Learning Journey

Hygeia Community Health Care (HCHC)

Hygeia Community Health Information System (Hygeia CHIS)

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Project Basics

About the project

PharmAccess Foundation (PharmAccess) is a Dutch not-for-profit organization dedicated to improving access to quality basic health care in sub-Saharan Africa. Among other activities (such as providing access to credit, and supporting quality improvement for both private and public health facilities), PharmAccess supports private health insurance for low-income groups.

In Nigeria, PharmAccess is partnering with Hygeia Community Health Care (HCHC). HCHC is a not-for-profit organization that provides access to medical care for previously uninsured low-income communities through donor-subsidized health insurance schemes. HCHC is part of the Hygeia group, which also serves Nigerian formal workers via their Health Maintenance Organization (HMO) activities and runs a hospital in Lagos.

The partnership supports the financing of health care for the low-income population of Nigeria by addressing challenges on both the supply and the demand side of the healthcare system. For previously uninsured people, the scheme offers insurance products designed to address a critical need for risk pooling and solidarity. Premiums are subsidized by external donors (including international agencies and the local government), to make them accessible for low-income groups. For healthcare providers, insurance premiums offer a guaranteed income over a longer period, allowing them to invest in improving capacity and quality. All health facilities involved in the scheme must enrol into the SafeCare programme, which includes a step-wise approach to service quality improvement. This is expected to increase trust in health care systems and clients’ satisfaction and “willingness to pay” for insurance.

HCHC has been working with urban and rural communities since 2007. In Lagos, the consortium works on two programmes: the Lagos Market Women (LMW) and the Computer and Allied Products Association of Nigeria (CAPDAN). The LMW scheme targets low-income clients located in 11 markets in Lagos, generally involved in trading consumer goods, food products, textiles, utensils and household items. Women make up the vast majority of the principal members of the target market. The CAPDAN scheme targets members of an association involved in selling and servicing of computer hardware, software, mobile phones and related ICT products. The majority of the principal members of the target market is male. Both groups are encouraged to enrol their spouse and children into the insurance programme.

In addition, HCHC has launched another scheme in rural communities in three of the sixteen Local Governments Councils, namely Edu and Asa in Kwara North and Oyun in Kwara Central Senatorial Districts respectively, with support from the Kwara State government. Over 63,000 people were enrolled as of November 2012, and are able to access care at the enlisted healthcare facilities closest to them.

HCHC faces challenges with its administrative system, as most processes are carried out manually. Enrollees are currently identified using laminated plastic identity cards, which can be replicated, possibly resulting in inappropriate high utilization and unjustified medical payout. Furthermore, claims data are reported through a paper form. There is a high possibility of inaccurate claims due to the paper based data capture system.
In addition, HCHC does not have enough sales agents to reach all its clients whose contracts have expired to collect the next premium payment. Some markets do not have a sales agent at all due to restrictions on enrolling new members. These restrictions were put in place to reduce the possibility of ineligible people enrolling into the scheme from another market close by. Even in those markets that do have a sales agent, it is difficult for the HCHC sales team to reach clients who are the relatives of market workers but do not necessarily work in the market themselves. In the event that the enrollees cannot locate a sales agent to renew their policy, their insurance cover expires.

In order to address these challenges, HCHC initiated a project to test and implement several technology and process improvements, starting with the two Lagos programmes. The following interventions are being implemented:

- A new management information system. Rather than developing its own system, HCHC decided to leverage the existing system which the whole Hygeia Group is using for its core business activities. The project is on-going to extend the system to cover HCHC activities.

- A biometric enrolment and verification system to address problems with members’ identification and fraud. Staff will be able to use point-of-sales terminals to capture biometric information from clients during enrolment. This biometric information will be used by the health providers to verify the identity of clients when they access health care.

- A mobile-based payment system to facilitate and improve renewals. HCHC expects that this new system will provide a new payment method that is convenient for clients to renew their policies. The system will also enable members of the scheme to renew their policy for another year before expiry.

- A GPRS-enabled utilization and claims management system to improve claims turnaround time. The system will allow the providers to more quickly consolidate and dispatch the utilization and claims data to HCHC for prompt processing and payment.

Making these processes more efficient will better enable HCHC to improve the product’s chances of sustainability. As part of the project HCHC will evaluate the outcomes of the technology and process improvements, in order to measure their cost effectiveness. A baseline, mid-term and final evaluation will track indicators to measure the effectiveness of the interventions.

Currently, the information system project focuses on the programmes in Lagos, so this report will largely document activities in Lagos.

