



Lab Order Management Microservices



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1.1. Functional Area – Lab Management Microservices

1.2. Purpose

The document describes the Business Requirements Specifications (BRS) for Lab management microservices.

A Lab management module consists of many functions that can be built as independent services using a microservice architecture. The functions can be configured using a workflow engine in any order depending upon the health facility's OPD setting and service they cater to. For example, a single doctor clinic may just use the lab order service but doesn't have an associated lab or sample collection unit. While a PHC or a primary screening center may have sample collection as well as sample processing unit and would need all the lab management functions as services as might be equipped to handle simple investigations like a blood count or HBA1C which are found in most of the primary care screening centers integrated with a simple lab analyzer machine.

The document does not cater to an in-depth result processing parameter and module specifications as there are specialized off the shelf solutions easily available in the market to provide a full-fledged lab information module. Also, the document is written from the perspective of an outpatient facility setting that would want to use some of the lab management facilities and can outsource others to a specialized lab for processing.

Intended Audience

This document is intended for the Product Engineering team to commence development of 'Lab Management Microservices' that could be utilized by an outpatient healthcare delivery facility like PHS, clinics, etc., and the audience would comprise of

- 1.2.1. Development, Design & Implementation Team which may include Architects, Designers, Developers, and Business Analysts
- 1.2.2. Key stakeholders in the government at central and state levels

1.3. Overview

The Lab management microservices deals with various functionalities of the lab from laboratory test orders to sample collection, order tracking, and result management. The primary purpose of lab management microservices is to ensure lab orders are successfully created and tracked and can facilitate clinical decision making through internal or external integrated LIS or third-party labs by a health facility.

1.4. Scope & Not in Scope

Assumption: The scope of the document is to provide specifications for some of the LIS's functionalities that can be built into microservices and can be utilized by a primary care out-patient healthcare delivery setting.

The main application of lab management microservices in most laboratories is sample management and sharing of results with clients.

Functionalities in scope are: -

- a. Lab order creation and worklist
- b. Sample collection & barcoding
- c. Sample outsourcing for processing to an internal integrated lab or a third-party lab
- d. Sample Rejection & service cancellation with adjustment
- e. Result Management

