ACCESS Health Digital
Powering the Future of Healthcare
A division of ACCESS Health International

Microservice Specification for "Consultation-Objective or Clinical Observations & Examinations"

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Statement of Confidentiality

1. Functional Area – Consultation (O)

1.1. Purpose

This document describes the Functional and Technical Requirement Specification (BRS) for Consultation service in a primary and specialist care setting. Since consultation service is a complex functional area and comprises of multiple smaller service area, we have divided it into smaller microservices. We have followed the SOAP note (Subjective, Objective, Assessment, Plan) method which is a worldwide adopted method of writing a clinical summary for a patient encounter. This document covers specifications for "Objective" information which is captured by a Doctor/ Nurse during a patient consultation.

1.2. Intended Audience

This document is intended for the Product Engineering team to commence development of 'Consultation (O)' microservice 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

In any clinical setting during a patient consultation, the healthcare provider (Doctor/ Nurse) captures patient's critical health information which is required to arrive at the diagnosis and treatment plan for a patient. There are various ways or templates available for capturing such information. A SOAP (Subjective, Objective, Assessment & Plan) note in consultation is a way for healthcare professionals to document the information in a structured & organized way and is being used worldwide by the medical professionals. It also guides the professionals for evaluating information and provides a cognitive framework for clinical reasoning. The structure of documentation is a checklist with defined flow that serves as a cognitive aid and a potential index to capture and retrieve information about a patient's health. SOAP is an acronym for Subjective, Objective, Assessment and Plan that classifies the health information captured according to the source or type of information and facilitates clinical decision making.

Any information which is objective about the patient is directly observed by the healthcare provider or is measurable and can be recorded using point of care devices. Objective information can comprise of the following section:

- Vital Signs
- Physical Examination's findings like ENT, Respiratory etc. (Template driven) as per the specialty

1.4. Scope & Not in Scope

Functionality scope includes:

- Consultation (Objective)

1.5. Business Process Flow

1.5.1. Business Process Flow for Consultation (O)

Description	The objective portion is used to capture all information measured or observed by the provider, and the categories are generally parallel to the subjective information. Details which one can measure, feel, hear, see, smell like pulse, respiratory rate and physical abnormalities are captured under the objective part of SOAP. . As shared earlier, the O (Objective) component of a SOAP note covers the following: ● Vital Signs (pulse rate, blood pressure, respiratory rate etc.) ● Physical Examination (inspection, palpation etc.)

Users	Nurse, Doctor
Pre-requisites	The Subjective section of the SOAP note is complete
Business Process Details	The "Objective" component is usually captured post the "Subjective" information is completed: however, the various sections under the "Objective" component may be captured simultaneously with the "Subjective" components while consulting with the patient. As a result, some of the information may be entered as the patient narrates or answers while some must be measured, e.g. vitals or physical signs. The "Objective" component is captured by moving on to the respective section and filling in the information captured during the present visit.
Steps	● The consulting doctor/ nurse moves on to the 'Objective' section of the SOAP screen after the completion of the subjective component. As the doctor/ nurse measures the vitals and examines the patients, the details are entered as follows: ● **Vital Signs** » Doctor/ Nurse measures the respective vitals associated with the chief complaint and enters them in the prescribed format e.g. height, weight, blood pressure, pulse rate, temperature, respiratory rate, etc. » A pre-defined template may be available to fill in the vital measurements (data elements for the vital signs to be measured are mentioned under the MDDS code directory CD05.041). » **System compares the entered values with the preconfigured reference ranges for each vital sign.** » Vitals beyond the reference ranges may suggest abnormalities and guide further examination. ● Upon capturing, the relevant vital signs, the nurse or doctor reviews the information. Add comments if any and saves the information. ● System alerts on errors during validation ● **Physical Examination** ● Doctor/Nurse examines the specific body site and organ system in alignment with the subjective findings and enters them in the prescribe format e.g. inspection, palpation, etc. » ` » A pre-defined template may be available to fill in the relevant physical observations. » Note: The templates used should have structured data elements and associated values that can be saved under respective tables. ● Upon capturing, the complete set of information, the nurse or doctor reviews the information. Add comments if any and saves the information ● System alerts on errors during validation ● Click on Submit "Objective" Information
Outputs	● Filled and saved "Objective" information in the SOAP note
Messages & Alerts	● System alert on errors during validation

1.6. Required MDDS Data Elements

1.6.1. 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 Type	05.001.0003	Integer	2	Refer to CD05.053
Alternate Identifier	05.001.0004	Varchar	254	
Alternate Identifier Format	05.001.0005	Bytes	20	
Comments	05.001.0007	Varchar	99	
Unit of Measurement	05.001.0018	Varchar	25	Refer to CD05.025
Healthcare Application Number	05.001.0019	Integer	5	Refer to CD05.013
Code System Qualifier Type	05.001.0020	Char	1	
Code System Qualifier	05.001.0021	Varchar	15	Refer to CD05.032
System of Medicine	05.001.0022	Integer	2	Refer to CD05.030
Document ID	05.001.0023	Varchar	50	Refer to CD05.034
Reference Document ID	05.001.0024	Varchar	50	
Non-Clinical Document Type	05.001.0025	Integer	2	Refer to CD05.034
Reference Document	05.001.0026	Varchar	254	
Non-Clinical Document	05.001.0027	Varchar	4096	

