**Comparison of OpenIMIS business processes with existing and potential processes of other scheme operators**

**This document is an internal document for the OpenIMIS Team**

**The output is based on a mission to Kathmandu (Michael) and discussion with Saurav/Nirmal**

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# Introduction

So far, openIMIS is the first and only open source software that links patient, provider and payer data. The system is designed to manage any health insurance scheme, from enrolling patients to transmitting and processing claims and calculating reimbursements.

As openIMIS has a focus on an interoperable structure the openIMIS team met in Kathmandu during the first week of September to discuss the currently implemented functions, gaps and potential ways forward for make the software attractive for other countries and various Health Insurance Implementers.   
  
The team went through all core business processes/SOPs and did a critical analysis of existing processes and needs for adaptations.   
  
The team decided to separate the question on how OpenIMIS could communicate with other Software solutions in the near future (e.g. Patient Registration Systems, EMR Systems) from the functional requirements for supporting the typical SHI business processes.  
  
The interoperability issues will be addressed in a separate document.  
  
The document follows a logical structure of summarizing the SOPs for the SHI Operator in **Nepal** and looking into potential adaptation requests from other countries. A focus was on addressing the business processes for the formal sector workers.  
  
The description of the current SOPs in Nepal are an extract from the document “Social Health Security Programme (Health Insurance) Standard Operating Procedures (Structure and Basic Standards) – Second Edition 2017”, enriched with latest updates from GIZ colleagues on spot.  
  
According to previous conversations with colleagues in Tanzania, their business processes are not too different from the Nepal SOPs. Tanzania seems to focus more on mobile app development for contribution collection and clams payments.

# Member Management

## Enrollment

### Current SOP

Households are ACTIVELY approached to make them aware of the SHI availability  
  
The most common ways are:  
- Door to door enrollment  
- Through health facilities (e.g. at a specific day)  
- At various social gatherings  
  
Households are enrolled via an enrollment form and via capturing their picture through smartphone technology.   
Forms and membership identity card with QR code are pre-printed and given to the SHI enrollment assistant prior to the enrollment procedure.

### Adaptations needed

Adaptations needed for other SHI contexts/countries – FORMAL SECTOR SPECIFIC

* Enrollment should be done also without the need of pre-printed enrollment forms. The SHI Identification Number and the ID Card should be given directly through the System
* Individual membership accounts (this also relates the re-structuring needs for the user interface: The user interface needs to show the family relations in a structured way. The user should see the head of the household and the related family members on one screen. The user must see immediately if the breadwinner and the family is covered via a voluntary scheme or as part of a formal sector coverage). This is an UI question.
* Employers register their worker at the enterprise at the day when they are supposed to start working - based on a work contract (usually, the labor law foresees this). The following scenarios are common in neighboring countries:  
    
  - The employer registers each worker via a standardized (electronic) form and sends this form to the health insurance fund  
  - The employers send a list of all new workers via Excel list to the health insurance fund  
  - The employers provide information on all new workers via an online interface, designed/provided by the health insurance fund  
  - The employers use different data formats for providing the information but stick on a pre-defined API, given by the SHI Operator  
  - Workers have to visit a SHI Operator Branch office and register themselves by showing the work contract and ID card  
    
  The above mentioned scenarios usually happen once a month.

Note: For the formal sector enrollment, it’s crucial to understand the difference between initial enrollments (e.g. the Government decides to include formal sector workers as a new target group for SHI) and ongoing enrollments throughout the year.

* A family member who was previously insured via the informal sector scheme (family coverage) might start a job in the formal sector and now need to pay own contributions. A family member who stops working for the formal sector might need coverage via the informal sector scheme again.   
    
  **Important question for further team discussions – business process unclear:**  
  Where are the family members insured? How can we get information about family members in countries where the postal system is weak and we have limited access in the countryside? Identities for family members who receive free coverage under the person so works in the formal sector need to be checked carefully during enrollment. The names of the family members who get free coverage can’t get changed for a certain period of time (e.g. 1 year) anymore. This is necessary to avoid that “fake family members” will get coverage without having a “paying” household head, working the formal sector.
* A warning needs to be triggered if a family member is “too old” for family coverage (e.g. < 18 years). It’s a strong requirement for the formal sector. The admin panel should allow setting an “age ceiling”.
* Coverage of family members should be related to specific criteria (e.g. marriage, age). The software should allow the definition of these criteria.
* The COMPANY needs to be stored in OpenIMIS as a separate entity (we could adapt the “payers” section for that.