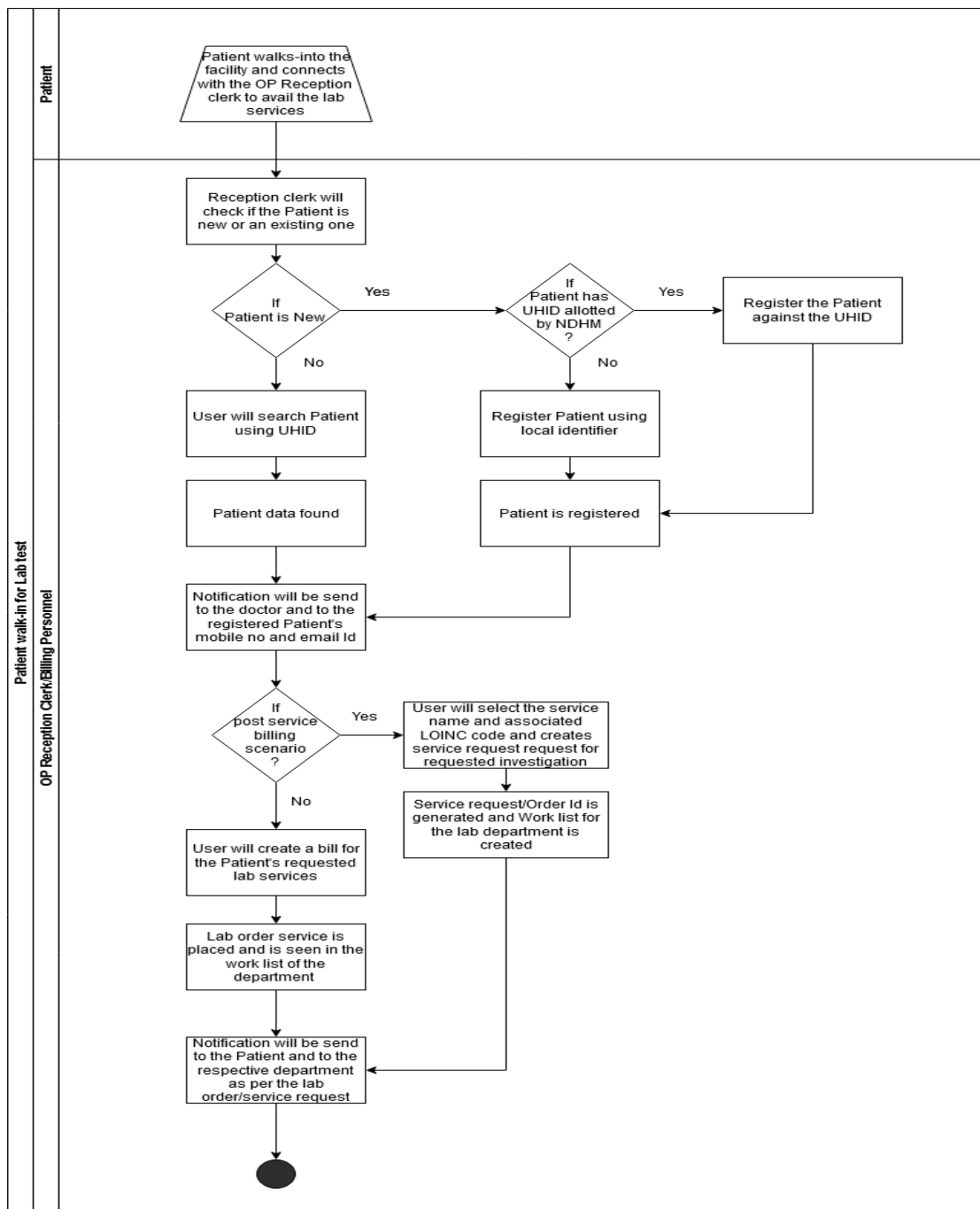
1.5. Lab Order Management Microservices

1.5.1 Business Process Flow for Out-patient: Lab Order Creation

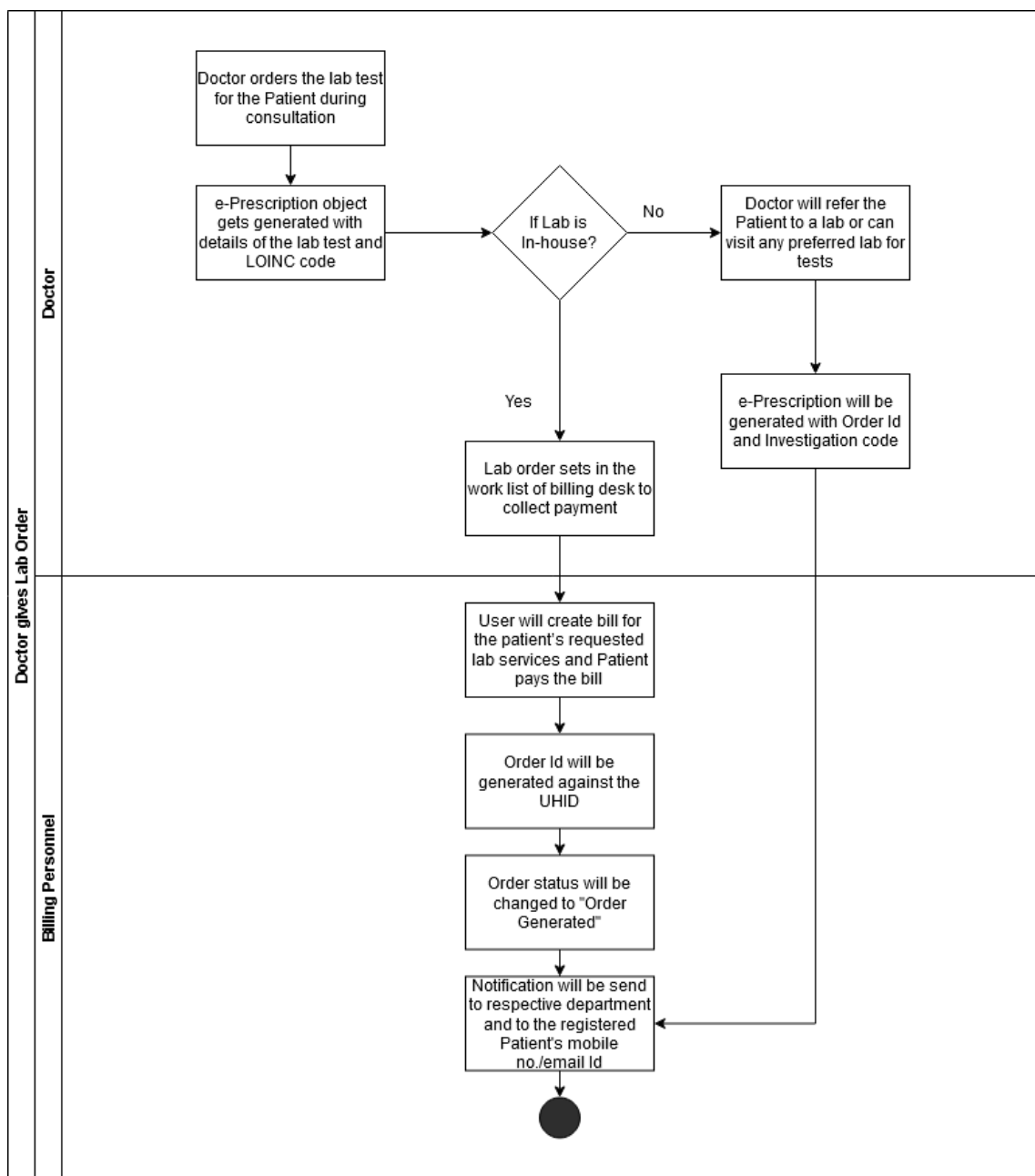
Description	Lab Order Creation is the process in which a lab order is created for an investigation that is required to be done on the request of the Patient or through a doctor's prescription during a patient consultation at a primary care facility.
Users	<ul style="list-style-type: none">• OP Reception Clerk• Patient• Billing personnel
Pre-requisites	Patient is Registered, order is placed.
Business Process Details	The Scope of this microservice is to create a Unique Lab Order for an investigation from the LOINC mapped investigation list Id with a unique order ID for tracking and order management.
Steps	<p>When Patient request a lab test</p> <ul style="list-style-type: none">• Patient walks-into the facility and meets the reception/billing clerk to avail the lab services.• Reception clerk will check the details of the patient, whether the patient is new or an existing one.• If the patient is new, the clerk will check if patient has a UHID, and registers the patient against his UHID.• If patient does not have UHID, he/she will be registered by creating a local facility identifier after capturing his/her demographic details.• In this case, if it is post service billing scenario, receptionist/billing user creates a service request for the requested investigation by selecting the service name and associated LOINC code from the "investigation service master". In this case a service request/order ID gets generated and a worklist for the lab department/sample collection unit gets created for taking further actions on the requested investigation service.• This will also result in a worklist item for the billing module/desk for collection of required payment against the lab order post sample collection is done.• If it is a pre-service billing scenario, then the User will directly create a bill for the patient's requested lab services and lab order service gets placed and seen in the lab department's worklist if the facility has an integrated laboratory or sample collection unit.• Notification will be sent to the patient and to respective departments as per the lab order/service request. <p>Doctor gives Lab Order</p> <p>Similarly, a lab order also gets created when a doctor prescribes a lab investigation using LOINC during a patient consultation. This also results in a worklist for the billing desk to act on. In this case, the patient can choose to get their sample collection done within the same facility or can choose to get it done from the outside using the copy of the prescription provided by the facility and later gets his/her result uploaded during a fellow up visit or using a patient app.</p> <ul style="list-style-type: none">• A lab investigation was ordered by the doctor during a consultation.• e-Prescription object gets generated with details of the lab test and LOINC code.