1.6.2. 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) Type	05.002.0001	Integer	2	Refer to CD05.007
Alternate Unique Identification Number (UID)	05.002.0002	Varchar	Max. Size =18 10 - PAN Card 08 - Passp ort No. 18 - Voter ID 18 - Any other Identifier	
Time of Birth	05.002.0003	HH:MM:SS	8	

Nationality Code	05.002.0006	Integer	1	
Multiple Birth Indicator	05.002.0007	Integer	1	
Person Name Type	05.002.0008	Char	1	
Phone Owner	05.002.0009	Integer	2	
Contact Type	05.002.0010	Integer	2	Refer to CD05.054
Contact Person Name	05.002.0011	Refer to G01.02		
Contact Relationship	05.002.0012			Refer to G01.08- 01
Contact Person Address	05.002.0013			Refer to G02.03
Contact Person landline telephone number	05.002.0014	Varchar	8	Refer to G00.06- 01-05
Contact Person mobile telephone number	05.002.0015	Char	10	Refer to G00.06- 02-05
Contact Person Email Address/URL	05.002.0016	Varchar	254	Refer to G00.09
Author Name	05.002.0017			Refer to G01.02
Author Landline Telephone Number	05.002.0018	Varchar	8	Refer to G00.06- 01-05
Author Mobile number	05.002.0019	Char	10	Refer to G00.06- 02-05
Author Email Address/URL	05.002.0020	Varchar	254	Refer to G00.09
Family Member Gender	05.002.0022			Refer to G01.03
Family Member Medical History	05.002.0024	Varchar	4096	
Family Member UID Number	05.002.0025			Refer to G01.01
Family Member Relationship	05.002.0027			Refer to G01.08-01
Family Member Relationship Description	05.002.0028	Varchar	99	
Family Member Age	05.002.0029	Age year(s) (yyy) Integer(3) AgeMonth(s) (mm) Integer(2) AgeDay(s) (dd) Integer (2) 999,99, 99 no precedi ng zero [years, months , days]	7	
Special Vulnerability	05.002.0030	Integer	2	

1.6.3.

Entity: Patient

Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Provider's Patient ID	05.003.0001	Varchar	18	
Patient Name	05.003.0002			Refer to G01.02
Patient Age	05.003.0003	Age year(s) (yyy) Integer(3) AgeMonth(s) (mm) Integer(2) AgeDay(s) (dd) Integer (2) Default Value: 999,99, 99 no precedi ng zero [years, months , days	7	
Birth Order	05.003.0004	Integer	1	
Parity	05.003.0005	Integer	2	
Gravida	05.003.0006	Integer	2	
Identity Unknown Indicator	05.003.0007	Integer	1	
Patient Mobile Number	05.003.0012	Char	10	Refer to G00.06- 02-05
Patient Arrival Time	05.003.0014	HH:MM :SS	8	
Patient Arrival Date	05.003.0015	dd/mm/yyyy	10	Refer to G00.01
Reason for visit	05.003.0016	Varchar	99	
Pregnancy indicator	05.003.0017	Integer	1	
Duration of pregnancy	05.003.0018	Integer	2	

1.6.4. Entity: Employee

Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Employee Name	05.004.0001			Refer to G01.02
Employee Gender Code	05.004.0003	Char	1	
Employee Telephone Number	05.004.0006	Varchar	8	Refer to G00.06- 01-05
Employee Mobile Number	05.004.0007	Char	10	Refer to G00.06- 02-05
Employee E-mail Address	05.004.0008	Varchar	254	Refer to G00.09
Academic Qualification Level Code	05.004.0012	Integer	2	Refer to CD05.095
Academic Qualification Type Code	05.004.0013	Integer	2	Refer to CD05.096
Academic Qualification Free Text	05.004.0014	Varchar	99	
Employee ID	05.004.0053	Varchar	18	

Employee Designation Code	05.004.0056	Integer	3	Refer to CD05.099

1.6.5. Entity: Provider

Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Unique Individual Health Care Provider Number	05.005.0001	Varchar	18	
Unique Individual Health Care Provider Number Type	05.005.0002	Integer	2	Refer to CD05.008
Registration Authority Number	05.005.0003	Integer	3	Refer to CD05.012
Health Care Provider Landline Telephone Number	05.005.0006	Varchar	8	Refer to G00.06- 01-05
Health Care Provider Mobile Number	05.005.0007	Char	10	Refer to G00.06- 02-05
Health Care Provider Email Address/URL	05.005.0008	Varchar	254	Refer to G00.09
Health Care Provider Name	05.005.0009			Refer to G01.02
Health Service Provider Role code	05.005.0010	Integer	2	Refer to CD05.009
Health Service Provider Role Free Text	05.005.0011	Varchar	99	
Health Service Provider Type	05.005.0012	Integer	2	Refer to CD05.010

