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Schweizerisches Tropen- und Public Health-Institut
Institut Tropical et de Santé Publique Suisse

Associated Institute of the University of Basel

Swiss Centre for International Health
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Insurance Management Information System (IMIS)

Fact Sheet

8th December 2015

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List of Abbreviations

CHF Iliyoboreshwa	Improved Community Health Funds
DHIS 2	District Health Information System 2
HPSS	Health Promotion and System Strengthening Project
IMIS	Insurance Management Information System
SDC	Swiss Agency for Development and Cooperation
Swiss TPH	Swiss Tropical and Public Health Institute

Contents

1 Background

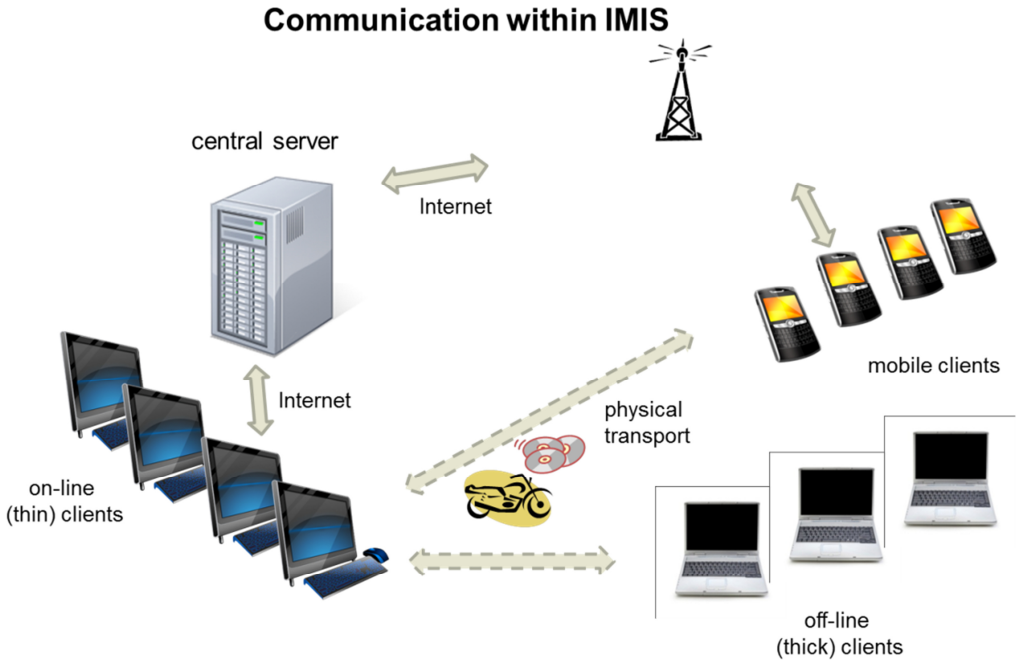
The “Insurance Management Information System” IMIS was designed by the Swiss Tropical and Public Health Institute (Swiss TPH) in the framework of the Swiss Agency for Development and Cooperation (SDC) funded Health Promotion and System Strengthening (HPSS) project in Tanzania. It is implemented since 2012 as the IT backbone for operationg the “Improved Community Health Funds”, “CHF Iliyoboreshwa” in Dodoma Region in seven districts with a coverage of about 200’000 people. Since 2015 it is being rolled out to another thirteen districts in the regions of Morogoro and Shinyanga.

IMIS was subsequently adopted in Cameroon (for a mutual health insurance scheme of the Catholic Church) and in Nepal (for the national health insurance scheme of the Ministry of Health and Population). The system is a live system and has grown organically based on needs of various insurance schemes which had different insurance models, product definitions and payment mechanisms.