	<ul style="list-style-type: none"> ● If the lab facility is available inside the hospital, the user will create the bill or service request as explained above for the lab service and a unique order ID gets generated. ● Patient will make the required payment as per the billing workflow. ● If lab facility is not available within the health facility, Patient can be referred to a lab (If already partnered) or Patient can visit any other lab and get the lab test done.
Outputs	<ul style="list-style-type: none"> ● E-Prescription ● Order ID with investigation LOINC code
Messages & Alerts	<ul style="list-style-type: none"> ● Message to relevant provider/ department ● Message to the registered patient/ family member for order status

1.5.1.1. Visio: Business Process Flow for Patient Walks-In for Lab test



1.5.1.2. Visio: Business Process Flow for Patient comes for Consultation.



1.5.1.3. Required MDDS Data Elements and LOINC

1. Entity: Generic

Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Time	05.001.0001	hh:mm:ss	8	
Date	G00.01	dd/mm/yyyy	10	
Alternate Identifier	05.001.0004	Varchar	254	
Alternate Identifier Type	05.001.0003	Integer	2	CD05.053
System of Medicine	05.001.0022	Integer	2	CD05.030

2. Entity: Person

Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Unique Health Identification Number	G01.01	Integer	12	
Alternate Unique Identification Number (UID)	05.002.0002		Max. Size=18 10 -PAN Card 08 -Passport No. 18 -Voter ID 18 -Any other Identifier	
Person Name	05.002.0031			Refer to G01.02

3. Entity: Patient

Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Patient Name	05.003.0002			Refer to G01.02
Patient Class	05.003.0013	Integer	2	Refer to CD05.047
Patient Arrival Time	05.003.0014	HH:MM:SS	8	
Patient Arrival Date	05.003.0015	dd/mm/yyyy	10	Refer to G00.01

Entity: Lab Order

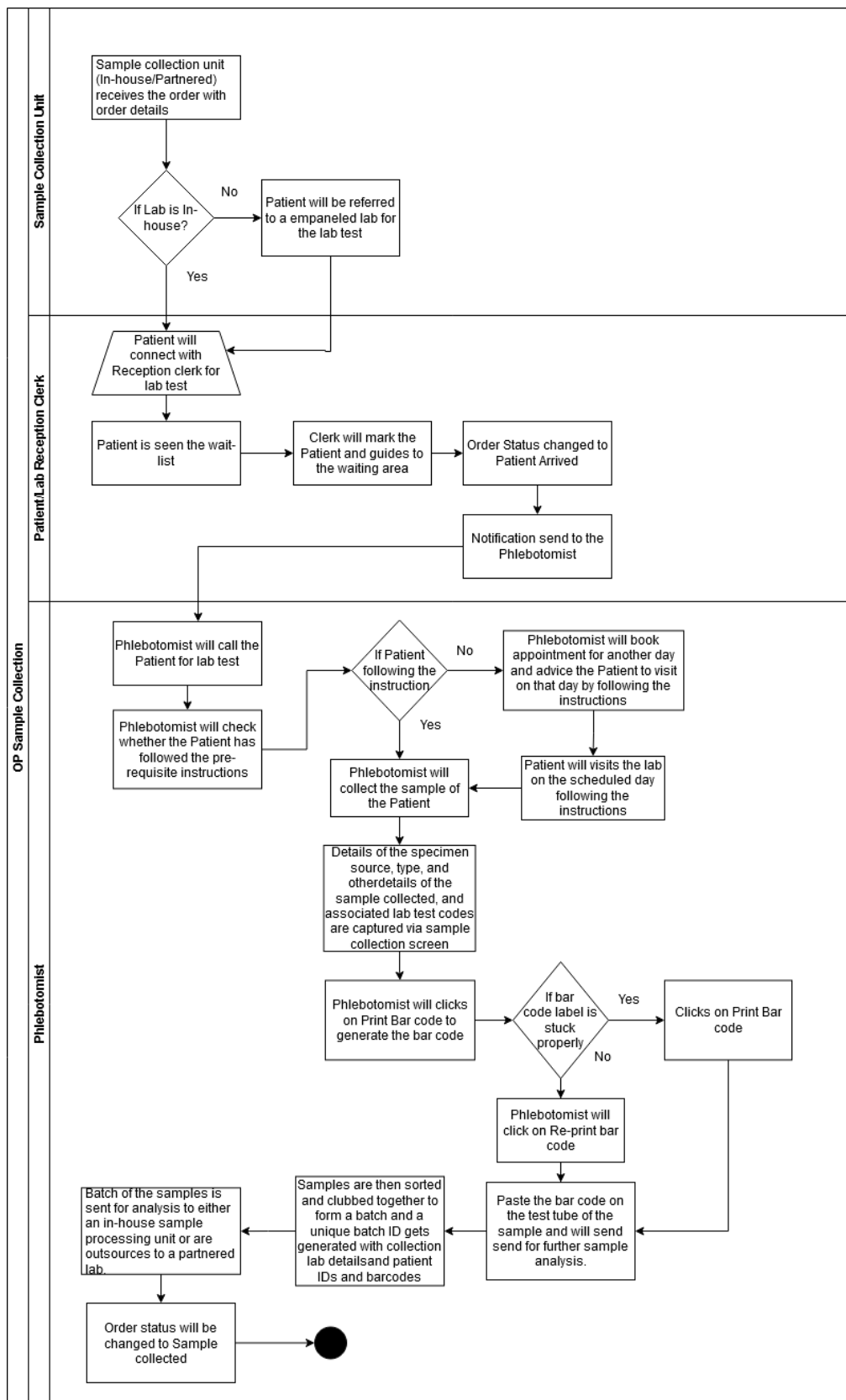
Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Lab Order Code	05.021.0022	Varchar	10	LOINC has been recommended to be utilized for ordering any lab order management
Lab ID	05.021.0023	Integer	10	
Lab Type	05.021.0024	Integer	1	
Result Status	05.021.0004	Char	2	

1.5.2. Business Process Flow for Out-patient: Sample Collection

Description	Sample collection is done by the sample collection unit within the lab entity or by an integrated lab with which a primary facility has a partnership.
Users	<ul style="list-style-type: none"> Sample Collection unit