<table>
<thead>
<tr>
<th>Project Summary</th>
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<tbody>
<tr>
<td><strong>Project Name:</strong></td>
</tr>
<tr>
<td><strong>Project Start Date:</strong></td>
</tr>
<tr>
<td><strong>Duration:</strong></td>
</tr>
<tr>
<td><strong>Country:</strong></td>
</tr>
<tr>
<td><strong>Product:</strong></td>
</tr>
</tbody>
</table>
# Project Updates

## Performance indicators

### Overall KPIs

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target group size</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total (including Kwara state)</td>
<td>157,000</td>
<td>219,992</td>
<td>219,992</td>
<td>219,992</td>
<td>254,992</td>
<td>261,992</td>
</tr>
<tr>
<td>CAPDAN</td>
<td>20,992</td>
<td>20,992</td>
<td>20,992</td>
<td>20,992</td>
<td>20,992</td>
<td></td>
</tr>
<tr>
<td>Lagos Market</td>
<td>77,000</td>
<td>77,000</td>
<td>77,000</td>
<td>77,000</td>
<td>77,000</td>
<td></td>
</tr>
<tr>
<td><strong>Number of beneficiaries</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total (including Kwara state)</td>
<td>49,991</td>
<td>61,378</td>
<td>66,526</td>
<td>95,218</td>
<td>98,443</td>
<td>87,242</td>
</tr>
<tr>
<td>CAPDAN</td>
<td>NA</td>
<td>1,187</td>
<td>9,140</td>
<td>13,473</td>
<td>8,802</td>
<td>4,884</td>
</tr>
<tr>
<td>Lagos Market</td>
<td>17,967</td>
<td>18,575</td>
<td>13,969</td>
<td>24,915</td>
<td>22,702</td>
<td>9,280</td>
</tr>
<tr>
<td><strong>Growth rate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total (including Kwara state)</td>
<td>NA</td>
<td>23%</td>
<td>8%</td>
<td>43%</td>
<td>3%</td>
<td>-11%</td>
</tr>
<tr>
<td>CAPDAN</td>
<td>NA</td>
<td>NA</td>
<td>670%</td>
<td>47%</td>
<td>-35%</td>
<td>-45%</td>
</tr>
<tr>
<td>Lagos Market</td>
<td>NA</td>
<td>3%</td>
<td>-25%</td>
<td>78%</td>
<td>-9%</td>
<td>-59%</td>
</tr>
<tr>
<td><strong>Penetration rate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total (including Kwara state)</td>
<td>32%</td>
<td>28%</td>
<td>30%</td>
<td>43%</td>
<td>39%</td>
<td>33%</td>
</tr>
<tr>
<td>CAPDAN</td>
<td>NA</td>
<td>6%</td>
<td>44%</td>
<td>64%</td>
<td>42%</td>
<td>23%</td>
</tr>
<tr>
<td>Lagos Market</td>
<td>23%</td>
<td>24%</td>
<td>18%</td>
<td>32%</td>
<td>29%</td>
<td>12%</td>
</tr>
<tr>
<td><strong>Renewal rate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total (including Kwara state)</td>
<td>40%</td>
<td>33%</td>
<td>47%</td>
<td>69%</td>
<td>62%</td>
<td>57%</td>
</tr>
<tr>
<td>CAPDAN</td>
<td>NA</td>
<td>NA</td>
<td>52%</td>
<td>68%</td>
<td>63%</td>
<td>53%</td>
</tr>
<tr>
<td>Lagos Market</td>
<td>37%</td>
<td>35%</td>
<td>36%</td>
<td>48%</td>
<td>50%</td>
<td>49%</td>
</tr>
<tr>
<td><strong>Claim ratio</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total (including Kwara state)</td>
<td>117%</td>
<td>55%</td>
<td>54%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAPDAN</td>
<td>98%</td>
<td>42%</td>
<td>66%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lagos Market</td>
<td></td>
<td>162%</td>
<td>85%</td>
<td>80%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Unless otherwise stated, data is sourced from direct data captured by HCHC (in green)
2. Penetration rates calculated as “total number enrollees divided by total population of target area (estimated)”. (Estimated Total Population Size for 2008 is 157,000 and 2009 – 2012 (November) is 219992, Lagos Market 2008-2012 is 77,000, and CAPDAN 2009 – 2012 is 20,992. Kwara North population is 87,000, Kwara Central is 42000, (source: house numbering study)
3. HCHC definition: Renewal rates calculated as “total number ever enrolled divided by total number ever renewed” and have been adjusted for migration (10% for Kwara North, Kwara Central and Lagos Market, 24% for CAPDAN)
4. Claims ratio = Claims paid/ Premium earned based on date paid
   (2012 Total claims is 352,408,654.40 and Total Premium 644,699,866.67, CAPDAN 2012 Total Premium is 105,433,600.00 and Total Claims 44,702,309.90. LMW 2012 Total Premium is 257,165,508.33 and Total Claims is 218,804,370.50. All Total claims paid as at July-2013 is 197,041,723 and Total Premium is 398,795,400. Capdan Total Claims is 30,273,170 and Total Premium is 51,766,691.67. LMW Total claims is 117,433,903 and Total Premium is 166,193,750)
### Project specific KPIs