1.6.6. Entity: Facility

Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Unique Facility Identification Number	05.008.0001	Integer	10	Refer to CD05.001
Facility Type Code	05.008.0002	Integer	2	Refer to CD05.002
Facility Service Code	05.008.0009	Varchar	18	Refer to CD05.043
Facility Specialty Code	05.008.0010	Integer	3	Refer to CD05.011
Department Name	05.008.0015	Varchar	99	Refer to CD05.090
Ward Name	05.008.0016	Varchar	99	Refer to CD05.088
Referral Facility Identification Number	05.008.0019	Integer	10	Refer to CD05.001

Referral Facility Type Code	05.008.0020	Integer	2	Refer to CD05.002
Referral from Facility Identification Number	05.008.0021	Integer	10	Refer to CD05.001
Referral from Facility Type Code	05.008.0022	Integer	2	Refer to CD05.002
Facility Global Unique Identifier (GUID)	05.008.0025	Bits	16	

1.6.7. Entity: Episode

Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Episode ID	05.009.0001	Varchar	50	
Episode Type	05.009.0002	Integer	1	

1.6.8. Entity: Encounter

Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Encounter ID	05.010.0001	Varchar	18	
Encounter Type	05.010.0002	Integer	2	Refer to CD05.047
Encounter Type Description	05.010.0003	Varchar	254	
Encounter Time	05.010.0004	HH:MM:SS	8	
Encounter Date	05.010.0005	dd/mm/yyyy	10	Refer to G00.01

1.6.9. Entity: Emergency

Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Patient Status	05.013.0003	Integer	2	
Ambulatory Status	05.013.0004	Char	2	Refer to CD05.065
MLC Indicator	05.013.0005	Integer	1	
Mass Injury Indicator	05.013.0006	Integer	1	

1.6.10. Entity: Examination

Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Examination Type	05.016.0001	Integer	3	
Examination Finding	05.016.0002	Varchar	4096	
Examined System	05.016.0003	Integer	2	Refer to CD05.033
Body Site Name	05.021.0033	Varchar	60	Refer to CD05.026

1.6.11. Entity: Vital Signs

Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Vital Sign Result Time	05.017.0001	HH:MM:SS	8	
Vital Sign Result Type	05.017.0002	Integer	2	Refer to CD05.041
Vital Signs Result Status	05.017.0003	Integer	2	Refer to CD05.038
Vital Sign Result Value	05.017.0004	Varchar	20	
Vital Sign Result Unit	05.017.0005	Integer	2	Refer to CD05.025
Vital Sign Result Interpretation	05.017.0006	Integer	2	Refer to CD05.135
Vital Sign Result Reference Range - lower limit	05.017.0007	Integer	3	Refer to CD05.039
Vital Sign Result Reference Range - Upper limit	05.017.0008	Integer	3	Refer to CD05.039
Vital Sign Result Date	05.017.0009	dd/mm/yyyy	10	Refer to G00.01
Vital Sign Result ID	05.017.0010	Integer	10	

1.6.12. Entity: Clinical Notes

Data Elements	MDDS Codes	Data Format	Maximum Size	Code Directory
Author Time	05.019.0001	HH:MM:SS	8	
Author Date	05.019.0002	dd/mm/yyyy	10	Refer to G00.01
Clinical Document	05.019.0005	Varchar	4096	
Clinical Document Type	05.019.0006	Integer	2	Refer to CD05.046

e- Encounter Note Object

Data Elements Labels	FHIR Label	Cardinality	Field Type	Data Format String,Varchar,Integer,Value set	Maximum Size	Applicable code directory/value set	MDDS Label	Remark
Header (Encrypted and stored) This data will be machine readable and not viewed on the screen								
Unique Health Identification Number (UHID)	Patient.identifier	1	Mandatory	Integer	12		G01.01	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	Patient.identifier	1	Mandatory	Integer	12	CD05.007	05.002.0001	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.
Alternate Unique Identification Number (UID) Type	Patient.identifier	1	Mandatory	Varchar			05.002.0002	
Facility Global Unique	Patient.managingOrganization	1	Mandatory	Bits	16	CD05.001	05.008.0025	Custodian of patient record or the object

Identifier (GUID)								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
Unique Individual Health Care	Practitioner.identifier	1	Mandatory	Varchar	18	CD05.008	05.005.0001	Similarly, as per NDHB each healthcare provider like