	<ul style="list-style-type: none"> • OP Reception Clerk • Patient • Phlebotomist
Pre-requisites	<ul style="list-style-type: none"> • Patient is Registered, • An Order is placed
Business Process Details	<p>The current sample collection process caters to two use cases as described below-</p> <ul style="list-style-type: none"> • Use case 1- Sample collection is done in-house, inside the premises of the health facility • Use case 2- Sample collection is done by a partnered lab whose LIS is integrated with the health facility HDIS
Steps	<p>Sample Collection</p> <ul style="list-style-type: none"> • Sample collection unit (Inhouse/partnered) receives the order with order details in their worklist with an order status pending • If lab is In-house, Patient will connect with the Reception clerk for lab test. • In case the lab facility is not available, then the patient will be referred to an empaneled lab. • Patient is seen on the waitlist • Clerk will mark patient's arrival if applicable and guides the patient to the waiting area • Order status is changed to Patient arrived. • Notifications were sent to the phlebotomist. • Phlebotomist calls the patient for sample collection and checks whether the patient has followed the pre- requisite instructions for the test. • If the patient has followed the pre-requisite instructions, the phlebotomist will collect the sample of the patient. • Details of the specimen source, type, and other details of the sample collected, and associated lab test codes are captured via a sample collection screen. • Phlebotomist then generates a barcode for the collected sample with patient and investigation code details which is then stuck on the specimen for uniquely identifying the sample to avoid mixing with another patient's sample. • In case the Patient is not following the instructions, Phlebotomist will reschedule the sample collection to another patient's preferred date and time. • Samples are then sorted and clubbed together to form a batch and a unique batch ID gets generated with collection lab details and patient IDs and barcodes. • Batch of the samples is sent for analysis to either an inhouse sample processing unit or are outsources to a partnered lab. • Order status will be changed to Sample Collected.
Outputs	<ul style="list-style-type: none"> • Barcode • Batch ID
Messages & Alerts	<ul style="list-style-type: none"> • Message to relevant provider/ department • Message to the registered patient/ family member for order status

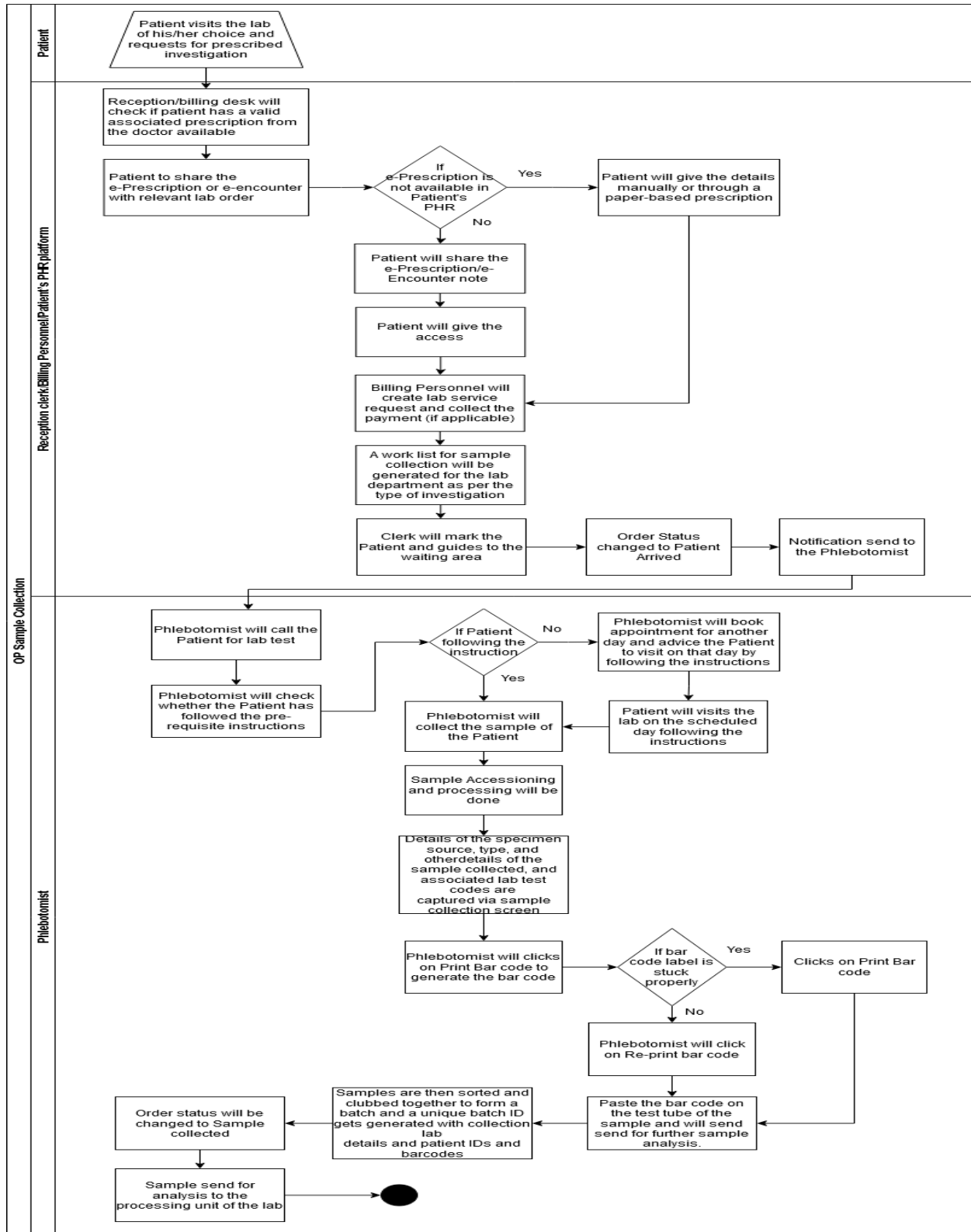
1.5.2.1. Visio: for OP Sample Collection



1.5.2.2. Business Process Flow for Out-patient: Sample Collection by Third-party lab which is not integrated with the facility using a e-prescription/e-encounter note