<table>
<thead>
<tr>
<th>Annual number of visits per year</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lagos all</td>
<td>47,371</td>
<td>89,693</td>
<td>96,366</td>
<td>141,691</td>
<td>144,667</td>
<td>117,978</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Average medical payout&lt;sup&gt;5&lt;/sup&gt;</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPDAN (NMG)</td>
<td></td>
<td></td>
<td>880</td>
<td>3,462.00</td>
<td>5,460.00</td>
<td>8,292.01</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Based on month paid</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lagos Market (NMG)</td>
<td></td>
<td></td>
<td>9536</td>
<td>10,039.00</td>
<td>8,283.00</td>
<td>4,969.24</td>
</tr>
</tbody>
</table>

<sup>5</sup> Source: Reports of Baseline studies commissioned by PAF (in Yellow)

<sup>6</sup> Average medical payout (FFS Per enrollee)= Total Amount/Number of enrollees based on date encountered
What is happening?

As of April 2012

Initially the third party sales teams were cross-selling other informal sector products with HCHC’s health microinsurance. HCHC had minimal involvement in managing the sales force, and only provided variable incentives based on numbers enrolled, rather than a fixed salary. As a result, HCHC faced declining enrolment (including fewer family members enrolled per family), declining re-enrolment, increasing utilization and medical payouts, and non-compliance with programme eligibility rules.

HCHC therefore decided to change its distribution strategy. In mid-2010, HCHC decided to recruit and deploy a dedicated sales team through two sales agencies. This team is jointly managed by HCHC and the sales agencies. Interactive capacity building was introduced at induction and monthly afterwards, including role plays, lectures, and field mentoring. The sales staff now receive a fixed salary and financial incentives for the number of people they manage to enrol in the insurance scheme. The results were positive, and from 2009 to 2011 the Lagos scheme grew from 19,800 to 38,000 insured. Each individual member of the sales staff has clear targets, which are reviewed during these monthly performance reviews. They receive a “yellow card” for bad performance over two consecutive months. A “red card” is issued in the third month of bad performance which means the contract will be terminated.

To more clearly focus marketing and sales efforts and to reduce adverse selection through tighter controls on eligibility criteria, HCHC decided to focus on enrolling new members from a limited number of markets, and chose to work with 11 markets (compared to 44 previously). To enroll in the scheme, members proved that they were ‘registered’ in the 11 markets. The sales force was offered incentives to increase family enrolment by encouraging enrollees to register their family members as well (the family enrolment is however not done as one bundled group, rather each family member is still registered as one single principal subscriber). In 2012, the objective was to increase the average number of family members enrolled per family from 1.6 to 2 for the LMW and CAPDAN schemes. In the coming year, HCHC plans to introduce family discounts as one of the measures to boost the average renewal rate.

So far, the average number of visits per member per year has decreased from 5.1 in June 2010 to 4.7 in October 2012 for LMW. Although the interventions seemed to have temporarily halted the upward claims ratio, it was unclear whether the interventions have in fact reduced adverse selection. As of November 2012, the claims ratio was 135%.

HCHC also implemented a review of contract terms and conditions with its partner healthcare providers, including the fee schedule. However, the timelines for the proposed changes were not aligned with the timelines for the implementation of the supporting IT application, so this caused delays and errors in processing and payment of claims.

In mid-2011, HCHC implemented a co-payment increase from 1,300 Nigerian Naira (NGN) to NGN 1,450 in CAPDAN (11.5 percent increase), and from NGN 1,200 to NGN 1,300 in LMW (8 percent increase). The total premium is currently at NGN 10,150 and NGN 12,500 for CAPDAN and LMW respectively.

HCHC tested the new management information system in order to launch it in July 2012. However, the launch was delayed for several reasons. Firstly, the engagement with the software vendor was based on the premise that the implementation would simply entail an extension of the user licenses of the HMO activities, and maintenance of a parallel database for the HCHC business. In fact there were fundamental
differences between the HMO business model and the HCHC model. These differences stemmed from the fact that each targeted very different markets. HCHC targeted individuals in the informal sector, whereas HMO targeted groups attached to corporate entities. This required additional data and system requirements for the HCHC business. For example:

- Eligibility must be managed very differently for the target markets. HCHC needed to check individuals against a market register to ensure the principal members were traders in one of the 11 markets. This required more complex data checking within the system, whereby the sales agent has to verify the individual contact information in the market register as well as the shop address in the market.
- The system needed to be customized to enable HCHC process premiums and coverages for individual subscribers while also recognizing family relationships. This will become more important in the future as HCHC would like the possibility to differentiate premium levels for additional family members.
- HCHC required more granular data, in order to monitor programme specific medical quality indicators.

