**openIMIS e-Learning Course: Module 1 Script**

Slide 1

* Welcome to this self-pased e-learning introduction course on openIMIS as a global good in health and social protection.
* We are very glad that you have taken the time to learn about openIMIS and hope you enjoy going through this learning content together.
* With this course, we would like to give you an overview of the openIMIS product and how it can support health and social protection schemes in low and middle income countries. For better understanding and reflecting the earliest functionalities of openIMIS, we will mainly focus on the context of a health insurance scheme.

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* The course is based on a modular structure with 4 modules.
* As we chose the context of a health insurance scheme, module 1 will introduce key terms of health systems and health financing, to set the scene. This will be followed by an introduction to openIMIS.
* In module 2, we will talk about national eHealth structures and how openIMIS fits in within them.
* To lay out the diverse implementation scenarios for openIMIS module 3 will present a series of use cases.
* And finally, in module 4, you will learn about the openIMIS community and the sustainable approach of openIMIS as a global good.

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* Here we see a little more in detail the learning objectives of module 1 and 2
* List all LO

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* Here are the next learning objectives for module 3 and 4.

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* We also want to take this moment to thank all our contributors to this course.
* You will see that throughout the course, certain topics will be provided by we will h the organizations listed on the slide.

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* Let’s get started with the basics.

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* When explaining how openIMIS can support social health protection, we will first make sure to explain the context it works in: The learning objective of module 1 is to understand key terms linked to health systems and health financing. At the end of this module you will be able to explain the functionalities of openIMIS but also ist boundaries.
* This module will take approximately 50min

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* This is the detailed agenda for this module with two distinct blocks: first we offer an introduction to key health systems and health financing concepts

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* then we will get into openIMIS and what it does.

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* We will start with an overview of basic health systems and health financing concepts.
* This will provide a background to what processes and mechanisms openIMIS is actually trying to support.

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* hat does a health system comprise of? This is the WHO Health Systems Framework with its various «building blocks», showing how a healthcare system is structured.
* There are six blocks: Service delivery, health workforce ….
* Some of these blocks are of course defined a bit cross-cutting, which we will see when talking about (business processes?) ofopenIMIS. But for now we only focus on the financing block.
* All building blocks of a health system contribute to four overall goals, which are also listed in this diagram: improved health, responsiveness….

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* The four goals mentioned in the previous slide could actually be summarized through the concept of universal health coverage
* What is universal health coverage?
* Universal Health Coverage means that all people have access to required health services, when and where they need them, without financial hardship.
* The common model to explain Universal Health Coverage is this UHC cube, (which is often used in health financing strategies).
* It contains three main dimensions: the covered population at the bottom, the covered services to the right (not only quantity but quality) and the financial protection to the top (trying to reduce OOP expenditures). To attain UHC, all three dimensions must be covered.
* One can then assess a country’s (?) status» with this cube: maybe they have a very good health insurance in place, which covers people financially but this insurance is not mandatory so the whole population is not covered. Or the other way around, the whole population is covered but the number of services provided is very low and people end up paying for a lot of services with out-of-pocket payments.

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* You might have noticed that one of the building blocks of a health system is health information systems. They refer to a system designed to manage healthcare data.
* All elements of a health system as represented by the WHO Health Systems Framework rely on accurate and timely information that is being exchanged between various actors and sectors.
* In the context of a health insurance scheme this would be information flows between health insurer, health service provider (e.g. hospitals or smaller health care facilities) and beneficiaires.
* Well functioning health information systems are important in achieving UHC.

