# Microservice Specification (Functional)

# 'Visit Management'

# Statement of Confidentiality

# 1. Functional Area- Visit Management

## 1.1. Purpose

This document describes the Business Requirements Specifications (BRS) for visit creation and management in a primary care and specialist care setting.

## 1.2. Intended Audience

This document is intended for the Product Engineering team to commence development of 'Visit Management' microservice and the audience would comprise of

    1.2.1. Development, Design & Implementation Team which may include Architects, Designers, Developers, and Business Analysts

## 1.3. Overview

This microservice deals with various functionalities for managing a patient's visit for a primary, secondary and specialist care setting.

## 1.4. Scope & Not in Scope

Functionality scope includes:

- Visit Creation against an appointment
- Visit Creation for a walk-in patient
- Marking Patient Arrival
- Visit Cancellation

Functionality scope does not include:
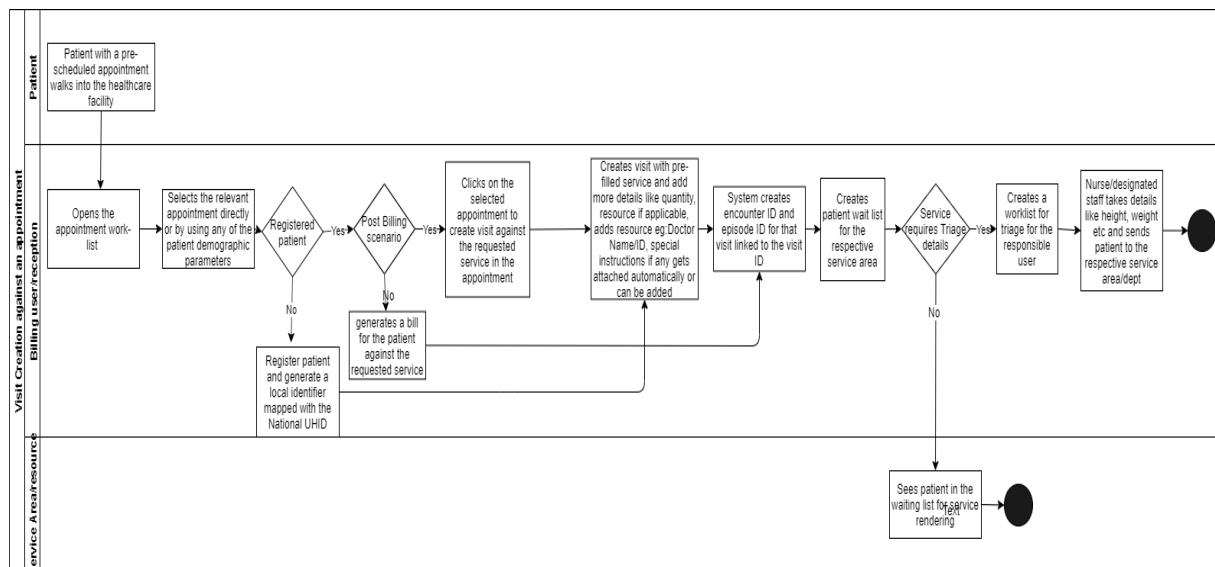
- Visit Creation for tele consultation

## 1.5. Visit Creation against an Appointment

### 1.5.1. Business Process Flow for Visit Creation/service request against a scheduled appointment

| Description | In a hospital function a patient visit is created when the patient physically visits the healthcare facility to avail a service. |
|---|---|
| Users | OP Registration user, OP billing User |
| Pre-requisites | Unique Health Identification number, Temporary or local Health ID |
| Business Process Details | In this scenario a visit is created for a patient who has taken an appointment for a service.<br><br>Visit creation is always done against a service that a patient wishes to avail from the healthcare facility. The visit can be requested against a department for example lab test or can be requested against a resource in case of radiology investigations and consultation services. Once a visit is created for a patient it triggers worklist for the respective resource or department for service rendering.<br><br>Visit request can also act as a prerequisite for billing and a billing workflow can be triggered or vice versa. |
| Steps | <ul><li>A patient who has a scheduled appointment visits the facility to avail the service.</li><li>User opens the appointment calendar for that day to check the booked appointment status for the patient.</li><li>A booked appointment can also be searched using patient's mobile no. or UHID. (If UHID was provided by the patient during the appointment request)</li><li>Registration desk user checks if the patient is an old or new patient by asking his/her UHID.</li><li>User searches for the patient using "Registry lookup service" in their local application for the provided UHID to make sure the patient is an old or a new patient.</li></ul> |