Provider Number								doctor, nurse etc will have a unique identifier that will be maintained Nationally 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
Clinical Document Type Code	Composition.type	1	Mandatory	Integer	2	CD05.046	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	Composition.identifier	1	Mandatory	Varchar	50		05.001.0023	This most of the application generates and store in their audit trail can

								just map with the MDDS code
Episode ID	EpisodeOfCare.identifier	1	Optional	Varchar	50		05.009.0001	Automatically generated by the system and NSF card should store this information for the encounter info they store
Episode Type	EpisodeOfCare.type	1	Optional	Integer	1	1 - New 2 - Ongoing 3 - Active 4 - Inactive	05.009.0002	
Episode Status	EpisodeOfCare.status	1	Mandatory			planned Waitlist Active On hold Finished Cancelled Entered in error		
Encounter Date	Encounter.appointment	1	Optional	G00.01			05.010.0005	Every time a new visit is created for consultation or any other service system automatically generates this to maintain the longitudinal
Encounter ID	Encounter.identifier	1	Optional	Varchar	18		05.010.0001	

								record of a patient
Title To be printed								
Unique Health Identification Number (UHID)	Patient.identifier	1	Optional	Integer	12	G01.01		Nationally (State level) maintained patient's health ID
Hospital's Patient ID	Condition.subject	1	Optional	Varchar	18		05.003.0001	Local Registration ID of the facility
Patient Name	Patient.name	1	Optional			G01.02	05.003.0002	Retrievable 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	G01.03		
Patient Class	Encounter.class	1	Mandatory	Integer	2	CD05.047	05.003.0013	

Unique Individual Health Care Provider Number	Practitioner.identifier	1	Mandatory	Varchar	18		05.005.0001	**Auto captures as per the user log in**
Patient Address (05.003.0009)								
Patient Address Type	Address.use	1	Optional	Char	1	CD05.120	05.003.0010	**Retrievable fields**
Premises Identifier	Address.line	1	Optional	Varchar	60		G02.03-00-02	
Sub Locality-1	Address.line	1	Optional	Varchar	50		G02.03-01-03	
Locality	Address.line	1	Optional	Varchar	50		G02.03-03-03	
Land Region code	Address.country	1	Optional	Integer	State - 2 District - 3 Sub-District - 5 Village - 6 Town - 6		G02.01	
District	Address.district	1	Optional	Integer	3	CD02.03	G02.01	
Sub-District	Address.line	1	Optional	Integer	5	CD02.04	G02.02-01	
Village	Address.line	1	Optional	Integer	6		G02.01	
Town	Address.city	1	Optional	Integer		CD02.06		
State	Address.state	1	Optional	Integer	2	CD02.02		
Pin	Address.postalCode	1	Optional	Integer	6		G02.04-01	
Name of a Land region in English	Address.country	1	Optional	Varchar	50		G02.02-01	

Patient's email Address	Patient.telecom	1	Optional	Refer to Email (G00.09)			G00.09	
Patient Mobile Number	Patient.telecom	1	Optional	Char	10		05.003.0012	
Subjective Information								
Family History								
Family Member Medical History	FamilyMemberHistory	0....many	Mandatory	Varchar	4096	CD05.046	05.002.0024	
Family Member UID number	FamilyMemberHistory.identifier/ Condition.subject	0..many	Optional	G01.01			05.002.0025	
Family Member Relationship	FamilyMemberHistory.relationship	1	Mandatory	G01.08-01			05.002.0027	
Health Condition Code (Family Member)	FamilyMemberHistory.condition.code	0 to many	Mandatory	Varchar	10	ICD10/snomed/ICD11	05.020.0003	Record only there is an active condition or a notifiable or NCD history
Health Condition status	FamilyMemberHistory.condition.outcome	1	Mandatory			CD05.021	05.020.0007	
Patient's Clinical History								
Existing/comorbidity Health Condition Code	Condition.code	0 to many	Mandatory	Varchar	10	ICD10/11/SNOMED	05.020.0003	

Health Condition status	Condition.clinicalStatus	1	Mandatory			CD05.021	05.020.0007	For the next encounter all the cured and closed diagnosis will be shown here with a logic built by the healthcare facility (eg: till what date a closed diagnosis should be shown)
Past Health Condition Onset Date	Condition.onset[x]	1	Optional	Refer to Date (G00.01)	8		NA	
Chief Complaints								
Chief Complaint ID	Condition.identifier	0 to many	Mandatory	Varchar			NA	Can have more than 1 cardinality)
Chief Complaint Name	EpisodeOfCare.diagnosis.role	o to many	Mandatory	Varchar		ICD 10 (Signs & Symptoms)	NA	
Body Site	Condition.bodySite	1	Mandatory	Integer	2	CD05.026	05.023.0007	
Duration	Condition.abatement[x]	1	Mandatory	Integer			NA	
Patient Allergies								
Allergy Product Code	AllergyIntolerance.code	0 to many	Mandatory	Integer	5	CD05.018	05.018.0001	This information is