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* Of likewise importance for UHC is efficient health financing and an area that openIMIS is catering to.
* Financing, refers to the mobilization, accumulation and allocation of money, in an equitable manner, to cover the healthcare costs of people. It means: Make funding available.
* For efficient health financing, there needs to be a health financing strategy put into place that defines three key functions: the revenue raising function, the pooling and the purchasing.
* Revenue raising defines: where the money comes from. Is it tax sources? Voluntary sources? (E.g. contributions by employees to a formal sector health insurance or voluntary contributions by people to a community based health financing scheme)
* Pooling: who is the entity that collects this money and pools it for distribution? Is it at the unitary national level? Or at a regional level? Or are funds pooled based on employment status?
* Purchasing: how does the pooling entity purchase healthcare services from health service providers? This involves defining contracting terms with health facilities, how and at what rates they will be paid etc. Benefit packages also need to be defined.
* Then you see the objectives and goals of these health financing functions

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* Here are different possible (health financing) mechanisms for each health financing function.
* This figure displays the variety of possible mechanisms in the revenue raising function up to the pooling entity: It shows all possible options, where the money to pay health services is coming from (public vs. Private in black and blue), and how it flows from the diverse (revenue) sources to the pooling entities.
* We won’t go into detail here for each of them. Nevertheless, if you want to leanr more about health financing and its functions, please check ourlist of further resources at the end of this module.

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* One possible health financing mechanism is health insurance.
* So what is the rationale behind a health insurance system and how does it contribute to Universal Health Coverage?
* Health insurance has three main advantages: first of all it creates additional funding for health and pools the money into an «health insurance fund». The idea is that not all beneficiaries won’t need treatment at the same time, so overtime, there is always enough money to pay for health services.
* This then increases efficiency and the processes in place enable a controlling of costs. This happens essentially thanks to the contracts between the providers and health insurer.
* Finally health insurance improves the quality of health services and the targeting of healthcare. Health seeking behaviour of people is also often improved.
* Though these 3 advantages of health insurance could clearly be pointed out, the idea of insurance also comes with some challenges, especially in low- and middle-income settings e.g. limited revenue sources or weak regulation of x over/on y).

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* But how does a health insurance system actually work and what transactions happen within it?
* In any health insurance system, you have three blocks of actors: the purchaser, which is the insurer who purchases services. The purchaser has its own personnel and undertakes different transactions (e.g.enrollment of beneficiaries and the payment of claims).
* Next, you have the healthcare provider side, which are the various health facilities (e.g. a hospital or a smaller healthcare facility). In a health system you often find different types of healthcare providers at primary, secondary and tertiary care level. The type of health facilitiey associated with these levels of care range from asmall healthcare facility or GP office to national or specialized hospitals. They can offer different levels of service and items, sometimes at ranging prices; which depends on the health system and how it is regulated.
* Between purchaser (insurer) and healthcare provider there are specific arrangements or «contracts» that are established. These contracts define what kind of services will be covered and at what rates.
* The third block of actors are the clients (often called beneficiaries). The relation and transactions between clients and purchaser are likewise defined through a contract. The contract defines what kind of benefits are provided under the insurance to a client and how much the clienthas to pay (the contribution or «premium»). On the other side the client directly interacts with the healthcare provider, when seeking medical consultation or treatment.
* On a broader level this slide showed what kind of transactions take place within a health insurance system.

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* Moving from the transactions within a health insurance system, we now look at processes. Processes of a health insurance system are in a generic way, captured in four key processes. The enrollment process is the starting point: when someone decides to get some coverage, the person needs to join the health insurance program and be enrolled.
* The healthcare service utilization is when the person then goes to seek care at a health facility. There are specific transactions that occur there.
* Then there is the claims processing: this is when the patient has recieved treatment and how does the insurer make sure that the services are paid for.
* Renewal is the proccess by which a person who has been enrolled for a specific period, decides to continue to be part of the program and so «renews» his or her health insurance policy. In some cases the individual also wants to change some parts of the policy before the renewal, which is the modification.