| | |
|---|---|
| | <ul><li>If patient with that UHID was not found, user starts the registration process, either a local unique ID is generated which is linked to the UHID or uses the UHID itself as the identifier in their application as well.</li><li>User opens the service request screen and searches the UHID and creates a service request for the requested service by entering the service, quantity, responsible resource if applicable.</li><li>System automatically creates a visit for the patient with date and time log.</li><li>System also auto generates an encounter number and episode number which is stored against that visit in the system.</li><li>This new visit creation also triggers service rendering workflows and a billing worklist for payment.</li><li>In case of an old patient, a visit can be directly created by clicking on the booked appointment that redirects to the visit creation screen with pre-filled information when service request is not a mandatory step.</li></ul> |
| **Outputs** | <ul><li>Visit request slip (Optional)</li><li>Visit ID</li><li>Encounter ID</li><li>Episode ID</li></ul> |
| **Messages & Alerts** | <ul><li>System alert for gaps on mandatory fields & validation errors</li><li>Worklist created for the relevant service area/dept or resource</li><li>Worklist for billing</li></ul> |

1.5.2. **Process Flow- Visio Diagram**



## 1.6. Visit Creation for a walk-in patient

### 1.6.1. Business Process Flow for Visit Creation against a service request for a walk-in patient

| Description | In a hospital function a patient visit is created when the patient physically visits the healthcare facility to avail a service. |
|---|---|
| Users | OP Registration user, OP billing User |
| Pre-requisites | Unique Health Identification number, Temporary or local Health ID |

