

Taking an Electronic Claims System from Pilot to Countrywide Implementation in Ghana

Context

In 2003, Ghana became the first country in Sub-Saharan Africa to introduce universal health insurance coverage for its citizens. After treating a citizen enrolled in the insurance program, health care providers submitted claims to Ghana's National Health Insurance Scheme (NHIS), which reimbursed those claims. The NHIS used a claims management process based on paper documents. By 2010, the NHIS received and processed manual claims from 4,004 health care providers all over Ghana. In 2012 alone, the NHIS managed 25 million paper claims (National Health Insurance Scheme, 2012).

Claims processing, management, and payment in the NHIS suffered from delays in claims processing due to the volume of paper claims, errors and fraud, duplication, and reported treatments that did not fit the reported diagnoses. NHIS staff vetted and evaluated every claim individually and 1,200 to 4,800 staff weeks were needed to review each month's claims. Maintaining this schedule required hundreds of employees. Claims errors and delayed claims processing resulted in late payments to service providers. The NHIS owed health care facilities unpaid claims and service providers reported delays of two to six months in settling their bills with the NHIS.

There was also widespread abuse of this system, including cheating, over-invoicing, fraud, and unnecessary prescriptions, leading to financial losses for the NHIS that threatened the scheme's sustainability. These issues contributed to delays in claims processing and payment, resulting in a stalemate between the NHIS and service providers and diminishing the effectiveness and efficiency of health care delivery.

Development Challenge

The development challenge for the NHIS was to reform a complicated and labor-intensive claims process, thereby making the insurance scheme more financially viable and reducing opportunities for abuse. The financial health of the NHIS had important implications for citizens' well-being in Ghana. The scheme increased access to affordable healthcare and the government wanted to sustain it and add more people to the rolls. By 2010, 33 percent of Ghanaians (8.2 million people) were enrolled in the NHIS. Legally, membership in the scheme was mandatory, but in practice that requirement was difficult to enforce, and Ghanaians essentially chose to sign up for the scheme on a voluntary basis (Nsiah-Boateng & Aikins, 2018).

The Intervention

In 2010, the NHIS began implementing measures to improve claims management, including centralizing the system and the creation of an electronic claims system. The key steps of the intervention were: the creation of claims processing centers to centralize the processing of insurance claims, the digitization of claims and standardization of health sector

PROJECT DATA

PARTNER ORGANIZATION:
Global Delivery Initiative

SECTOR:
Health

DEVELOPMENT CHALLENGE:
Expanding health insurance coverage

DELIVERY CHALLENGES:
Information and Communication Technology; Financing Mechanism; Skilled Manpower; Staff Turnover

COUNTRY:
Ghana

REGION:
Sub-Saharan Africa

PROJECT DURATION:
2010–2013

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data, the institution of new audit and quality control measures, and the piloting and expansion of a new electronic claims processing system across the country. These efforts were led by the NHIS with support from the Ministry of Health, Ghana Health Service (GHS), service providers, and the World Bank's Health Insurance Project (HIP). The HIP started in 2008 and aimed to strengthen the financial and operational management of the NHIS. (World Bank, 2014)

Delivery Challenges

Basic Infrastructure: Information & Communication Technology. Most health care provider sites in Ghana lacked the IT equipment needed to implement an electronic claims system, such as computers, printers, and internet servers. A related problem was low internet penetration, below 15 percent in 2012, according to Ghana's National Communication Authority. The NHIS needed to build a system that was effective in areas that had no web connectivity or find ways to expand IT infrastructure to additional facilities.

Human Resource & Organizational Capacity: Skilled Manpower. The NHIS relied on medical personnel, such as doctors, to review the large volume of paper claims and enter the correct diagnoses and treatments, but there was an insufficient number of such personnel working in the 145 NHIS district mutual insurance scheme offices that managed the claims process across the country. This shortage of skilled workers was highly problematic for the process of claims adjustment, whereby claims were investigated to verify they were valid. For this reason, the NHIS wanted to consolidate claims processing to reduce the number of skilled workers needed. Staff managing the claims process also lacked the IT skills necessary to effectively manage an electronic claims system.