As a result, months into the engagement, a new set of business requirements had to be collated, further analyzed and reviewed by the vendor. This exercise impacted negatively on the project timelines and resources.

While working on finalizing the system requirements, the team circulated a call for proposal to select the biometric vendor. A local IT solutions provider, Netsmarts Ltd., was selected. To make the process more efficient HCHC also contracted the company to develop the utilization software.

The baseline report was completed in April 2012. In order to assess all the indicators and measure the impact of the IT interventions, a time study (to calculate the turnaround time for claims processing and payment to the providers) was carried out by Deloitte Nigeria. The main indicators from the baseline study are reflected in the KPI section on pages 3-4.

As of September 2012

Activities in Lagos focused around two priorities: boosting growth and launching the new management information system.

In 2012, the Lagos schemes experienced negative growth of -31.9 per cent and -6.5 per cent (for CAPDAN and LMW respectively). To a large extent, the decrease in scheme uptake was as a result of the increased co-payment in 2012. To revitalize growth, the following activities were implemented:

- Revived product awareness through sensitization activities. HCHC re-launched the LMW scheme to (re-)attract clients in the market. During the relaunch market traders were made aware of the event by drummers going round in the market attracting the attention and by the sales agent informing people about the event. The activity started with one LMW market in September and was planned for four others. A similar re-launch was carried out in the CAPDAN market in October. During the re-launch campaign an overview of the HCHC scheme was presented,
awareness was created, and market traders were given the opportunity to ask questions or to provide feedback. Uninsured market traders were encouraged to enrol during the event.

- Introduced enrollee forums to increase customer care. HCHC has started conducting forum meetings to bring together clients and HCHC staff and allow them to engage in dialogue. The forum sampled opinions and suggestions about the product, services of HCHC staff, and issues with the healthcare providers, and to address comments accordingly. The first forum was held in June 2012 and by August, forums had been held once in each market. Each forum attracted 80 to 120 clients (market association leaders and members), HCHC sales and enrolment managers and officers, and HCHC and PharmAccess programme coordinators. The representatives of healthcare providers also attended the enrollee forums so that any problems can be addressed on the spot. The forums lasted between two and three hours.

Staff members were trained to use the new management information system in June 2012. However, the system was not operational due to challenges with data migration from the old system.

A new claims coding system was introduced to consolidate the different overviews for utilization data and claims reporting. This was designed to reduce duplicate data sets and the number of codes for reporting diagnosis/investigation, procedures and drugs. In addition, this provided HCHC the opportunity to change the treatment protocols for hypertensive care in order to manage the high cost of treatment. Different fee-for-service (FFS) tariffs were implemented for complicated and non-complicated cases. However, with the pressure of time constraints, HCHC overlooked the importance of training and supporting the providers to migrate to the new claims coding system. The assumption was that the new system was more user-friendly than the old one, and as such the migration would be fairly straightforward. This assumption eventually proved wrong as many errors were recorded. This caused significantly delays in payments to the providers.

**As of October 2013**

The LMW and CAPDAN schemes were discontinued at the end of October 2013 because the product was not sustainable. The medical costs were too high to be paid by the clients in the premium in both schemes. The premium paid by enrollees on both schemes was previously highly subsidized.

A new product was launched without subsidies, and Hygeia attempted to migrate existing clients to this product. The migration phase commenced in November 2013 with the new product called the “HCHC BETTER LIFE” (HBL). Clients whose policies were still active remained on the old products until the end of their policy. Those whose policies had expired were offered the new product. The new product is only open to clients of the old schemes.

The price of the new product is 23,000 Nigerian naira (NGN) for a family of three, while the addition of an individual family member will cost NGN 5,500.

HBL was opened to clients whose existing contracts terminate as of August 2013 onwards in the LMW and CAPDAN programmes. The cover is for one year with benefits packages that covers basic healthcare, maternal care and chronic care. There is a general co-payment for every hospital visit. Limits and co-payment were set for chronic care as well as a limit to maternal care.
Impacts of introducing the new products

Roll out of the new product will directly impact the HCHC operational business processes and the IT projects. The new product will introduce new business rules and processes which the existing HCHC IT enterprise systems must accommodate. The new product offering has been presented to the HCHC IT project team. HCHC business users/owners and process champions are being engaged in setting and developing new standardized business rules and processes to cope with the changes and challenges involved.

Pre and Post Enterprise Application Implementation

HCHC leverage the Management Information System adopted by the whole Hygeia group. The Enterprise solution is designed to pay claims, capitation, manage business rules and also automate key HCHC core business processes.