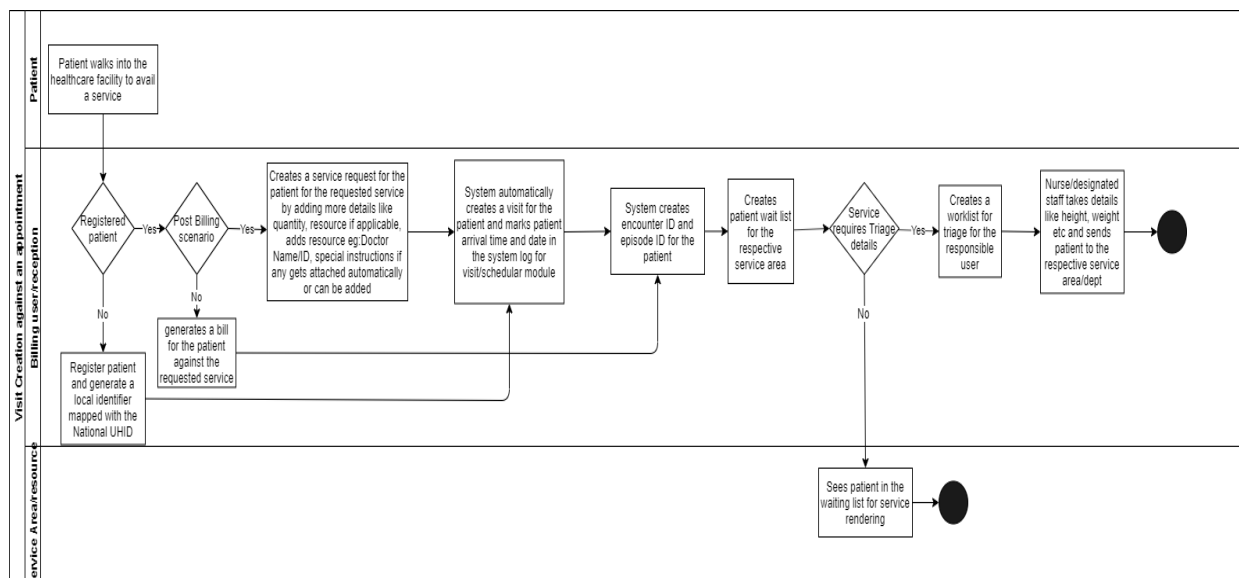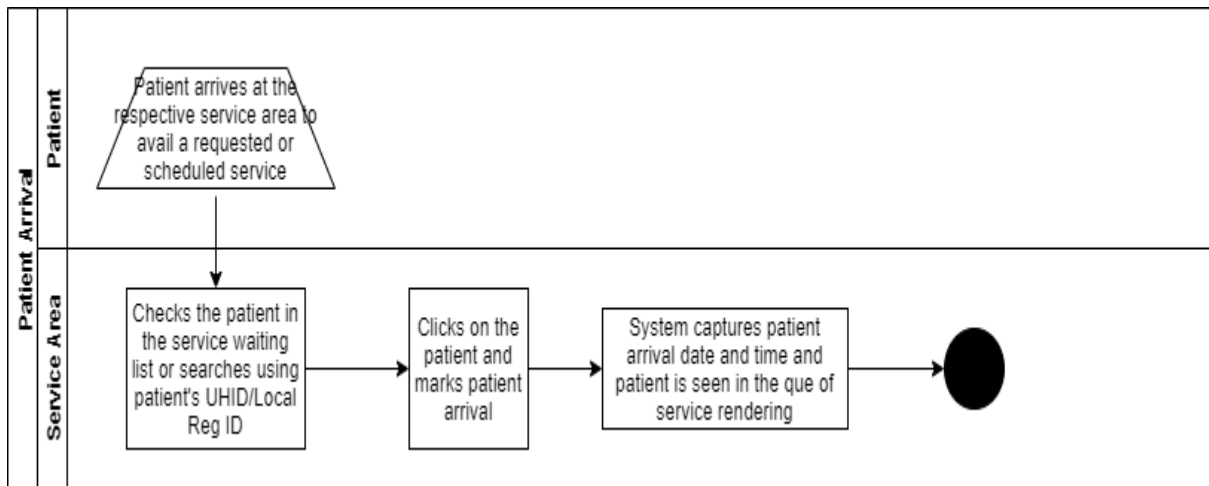| Business Process Details | In this scenario a visit is created for a patient who walks into the facility and request for a service he/she wants to avail. |
|---|---|
| | Visit creation is always done against a service that a patient wishes to avail from the healthcare facility. The visit can be requested against a department for example lab test or can be requested against a resource in case of radiology investigations and consultation services. Once a visit is created for a patient it triggers worklist for the respective resource or department for service rendering. |
| | Visit request can also act as a prerequisite for billing and a billing workflow can be triggered or vice versa. |
| **Steps** | <ul><li>A patient visits the facility to avail a service.</li><li>Registration desk user checks if the patient is an old or new patient by asking his/her UHID.</li><li>User searches for the patient using "Registry lookup service" in their local application for the provided UHID to make sure the patient is an old or a new patient.</li><li>If patient with that UHID was not found, user starts the registration process, either a local unique ID is generated which is linked to the UHID or uses the UHID itself as the identifier in their application as well.</li><li>User opens the service request screen and searches the UHID and creates a service request for the requested service by entering the service, quantity, responsible resource if applicable.</li><li>System automatically creates a visit for the patient with date and time log.</li><li>System also auto generates an encounter number and episode number which is stored against that visit in the system.</li><li>This new visit creation also triggers service rendering workflows and a billing worklist for payment.</li></ul> |
| **Outputs** | <ul><li>Visit request slip (Optional)</li><li>Visit ID</li><li>Encounter ID</li><li>Episode ID</li></ul> |
| **Messages & Alerts** | <ul><li>System alert for gaps on mandatory fields & validation errors</li><li>Worklist created for the relevant service area/dept or resource</li><li>Worklist for billing</li></ul> |