Allergy Product Description	AllergyIntolerance.reaction.substance	0 to many	Mandatory	Varchar	99		05.018.0002	collected during the first consultation, but treating doctor can add more allergies if reported by the patient or through an adverse event reported by the hospital in future.
Allergy Status	AllergyIntolerance.clinicalStatus	0 to many	Mandatory	Integer	2	CD05.021	05.018.0008	
Author Time	AllergyIntolerance.onset[x]	1	Optional	HH:MM:SS	8		05.019.0001	To be maintained internally
Author Date	AllergyIntolerance.onset[x]	1	Optional	Refer to Date (G00.01)			05.019.0002	
Author ID	AllergyIntolerance.asserter	1	Mandatory	Varchar	18		05.002.0032	Code of the Author who has authored the clinical information that need to be exchanged. E.g. provider who has authored patient discharge summary or referral notes.
Observations								
Vitals https://www.hl7.org/fhir/observation-vitalsigns.html								

Vital Sign Result Time	Observation.effective[x]	0 to many	Optional	HH:MM:SS	8		05.017.0001	
Vital Sign Result Type	Observation.category	0 to many	Optional	Integer	2	CD05.038/ https://www.hl7.org/fhir/observation-vitalsigns.html/	05.017.0002	
Vital Signs Result Status	Observation.status	0 to many	Mandatory	Integer	2	CD05.038	05.017.0003	Can be configured as per the specialty or clinical problem an application is trying to solve. A facility or department can decide which vitals they would like to capture. The vital parameters are provided in the associated code directory which is provided in another excel in this folder. Each vital parameter will have cardinality
Vital Sign Result Value	Observation.value[x]	0 to many	Optional	Varchar	20		05.017.0004	
Vital Sign Result Unit	Observation.value[x]	0 to many		Integer	2	CD05.025	05.017.0005	
Vital Sign Result Interpretation	Observation.interpretation	0 to many	Optional	Integer	2	CD05.135	05.017.0006	
Vital Sign Result Reference Range - lower limit	Observation.interpretation	0 to many	Optional	Integer	3	CD05.039	05.017.0007	
Vital Sign Result Reference Range - Upper limit	Observation.referenceRange.high	0 to many	Optional	Integer	3	CD05.039	05.017.0008	
Vital Sign Result Date	Observation.issued	0 to many	Optional	Refer to Date (G00.01)			05.017.0009	
Vital Sign Result ID	Observation.identifier	0 to many	Optional	Integer	2		05.017.0010	

								1, and is captured in every encounter.
Examination								
Examination Type	Observation.category	0 to many	Optional	Integer	3	CD05.061	05.016.0001	There will be specific templates for each Type as per the medical speciality.
Examination Finding	Observation.code	0 to many	Mandatory	Varchar	4096		05.016.0002	
Examined System	BodyStructure.location	0 to many	Optional	Integer	2	CD05.033	05.016.0003	
Assessment								
Diagnosis								
Health Condition Type	Condition.code	1 to many	Mandatory	Integer	2	CD05.022	05.020.0001	
Health Condition name	Condition.code	1 to many	Mandatory	Varchar	9	CD05.019	05.020.0002	
Health Condition Code	Condition.code	1 to many	Mandatory	Varchar	10	CD05.019/ ICD10/SNOMeD	05.020.0003	Diagnosis ID
Health Condition Description	Condition.note	1 to many	Optional	Varchar	254		05.020.0004	
Health Condition Category	Condition.category	1 to many	Optional	Char	1		05.020.0005	
Diagnosis Priority	Condition.severity	1 to many	Optional	Integer	1		05.020.0006	

Present Health Condition Onset Date	Condition.onset[x]	1 to many	Optional	Refer to Date (G00.01)			05.020.0010	Auto captures date of entry
Health Condition Status	Condition.clinicalStatus	1 to many	Optional	Integer	2	CD05.021	05.020.0007	System should facilitate closure of a cured condition
Comorbidity Indicator	EpisodeOfCare.diagnosis.role	1 to many	Optional	Integer	1		05.020.0008	
Comorbidity Health Condition Code	CarePlan.supportingInfo	1 to many	Optional	Varchar	10	ICD 10/SNOMeD	05.020.0009	
Plan (Orders)								
Order Info (Applicable for all orders)								
Order Date	CarePlan.created	1	Optional	Refer to Date (G00.01)			05.023.0013	
Order Time	CarePlan.period	1		HH:MM:SS			05.023.0014	
Order Group ID	CarePlan.identifier	1	Optional	Varchar	10		05.025.0007	Applicable for composite orders or order set (since order sets are used in janta clinic flow) example annual health and wellness check up
Order ID	CarePlan.identifier	1	Optional	Varchar	12		05.025.0004	
Order Status	CarePlan.status	1	Mandatory	Char	2		05.025.0008	

Treatment Plan details (If applicable)								
Treatment plan ID /Package ID/ (Primary)	CarePlan.activity	0 to many	Optional	Integer	5		05.007.0038	Once we have standard treatment guidelines those can be used or the facility may have defined their own set of treatment plan Note: Until STGs arrives we can use package IDs for insurance beneficiary (With cardinality if there are more than one package applicable in case of multiple surgeries during the same patient stay or episode (two open episodes)
Lab Investigations								
Lab Order Code	DiagnosticReport.code	0 to many	Mandatory	Varchar	10	CD05.024/LOINC	05.021.0022	