The table below compares processes before and after implementation of this new system.

<table>
<thead>
<tr>
<th>Pre-Implementation</th>
<th>Post-Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual verification of plan benefits by group</td>
<td>Automatic Verification of plan benefits</td>
</tr>
<tr>
<td>Manual computation/Verification of limits as applicable- Age limits, Monetary refund limits, Time based limits, Pre-existing conditions</td>
<td>Automatic verification of limits as applicable- Age limits, monetary limits, Time based limit. Automatic adjudication of listed parameters</td>
</tr>
<tr>
<td>Manual computation and verification of claim payment</td>
<td>Automatic computation and verification claim payments via the Application</td>
</tr>
<tr>
<td>Manual calculation and payment of capitation</td>
<td>Automatic calculation and generation of capitation per enrollee per provider</td>
</tr>
</tbody>
</table>

However, there are still some challenges with the Enterprise Application implementation which relate to uploading claims and enrollee eligibility in the Enterprise Applications. The application is not flexible and substantial human intervention is required to format data into the acceptable template to upload to the application. The human intervention in formatting data in Microsoft Excel before uploads slows down the process and has prevented HCHC from realizing the full benefits of automation (including reduction in human workforce required).

To address the data formatting challenge, HCHC decided to review the process and introduced a Microsoft Structured Query Language (MSSQL) program to format data with the use of written scripts for claims and eligibility data upload.

This process improvement allowed HCHC to save time and improve their quality of work. However, this initiative is a stop-gap measure, which did not completely eradicate data formatting challenges.

Biometric Updates

A decision was made to upgrade the biometric application at the providers from a desktop application to a web-based application. This decision was made as a result of the challenges experienced by the
users of the application due to the huge demands of the desktop application on hardware resources, which slows down system operations.

The web application introduction will also make it easier to scale the system, and make it more user friendly, attractive and provide a better user interface. The web version design will allow for more flexibility and users within a provider’s network can access the web application with computers, smartphones and tablet devices.
Project Lessons

On achieving commitment and coordinating the contributions of all staff

Regular communication with all relevant stakeholders is key for the project success. It is important for all staff (HCHC and healthcare provider staff) to understand the IT project and its impact on the work they do. Also, it is important to gain their acceptance before the introduction of the new system.

For example, there was an incident in which adjustments were made to the contract specifications with HCHC’s providers, including the medical coding system and benefits pricing. While this change was communicated to the providers, there was no formal communication or consultation with the internal operations team. As a result, some internal processes were set back due to the sudden need to reconfigure enabling systems for some typical operations like claims processing and utilization reporting. Each process improvement initiative should have been aligned with dependant tasks and these needs should have been adequately communicated by the various project teams.

HCHC tried to address its communication problems through weekly updates, increasing the frequency of project steering committee meetings and increased informal communication, including emails, peer discussions, demonstrations and presentations during programme events.

A communication strategy should be used to gain support and buy-in of both internal and external stakeholders. A strategic communication plan targeted at the users and enrollees should have been drafted and implemented for clients and for providers. Posters, branded shirts, pens, and so on, could be used to create awareness and communicate change before system go-live. For example, staff at the providers could have worn branded t-shirts to promote understanding of the coming changes to the systems and processes.

HCHC is also exploring the possibility of mentoring the providers who are yet to build a strong IT infrastructure and sharing the technology experiences of others, in order to influence their IT decisions. In this way they hope to promote technology which is better adapted to industry standards, and to encourage, where possible, adopting and extending the HCHC biometrics platform to include other processes specific to their business.

It is necessary to ensure that all staff working on the IT project have a sense of ownership and are accountable throughout the project. The system implementation was delayed because some staff prioritized their day to day work over the project work. Prior experience with the HMO system had shown that the IT staff of the HMO represents a key project resource, but it was difficult to secure their input for the HCHC implementation. To ensure that such projects are sufficiently prioritized, the project work should have been included in staff work plans and official performance reviews to increase the sense of ownership. Rewards could even have been attached to targets or milestones within the project to increase the commitment of staff.

In addition to high level commitment and strategic guidance to the overall project, it is important that senior management participates in all IT project events to underscore the importance of the project. In this project, all senior managers (as opposed to only process owners) should have participated in all user training sessions for the core-insurer application to convey the message that the project was a programme priority.
The classification of a project within the business has important implications. This project was originally proposed and initiated by the HCHC management team. However, due to the structure of the organization, and also the nature of the project, the IT department at the group level had to take ownership. As a result, the project was often viewed as more of an IT project, whereas the implementation was in fact a business transformation project, enabled by IT systems. The project has been constrained by the fact that many senior managers have seen it as a technical project and thought that it was best left to the technical people, whereas all business elements need to be involved for the project to be successful.