Description	In this case the third-party lab will retrieve investigation order details by accessing the e-prescription or e-encounter note stored in patient's PHR
Users	<ul style="list-style-type: none"> • Registration Desk • Billing Desk User • Phlebotomist • Patient • Patient's PHR platform
Pre-requisites	<ul style="list-style-type: none"> • Patient is Registered, • E-prescription for investigation exists • Patient has a PHR
Business Process Details	This microservice is utilized for sample collection process from the labs whose LIS is not integrated with the facilities HDIS and patient chooses to visit a lab of his/her choice for sample collection.
Steps	<p>Sample Collection</p> <ul style="list-style-type: none"> • Patient visits the lab of his/her choice and request for prescribed investigation to be done. • Reception/billing desk checks if patient has a valid associated prescription from the doctor available. • Patient either shares the e-prescription or e-encounter that has the relevant lab order through a PHR mobile app or provides his/her UHID so that the lab can request access to patient's PHR for retrieving the e-prescription/e-encounter note. • Once patient grants the access to the e-prescription/e-encounter note billing desk creates lab service request and collects payment if applicable (prebilling scenario) to generate a lab order ID against the patient's UHID. • If e-Prescription is not available in Patient's PHR, then the Patient will give the details manually or through a paper-based prescription. • A worklist for sample collection gets generated for the lab department as per the type of investigation. • Clerk will mark patient's arrival and guides the patient to the waiting area. • Order status is changed to Patient arrived. • Notifications were sent to the phlebotomist. • Phlebotomist calls the patient for sample collection and checks whether the patient has followed the pre-requisite instructions for the test. • If the patient has followed the pre-requisite instructions, phlebotomist will collect the sample of the patient as explained under "1.5.2.1". • In case the Patient is not following the instructions, Phlebotomist will book the appointment for another day and advice the Patient to visit another day by following the instructions. • Sample is collected by the lab with barcode and is sent for analysis to the processing unit of the lab.
Outputs	<ul style="list-style-type: none"> • Barcode • Sample ID • Specimen ID • Email/ WhatsApp/ SMS of Order status
Messages & Alerts	<ul style="list-style-type: none"> • Message to relevant unit • Message to the registered patient/ family member for order status

1.5.2.3. Visio: for OP Sample Collection



1.5.2.4. Required MDDS Data Elements and LOINC

1. Entity: Generic

Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Time	05.001.0001	hh:mm:ss	8	
Date	G00.01	dd/mm/yyyy	10	
Alternate Identifier	05.001.0004	Varchar	254	
Alternate Identifier Type	05.001.0003	Integer	2	CD05.053
System of Medicine	05.001.0022	Integer	2	CD05.030

2. Entity: Person

Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Unique Health Identification Number	G01.01	Integer	12	
Alternate Unique Identification Number(UID)	05.002.0002		Max. Size=18 10 -PAN Card 08 -Passport No. 18 -Voter ID 18 -Any other Identifier	
Person Name	05.002.0031			Refer to G01.02

3. Entity: Patient

Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Provider's Patient ID	05.003.0001	Varchar	18	
Patient Arrival Time	05.003.0014	HH:MM:SS	8	
Patient Arrival Date	05.003.0015	dd/mm/yyyy	10	
Reason for visit	05.003.0016	Varchar	99	
Patient Landline Number	05.003.0011	Varchar	8	
Patient Mobile Number	05.003.0012	Char	10	
Patient Email Address/URL	05.005.0008	Varchar	254	

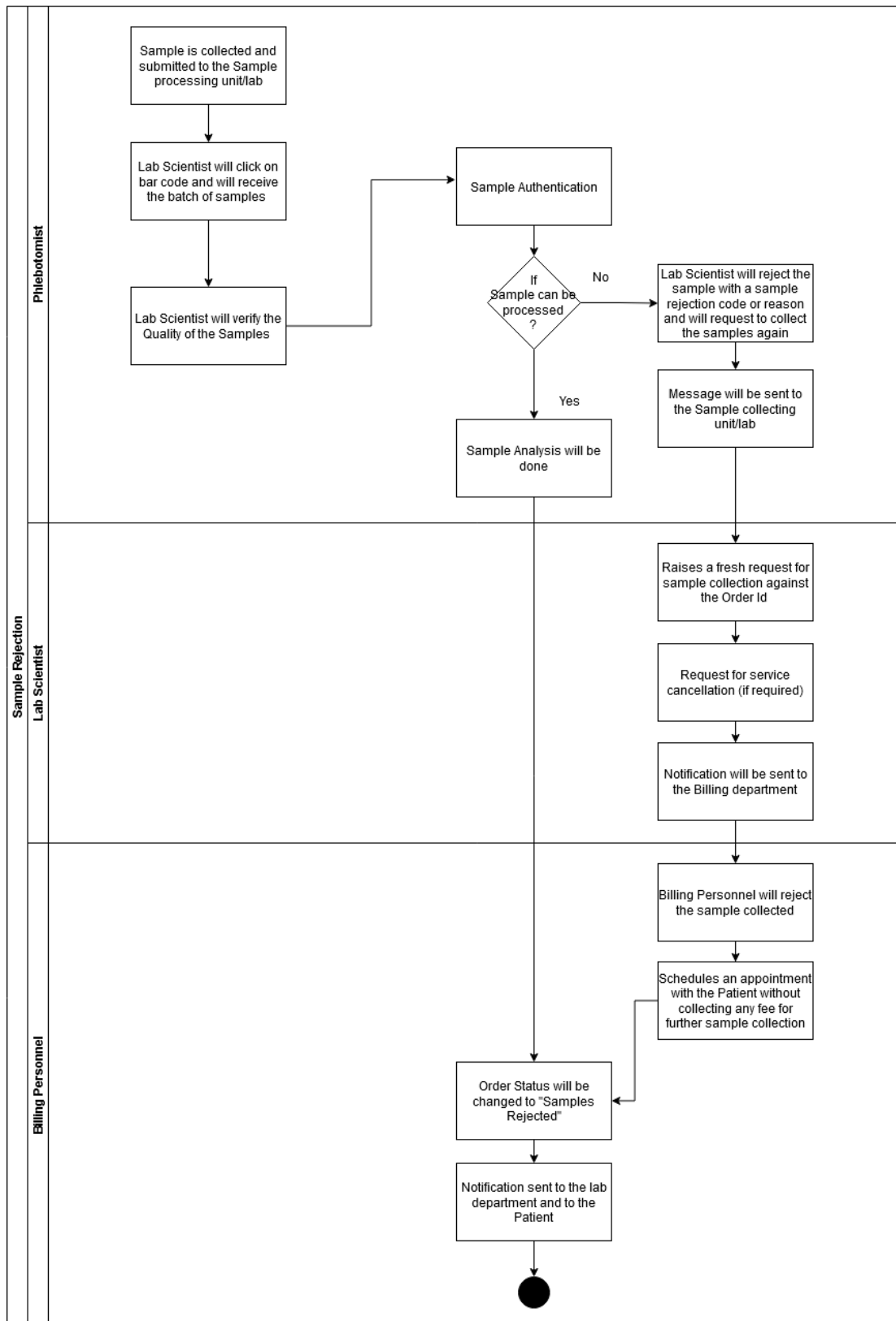
4. Entity: Sample Collection

Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Accession Source	05.021.0010	Varchar	99	
Specimen Type	05.021.0011	Integer	3	
Specimen Collection Method	05.021.0012	Integer	2	
Specimen Source Site Modifier	05.021.0013	Varchar	99	
Specimen Risk	05.021.0014	Integer	2	
Specimen collection Date	05.021.0015	Date(dd/mm/yyyy)	10	
Specimen Collection Time	05.021.0016	HH:MM:SS	8	