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We will now start the second block which is a deep-dive into openIMIS

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* As we saw in the previous section, the implementation of a health insurance program or even other social protection schemes, comes with a number of challenges, especially in low- and middle-income countries.
* Experience has shown that the efficient implementation and management of these processes lead to successful schemes that provide adequate protection to beneficiaries.
* Its success depends on the establishment of multiple, complex business processes to manage the functioning of the scheme.
* The efficiency of these process can be increased thanks to digital solutions but many scheme operators in resource-constrained settings lack access to these technologies.
* They are generally provided with three options:
* 1) They either have to build their own IT systems: this is a path we see a lot of scheme operators take. While it sounds to be the best in terms of having a tool that does exactly as the scheme requires, it has the potential to become very difficult to manage and upgrade as the scheme progresses and increases in complexity.
* 2) The second option is to buy commercial: this option provides high quality tools that offer good functionality, scalability and security. However, these are generally very expensive both with regards to up-front cpst and recurring cost. .
* 3) However, there is a third option: using openSource software: this could provide the best of both worlds. The flexibility to have a system that is customizable to one’s needs while still being scalable, secure and most importantly affordable, with no licensing costs.

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* openIMIS is a solution that aims to be exactly that: an open-source, free software, customizable to one’s needs of the scheme, helping to digitalize the link between beneficiaries, service providers and scheme operators.
* Around the product is a community of developers, users and implementers with the joint mission to increase and improve access to universal health coverage and universal social protection.

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* Origins of openIMIS lie in a digital solution that was developed in the health financing context, reacting to a request from Tanzania in 2011.
* Back then, the solution had been funded by the Swiss Agency for Development and Cooperation (SDC) and developed by the Swiss Tropical and Public Health Institute, in collaboration with a local developer. At the time it was named Insurance Management Information System or IMIS.
* After it was first implemented in 2012 as the IT backbone for operating community health funds (CHF), district-based pre-payment schemes in Tanzania, the system was adapted for a mutuelle-based health insurance scheme in Cameroon (2013), and customized for operating Nepal’s health insurance scheme in a pilot (from 2014) and later on on national scale (from 2016).
* This organic growth and demonstrated potential for easy adaptation to different types of health financing and social protection mechanisms prompted SDC to release the management information system through an open-source license - openIMIS.
* In 2016, The German Federal Ministry for Economic Cooperation and Development (BMZ) and SDC jointly set-up the openIMIS Initiative, to manage and promote the community of practice, to further develop the software, and to support future implementations of the openIMIS software.
* A new master version was released in 2017 and new pilots followed in DRC and Chad
* The software architecture has then been progressively migrated to a modular one, which has made significant progress in terms of ease of use.
* In 2020, there was a push to use openIMIS in more context beyond health, within the domain of social protection. This will be explained a bit more in the next slide
* In 2021, a significant step was the establishment of the Tomai, French-speaking, community, with the goal of promoting openIMIS in french-speaking regions.

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The openIMIS initiative was established by BMZ and SDC with some core principles in mind:

* That the openIMIS tool was to be a global good in health financing and social protection
* That it is aligned with Principles for Digital Development and the Principles of Donor Alignment for Digital Health <links>
* Flexibility and adaptability of the tool for various schemes would be encouraged
* Openimis would be interoperable through the use of international standards and practices

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* The COVID-19 pandemic has shone a light on how important it is to achieve the Sustainable Development Goals (SDGs) focused on health and social protection.
* The openIMIS initiative aspires to be a strong support for countries’ efforts to achieve these much required, resilient systems.

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* Since 2021 ILO and the openIMIS initiative are working closely together on implementations in the social protection context.
* Within the ILO the need for a tool to be able to implement all elements of social protection schemes, is a recurrent theme. When asked by social protection institutions in partner countries about a recommended tool to manage their schemes (building yourself, buying or implementing existing tools), the ILO stresses the importance of adoption scale and community ‘import’ that go with an IT solution.
* With this background, a collaboration with the openIMIS initiative was welcome as ILO now can point partner countries at a potential MIS solution that can improve the management and administration of social protection schemes in the selected countries. Whether or not openIMIS can be eventually deployed in the specific setting, will be assessed in a prior feasibility study (that follows a standardized process).
* Joining competencies on policy advice and tool implementation in social protection, presents a win-win-win constellation for the *partner country* to receive support in identifying and implementing an management information system, fitting their needs and benefiting people in the management of social protection services to them;
* *ILO* can go beyond policy advice, offering a practical tool to sustain policy advances in social protection;
* *openIMIS* *initiative on the other hand* receives feedback on specific requirements and functionality needs that guide the initiative in customizing existing or developing additional software modules.