On choosing the right technology

Selecting the most suitable technology requires analysis of a range of selection criteria. At the inception of the project, a smart-card enabled biometrics system was proposed. However, after further review and cost-benefit considerations, the team opted instead to implement a system which relies on fingerprint authentication, maintains the old plastic ID cards, and works both online and offline.

Key considerations included the risks associated with loss of smart-cards, and the resulting cost for replacements, and the cost and life cycle of the smart card readers compared to those for fingerprint scanners. Also, beyond its use as a back-up in case of system failures, the old plastic ID cards were retained for social and psychological reasons: the enrollees – typically rural and/or urban poor – often find the ID cards a source of “social inclusion”. This sentiment was found to be particularly important for their overall perception of the value of the HCHC scheme.

On the implementation of the IT project

At the inception phase of an IT project, all key stakeholders need to be identified and engaged to ensure proper project scoping and planning. The involvement of the board and management as well as the operational staff are key to ensure strategic alignment at the top level, and business users' buy in. If the project involves several institutions, they should all be represented during the design phase, and each institution’s business requirements must be clearly identified. In the case of Hygeia, the late decision for HCHC to migrate to the new HMO system caused problems and delays in the project. It was assumed that HCHC processes and HMO ones would be similar and time allocation for the software development was planned accordingly. Furthermore, the developments for HCHC were not sufficiently prioritized within the project.

Early and direct engagement of external stakeholders is needed for the requirements analysis. HCHC should have increased the scope of the initial requirements analysis and worked directly with the providers that were selected for the pilot rollout of the system, rather than an “outside-in” requirements gathering approach. The requirements process relied more on the high-level understanding of HCHC staff and just process interviews with the provider staff; these were not sufficient to provide the depth of understanding required to design a system that adequately meets the requirements of all stakeholders.

During the initial rollout at providers' sites, insight and feedback from medical experts (including doctors and nurses) indicated there could be significant loss of efficiency using the software to capture the required data (medical procedures, diagnoses, drugs, etc.) in the HCHC-coded format while also doing other manual paper work like writing case notes as required by their usual practice. The HCHC biometrics application has now been enhanced to include case notes and pharmaceutical modules.
Test scenarios should be developed and signed off by various stakeholders in advance. Test scenarios for different workflows of the back-end application should have been developed and agreed in advance by the business users with the technical implementation team. This would have reduced the delay in completing the user acceptance testing based on the agreed timeline. In addition, the testing should have followed a workflow-oriented approach, rather than the rigid checklists of business requirements which were used. This would have helped identify the core go-live HCHC business requirements.

In an IT project, external parties should be considered for change management planning and training, not just internal business users. In this case, as health care providers were impacted by the new claim coding, they should have been engaged in the change management plan, and trained and supported to correctly apply the new rules. As a result, HCHC planned to conduct extensive on-site training and support to determine the readiness of the provider before the roll out of the biometric component at the provider location.

In an IT/business process automation project involving multiple independent organizations, the level of automation achievable depends on the level of technology adoption and infrastructure within each organization. There is a huge variance in the level of IT adoption and maturity of the providers in the HCHC provider network – from fairly mature to basic or even totally inexistent IT infrastructure. As a result of this, the design of the provider systems involved a significant degree of trade-offs and compromise in order to capture as many process scenarios as possible. For instance, due to certain providers not having any existing IT structure – PCs, local network or internet facilities – the original design of completely automated data synchronization across all providers and the HCHC central server had to be modified. The system has now been redesigned to allow manual data extraction and physical transfer for those providers without internet.

With the progress and development of the Health IT industry, it is of utmost importance that health providers make provision for dedicated internal IT personnel in their staffing plan. Providers sites where the system is being used should all have in house IT staff. Implementation has been much easier where this is the case. The IT personnel at the provider can manage and communicate change management issues to HCHC and update HCHC on infrastructural changes at the provider. They have been available to attend to issues faster, and able to act as the resource person, reporting to HCHC on technical and non-technical information relating to the use of the system.

Providers without the capacity to make provision for a dedicated IT staff on their staffing plan could combine roles. A administrative staff could be trained to also play the role of an IT staff. In this way, providers can develop in-house capacity.

When implementing a system that causes changes in the way people work in an organization, ample time should be devoted to training the users of the system. During the training and testing phase, there were minor challenges with scheduling the training activities with the providers’ staff and training with the providers’ staff was not comprehensive enough the first time.

The training was designed to be applicable to different levels of users at the providers, focusing on the modules applicable to them. However, more time should have been allotted to training in the work plan, and the providers should have been given plenty of notice before the planned date. It may have in fact been helpful to have involved the providers in determining the dates for the training and also agreeing on what method of training for their staff would have been more effective.
HCHC adopted a “Train-the-Trainer” approach and planned for trained users to visit providers for coaching, motivating and providing first level user support on-site. The trainers were selected by each of the provider’s management to be trained by HCHC. There have also been meetings and discussions between HCHC’s Provider Services team and the management of the provider hospitals to continuously share ideas for improving the system and gathering feedback for future system enhancements and process improvements.