## Renewal/family information updates/ expiry

### Current business process (Nepal)

The renewal process begins two months before the health service utilization validation ends. If the size of the family members remains unchanged, only a receipt needs to be provided for the annual contribution amount (see Annex 5). But if the family size changes, an additional contribution amount may need to be collected (if family is over 5 members) and the necessary information provided on the membership renewal form (Annex 11). If there is a decrease in the number of family members enrolled (e.g., due to immigration, marriage or death), the details should be provided in the membership renewal form. An additional member should be treated as new member and a new enrolment application form (Annex 3) should be filled out.

### Adaptations needed

Adaptations needed for other SHI contexts/countries – INFORMAL SECTOR

* Information about expiring coverage should be send to the head of the household and enrollment agents. This could be done via:  
  - SMS (messages are customizable)  
  - e-mail  
  - traditional media  
  - social media  
    
  The enrollment agents should have the ability to get a list of all persons where the membership will soon expire.

Adaptations needed for other SHI contexts/countries – FORMAL SECTOR

* Regular routine to check if family members are still below the “age limit”.
* OpenIMIS needs to be customizable regarding the “grace period” after a member reached the age ceiling.
* Related to the age limit, the system needs to show “warnings” to SHI staff + the member
* OpenIMIS needs to end the free family coverage status in the moment when the formal sector worker has no coverage anymore (e.g. he/she stops working, he/she passed away). A grace period might be necessary.  
    
  **Question:**   
  How can we get notice about newborns who should receive coverage from the first moment?

## Identification

### Current SOP (Nepal)

OpenIMIS works with pre-printed enrollment forms and Identity Card on which a barcode and a random ID Number is visible. The ID is used as an internal reference key within the OpenIMIS product only.

### Adaptations needed

Adaptations needed for other SHI contexts/countries Health Client Registry  
  
In the future, OpenIMIS requires an interface for establishing a connection to a so-called health client registry. The Health Client Registry is the central repository that stores a unique Personal Health Identifier for every person that receives a health care service in any of the connected health facilities as well as the corresponding patient demographics, such as name, date of birth and gender. The health client registry can also store other credible personal IDs such as the national ID or a driver license (a cross-matching algorithm will lead to faster lookups in the Client registry database). Without the client registry additional services such as electronic patient record sharing and real-time insurance status verification will certainly not work properly or work with limited functionalities only.  
  
The idea of a unique health identifier and the need for a client registry in various countries will be described in a separate paper in the near future.

## Other future scenarios

a) Enrollment should be possible via smartphone/app directly. In countries with lots of SHI members, the pre-printed forms won’t be a feasible option.

The new Version of OpenIMIS should have a responsive user interface and ready to run on a tablet/mobile as well. This is particularly important for skipping work steps during the enrollment period (we came to the conclusion that a responsive version of OpenIMIS will certainly not work on a smartphone as the screen will simply become “too messy”. Some modules of OpenIMIS could have a separate App for using the product in the field (e.g. enrollment app).

b) OpenIMIS could make the need for an enrollment agents obsolete. Clients can directly register online for getting SHI coverage. To realize this function, the Identification and Authorization of clients need to be bullet-proof.

c) Linking to the previous point, enrollment can be done directly through the SHI branch offices. OpenIMIS should provide an option to include enrollment agents module or not.

# Contribution

## Contribution calculation

### Current SOP (Nepal)

The annual contribution amount currently depends on the size of the family and a maximum ceiling for medical services per family can be defined in the OpenIMIS admin panel.

The contribution rate can change, based on the number of family members. An enrollment agent does the contribution calculation during the enrollment. Minimum amount is fixed. Up to 5 members, = 2500 NPR. Ceiling for medical services is 50.000 NPR. With increase in family member above 5, there is an extra contribution amount needed per person. This also means increase in the ceiling for medical service. In case of Nepal extra member needs to pay 425NPR and with this the ceiling for the family increases by 10.000 NPR.

### Adaptations needed

Adaptations needed for other SHI contexts/countries – Informal sector

* Countries who don’t work with an enrollment agents (enrollment happens directly via the member, online), the system needs to calculate the correct contribution amount during the submission process of online family enrollment.
* The point above is related to the new enrollment requests (online enrollment/tablet/smartphone supported)
* A separate user interface for self-enrollment needs to get developed. An API needs to be given BY OpenIMIS to potential online interface developers.
* OpenIMIS should allow more functionalities in the admin panel to define different rules in contribution calculation (Example: discount options for specific target groups; specific calculation formulas for specific target groups)

Adaptations needed for other SHI contexts/countries – Formal sector  
  
For the formal sector workers, the contribution is usually based on the daily/monthly wage. The following scenarios are common:  
  