### 1.6.2. Process Flow- Visio

### 1.7. Mark Patient Arrival

#### 1.7.1 Business Process Flow for Patient Arrival

**Note: "Patient Arrival Function"** can also be developed as a separate microservice as this function is used many times in a hospital workflow by different service areas in a hospital.

| | |
|---|---|
| **Description** | This process describes marking a patient arrival for a patient post visit creation |
| **Users** | OP Registration user, OP billing User, Approver |
| **Pre-requisites** | <ul><li>A scheduled appointment</li><li>Service request</li><li>Prebilling service</li><li>Should be a registered patient</li></ul> |
| **Business Process Details** | A patient arrival function is used to kickstart the workflow for a requested service. Marking a patient's arrival is critical in **Post-Billing hospital/clinic** workflow whereas in a *pre-billing workflow* a patient arrival is **automatically marked** when a service gets billed against a patient before rendering.<br><br>Marking a patient's arrival kickstarts the process for the service area or the doctor against which a service was requested through an appointment or service request. |
| **Steps** | **Post-billing Scenario**<ul><li>Patient with a scheduled appointment or a walk-in patient arrives at the reception.</li><li>Informs the billing/reception about the appointment or service he/she would like to request.</li><li>User creates a service request for the patient with required details.</li><li>Sometimes a service request is enough to mark a patient arrival automatically which creates a worklist for the respective service area and patient is shown in their waiting list for the service to be rendered.</li><li>Further for some service areas like radiology etc a patient arrival is marked when the patient reaches the service area and is waiting for the service to be rendered.</li><li>Post patient arrival a worklist for the billing area is created for collection of fees for the service.</li></ul>**Pre-Billing Scenario**<ul><li>Patient arrives at the reception to avail a service.</li><li>Billing desk generates a bill against the requested service.</li><li>Patient arrival is automatically marked for the patient and the patient is seen in the waitlist of the respective service area.</li></ul> |
| **Outputs** | <ul><li>Waiting list for the requested service area is created.</li><li>System creates and maintains patient arrival time and date in its log.</li></ul> |
| **Messages & Alerts** | <ul><li>System alert for gaps on mandatory fields & validation errors</li><li>Worklist created for the relevant service area/dept or resource</li><li>Worklist for billing</li></ul> |

#### 1.7.2 Process Flow- Visio

## 1.8. Visit Cancellation for a patient

### 1.8.1. Business Process Flow for Visit Cancellation

| | |
|---|---|
| **Description** | This process describes cancellation of a visit for some identified reason as per the standard operating procedures of a health facility. |
| **Users** | OP Registration user, OP billing User, Approver |
| **Pre-requisites** | A created visit with associated visit or encounter ID, Approval workflow, Master list for approvers, master list for cancellation reasons. |
| **Business Process Details** | A visit can be cancelled for a patient on request by the patient or administration for certain given reasons. Every visit cancellation can be done at different stages in the service rendering process from the visit creation date and time and will have associated approval workflow. Visit cancellation goes hand in hand with the service cancellation process that impacts the billing workflow directly or indirectly. |
| | Some of the reasons of visit cancellation can be extended waiting time, on patient request or on doctor's request, nonpayment or unsatisfied patient post service rendering. |
| | A visit can be cancelled without an approval flow when it is requested by patient and the service rendering process has not been initiated. |
| | Rest visit cancellation policies vary for department to department and hospital to hospital. System should be configurable enough to handle such cancellation policies. Eg: A visit for lab test can be cancelled when the sample collected was spilled or contaminated with an approval workflow. |
| | A visit cancellation directly affects the billing module as in case of preservice billing the amount must be partially or completely refunded to the patient. |
| **Steps** | ● User has received a request from the patient/doctor or a service area to cancel a visit that was created in the given TAT. |
| | ● Please note visits are in the window of cancellation and should be automatically locked by the system as per the decided TAT as per the facility policies. |
| | ● User opens the visit screen and searches the created visit using patient's UHID or transaction ID or Visit/encounter ID. |
| | ● Selects the visit that is required to be cancelled. |
| | ● Request cancellation with Reasons from the master list and an approver is automatically selected if there is an underlying approval flow for cancellation of that visit which is decided whether it is a rendered service or partially rendered service or a non-rendered service visit. |
| | ● Approvers receives the notification and task in his/her worklist. |
| | ● Approver checks the details and verifies the information about the visit that has to be cancelled. |