Lab Order Description	DiagnosticReport.category	0 to many	Optional	Varchar	50		NA	
Lab Result ID	DiagnosticReport.result	0 to many	Optional	Varchar	10		05.021.0025	These values will be visible only when there is a follow up visit for result awaited or a follow up visit for the same episode
Result Status	DiagnosticReport.status	0 to many	Mandatory	Char	2		05.021.0004	
Result Value	DiagnosticReport.presentedForm	0 to many	Optional	Varchar	20		05.021.0005	
Result Interpretation	DiagnosticReport.conclusion	0 to many	Optional	Integer	2		05.021.0006	
Result Reference Range - lower limit	Observation.referenceRange.low	0 to many	Optional	Integer	7	CD05.039	05.021.0007	
Result Reference Range - Upper limit	Observation.referenceRange.high	0 to many	Optional	Integer	7	CD05.039	05.021.0008	
Radiology Investigations								
Radiology Procedure Code	Procedure.code	0 to many	Optional	Varchar	18	CD05.043	05.022.0008	
Radiology Procedure Name	Procedure.code	0 to many	Optional	Varchar	255	CD05.043	05.022.0007	
Radiology Result Status	DiagnosticReport.status	0 to many	Mandatory	Integer	2	CD05.038	05.022.0009	Applicable to follow up visit
Radiology Result ID	DiagnosticReport.identifier	0 to many	Optional	Varchar	10		05.022.0010	
scanned report attachment		0 to many						
Non-radiology Procedure Orders								

Procedure Code	Procedure.code	0 to many	Mandatory	Varchar	10	CD05.043	05.026.0003	If applicable
Procedure Name	Procedure.code	0 to many	Optional	Varchar	255	CD05.043	05.026.0001	
Rx Orders								
Prescription ID	MedicationRequest.identifier	1	Mandatory	Varchar	20		05.023.0012	
Generic Drug Code	MedicationKnowledge.code	0 to many	Mandatory	Integer	5	CD05.104	05.031.0004	
Brand Drug Code	Medication.code	0 to many	Optional	Integer	10	CD05.105	05.031.0006	
Brand Drug Name	Medication.identifier	0 to many	Mandatory	Varchar	99	CD05.105	05.031.0005	
Strength Value	Medication.ingredient.strength	0 to many	Optional	Varchar	25		05.031.0011	
Route of Administration	MedicationAdministration.dosage.route	0 to many	Optional	Varchar	6	CD05.111	05.023.0002	
Medication Frequency	MedicationAdministration.dosage.rate[x]	0 to many	Optional	Varchar	5	CD05.023	05.023.0003	
Medication Administration Interval	MedicationAdministration.dosage.rate[x]	0 to many	Optional	Varchar	40		05.023.0004	
Dose	MedicationAdministration.dosage	0 to many	Optional	Varchar	60		05.023.0005	
Medication Stopped Indicator	MedicationStatement.status	0 to many	Mandatory	Integer	1			
Medication Status	Medication.status	0 to many	Optional	Integer	2	CD05.123	05.023.0010	

Medication Fills	MedicationRequest.dispenseRequest.initialFill	0 to many	Optional	Integer	3		05.023.0019	
Medication Fill No.	MedicationRequest.dispenseRequest.numberOfRepeatsAllowed	0 to many	Optional				NA	
Quantity Ordered Value	MedicationDispense.quantity	0 to many	Optional	Integer	10		05.023.0020	
Pharmacy Units	MedicationDispense.quantity	0 to many	Optional	Varchar	25	CD05.109	05.023.0021	
Immunization Order (If applicable)								
Immunization Performer Identification Number	Immunization.performer	0 to many	Optional	Varchar	18		05.024.0004	
Immunization Product Code	Immunization.vaccineCode	0 to many	Mandatory	Integer	3	CD05.036	05.024.0005	
Medication Series No.	Immunization.protocolApplied.seriesDoses[x]	0 to many	Optional	Integer	2		05.024.0003	
Immunization Administered Date	Immunization.occurrence[x]	0 to many	Mandatory	G00.01			05.024.0008	
Follow Up Order								
Follow Up Date	Appointment.start	0 to many	Optional	G00.01	8		NA	
Follow up interval	Appointment.slot	0 to many	Optional				NA	
Patient Instruction	CarePlan.note	0 to many	Optional	Free Text			NA	
Author Details								
Author Date	Composition.date	1	Mandatory	G00.01			05.019.0002	

Author Time	Composition.attester.time	1	Optional	HH:MM:SS	8		05.019.0001	Auto captured with role based access control/ Doctor's digital signature who created the encounter note
Author's Digital Signature	Signature.who	1	Mandatory					

Consultation Objective Microservice – Technical Specification based on Microservice Event Sourcing Architecture

Name – ObjectiveConsultation Microservice

Domain Model

Aggregate Root

Objective class

S.No	Attributes (Objective Class)	MDDS Mapping
1	objectiveId	
2	episodeId	05.009.0001
3	encounterId	05.010.0001
4	providerPatientID	05.003.0001
5	List of Vitals entity	05.017.0010
6	List of PhysicalExamination entity	05.016.0002
7	List of Clinical Note entity	05.019.0005
8	Unique Facility Identification Number	

N.B. – Fields (attributes) given for each entity are minimum viable fields but vendor may select any subset of it or extend it with more data elements based on their business functionality requirements and care setting level mapping.