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* openIMIS as a product is constantly being developed and improved by the initiatives’ developers team.
* Updates are released on a bi-annual basis, generally around April and October every year.
* New releases follow a specific process which include different rounds of testing, training and support.
* The software currently has two versions: the legacy version, based on Microsoft technologies, including a the Microsoft SQL server and the new modular version based on Python/Django and Postgres SQL. Both the legacy and modular versions work on mobile through the Android platform..
* So the different modules within openIMIS have gradually been migrated to the modular version but it is still possible to download a full legacy version.
* On top of these activities, when a new implementation is started, depending on what is needed for the specific context, the software will be customized. This will be covered in more detail in Module 3.

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* Now we get to how data flows through openIMIS.
* The essence of the system is that it is managed in a centralised manner, with a central server so any data will need to come back to the central server. Even if you have certain actions that are decentralized, they need to come back to the central server. This is required to maintain a coherence of transactions.
* From the diagram, you can see that there is an online part: anyone who has access to the system connects through the internet and undertakes transactions. All functionalities from administration to enrollment and claims management are available using the online web mode.
* Then there is the mobile part on the right: certain transactions, specifically enrollment, renewal and the entry of claims, can be undertaken on a mobile phone. If you have internet connection on the phone, you can interact directly with the central server. If you do not have internet connection on the smartphone (due to being in a rural area for example), you can physically transport the data to a place where you have internet connection and upload it to the central server there.
* Finally there is the offline mode, which some transactions can be conducted under. For example in some health facilities, where there is a computer but instable internet connection, the personnel can still upload claims submissions offline, and once internet connection is restored, upload all data to the central server.
* This is the overview of how data is transferred within openIMIS.

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* Here we come to an overview of the workflows or business processes that openIMIS can perform.
* The first part is the beneficiary management: so when a household or individual registers to a health scheme, this is done either on paper or with the openIMIS enrollment app and then the data is stored on the central server, as explained in the previous slide.
* The next process is that of service utilization which includes patient visits and verification, so the health facility staff can verify that the patient has health insurance and then the claim entry once the treatment has been completed.
* This then takes us to a key part, which is the claims processing. So the claim is submitted by the health facility and it is then reviewed by a claims manager of the health insurer. Depending on the decision, the payment is then approved.
* Finally, openIMIS has some reporting functions that help with monitoring.
* We will now dive a bit deeper into each of these processes.

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* Before we look into the four workflows, it is important to explain how these various registers work in openIMIS. When you set up a scheme with openIMIS, you will need to start by creating and configuring these registers or lists as a base for all processes. These are all under the «administration» module.
* First a set of user profiles will be created: the most common ones are enrollment officers, claim administrators, medical officers, receptionists and scheme administrators. Each user profile has a set of access rights depending on its function.
* User accounts are then set up.
* Payers are basically organizations that would pay the contributions on behalf of the beneficiaries (a third-party payer)
* Locations are very important: they are divided between regions, districts, municipalities and villages.
* Diagnosis lists, such as the ICD10 can be uploaded in bulk, as well as different price lists for services and items. So you first create a list of all possible services and items and then create specific price lists, which can be for a specific health facility but most often will be for a certain category of facilities. For example if you have specific price lists for government vs. Private hospitals.
* The specific products for the health scheme need to be configured according to various characteristics such as applicable locations, contribution amount, lump sum, max. number of members per policy etc.
* And of course each health facility that is included in the scheme and has a contract with the insurer has to be entered in the system. They are categorised as health centers, dispensaries and hospitals.