| | |
|---|---|
| | ● Approver denies or accepts the visit cancellation.<br>● If approver accepts the visit cancellation a triggered task gets added in the billing checklist where if amount taken in prebilling is partially or fully refunded to the patient or in some case a new visit for the same service is requested and amount of the service is adjusted with the previous visit amount. |
| **Outputs** | ● Refund Note with cancellation slip |
| **Messages & Alerts** | ● System alert for gaps on mandatory fields & validation errors<br>● Worklist created for the relevant service area/dept or resource<br>● Worklist for billing |

**1.8.2. Business Process Flow for Visit Cancellation (rendered/non-rendered services)**
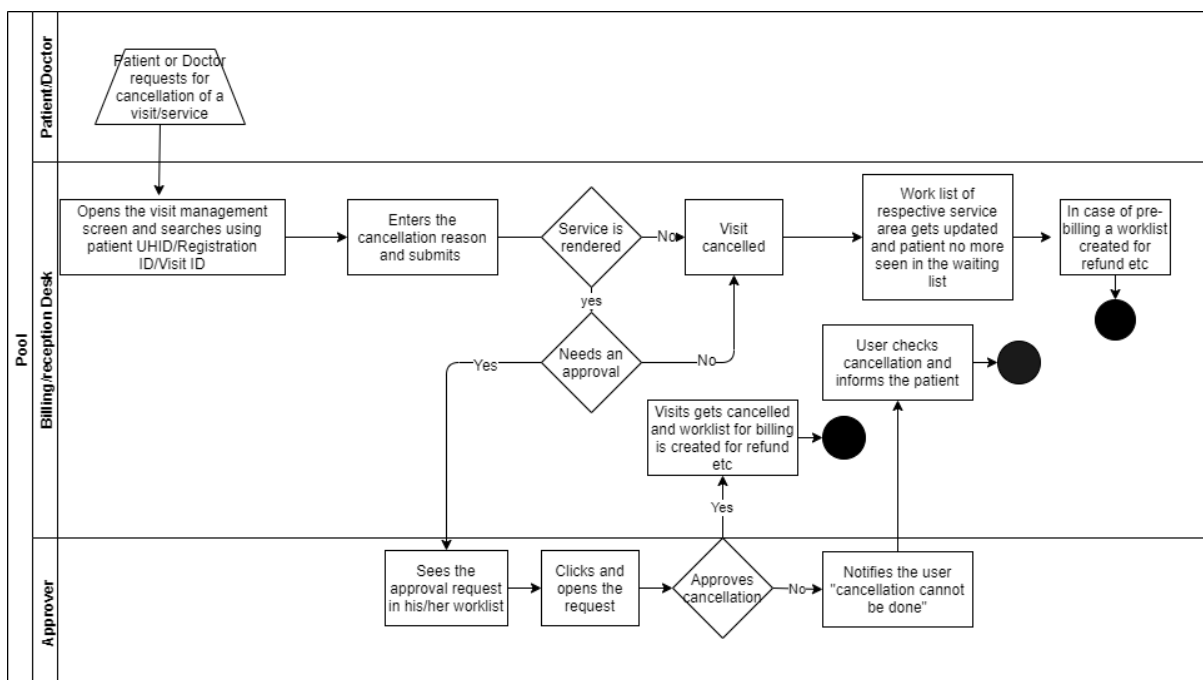
### 1.9. Required MDDS Data Elements