Entity

Entity - Vitals

Fields –

VitalSignResultID

VitalSignResultType

VitalSignResultValue

VitalSignResultUnit

VitalSignResultStatus

VitalSignResultDate

VitalSignResultTime

VitalSignResultInterpretation

VitalSignResultRefRangeLowerLimit

VitalSignResultRefRangeUpperLimit

ProviderPatientID

EncounterID

UniqueFacilityIdentificationNumber

List of PatientClinicalDocument ValueObject

Entity

Entity - PhysicalExamination

Fields –

ExaminationType

ExaminationFinding

ExaminedSystem

List of PatientClinicalDocument ValueObject

UniqueFacilityIdentificationNumber

ProviderPatientID

EncounterID

AuthorID

AuthorDate

AuthorTime

Value Object

ValueObject – PatientClinicalDocument

ClinicalDocumentID

ClinicalDocument

ClinicalDocumentType

AuthorDate

AuthorID

AuthorTime

Reference

UniqueFacilityIdentificationNumber

ProviderPatientID

EncounterID

Value Object

ValueObject – PatientVitalSigns

VitalSignResultID

VitalSignResultType

VitalSignResultValue

VitalSignResultUnit

VitalSignResultStatus

VitalSignResultDate

VitalSignResultTime

VitalSignResultInterpretation

VitalSignResultRefRangeLowerLimit

VitalSignResultRefRangeUpperLimit

UniqueFacilityIdentificationNumber
List of PatientClinicalDocument ValueObject

ProviderPatientID

EncounterID

Value Object

ValueObject – PatientPhysicalExaminationFindings

ExaminationType

ExaminationFinding

ExaminedSystem

List of PatientClinicalDocument ValueObject

UniqueFacilityIdentificationNumber

ProviderPatientID

EncounterID

Lab Investigation Value Object

Lab Order Code
Lab Result ID
Result Date
Result Time
Result Type
Result Status
Result Value
Result Interpretation
ProviderPatientID
EncounterID
UniqueFacilityIdentificationNumber
Clinical Document ID

Clinical Document
Clinical Document Type

Radiology Investigation Value Object

Radiology Procedure Date
Radiology Procedure Time
Radiologist Impression
Radiology Procedure Code
Radiology Procedure Name
Radiology Result Status
Radiology Result ID

ProviderPatientID
EncounterID
UniqueFacilityIdentificationNumber
Clinical Document ID
Clinical Document
Clinical Document Type

REST API Specification (Restful Web service APIs)

getPatientObjectiveDetailsByEpisodeID

Method Type– Get
Request parameter – episodeId
response – List of Objective Aggregate Root Model/DTO Objects
(This will be a paginated response as it covers objective details across all the visits for a given Issue (Episode)

getPatientObjectiveDetailsByEncounterID

Method Type– Get
Request parameter – encounterId
response – List of Objective Aggregate Root Model /DTO Objects (covers the vital signs and physical examination findings recorded by careprovider during a patient visit at care provider facility)

getPatientObjectiveDetailsByPatientID

Method Type– Get
Request parameter – providerPatientID, UniqueFacilityIdentificationNumber

response – List of Objective Aggregate Root Model /DTO Objects (covers the vital signs and physical examination findings recorded by careprovider during a patient visit at care provider facility)

(this will be a paginated response)

getPatientVitalSIgnsByPatientIDANDDate

Method Type– Get
Request parameter – providerPatientID, VitalSignResultDate, UniqueFacilityIdentificationNumber
response – List of PatientVitalSigns ValueObject
(this will be a paginated response)

getPatientPhysicalExaminationFindingsByPatientIDANDDate

Method Type– Get
Request parameter – providerPatientID, VitalSignResultDate, UniqueFacilityIdentificationNumber

response – List of PatientPhysicalExaminationFindings Value Objects
(this will be a paginated response)

getPatientLabInvestigationValueObjectByFacilityIDANDLabOrderCode

Method Type– Get
Request parameter –UniqueFacilityIdentificationNumber ,
LabOrderCode,ClinicalDocumentID,date,uniquePatientIdentificationNumber(Beneficiary ID)

response – List of Lab Investigation Value Objects
(If Lab OrderCode is not null – list contains Lab Investigation Value Object collection of that :Lab Order Code) date wise for that facility and patient
If Lab OrderCode is null – list contain Lab Investigation ValueObject collection of all Lab Order Codes for that Patient for that facility