Human Resource & Organizational Capacity: Staff Turnover. There were severe labor shortages and most facilities relied on temporary workers, especially Ghanaians working as part of the National Service Scheme (a government program that required all graduates of tertiary educational institutions to fulfill one year of national service), to manage NHIS claims. The National Service Scheme required all graduates of tertiary educational institutions to full one year of national service. The rapid turnover of these workers, usually without any overlapping time in the office for skills transfer, was detrimental to knowledge sharing and reduced the incentive to thoroughly train workers.

Project Finance: Financing Mechanism. One reason health care providers lacked IT infrastructure was a funding gap due to the delay in claims reimbursement. As facilities waited for the money to come in, they did not have enough resources available to invest in technology and general operations.

Addressing Delivery Challenges

Centralizing Claims Processing and Digitizing Claims

In 2010, NHIS opened a claims processing center (CPC) in Accra, Ghana's capital, to handle paper claims in a centralized location. This was more efficient than the existing model of decentralized claims processing dispersed across many district offices. The new CPC processed all claims from the Greater Accra region, regional and teaching hospitals, and the Volta area. The pilot proved to be a money saver, and in 2012 the NHIS opened more CPCs to cover other areas of the country.

The NHIS initially took paper-based claims from the district offices and converted them into digital records for processing by the CPCs. But after piloting the concept, the NHIS realized that it was a laborious undertaking that required a large volume of transcribing because NHIS lacked the object recognition technology to transcribe scanned images. This was further complicated by sloppily written medical diagnoses and prescriptions that were difficult to read.

The solution was for service providers to send electronic claims, instead of handwritten records, to the NHIS. This required resources and training. The NHIS wanted to woo IT professionals to the health sector and the World Bank supported this agenda with funding through the HIP (World Bank, 2014).

Standardizing Data

Prior to 2012, service providers had used their own hospital information systems with various dataset formats, so the NHIS had to standardize health data to facilitate the transfer of electronic claims between providers and the NHIS. In 2012, the NHIS provided a uniform platform for data entry, analysis, and interpretation and designated a required format for data submission regardless of the solution or hospital information system used to submit an electronic claim. An important step in this process was the creation of data dictionaries, which described the contents, format, and structure of the health database and the relationship between its elements so that all users were on the same page. NHIS referenced the dictionaries to, for example, check the exact definition of a certain indicator so they knew how to collect and enter that data.

After the centralization of claims processing and the setup of standardized data, the NHIS saw improvement in claims processing. Facilities were able to review claims submitted for payment, resulting in savings of GHC 22.3 million (US\$5 million) as of December 2012, or a cost reduction of 10.8 percent. In 2013, the cost savings reached GHC 1.9 million (US\$450,000), or a cost reduction of 3.2 percent (National Health Insurance Scheme, 2014).

Instituting a Standardized Clinical Audit System and Quality Control

With the improvements in the claims system, the NHIS identified unusual trends or patterns in the claims submitted, such as clients who were recorded as receiving treatment for the same illness at multiple facilities in the same period. Such trends were potentially a sign of fraud. This prompted the NHIS to adopt a standardized system for clinical auditing. Claims coming in from a facility could trigger a verification exercise to examine a sample of the claims activity at a facility. The sample could validate trends seen in the data and ensure that facilities complied with NHIS standards for claims submission. Standardized clinical auditing helped the NHIS recover money from providers and reduce fraud (Fusheini, Marnoch, & Gray, 2017).

Piloting Electronic Claims Processing

In 2012, the NHIS introduced an electronic system for managing claims, aiming to inject discipline into claims processing, management, and review, and to facilitate early payment of claims to service providers. This system centralized claims reviews and the reimbursement process and allowed the detection and elimination of errors to minimize abuse. It also checked for spurious claims and fraud and provided information on the quality of health care rendered.