A focus group discussion was also held to assess the client value created by the implementation of the Biometric System at the providers.

**It is important to communicate the IT governance framework effectively to the users at the health providers.** IT governance focuses on IT performance and risk management and is used to create value and manage the risk associated with the use of the system. Events at the beginning of the pilot phase exposed the need to circulate and communicate a governance framework to the providers.

Data security is of utmost importance because of the claims module which manages and captures monetary transactions. A governance framework will help manage risks which might lead to data loss.

**On assessing and auditing IT infrastructure**

**Infrastructure assessment of health-care providers for the biometric system must be very thorough to avoid future problems.** The IT infrastructure assessment approach at the healthcare providers’ sites should be very thorough and rigorous. Different levels of assessment and analysis ought to have been carried out at the providers before go-live. A system test run should have been conducted on the provider’s infrastructure to analyze how well the existing infrastructure could support the new system.

System test scenarios provide an opportunity to analyze providers’ infrastructure and expose any vulnerabilities. This allows detailed planning to reduce infrastructure challenges when providers go live. It also ensures scalability of the system on the provider’s existing infrastructure in the future.

**Re-assessment is needed just before changes are implemented.** Assessments are carried out to check the computers’ hardware specifications, operating systems, availability of local area network (LAN), internet, system securities (anti-virus) and availability of IT Staff. However, experience has shown that providers makes changes to their IT infrastructure. For example, changing operating systems to an obsolete operating system after an assessment has been carried out. As a result, assessment ought to be carried out again at least a week before deployment to manage the changes that might have taken place.

**Assessment should include testing the IT skills of the IT personnel and users of the system at the providers.** This will identify some of the skills gaps which might be lacking, enabling HCHC to intervene by training the IT personnel and users. For example, Hygeia realized after implementation that some of the IT personnel at the providers needed to be trained on basic trouble shooting skills.

**On the need for an industry standard open platform for health information exchange**

To improve healthcare delivery and increase the growth of health microinsurance, there needs to be a vendor-independent information exchange framework or standard for exchange of health and other
related data. There is an on-going discussion with one of the providers selected for the pilot phase of the system roll out. This provider currently uses its own hospital management software, and so would have some challenges operating the HCHC biometrics and utilization software modules in parallel. After initial discussions with the provider’s management the decision was made to adopt a systems integration approach in which all usual data required by HCHC for claims processing and monitor utilization (for this specific provider) will be transmitted through an intermediate software interface, which in turn feeds it to the HCHC utilization/claims module for onward processing.

Some progress has already been made in the integration effort; the team has secured buy-in from the management of the hospital and initial requirements gathering sessions have been held with the developers of both the provider and HCHC systems. A high-level design of the integration of the two systems has been completed.

However, even if integration were achieved with this provider, there are potentially hundreds of integration points for other providers which would result in similar scenarios. A health information exchange platform either driven by government or other third party, if implemented, would serve to mitigate such challenges and generally improve healthcare delivery systems across the country.

On building a research agenda

Determining the costs incurred on different sales & marketing activities could be challenging. It would have been easier to track the costs of the current renewal system if the marketing plan were based on activity based costing. For example, it was difficult to split the agents’ time and costs between new enrolment and renewal activities. Furthermore, other costs incurred such as marketing collaterals cannot be easily allocated to specific sales and marketing activities. As a result, it was quite challenging to measure the cost effectiveness of the renewal process.

Time studies should have been tested to define the best framework and timing of assessment. It was difficult to provide accurate information on the duration of all activities needed to calculate the turnaround time for claims processing at the providers; some activities overlapped into the next day, and others were delayed until the officer in charge was ready to work on them. In addition, the duration of certain other tasks could not be physically observed, so accuracy depended on the integrity of information provided from various sources (HCHC care coordinators, HCHC data management, and healthcare providers’ data entry staff).

Up to date information on the target group is critical to measure the scheme’s performance and plan marketing activities. HCHC had problems calculating the average annual renewal rate. To do so it needed to estimate the number of people who had left the target group (e.g. people no longer working in the markets covered by the scheme). However, this was difficult because the market associations’ member registration systems did not provide enough information. To address this, the HCHC scheme implemented a registration system for LMW two years ago. Efforts to register all members in the designated markets are still on-going.

On the effectiveness of sales force management

Improved sales force structure can contribute to significant growth. In 2010, Hygeia and PharmAccess implemented a new sales strategy, including recruitment of full time sales agents instead of relying on
commission based agents, and monthly performance reviews and sales targets. The strategy proved very efficient as sales increased 43% from 2010 to 2011.