1.5.3. Business Process Flow for Exceptional Scenario of Sample Rejection

Description	During the sample collection process, there are chances where the sample might get rejected by the lab scientist. If the Sample is not correct, i.e., the sample is unlabeled or specimen is hemolyzed or the quantity is insufficient than lab scientist rejects the samples and sent the sample back to the hospital to recollect the samples. If the Samples are correct, lab scientist will send the samples to the lab in charge for sample processing and report generation.
Users	<ul style="list-style-type: none"> ● Phlebotomist ● Lab Scientist ● Billing Personnel
Pre-requisites	<ul style="list-style-type: none"> ● Patient is Registered ● Order is placed ● Order Id is generated
Business Process Details	<p>Sample collected by the phlebotomist, sorted and send to their respective departments will be reviewed and accepted by the lab scientist of the departments. The sample will be checked by the lab in charge. Lab in charge will send the samples for analysis.</p> <p>The scope of the microservice is to reject the sample if samples fall short of the quality, volume or other eligibility criteria.</p>
Steps	<p>Lab Outsourcing</p> <ul style="list-style-type: none"> ● Samples will be collected and submitted to the Sample processing unit/lab ● Lab Scientist will click on bar code and will receive the batch of samples ● Lab Scientist will verify the Quality of the Samples ● If Samples can be processed, Sample Analysis will be done ● If not, Lab Scientist will reject the sample with a sample rejection code or reason and will request to collect the samples again ● Message will be sent to the Sample collecting unit/lab ● Raises a fresh request for sample collection against the Order Id ● If required, request for service cancellation will be done ● Notification will be sent to the Billing department ● Billing Personnel will reject the sample collected and will schedule an appointment with the Patient without collecting any fee for further sample collection ● Order Status will be changed to "Samples Rejected" ● Notification will be sent to the lab department and to the Patient
Outputs	<ul style="list-style-type: none"> ● Samples Rejected ● Notifications send
Messages & Alerts	<ul style="list-style-type: none"> ● Message to relevant provider/ department for sample details ● Message to the registered patient's mobile number

1.5.3.1. Visio: for Sample Rejection



1.5.3.2. Required MDDS Data Elements and LOINC

1. Entity: Generic

Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Time	05.001.0001	hh:mm:ss	8	
Date	G00.01	dd/mm/yyyy	10	
Alternate Identifier	05.001.0004	Varchar	254	
Alternate Identifier Type	05.001.0003	Integer	2	CD05.053
System of Medicine	05.001.0022	Integer	2	CD05.030

2. Entity: Person

Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Unique Health Identification Number	G01.01	Integer	12	
Alternate Unique Identification Number (UID)	05.002.0002		Max. Size=18 10 -PAN Card 08 -Passport No. 18 -Voter ID 18 -Any other Identifier	
Person Name	05.002.0031			Refer to G01.02

3. Entity: Patient

Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Patient Name	05.003.0002			Refer to G01.02
Patient Class	05.003.0013	Integer	2	Refer to CD05.047
Patient Arrival Time	05.003.0014	HH:MM:SS	8	
Patient Arrival Date	05.003.0015	dd/mm/yyyy	10	Refer to G00.01

4. Entity: Sample Rejection

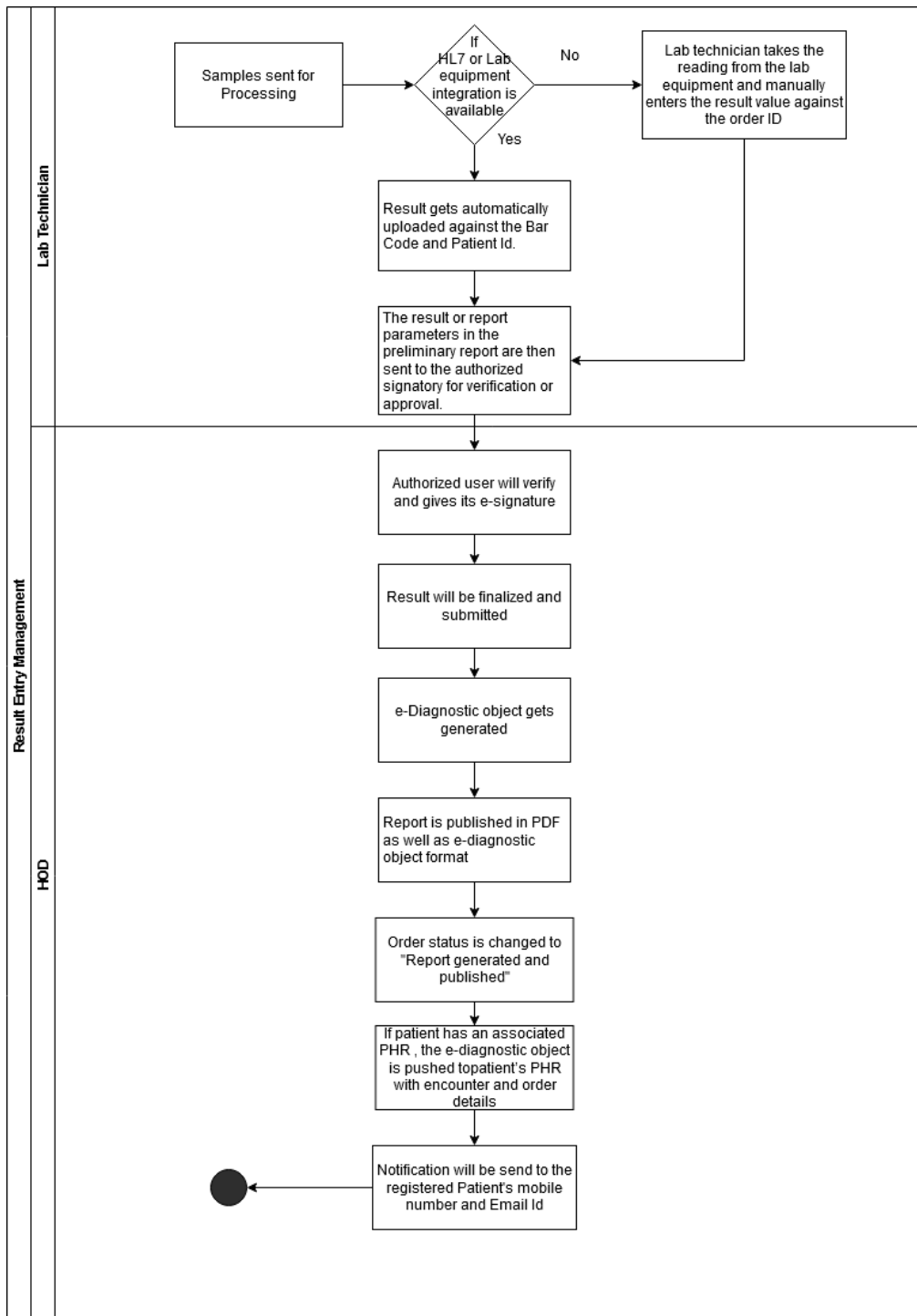
Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Specimen Received Date	05.021.0017	Date(dd/mm/yyyy)	10	
Specimen Received Time	05.021.0018	HH:MM:SS	8	
Specimen Availability Indicator	05.021.0019	Integer	1	
Specimen Rejection reason	05.021.0020	Integer	2	
Number of Specimen Containers	05.021.0021	Integer	2	