In April 2013, NHIS piloted the new system at 47 health care facilities with support from the HIP. The most important criteria in selecting the pilot facilities were the presence of qualified staff and the necessary IT infrastructure to manage the e-claims system. It was also important that the managers of the facilities accepted the electronic claims system. To support the system, the NHIS enhanced its business process management, developed the software for implementing a national claims register, and set up a claims verification unit. The NHIS also commissioned a team of IT trainers and data entry personnel to travel to and provide assistance at facilities nationwide to prepare for national implementation.

For facilities without hospital information systems, the NHIS created a web-based online interface that allowed service providers to log on and capture their claims directly on the NHIS electronic claims platforms.

Expanding the Electronic Claims System Across Ghana

In November 2013, the NHIS rolled out the electronic claims system nationwide. Service providers who submitted claims through the new system were quickly reimbursed, providing an incentive to adopt the system. A provider with a standardized hospital information system could generate and directly submit claims via the installed electronic claims software. The other option was conducting claims generation and submission through the web-based system. But although the electronic system was technically available to all health care provider facilities, only a minority adopted the system in the first years of implementation.

The NHIS provided a means for health care providers who lacked IT infrastructure to acquire necessary equipment through a prearranged credit facility with an IT company. The NHIS offered technical and policy training to the scheme's own staff and health care service providers, which enhanced the knowledge and delivery capabilities of personnel

responsible for running the claims system. The NHIS also made it a requirement for a health care facility seeking NHIS accreditation to implement the electronic claims system.

Results

The electronic claims system reduced errors in claims processing and payment and minimized abuses of the system by detecting fraud. It helped the NHIS contain costs by enforcing prescription and dispensing levels and linking treatment and diagnosis procedures. The system provided information to the NHIS on the quality of health care provided and facilitated early payment of medical claims. It also allowed the NHIS to extract credible claims data for analysis and overall policy direction.

The electronic system was intended in part to detect more fraud and error, saving money by reducing the payouts for these kinds of claims. One useful indicator for assessing impact on fraud and error was the value of claims that were rejected as a proportion of the total value of claims. A study reviewing claims submitted to the Accra CPC in 2014 found that the NHIS rejected a larger proportion of the claims submitted electronically (17.0 percent of the value submitted) than was this case with paper claims (4.9 percent) (Nsiah-Boateng, et al., 2017).

But the impact of the system on the NHIS was limited. A 2017 World Bank report stated that only 8 percent of total claims came through the electronic claims system. That report recommended that the system be expanded and refined. The report recommended that NHIS increase the system's capacity, add algorithms for automated vetting, and create linkages to other public health databases (Wang, Otoo, & Dsane-Selby, 2017).

It remained unclear whether the electronic claims system could help the NHIS survive. By 2015, 41 percent of Ghanaians (11.3 million people) were enrolled in the scheme, an increase of more than 3 million people over 2010 (Nsiah-Boateng & Aikins, 2018). But a 2016 review called the long-term operational and financial sustainability of the scheme into question due to stagnating active membership, reports of poor-quality health care rendered to NHIS-insured clients, and cost escalations (Alhassan, Nketiah-Amponsah, & Arhinful, 2016).

In 2016, because many health care facilities lacked internet access, the NHIS launched a claims generation software that ran fully offline, allowing users to interact with the internet only when necessary for systems updates and claims submission. Using this software, providers could download and save claims on a flash drive for later submission, submit them directly to the NHIS over the internet, or print them out (National Health Insurance Scheme, n.d.).

Lessons Learned

Learning from a Pilot and Scaling Up. The pilot operation of the electronic claims system among the 47 service providers in the Greater Accra region prepared the NHIS to implement the system nationwide. This experience allowed the NHIS to learn from the process and adapt it to the system's national implementation. It also enabled the NHIS to put systems in place to ensure effective coordination and management.

Incentivizing Cooperation with the New System. The success of the e-claims system depended in part on incentives given to health care providers to adopt the new system. Those who bought in received their money more quickly and facilities with limited resources could access credit that allowed them to invest in IT infrastructure.

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