- % of monthly wage (often with a contribution cap); payments split 50/50 by employer and employee  
- % of monthly wage, (often with a cap); payments by employer only 100%  
- % per month but related to “wage groups”. (e.g. salary range = 50-100 USD; contribution is calculated, based on 75 USD)  
- fixed monthly payment

* OpenIMIS requires a module which can calculate the contribution, based on wages. Therefore wages need to get stored within OpenIMIS  
  (very few countries calculate the contribution, based on wage groups. This feature has low priority at the moment)
* Open IMIS requires a module which can cross-check the contribution which got calculated by HR departments (in many countries, the employer has to calculate the contribution first and send a contribution statement to the SHI Operator)

## Contribution collection

### Current SOP (Nepal)

Contributions are collected by the enrollment agent directly. The enrollment agent transfers the cash collected to the accounting person at the SHI office.  
   
In remote areas, the collected money + forms can also be given to the enrollment officer in charge (= staff of SHI Board). The officer will enter the data directly into OpenIMIS. Cash will be transferred to a SHI Bank account.   
The enrollment officer will DRIVE TO the villages and collect the forms and cash from the enrollment assistants.

### Adaptations needed

Adaptations needed for other SHI contexts/countries – Informal sector

* Enabling contribution payments via mobile and online applications

Adaptations needed for other SHI contexts/countries – Formal sector

* OpenIMIS needs to store the monthly salaries of each worker
* OpenIMIS needs to show the correct contribution amount, based on the salary/percentage
* OpenIMIS needs to show the “contribution due date”. The due date needs to be adjustable in the admin panel (e.g. 15th of the following month for the previous month)
* A warning is necessary if the contribution is not paid in time
* For the formal sector workers, the monthly contribution statement (coming from the employers) needs to be processed and stored.
* **Contribution payments should be possible via various payment gateways**

## Contribution verification

The current business process does not exist. The enrollment agent collects the money on spot. There is no electronic calculation via OpenIMIS involved.

### Adaptations needed

* OpenIMIS needs to check if the contribution statement matches the number of employees per company
* Cross matching of contribution stated vs. incoming payments on the bank account

# Claims management

## Claims generation and submission

(a request for payments, coming in from the health provider)

### Current SOP (Nepal)

Once logged into OpenIMIS, the claim administrator assigned by the health facility, navigatesto the 'Health Facility Claims' section and follows the instructions in the 'Service Provider Manual' to enter in a new claim to be sent to the SHI Operator.  
  
At the end of a working day in the health facility, the claim administrator enters the claim data/request directly into OpenIMIS (with a particular user role)

Adaptations needed

* OpenIMIS needs an interface (API) to get connected with various existing patient registration/Electronic Medical Record systems for facilities who want to submit their claims request directly via the existing software.
* Ideally, the health facility can use their own patient management product to check the insurance status of an incoming patient.
* In case an EMR is in place on health facility level, the EMR should cross check if the patient is not eligible for specific services (e.g. no prescription of 2 pairs of glasses within 6 month). The EMR should ideally inform the doctor about the restriction.

## Claims verification/review

### Current SOP (Nepal)

During submission through the claim administrator (sitting in the hospital) OpenIMIS does an initial validity check during the submission (individual or group). In case of mistakes, a pop-up would show a summary of successful claims and claims with errors but the “error claims” will go into “submitted” status and can’t be changed anymore.  
In case of a “typo” the data entry person can select the “wrong” claim, correct it and submit it if the claim is in “entry” state. If the claim has already been submitted with “typo” then he has to re-enter the claim submit it. In Nepal, for these type of error the claim administrator would add a special character to the previous error claim code and then submits. The claim reviewer would then know the correct claim with manual intervention  
  
All other verifications need to be done manually by a claim reviewer who looks onto the submitted claims.

Adaptations needed

Adaptations needed for other SHI contexts/countries

* Option for adding standard treatment protocol, which shows diagnosis, treatment and medicine needed for given disease condition. If mismatch happens between treatment protocol and claimed items/services, OpenIMIS should notify (discussion is needed if direct claim rejection should happen or if a report should be generated) – COMPLEX TASK – GROUP DISCUSSION
* At the moment when the claim administrator at hospital level submits a claim to the SHI Operator, a message about the “claimed amount” should be automatically send to the patient (purpose: patient knows about the remaining amount within the given ceiling for claims payments; the patient would know about medical interventions which did not happen in the health facility)

## Other future scenarios

* An online portal for insured members where they can see their own claim history  
  (the online portal should not query the original/live server of OpenIMIS; a separate instance is necessary for efficiency and security)
* Direct reimbursements of hospital bills, handed in by the patients, are not yet possible with OpenIMIS. In some countries, it is possible that MEMBERS submit a claim request and ask for reimbursement (.e.g they forgot their SHI Card when entering the hospital; it was an emergency situation and they went to a non-contracted provider). In another case, payment for ambulance is not always part of hospital billing. In this case, the members should be allowed to get reimbursement for usage of ambulance service.

