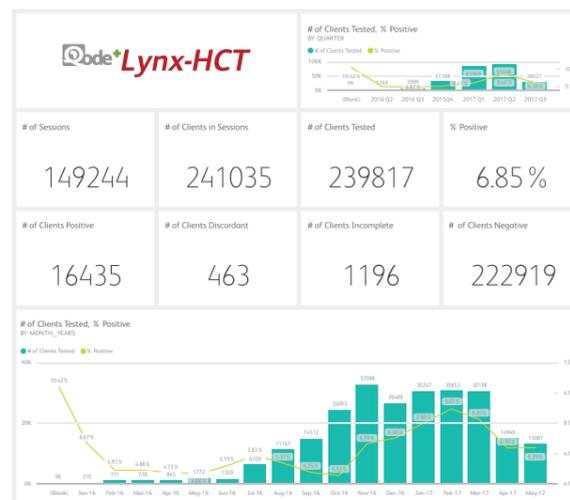
The design of the system aims to address the concerns associated with this tedious task by producing powerful reports, accurately and on time. It provides timeous information to management and control structures in the form of near "real time" information.

The application is designed to standardise data capturing between personnel and to ensure that the information received is accurate and reliable, making the data more relevant and precise. Not only does the system limit human error, but it also assists with analytical processes such as Monitoring and Evaluation (M&E).

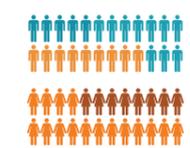
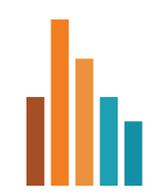
The application can generate customised and automated reports by means of the integrated data analysis systems. It can report in an integrated manner which allows for simultaneous analysis of data, instead of the current system requiring the review of multiple disconnected reporting and analysis tools and processes.

Data is securely transmitted via wireless connection to a central server where all data is then stored and analysed. All communications from the device to the server are encrypted with multi-layer security protocols. Once data is received and decrypted, it can be analysed and reported on by making use of specialised analysis software. This software is operated by a limited number of personnel to ensure confidentiality and data security.

Captured data belongs to our clients and server storage is managed by Qode on behalf of all our clients.



The QodeLynx-HCT online dashboard



Android	Power Bi	Low Cost	Azure
The QodeLynx-HCT application was developed on the Android mobile platform. As most of our current clients' projects are donor funded, this platform was chosen as the preferred platform due to the lower cost of associated hardware.	The online data reporting and analysis dashboards are custom build on the Microsoft Power BI platform. This very versatile tool allows our business intelligence experts to customise and create any specific report, according to the clients' needs.	The Android platform also allows for faster deployment of updates and lower cost of development, which ensures that our clients reap the benefit of an effective and efficient system, at reduced costs.	Microsoft Azure cloud servers, based in Ireland, are used to store all recorded information. The ISO approved, Ireland Azure servers, ensures excellent data protection and complies with the South African Protection of Personal Information Act (POPI).

Data Synchronisation

Handover procedures

This enables different users to perform different tasks which involves the same patient. The handover procedures ensure accountability and continuity. Users login details and the tasks performed by each of the users are recorded should management require this for human resource purposes.

QR Codes

QR code technology was incorporated within the application to ensure secure and reliable data transfer between devices without an internet connection. The QR code provides the required information of all previous captured data relating to a specific patient, as well as enables the file transfer capability to a different user in the service chain.

Internet connectivity

In an ideal setting with optimal internet connectivity, all captured information will be sent to the system server immediately, allowing real-time monitoring and evaluation.

User Access and Security

QodeLynx-HCT was developed and based on the TRISCOMS® mobile platform, which implements strict control measures, ensuring data protection and data integrity.

The application incorporates a multilevel user rights functionality, affording our clients the ability to define roles and access rights per user group.



Functionality of Application

The application was developed on the Android software platform and the enumerator will primarily be used on a 7" tablet device. The reporting dashboards were developed in a web format, to ensure access to the information on an international scale.