1.5.4. Business Process Flow for Lab Result Management

Description	<p>Once the sample is collected and analysis is done, result creation process starts. Lab technician will record the result details as per the e-diagnostic report specification and generates an e-Diagnostic object with the attachment of actual report or result ID.</p> <p>The e-diagnostic object is the verified and approved by the head of the department or authorized lab user for signing and upload.</p>
Users	<ul style="list-style-type: none"> • Lab Technician • HOD
Pre-requisites	<ul style="list-style-type: none"> • Patient is Registered, • Lab Order is created • Sample Collection and analysis is done
Business Process Details	<p>Lab result management will be done in four steps</p> <ol style="list-style-type: none"> 1. Auto upload of result value -Numeric or qualitative by the lab analyzer machine to the LIS if lab equipment is integrated with the lab management module 2. Manual upload/result entry by the technician against the order ID in case the lab equipment is not integrated with the lab management module 3. Verification of the available result/report by the authorized user /signatory who digitally signs the report 4. Generation of e-diagnostic object
Steps	<p>Result Entry</p> <ul style="list-style-type: none"> • Samples sent for Processing • If HL7 or Lab Equipment Integration is available, result gets automatically uploaded against the Bar Code and Patient Id. • If not then lab technician takes the reading from the lab equipment and manually enters the result value against the order ID • The result or report parameters in the preliminary report are then sent to the authorized signatory for verification or approval. • After the verification of the preliminary report the authorized user e-signs the report • Result will be finalized and submitted, and an e-diagnostic object gets generated as per the specification provided in the later part of the document. • Report is published in PDF as well as e-diagnostic object format • Order status will be changed to “Report generated and Published”. • If patient has an associated PHR , the e-diagnostic object is pushed to patient’s PHR with encounter and order details. • Notification will be sent to the doctor and to the registered patient’s mobile number and Email Id.
Outputs	<ul style="list-style-type: none"> • Report generated • Email/ WhatsApp/ SMS

Messages & Alerts	<ul style="list-style-type: none"> • Message to relevant provider/ department for patient's lab test result • Message to the registered patient's mobile number
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1.5.4.1. Visio: for Lab Result Management



1.5.4.2. Required MDDS Data Elements

1. Entity: Generic

Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Time	05.001.0001	hh:mm:ss	8	
Date	G00.01	dd/mm/yyyy	10	
Alternate Identifier	05.001.0004	Varchar	254	
Alternate Identifier Type	05.001.0003	Integer	2	CD05.053
System of Medicine	05.001.0022	Integer	2	CD05.030

2. Entity: Person

Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Unique Health Identification Number	G01.01	Integer	12	
Alternate Unique Identification Number(UID)	05.002.0002		Max. Size=18 10 -PAN Card 08 -Passport No. 18 -Voter ID 18 -Any other Identifier	
Person Name	05.002.0031			Refer to G01.02

3. Entity: Patient

Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Patient Name	05.003.0002			Refer to G01.02
Patient Class	05.003.0013	Integer	2	Refer to CD05.047
Patient Arrival Time	05.003.0014	HH:MM:SS	8	
Patient Arrival Date	05.003.0015	dd/mm/yyyy	10	Refer to G00.01

4. Entity: Lab Result Management

Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Lab Result ID (3)	05.021.0025	Varchar	10	
Result Date	05.021.0001	Date(dd/mm/yyyy)	10	
Result Time	05.021.0002	HH:MM:SS	8	
Result Type	05.021.0003	Varchar	10	
Result Value	05.021.0005	Varchar	20	
Result Interpretation	05.021.0006	Integer	2	
Result Reference Range - lower limit	05.021.0007	Integer	7	

Result Reference Range - Upper limit	05.021.0008	Integer	7	
Result Category	05.021.0009	Varchar	10	

E-Diagnostic object specifications								
Data Elements Label	FHIR label	Cardinality	Field type	Data Format (String,Varchar,Integer,Value set)	Maximum size	Applicable code directory	MDDS label	Remarks
Header (Encrypted and stored) This data will be machine readable and not viewed on the screen								
Unique Health Identification Number (UHID)	Patient.identifier	1	Optional	Bits	16	CD05.001	05.008.0025	India still doesnt have a PatientMaterIndex, hence this field can be kept optional for now. But for vendors who handle Ayushman Bharat patients or any state health scheme or a state which has identified each patient uniquely (Kerala) the member ID/State allocated patient ID can be utilized for such patients. Eg: PMJAY ID, BHAMASHA ID, Kerala Patient Health ID=ADHAAR
Unique identification (UID)	person.identifier	0 to 1	Optional	Integer	12		G01.01	To be used for ADHHAR (UIDAI) if authorized, This is used for person identification.
Provider's Patient ID	Patient.identifier	1 to many	Mandatory	Varchar	18		05.003.0001	This will be generated once MoHFW builds the mater patient index for the country,