#### 1.9.1. Entity: Generic

| Data Elements | MDDS Codes | Primary Care | | | GP C |
|---|---|---|---|---|---|
| | | SCs | HWCs | PHCs | |
| Time | 05.001.0001 | 1 | 1 | 1 | |
| Date | G01.01 | 1 | 1 | 1 | |
| Comments | 05.001.0007 | 1 | 1 | 1 | |
| Unit of Measurement | 05.001.0018 | 1 | 1 | 1 | |
| Healthcare Application Number | 05.001.0019 | 1 | 1 | 1 | |
| System of Medicine | 05.001.0022 | 1 | 1 | 1 | |
| Document ID | 05.001.0023 | 1 | 1 | 1 | |
| Reference Document ID | 05.001.0024 | 1 | 1 | 1 | |
| Non-Clinical Document Type | 05.001.0025 | 1 | 1 | 1 | |
| Reference Document | 05.001.0026 | 1 | 1 | 1 | |
| Non-Clinical Document | 05.001.0027 | 1 | 1 | 1 | |

#### 1.9.2. Entity: Person

| Data Elements | MDDS Codes | Primary Care | | | GP C |
|---|---|---|---|---|---|
| | | SCs | HWCs | PHCs | |
| Unique Health Identification Number | NDHB | 1 | 1 | 1 | |
| Person Name Type | 05.002.0008 | 1 | 1 | 1 | |
| Phone Owner | 05.002.0009 | 1 | 1 | 1 | |
| Contact Type | 05.002.0010 | 1 | 1 | 1 | |
| Contact Person Name | 05.002.0011 | 1 | 1 | 1 | |
| Contact Relationship | 05.002.0012 | 1 | 1 | 1 | |
| Contact Person landline telephone number | 05.002.0014 | 1 | 1 | 1 | |
| Contact Person mobile telephone number | 05.002.0015 | 1 | 1 | 1 | |
| Contact Person Email Address/URL | 05.002.0016 | 1 | 1 | 1 | |
| Author Name | 05.002.0017 | 1 | 1 | 1 | |
| Author Landline Telephone Number | 05.002.0018 | 1 | 1 | 1 | |
| Author Mobile number | 05.002.0019 | 1 | 1 | 1 | |
| Author Email Address/URL | 05.002.0020 | 1 | 1 | 1 | |
| Family Member Person Name | 05.002.0021 | 1 | 1 | 1 | |
| Family Member Gender | 05.002.0022 | 1 | 1 | 1 | |
| Family Member Relationship | 05.002.0027 | 1 | 1 | 1 | |
| Family Member Relationship Description | 05.002.0028 | 1 | 1 | 1 | |
| Special Vulnerability | 05.002.0030 | 1 | 1 | 1 | |

#### 1.9.3. Entity: Patient

| Data Elements | MDDS Codes | Primary Care | | | GP C |
|---|---|---|---|---|---|
| | | SCs | HWCs | PHCs | |
| Provider's Patient ID | 05.003.0001 | 1 | 1 | 1 | |
| Patient Name | 05.003.0002 | 1 | 1 | 1 | |
| Patient Age | 05.003.0003 | 1 | 1 | 1 | |
| Identity Unknown Indicator | 05.003.0007 | 1 | 1 | 1 | |
| Patient Mobile Number | 05.003.0012 | 1 | 1 | 1 | |
| Patient Arrival Time | 05.003.0014 | 1 | 1 | 1 | |
| Patient Arrival Date | 05.003.0015 | 1 | 1 | 1 | |
| Reason for visit | 05.003.0016 | 1 | 1 | 1 | |

| Data Elements | MDDS Codes | Primary Care | | |
|---|---|---|---|---|
| | | | | |
| Pregnancy indicator | 05.003.0017 | 1 | 1 | 1 |

### 1.9.4. Entity: Employee

| Data Elements | MDDS Codes | Primary Care | | | |
|---|---|---|---|---|---|
| | | SCs | HWCs | PHCs | GP |
| Employee Name | 05.004.0001 | 1 | 1 | 1 | |
| Employee Gender Code | 05.004.0003 | 1 | 1 | 1 | |
| Employee Telephone Number | 05.004.0006 | 1 | 1 | 1 | |
| Employee Mobile Number | 05.004.0007 | 1 | 1 | 1 | |
| Employee E-mail Address | 05.004.0008 | 1 | 1 | 1 | |
| Employee ID | 05.004.0053 | 1 | 1 | 1 | |
| Employee Designation Code | 05.004.0056 | 1 | 1 | 1 | |