Index Patient Tracking

The QodeLynx-HCT application captures any possible HIV related contact link the patient may have had in the past. The app records the index patient, as well as index trailers to create the association link between individuals. This creates a network pattern of possible HIV spread and positive contact exposure.

Inclusion of Paper Based Processes Within the Application

In the event that a hard copy document is completed, the application makes use of the device's camera to take an image of the completed and signed paper, which is then stored on the server with the patients testing information.

Currently the application captures and stores a paper-based informed consent form, but has the capability to capture and include any document, along the dedicated process.

Dispensing of Condoms and Lubricants

The application records the number of male or female condoms and lubricants dispensed by the healthcare testing centre.

Informed Consent

The QodeLynx-HCT application can incorporate both electronic and paper-based informed consent. Once the counsellor indicates on the system that informed consent has been obtained, the patient is required to sign on the device screen, which records that client consent was given.

Should the legal framework require a completed and signed paper-based document, the application makes use of the built-in device camera to capture and store an image of the signed paper informed consent. This ensures that all related paper process documents are also captured and stored together in the patients electronic file.

Inclusion of Related Disease Modalities

The QodeLynx-HCT application incorporates and screens for other HIV related disease modalities.

The application screens patients for:

- Tuberculosis
- Sexual Transmitted Infections
- Male Medical Circumcision questionnaire
- Pregnancy questionnaire

The application's algorithms take into consideration the gender selected in previous screens and will not ask female related questions to male patients, and vice versa.

Should a related disease be identified, the application will automatically generate the required and appropriate referrals needed.

Built-in Referral Section

The QodeLynx-HCT application generates referrals based on the information captured. These referrals currently serve as reminders to the counsellors or application users to remember to refer the patients to appropriate care facilities.

Based on the questionnaire answers entered, the application currently reminds the user to generate the appropriate referrals, if applicable to the specific patient.

Due to financial constraints and the cost of additional printing devices, most of our clients opted to have the application remind the user to generate a referral on the already supplied paper documents. The application could be customised to ensure that a printable PDF document is generated with all the required referral letter information, which could be printed out and handed to the patient.

Recorded Information

Patient information remains confidential within all reporting and this information usage is subject to obtaining informed consent from the patient. The reporting and analysis dashboards linked to the application do not display individual patient's personal information. Data recorded:



- Patient's full name
- Identification number
- Date of Birth
- Gender
- Key Population group
- Relationship status
- Contact numbers
- Ethnic group
- Nationality
- Language preference

Multiple Locations and GPS

The QodeLynx-HCT application includes location based setup, ensuring that recorded data is linked to the appropriate test and treat site. Mobile units operating from a fixed location can also be set accordingly and linked to the existing required facilities. This ensures that the captured data is always correctly cross linked to the correct site.

The application uses the built-in GPS technology of the Android device, which ensures that an accurate location is logged every time the application is used. This information can be visually displayed in the reporting dashboards within maps.

Point of Care HIV Testing Algorithm

The application takes into consideration the type of rapid HIV test kit used and ensures compliance with the required time allocation and reporting standards. The application prompts the user to select the type of test kit, record the batch number as well as the expiry date. This allows for reporting on expired testing stock and assists with potential batch recall, if applicable.

A built-in timer algorithm ensures that the application user waits the required time before identifying the patient as HIV positive (reactive). Due to the sensitive nature of the latest rapid HIV testing kits, the application allows the user to select either non-reactive status or an invalid test result before the allotted time has passed.

Support and Pricing



Support for all Qode products is conducted via a call centre and support desk. Support structures are defined in the pricing packages.

For package options and pricing structures please visit the Qode website www.qode.healthcare



CD4 Count Algorithm

The application can capture CD4 count values if a rapid test is performed at the location. If the test is not performed, the application user can indicate that the test is not performed and supply a reason.

As per the new test and treat guidelines, CD4 count can be deferred and performed at a later stage should the facility not have the required CD4 testing equipment. Should the test be deferred, an automatic referral is generated which the patient can take to have the test performed at another site or laboratory.