The “Insurance Management Information System” (IMIS) is a comprehensive insurance management system designed for:

- Supporting business processes of new or existing insurance schemes
- Ensuring availability and preciseness of information on insured
- Increasing speed of operations
- Ensuring efficient claim management
- Reducing frauds

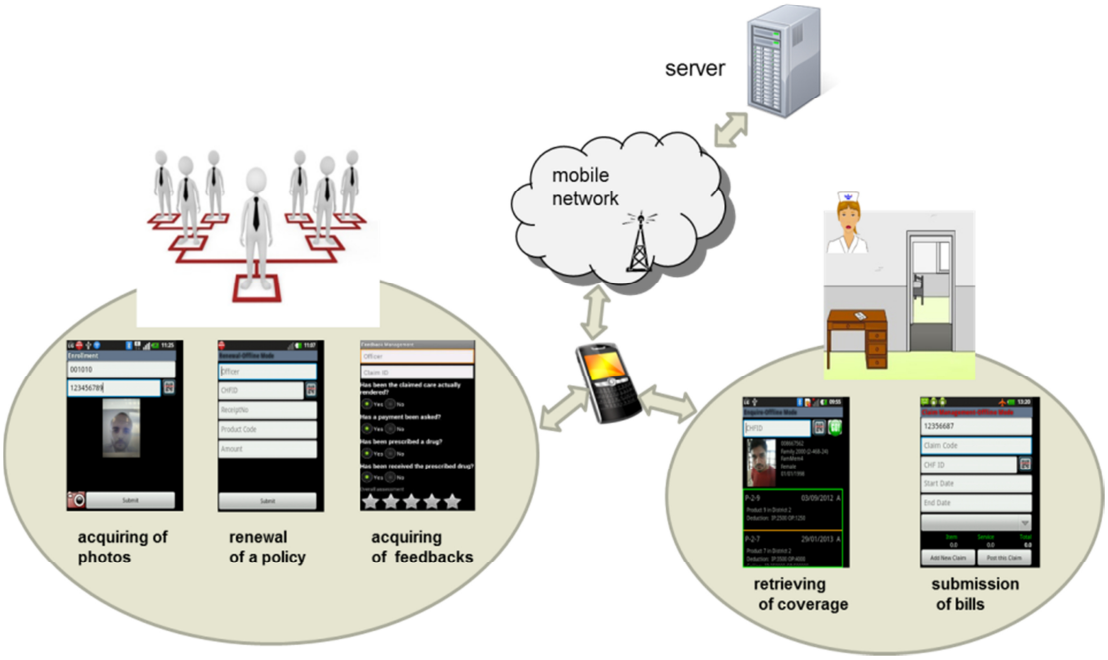
The system is designed specifically to cater for the needs of health insurance schemes for rural population and the informal sector, where no pay-rolls can be utilized for membership registration. The low-cost technologies of enrolling members through mobile phones provide an efficient solution for such an informal sector environment. IMIS can be easily adjusted to other schemes involving management of benefits to a membership base, e.g. voucher schemes, health equity funds, and other forms of insurance.



Its functionality continues to be enhanced based on new requirements from its implementation sites. Currently its distinguished features are:

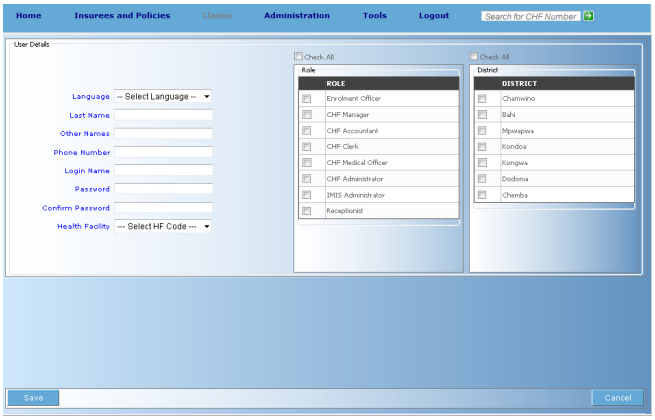
- Flexible definition of insurance products encompassing different enrolment and contribution modalities as well as benefit packages and provider payment mechanisms
- Concurrent support of several regional insurance schemes or nationwide insurance schemes administered by regional branches
- Centralized web based application
- Support of different languages (e.g. in the Tanzania IMIS is programmed in English and Kiswahili, in Nepal in English and Nepali)
- Off-line installations (computer and mobile phone based) synchronized with the central database
- Enrollment, renewals, identification enquiry, claiming and feedback collection also available through android based smart phones (cost effective identification mechanism)
- Enabling portability of benefits for insured between different insurance schemes.