								as per NDHB we have to keep a place holder for the same. States can also build the state lever patient or citizen registry and can use that ID here and later can roll up to the central.
Alternate Unique Identification Number (UID) Type	Identifier.type	0 to many	Optional	Integer	2	CD05.007	05.002.0001	
Alternate Unique Identification Number(UID)	Person.identifier	0 to many	Mandatory	Varchar	Max.Size=18 10-PAN Card08 - 08-PassportNo. 18 -VoterID 18 -Any other Identifier		05.002.0002	Till the time the UHID is unavailable, patient alternate id can used in place of a unique identifier. For a hospital setting it can be the patient's AADHAR number. and for those enrolled in vertical programs, the IDs allotted to each patient under that program can be utilized for example, NIKSHAY ID. This can be extended to accomodate identifiers from various vertical programs for the same patient untill we have UHID and a National Patient Master Index.
Unique Individual Health Care Provider Number	Practitioner.identifier	1	Mandatory	Varchar	18		05.005.0001	Similarly as per NDHB each healthcare provider like doctor , nurse etc will have a unique

								identifier that will be maintained Natinally in the provider registry. A placeholder for the same is required, till then medical council number or registration number of the doctor can be used here
Facility Type Code	Organization.type	0 to many	Optional	Integer	2	CD05.002	05.008.0002	Lab, radiology centre etc
Facility Global Unique Identifier (GUID)	Patient.managingOrganization	1	Optional	Bits	16	CD05.001	05.008.0025	Custodian of patient record or the object Government is working on creating a National Facility Registry for all the healthcare facilities (Public and Private) and will generate unique facility IDs for each. This ID will come through that registry. For now states can use their own facility ID if they have at state level that identifies each facility uniquely in the state. (Required to be used for PMJAY
Lab ID	Patient.managingOrganization	1	Optional	Integer	10		05.021.0023	It is an identifier for the local Labs. This identifier will come from the application level Lab Master. This has to be used in case the Lab identifier cannot be taken from facility master Index

								which in in works for now.
Lab Order Code	ServiceRequest.code		Mandatory	Varchar	10	CD05.024:LOINC	05.021.0022	The order code for the requested observation, test, and/or battery. Note: This can be based on local and/or standardized order codes. E.g. For Laboratory Orders, refer to LOINC code directory
Result category	DiagnosticReport.category	0 to many	Mandatory	Varchar	10	01- Vital Signs 02- Laboratory Results 03- Radiology Results 04- Blood Bank Screening CD05.040	05.021.0009	
Clinical Document Type Code	Composition.type	1	Mandatory	Integer	2	CD05.046 + E-prescription Object E-Encounter Object E-Discharge summary E-Diagnostic Report	05.019.0006	These will be backend values that will help to track all the clinical documents that will be generated by any application.
Document ID/Object ID	Composition.type	1	Optional	Varchar	50		05.001.0023	
Result Date	Encounter.identifier	1	Mandatory	Date- DD/MM/YYYY	10		05.021.0001	
Result Time	Encounter.appointment	1	Optional	HH:MM:SS	8		05.021.0002	
Detailed Body								
Title To be printed								
UHID (Unique Health	Patient.identifier	0 to many	Optional	Integer	12	G01.01		

Identification Number)								
Provider Patient ID	Patient.identifier	0 to many	Mandatory				05.003.0001	Local registration ID used by facilities
Full Name in English	Patient.name	1	Optional	Varchar	99		05.003.0002	Retrivable fields
Patient Age	Patient.birthDate	1	Optional	Age-year(s) (yyy) Integer(3) Age-Month(s) (mm) Integer(2) Age-Day(s) (dd) Integer (2) Default Value: 999,99,99 no preceding zero [years, months, days]	7		05.003.0003	
Patient Gender	Patient.gender	1	Optional	Char	1	M - Male F - Female T - Transgender	G01.03	
Patient Mobile Number	Patient.telecom (ContactPoint.value)	1	Optional	Char	10		05.003.0012	
Lab ID	Patient.managingOrganization	1	Optional	Integer	10		05.021.0023	It is an identifier for the local Labs. This identifier will come from the application level Lab Master. This has to be used in case the Lab identifier cannot be taken from facility master Index which in in works for now.
Lab Name								
Lab Type		1 to many	Optional	Integer	1	Values : 1- Clinical Pathology 2- Clinical Microbiology 3- Clinical Biochemistry	05.021.0024	To further sub categorize the lab type
Lab Order Code	ServiceRequest.code		Mandatory	Varchar	10	CD05.024	05.021.0022	The order code for the requested observation, test, and/or battery. Note:

								This can be based on local and/or standardized order codes. E.g. For Laboratory Orders, refer to LOINC code directory
Lab Report Details								
Lab Result ID	DiagnosticReport.identifier	0 to many	Optional	Varchar	10		05.021.0025	
Result Date	Encounter.identifier	1	Mandatory	Date- DD/MM/YYYY	10		05.021.0001	
Result Time	Encounter.appointment	1	Optional	HH:MM:SS	8		05.021.0002	
Result Type		0 to1	Optional			LOINC Codes for result type	05.021.0003	
Result Status	DiagnosticReport.status	0 to1		Char	2	CD05.038	05.021.0004	
Result Value	DiagnosticReport.result	0 to1		Varchar	20		05.021.0005	The value of the result
Unit of Measurement				Varchar	20	Units of measurement CD05.025		units of measure, if applicable.
Result Interpretation	DiagnosticReport.conclusion	0 to many	Mandatory	Integer	2	CD05.135	05.021.0006	
Result Reference Range - lower limit	Observation.referenceRange.low	0 to many	Optional	Integer	7		05.021.0007	

Result Reference Range - Upper limit	Observation.referenceRange.high	0 to many	Optional	Integer	7		05.021.0008	
Diagnostic report interpreter		0 to many	Optional					
Attachment		0 to many	Optional	Binary				
Author Details								
Author Date	Composition.date	1	Mandatory	dd/mm/yyyy	10	G00.01	05.019.0002	Autocaptured with role based access control/ Doctor's digital signature who created the encounter note
Author Time	Composition.attester.time	1	Optional	HH:MM:SS	8		05.019.0001	
Author's Digital Signature	Signature.who	1	Mandatory					