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* The beneficiary enrollment process is divided into three modules in openIMIS: persons & families, policies and contributions
* Here you see the whole enrollment process depicted. Basically, the enrollment is conducted by an «enrollment officer» that registers «households» so you have one person who is the family head and then the other household members. If a single person wants to enroll, he or she will also be registered as a single person household.
* So all personal details of the new beneficiaries have to be captured, together with something to identify them such as photos and an individual insurance number. This can be done on the mobile app or pape-rbased and then uploaded to openIMIS.
* The contribution payment collected for the enrollment is then entered into openIMIS and an ID card is issued.
* All this policy and contribution payment information is recorded in openIMIS. You can see this in the screenshot, which shows a household, its policy details and contribution information.
* In this example here the contribution has been made by a payer (the coffee farmers association) on behalf of the beneficiary (client).
* This is of course only a quick overview of all the functionalities related to enrollment so we will provide the link to the demo server in the resource page for this module. You can have a look for yourself and play around with it.
* An important point to mention here:there is now a module available for the «formal sector», which adds the group enrollment method: a policy holder (aka an enterprise or organisation) takes on policies on behalf of its employees and their families. Contribution payments are now also flexible and can be based on external information such as salaries. As mentioned in previous slides, the software is highly adaptable to make sure it fits the context it is applied in and the scheme.

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* The first step in service utilization is the verification of the patient. When a patient comes in for treatment, the health facility staff will search and verify the individual’s identity and whether he or she has insurance coverage. This can easily be done with a search function with the name and insurance number of the individual, or with the QR Code on the health insurance card. Generally, a photo of each insure is taken and stored in openIMIS upon enrollment, to ensure accurate verification.
* Once the identity and coverage has been verified, the treatment can be performed. A person without a card can still be treated, but as an uninsured client.
* In order to be reimbursed for the services provided to the beneficiary, the health facility (provider) staff then need to submit a claim for the service provided, which is done through openIMIS as well. The claim submission page can be seen on the next slide. Facilities have to enter each service and item provided to the beneficiary under the scheme . The search function allows to search from service and items lists that are uploaded in bulk to openIMIS.

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* fter the visit to a health facility, the claim will be submitted to the insurance by the claims administrator).
* There are different ways in which claims can be submitted. The most convenient is in an online mode with a computer. It is also possible to use the openIMIS claims mobile app that can be used online as well as offline. Indeed, the data can be entered offline and uploaded to the central server when the internet connection has been restored, or brought physically to a place that has internet.
* This offline mode does exist using a computer as well but because mobile phones can more easily be transported, the app is generally preferred.
* In some cases, physical forms (paper-based) are still sent to the health insurance, and at the health insurance someone enters them into openIMIS.
* These are basically the different ways in which a claim gets onto openIMIS.
* After submission, there is internal checking. A claim processor (based on a rule engine that takes in consideration the openIMIS configuration) will check the claim for completeness, accuracy and whether the service/item is covered by the patient’s insurance policy
* If all services and items of the claim are rejected by the rule engine, the health facility will receive a negative claim response.
* If all services and items are validated, the claim is either directly accepted or subject to evaluation by a medical expert.
* The claim can also be partially accepted, meaning that not all services or items are accepted.
* Health facility administrators can upload claims in bulk to make the process easier, .
* Also an AI claims module has also been developed which refines the claims adjudication process and increases its accuracy.It basically adds an extra automated check, based on accumulated data, to decrease the need for manual verification.
* Data from openIMIS can be used by accounting and payment systems for the final payment to service providers. Integrations with country specific banking and/or payment systems would have to be done individually for each implementation, it is not automatically part of openIMIS.

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* For monitoring purposes, there are a set of standard operational reports that can be generated in openIMIS
* For example, getting a monthly overview of claims from a particular health facility, or how many households have been enrolled during a given time period.
* These are relatively straight forward reports. If you plan any reports beyond these, then you need to use another software in addition to openIMIS, such as DHIS2. This will be covered in more detail in module 2.

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* Moving on to module 2, the focus will be on placing openIMIS within the eHealth architecture. The interoperability as well as an overview of ICT governance will also be covered.