Data transfer in insurance system using mobile phone

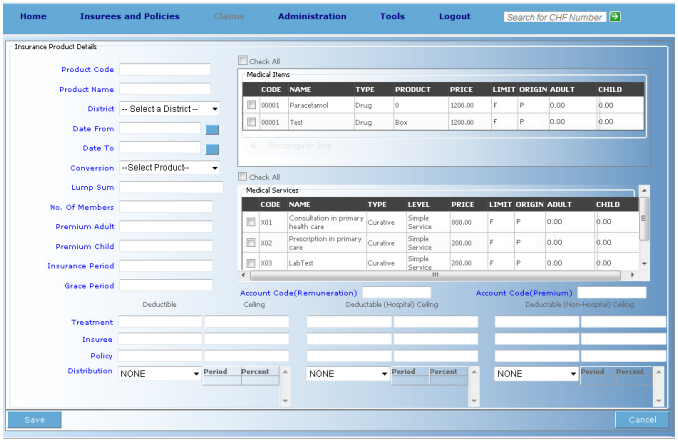


2 Flexibility in catering to various scheme needs

IMIS allows a flexible set up of insurance schemes following various structural models, provider payment mechanisms and benefit package options through:

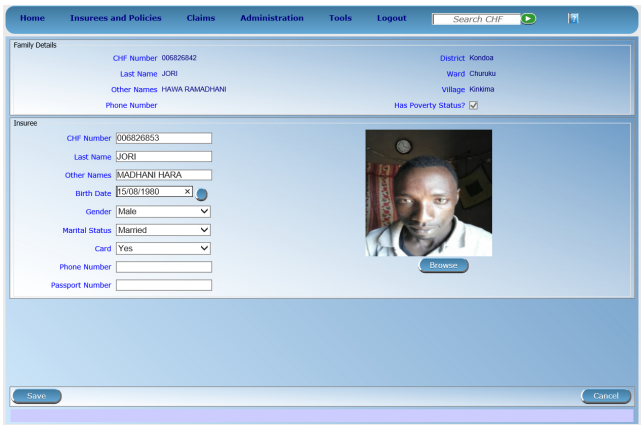


- User accounts and their association to one or several user roles and to one or several geographical locations
- Administrative divisions of a country (e.g. districts/wards/villages-cities)
- Enrollment agents and their association with one or several locations (villages/cities)
- Institutional payers of contributions (e.g. local governments) that may pay (a part of) contributions on behalf of insured households (e.g. subsidies for the poor)
- Providers (e.g. health facilities) eligible for provision of benefits (health care) to defined insurance schemes
- Services and goods (items) that can be used in specification of benefit packages including their price and (medical) constraints, e.g. provision restricted by gender, age or frequency of provision. Services restrictions (e.g. amount, frequency, etc.) can also be at different levels (a single service, a visit, a hospital admission according to a case mix scheme)
- Price lists (different for each provider or same for provider groups/categories) specifying a range of services/items that a provider may claim for their agreed prices.
- Insurance products according to which insurance policies are sold/distributed. Within the definition of an insurance product the following features can be specified:
  - Geographical areas for which the insurance product is valid
  - Conversion of households from one insurance product to another on expiry of product
  - Contribution (premium) towards an insurance policy calculated as a fixed amount per household (irrespective of size or calculated for additional members above a fixed size) or calculated according to number of individuals under one policy
  - Free enrolments (policy validity from any date in the year) or under fixed enrolment cycles
  - Duration of the insured period