### 1.9.5. Entity: Provider

| Data Elements | MDDS Codes | Primary Care | | | |
|---|---|---|---|---|---|
| | | SCs | HWCs | PHCs | GP |
| Unique Individual Health Care Provider Number | 05.005.0001 | 1 | 1 | 1 | |
| Unique Individual Health Care Provider Number Type | 05.005.0002 | 1 | 1 | 1 | |
| Care Provider Landline Telephone Number | 05.005.0006 | 1 | 1 | 1 | |
| Care Provider Mobile Number | 05.005.0007 | 1 | 1 | 1 | |
| Care Provider Email Address/URL | 05.005.0008 | 1 | 1 | 1 | |
| Care Provider Name | 05.005.0009 | 1 | 1 | 1 | |
| Health Service Provider Role code | 05.005.0010 | 1 | 1 | 1 | |
| Health Service Provider Role Free Text | 05.005.0011 | 1 | 1 | 1 | |
| Health Service Provider Type | 05.005.0012 | 1 | 1 | 1 | |

1.1.1. **Entity: Bill** (Applicable when service request is a mandatory step that automatically creates a patient visit)

| Data Elements | MDDS Codes | Primary Care | | | |
|---|---|---|---|---|---|
| | | SCs | HWCs | PHCs | GP |
| Service Type | 05.007.0008 | 1 | 1 | 1 | |
| Service Item Price | 05.007.0019 | 0 | 0 | 0 | |
| Package Item Name | 05.007.0020 | 1 | 1 | 1 | |
| Package Item Price | 05.007.0021 | 1 | 1 | 1 | |
| Quantity of Service | 05.007.0022 | 1 | 1 | 1 | |
| Total Billed Amount | 05.007.0024 | 1 | 1 | 1 | |

1.1.2. **Entity: Facility**

| Data Elements | MDDS Codes | Primary Care | | | |
|---|---|---|---|---|---|
| | | SCs | HWCs | PHCs | GP |
| Unique Facility Identification Number | 05.008.0001 | 1 | 1 | 1 | |
| Facility Type Code | 05.008.0002 | 1 | 1 | 1 | |
| Facility Service Code | 05.008.0009 | 1 | 1 | 1 | |
| Facility Specialty Code | 05.008.0010 | 1 | 1 | 1 | |
| Department Name | 05.008.0015 | 0 | 0 | 1 | |
| Ward Name | 05.008.0016 | 0 | 0 | 1 | |

### 1.1.3. Entity: Episode

| Data Elements | MDDS Codes | Primary Care | | | |
|---|---|---|---|---|---|
| | | SCs | HWCs | PHCs | GP C |
| Episode ID | 05.009.0001 | 1 | 1 | 1 | |
| Episode Type | 05.009.0002 | 1 | 1 | 1 | |

### 1.1.4. Entity: Encounter

| Data Elements | MDDS Codes | Primary Care | | | |
|---|---|---|---|---|---|
| | | SCs | HWCs | PHCs | GP C |
| Encounter ID | 05.010.0001 | 1 | 1 | 1 | |
| Encounter Type | 05.010.0002 | 1 | 1 | 1 | |
| Encounter Type Description | 05.010.0003 | 1 | 1 | 1 | |
| Encounter Time | 05.010.0004 | 1 | 1 | 1 | |
| Encounter Date | 05.010.0005 | 1 | 1 | 1 | |

### 1.1.5. Entity: Emergency

| Data Elements | MDDS Codes | Primary Care | | | |
|---|---|---|---|---|---|
| | | SCs | HWCs | PHCs | GP C |
| Patient Arrival Date | 05.013.0001 | 1 | 1 | 1 | |
| Patient Arrival Time | 05.013.0002 | 1 | 1 | 1 | |
| Patient Status | 05.013.0003 | 1 | 1 | 1 | |