(this will be a paginated response)
N.B. This method will invoke a synchronous HTTP Call to Observation Microservice to populate the Value Objects

getPatientRadiologyInvestigationValueObjectByFacilityIDANDRadiologyOrderCode

Method Type– Get

Request parameter –UniqueFacilityIdentificationNumber ,
RadiologyOrderCode(mandatory),ClinicalDocumentID,,date, ,
uniquePatientIdentificationNumber(Beneficiary ID)

response – List of Radiology Investigation Value Objects
list contain Radiology Investigation

(this will be a paginated response)
N.B. This method will invoke a synchronous HTTP Call to Observation Microservice to populate the Value Objects

getPatientObjectiveClinicalNotesByPatientID

Method Type– Get
Request parameter – providerPatientID, UniqueFacilityIdentificationNumber

response – List of patient ClinicalNotes Value Object
(this will be a paginated response)

createPatientObjective

Method Type– POST

Request parameter

String episodeId
String encounterId
String providerPatientId
String uniqueFacilityIdentificationNumber
List<PatientVitalSigns> patientVitalSIgns
List<PatientPhysicalExaminationFindings> PatientPhysicalExaminationFindings
List<ClinicalNote> clinicalNotes

response – HTTP Status 201(created) , objectiveId

updatePatientObjective

Method Type– PUT
Request parameter

String objectiveId
String episodeId
String encounterId
String providerPatientId
String uniqueFacilityIdentificationNumber
List<PatientVitalSigns> patientVitalSIgns
List<PatientPhysicalExaminationFindings> PatientPhysicalExaminationFindings
List<ClinicalNote> clinicalNotes

response – HTTP Status 200(ok)

Commands

Patient Objective Consultation Microservice will be capable of handling Two types of commands

1. **CreatePatientObjectiveConsultationCommand()**

   parameters -

String episodeId
String encounterId
String providerPatientId
String uniqueFacilityIdentificationNumber
List<PatientVitalSigns> patientVitalSIgns
List<PatientPhysicalExaminationFindings> PatientPhysicalExaminationFindings
List<ClinicalNote> clinicalNotes

Mode - Synchronous

2. **UpdatePatientSubjectiveConsultationCommand**

parameters –

String objectiveId
String episodeId
String encounterId
String providerPatientId
String uniqueFacilityIdentificationNumber
List<PatientVitalSigns> patientVitalSIgns
List<PatientPhysicalExaminationFindings> PatientPhysicalExaminationFindings
List<ClinicalNote> clinicalNotes

Mode - Synchronous

(There will be soft Delete and no hard delete if an entry need to be deleted in objective section and for soft deletion the updatePatientObjectiveConsultationCommand will be used which will set the active flag under each entity as false)

Events Published

Channel – Patient ObjectiveConsultation event channel

Patient ObjectiveConsultation microservice will have two events

1. PatientObjectiveCreatedEvent

   Data structure of PatientObjectiveCreatedEvent object

String episodeId
String encounterId
String providerPatientId
String uniqueFacilityIdentificationNumber

List<PatientVitalSigns> patientVitalSIgns
List<PatientPhysicalExaminationFindings> PatientPhysicalExaminationFindings
List<ClinicalNote> clinicalNotes

2. PatientObjectiveUpdatedEvent
Data structure of
PatientObjectiveCreatedEvent
object

String ObjectiveId;
String episodeId
String encounterId
String providerPatientId
String uniqueFacilityIdentificationNumber
List<PatientVitalSigns> patientVitalSIgns
List<PatientPhysicalExaminationFindings> PatientPhysicalExaminationFindings
List<ClinicalNote> clinicalNotes

`

Queries

The ObjectiveConsultation service will be capable of handling four different types of Queries:

1. getPatientObjectiveByEncounterId
Parameter - encounterId

2. getPatientConsultationDetailByObjectiveId
Parameter - objectiveId

3. getObjectiveConsultationDetailByPatientId
Parameter - providePatientId

(this is a paginated query)

4. getObjectiveByEpisodeId
   Parameter - episodeId
   (this is a paginated query)

Dependencies

Invokes	Subscribes To
Patient Registration Microservice **getPatientByFacilityAssignedTemporaryRegistrationNumber()** Visit Microservice **getPatientVisitByEncounterId()** Observation Microservice **getPatientLabInvestigationValueObjectByFacilityIDANDLabOrderCode()** **getPatientRadiologyInvestigationValueObjectByFacilityIDANDRadiologyOrderCode()**	Visit Microservice **EncounterCheckedIn Event** PatientRegistration Microservice **PatientRegistrationCreated Event** (to record patient history) Billing Microservice (TBD) **Billing Performed Event** **SubjectiveConsultationMicroservice** PatientSubject iveCreatedEve nt