**Changes to sales staff incentives can impact enrolment.** The incentive system for the HCHC sales team was revised to have a fixed component (to cover transport and food allowances) and a variable component based on the number of clients enrolled in a month. HCHC also wanted to increase the number of family members enrolled per family, so it introduced an additional incentive for the sales individuals and teams with the highest family enrolment numbers. The effects of this strategy have been more evident in the CAPDAN scheme, where the average family size has steadily increased.

**High marketing and sales costs are inevitable at the inception phase of a community based health insurance.** This proved necessary to stimulate demand and create awareness of the insurance package (education on the concept of health insurance and the specific benefits of the package). In the coming period, HCHC aims to rationalize the costs of marketing and sales activities through leveraging a more cost effective distribution channel. This was one of the reasons that prompted the decision to implement the mobile payment system, in order to increase the penetration rate.

**On reducing adverse selection**

**Family enrolment rather than Individual enrolment reduces the possibility of adverse selection.** The scheme is facing adverse selection because families registered the members with the highest health risk. To address this challenge, a couple of other interventions were put in place such as: redefinition of the criteria (well defined market boundary, strong market leader influence, and willingness of the market leaders to support the market register) for selection of the target group, as well as family enrolment to improve the scheme’s risk pool.

**Cost may be prohibitive to whole family enrolment.** Clients were strongly encouraged (but not mandated) to enrol other family members whenever they enrolled or renewed their policy. However, clients were often unable to afford the premium (co-payment) for several family members at once. Although encouraging whole family enrolment did have some success in balancing the risk pool, family size targets may not be enough to reduce the problem of adverse selection.

**Restricting access to the scheme to selected groups can reduce adverse selection.** After HCHC established registration rules and reduced the number of markets in which the scheme was operating, the average number of visits did reduce from 5.1 in June 2010 to 4.7 per member in the 12 months ending October 2012 for the LMW scheme.

**On the level of premium to be subsidized**

It is important to set the price of the insurance close to the target population’s willingness and capacity to pay from the beginning, even if subsidies are available, as increasing the premium over time is challenging. HCHC faced resistance in each increase in the co-premium from the clients, even though their capacity to pay seemed higher than the level of co-payment required to enrol in the scheme. PharmAccess and Hygeia conducted a price sensitivity study for the different programmes to define the willingness to pay of the population and to calculate the revised subsidy level based on the survey. The price sensitivity study for the schemes in Lagos showed that the target population is able to bear the cost of the benefit package up to NGN 3,000 in the case of LMW, and NGN 4,000 in the case of
the CAPDAN scheme. The study conducted in Kwara, on the other hand, revealed that there is little room to increase the current co-payment of NGN 300. This may be a result of lower economic activities among the rural target groups in Kwara, compared to the urban target group in Lagos.

**Summary**

HCHC has drawn many lessons in the system implementation in Lagos. The lessons below will serve as guide to HCHC in the future for system implementations:

i. Proper change management and governance needs to be in place for the project deployment.

ii. A detailed checklist of business requirements needs to be developed and maintained before, during and after the project lifecycle.

iii. Due diligence of solutions and vendor needs to be carried out before engaging them. This may include:
   a. Demo of the proposed solution
   b. Technical requirements of the software
   c. Infrastructure requirements for the software
   d. Resource requirements for managing the solution deployment
   e. The deployment architecture of the software
   f. Visit/phone calls to location of existing users of the solution
   g. Client events that may be organized by the vendor
   h. Financial position of the company

iv. A project plan agreed to by both parties need to be signed off. This should detail timelines, deadlines, project phases etc.

v. Several vendors should also be invited to conduct demos simultaneously to compare features of the solutions against the developed checklist for the business.

vi. Project management staff need to be fully engaged for the deployment of the project.

vii. An integrated solution that can handle the end-to-end business processes should be favoured over having separate solutions that will have to be integrated at some point.

viii. Contracts for enterprise software need to have indemnity clauses embedded.
Next Actions

Management information system
Now that the upgraded web system is already deployed and training completed, the following steps will be taken:
- Complete migration of data from the current system to the web base system
- Assist and offer solutions to providers having infrastructure challenges
- Go-live of the web base system at the providers with infrastructure challenges
- Ongoing technical and non-technical assistance to the providers

Mobile payment system
A vendor has now been chosen, and HCHC is working to finalize the contract with the selected vendor planning a design workshop and project kick-off.

New products for the urban poor
HCHC has been engaged in discussions with various prospective channels with which it can introduce low cost health insurance packages to the mass market. These channels include mobile network operators and mobile money operators. Discussion is ongoing and hopefully an agreement will be reached soon.