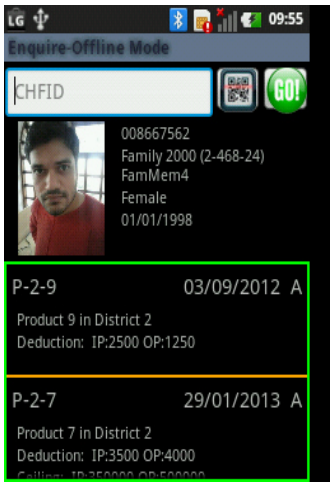
- Administration period to incorporate administrative delays in activating policies as well as grace period to allow flexibility in more rigid fixed cycle enrolments
- Number of instalments and the time period for completion of instalments by clients
- Discounts on contributions based on time of enrolment (for new enrolments and/or renewals)
- Services and items in benefit package along with cost-sharing arrangement
- Waiting period for eligibility of coverage of services/items
- Absolute or relative pricing of services/items (including parameters for calculating relative prices)
- Ceilings for provided coverage – per treatment, per member of an insured household or per household/policy

3 Enrolment and contribution collection module



IMIS allows efficient enrolment of households/members via an on-line client, an off-line client and/or a mobile phone (online and offline) client with following features:

- Acquiring of insureds' photos by a mobile phone application
- On-line/off-line transfer of photos to the central database
- Automated matching of photos with records of corresponding households/ members through unique ID numbers (incorporated in bar codes)
- Assignment of one or several policies/insurance products
- Allocation of households to an agent (to enable follow up for renewals and incentive payments for agents) and to a health facility to enable gate keeping mechanism
- Automated calculation of due contribution (premium) according to the rules specified within the corresponding insurance product
- Recording of payment details (single or multiple installments) of contribution towards a policy/household (single or multiple sources including institutional payers)
- Activation of policy according to the amount paid
- Addition, deletion, modification (including change of household head) of households as well as in and out migration of individuals between insured households to allow tracking of individual benefit history



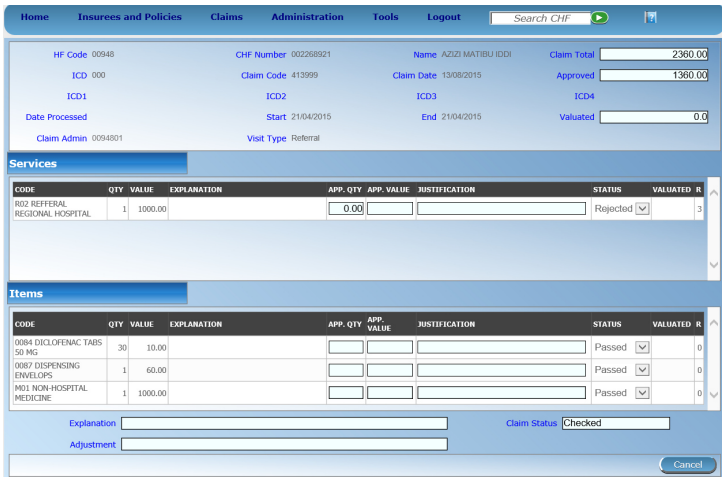
- Calculation of additional contribution for new members of a household joining in an ongoing insurance period (e.g. for newborn children)

- Renewal of policies via the online client or a mobile phone client (online as well as offline)
- Inquiry on the identity (picture based) and status of the coverage of a member via an on-line client or a mobile phone client (verification mechanism used by health facilities)
- Pro rata calculation of disposable contributions
- Bulk subsidization of insurance product by institutional payers (e.g. pro-poor subsidies)
- Generation of data on collected contributions for an accounting system

4 Claim management module

IMIS supports a range of provider payment mechanisms and applies a phased process for evaluation of claims (automated checking followed by a manual medical review). Claims can be entered via an online client, off-line client or a mobile phone client (online and offline).