## Provider Payment Mechanisms

### Current SOP (Nepal)

The system is handling case based reimbursement mechanism. Every 15 days, the claim reviewer generates a report for every health facility. Based on this report, the financial transactions (reimbursement) are done to the health service providers.

Adaptations needed

* The system needs to handle other provider payment mechanism such as:  
  - Fee for Service  
  - Lump sum  
  - Capitation  
  - Mixed PPM situations

# Sickness benefits

### Current SOP (Nepal)

The process does not exist

### Adaptations needed

In some countries, an employee is generally entitled to receive sick pay amounting to 100% of his or her salary (e.g for up to six weeks in developed countries).

Where an illness lasts longer than six weeks, (related to the above mentioned example) the employee will receive a sickness allowance from the national health insurer amounting to XY % of the employee’s salary for a period of up to XY weeks.

To receive sick pay, an employee must inform his or her employer immediately of an absence because of illness.

* OpenIMIS requires a module for managing sickness benefits
* Sickness benefits can only get paid to the worker (not directly to a family member)
* The following data fields are needed:  
  - Sick day from  
  - Sick day to  
  - salary continuation until:  
  - sick payments paid by SHI from:  
  - sick payments paid until  
  - amount of sick payments  
  - Waiting period for sick payments
* Customizable fields are:  
  - % of gross salary (amount of sick payments, paid by SHI per day)  
  - period of time/days when SHI will pay sick payments (e.g. 2 weeks after the worker gut sick)  
  - waiting period for sick payments (During data entry, an alert will be generated if the waiting period is not yet over)  
    
  Example: If the member get the sickness less than equal (<=) 15 days the enterprise will pays the benefit.   
  If the member get sick, longer than or equal (>=) 16 days SHI will pay all form **day1** to **N** (max 180 days in 12 months calendar coverage) depending on the letter from doctor.  
  The calculation is based on the salary, for example 70% of salary per day.

# Maternity benefits

### Current SOP (Nepal)

The process does not exist as maternity cash benefits (maternity benefit = 100% of the last gross salary; based on the labor law) are only paid by the employers.

### Adaptations needed

In some countries, a pregnant woman is entitled to receive maternity cash benefits from the health insurance fund. The benefit for maternity leave is basically salary compensation in % via cash.

Example business process:

Member submit the following letter  
- Delivery certificate  
- Employer leave form  
- Letter form from doctor or traditional mid-wife=> have local authority with stamp  
- Claim form  
 🡺 SHI Operator checks the form  
o If not qualified -> Return back to member  
o If qualified -> Continue process  
🡺 If the member has paid contribution >= xy Month (customizable; number of month, waiting period)  
o If no -> No payment (an alert message warning “contribution < 10” )  
o If Yes ->   
- Automatic calculation of the maternity benefit amount  
- Print of calculation form and notification form  
🡺 Payment of maternity benefits

* OpenIMIS requires a module for managing maternity benefits
* Maternity benefits can only get paid to the woman (not directly to another family member)
* The following data fields are needed:  
  - Expected delivery day  
  - delivery day  
  - maternity payment period from employer  
  - maternity payments paid from:  
  - maternity payments paid until:   
  - maternity payments amount  
  - waiting period/day for maternity benefits
* Customizable fields are:  
  - % of gross salary (amount of maternity payments, paid by SHI per day)  
  - period of time/days for which SHI will pay maternity payments (e.g. from the day when the employer ends the maternity payments)   
  - waiting period for maternity payments (During data entry, an alert will be generated if the waiting period is not yet over)

# Health Utilization Management Data analytic/Data warehouse

### Current SOP (Nepal)

Pre-defined reports exist in OpenIMIS. Report routines can’t get changed via the Admin interface. Programming is needed.

### Adaptations needed

* OpenIMIS should provide a toolbox for defining customized reports and analytics
* Reports within OpenIMIS should be done mainly for operational purposes

**This report has been created by Mr. Michael Stahl during a mission to Nepal from 03.-07.09.2018. The focus was on defining further requirements for OpenIMIS while not necessarily seeing the current Nepal OpenIMIS version as the baseline. Together with Mr. Saurav Bhattani and Mr. Nirmal Dhakal, we looked beyond the business process requirements for Nepal and compared the current openIMIS functions with the potential needs from other countries.**