A picture containing drawing

Description automatically generated

**Microservice Specification**

**Consultation ‘Objective’**

ACCESS HEALTH INTERNATIONAL |

**Statement of Confidentiality**

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1. **Functional Area – Consultation (O)**
   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. **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. Development, Design & Implementation Team which may include Architects, Designers, Developers, and Business Analysts
    2. Key stakeholders in the government at central and state levels
  1. **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. **Scope & Not in Scope**

Functionality scope includes:

* Consultation (Objective)
  1. **Business Process Flow**
     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. **Required MDDS Data Elements**
     1. **Entity: Generic**

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| --- | --- | --- | --- | --- |
| **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. **Entity: Person**

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| **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. **Entity: Patient**

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| --- | --- | --- | --- | --- |
| **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. **Entity: Employee**

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| **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. **Entity: Provider**

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| --- | --- | --- | --- | --- |
| **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. **Entity: Facility**

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| **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. **Entity: Episode**

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| **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. **Entity: Encounter**

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| --- | --- | --- | --- | --- |
| **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. **Entity: Emergency**

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| **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. **Entity: Examination**

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| **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. **Entity: Vital Signs**

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| **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. **Entity: Clinical Notes**

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| --- | --- | --- | --- | --- |
| **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**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **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 Identifier (GUID) | Patient.managingOrganization | 1 | Mandatory | 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 |
| Unique Individual Health Care Provider Number | Practitioner.identifier | 1 | Mandatory | Varchar | 18 | CD05.008 | 05.005.0001 | Similarly, as per NDHB each healthcare provider like 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 record of a patient |
| Encounter ID | Encounter.identifier | 1 | Optional | Varchar | 18 |  | 05.010.0001 |
| **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 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 Product Description | AllergyIntolerance.reaction.substance | 0 to many | Mandatory | Varchar | 99 |  | 05.018.0002 |
| 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 1, and is captured in every encounter. |
| 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 |
| **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 | Auto captured 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 |  |  |  |  |

**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

1. 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

1. getPatientConsultationDetailByObjectiveId

Parameter - objectiveId

1. getObjectiveConsultationDetailByPatientId

Parameter - providePatientId

(this is a paginated query)

1. 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**  PatientSubjectiveCreatedEvent |