The system has the following features:



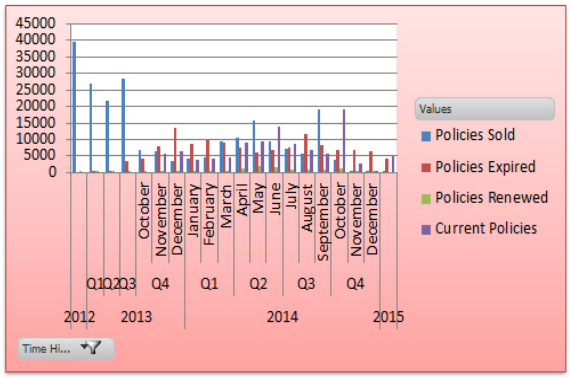
- Efficient entry (use of service/item codes) of claims based on pricelist of corresponding providers
- Automated checking of correctness of a claim:
  - coverage of claimed services/items by an active policy of the patient
  - compliance with medical constraints of claimed services/items
  - compliance with waiting period, administration period and grace period
  - compliance with ceilings, cost-sharing and other restrictions defined by the policy enrolled in
- Selection of claims either manually or based on statistical criteria (% selected randomly, based on threshold value or deviation from the average claimed value for a service /item) for medical reviewing
- Selection of claims for patients' feedback either manually or based on statistical criteria (% selected randomly, based on threshold value or deviation from the average claimed value for a service /item)
- Searching for history of claims for a patient
- Sending of requests to collect feedback sent to mobile phones of enrolment agents and processing of patients' responses
- Manual adjustments to a claim by a medical reviewer
- Valuation of claims according to the type of pricing of claimed services/items
- Calculation of relative prices for a given period
- Generating of data on processed/evaluated claims for an external accounting system.

5 Reporting and data analysis

IMIS produces a range of operational reports including comprehensive reports to track all activities within IMIS according to specified criteria. This includes standard performance indicators to track performance of insurance schemes. Additionally, IMIS encompasses a data warehouse based on a multidimensional model where aggregated data are loaded regularly from extracted data from the central database of IMIS. Data from the data warehouse can be remotely accessed through Excel currently but other front-end tools can also be used.

Age Range	All
Gender Name	All
Officer Hierarchy	All
Product Hierarchy	All
Region Hierarchy	All

Row Labels	Policies Sold	Policies Expired	Policies Renewed	Current Policies
2012	**39724**		**6**	
2013	**94329**	**29576**	**533**	**12309**
Q1	**26969**	**78**	**5**	**NA**
Q2	**21689**	**168**	**25**	**NA**
Q3	**28561**	**3533**	**31**	**NA**
Q4	**17110**	**25797**	**472**	**NA**
October	6990	4306	141	
November	6473	7942	165	5749
December	3647	13549	166	6560
2014	**90165**	**96290**	**9878**	**88549**
Q1	**18269**	**27745**	**1115**	**NA**
January	4220	8777	240	3717
February	4459	9820	348	4310
March	9590	9148	527	4508
Q2	**35991**	**20616**	**4695**	**NA**
April	10567	7581	1267	8980
May	15858	6155	1931	9525
June	9566	6880	1497	13967
Q3	**31791**	**27786**	**2707**	**NA**
July	7254	7756	956	8776
August	5559	11852	850	6924
September	18978	8178	901	5674
Q4	**4114**	**20143**	**1361**	**NA**
October	3972	6796	1229	19241
November	134	6781	124	2837
December	8	6566	8	90
2015	**6**	**4310**		**5180**



6 System requirements

IMIS currently has the following system requirements:

- The server operating system: MS Server 2008 R2 or a newer version
- The database system: MS SQL Server 2008 R2 or a newer version
- The off-line operating system: MS Windows XP or a newer version
- The operating system for mobile phone applications: Android 2.1 or a newer version

7 Future direction

IMIS is to be released as an Open Source application in its current form with all functionalities described above and will be integrated with other technologies in its environment catering to Universal Health Coverage, for example integration with the national HMIS (DHIS 2) in Tanzania. Enhancing the interoperability of the system will be a key step taken in this direction. In future it is envisioned that the system will also be made platform independent in order to provide an alternative for insurance schemes wanting to use the application on non-proprietary operating systems and database. Communities of developers as well as users around IMIS will also be created with a view to further enhance/evolve the system through user and developer experience/expertise. This will ensure the system continues to grow organically and is driven by implementation needs and that the implementation community does not get left behind as the technology evolves.

For further information on IMIS and on the projects within which IMIS is presently being applied please consult the following webpages:

http://www.swisstph.ch/imis.html#c9551

http://www.swisstph.ch/health-economics-and-financing.html