# Draft Pan-Canadian Health Data Content Framework

## Use Cases

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(for review and reference only, not an official version)

Canadian Institute for Health Information

Institut canadien d'information sur la santé

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## Terms of use

Products of the Pan-Canadian Health Data Content Framework are available for review and reference only, not an official version (not for implementation). See CIHI's terms of use for more information about the use of these and other products and services.

# Introduction

The Canadian Institute for Health Information (CIHI) is developing the Pan-Canadian Health Data Content Framework, which defines, standardizes, and models the health data required to enable connected care in Canada.

The Pan-Canadian Health Data Content Use Cases are some of the products packaged in the Pan-Canadian Health Data Content Framework.

## What are Use Cases?

Use cases are designed to support the logical data model. These business scenarios provide an association to real-life encounters in primary health care. Clinical outcomes are numerous; as such, the first iteration of use case development aims to capture the most common scenarios (and their outcomes) that impact the highest percentage of the Canadian population. Each use case sets the context of pre-existing conditions, defines the key actors, their interactions, and provides alternative outcomes to the encounter.

## Audiences

The audiences for the Use Cases are individuals with lived experience, people and communities, health care providers, governing bodies, organization leaders, researchers, and technical users, as well as members of the public who would like to know more about the components of the Pan-Canadian Health Data Content Framework.

## Development approach

The use case development process has drawn upon knowledge from several sources. These include an extensive pan-Canadian health care environmental scan with sources referenced in the Appendix, along with input from experts with first-hand experience in clinical settings. These important features help to validate the architectural outputs that comprise the PCHDCF. The appendix also includes a table of basic business rules that govern use case scenarios.

## Help us shape the Use Cases

Your feedback is critical to the development of the Use Cases. We are asking the public to help us identify key missing concepts, provide feedback on key concept definitions, and validate core relationships at a high level.

Please complete the feedback survey at this link.

# Use Cases

## Guidance for the Reader

Each use case will have the following structure:

1. Definition: Relevant definitions from the business glossary pertaining to the use case.
2. Basic Flow: The standard set of steps that patients (clients) and clinicians will go through in the use case.
3. Alternate Flows: The steps that patients (clients) and clinicians will go through if different steps are required.

Each flow will have an actor section that list all individuals involved in the use, a pre-condition section that describes requirements to start the specific flow, and a post-condition that describes the result of the flow.

Basic flows and alternate flows will be linked via hyperlinks to allow easy navigation for the reader.

## Maturity

A maturity model (Table 1) was designed to transparently document the readiness of artifacts within the framework, including data elements, value sets, definitions, and data architecture components. The maturity model facilitates tracking the evolution of those artifacts over time, enabling continuous refinement and enhancement based on feedback and emerging needs. The maturity of the framework's deliverables will be re-evaluated with each release. The maturity level of the Use Cases is currently 1: Draft.

**Table 1** Maturity model

| Stage of maturity | Definition |
|---|---|
| **Future development** | Coming soon |
| **0: In development** | Artifact is a work in progress |
| **1: Draft** | Artifact incorporates input from experts |
| **2: Proposed** | Artifact has been through at least one round of open public review |
| **3: Ready for use** | Artifact is ready for implementation |

# I. Immunization

**Definition** - The action of making a person resistant to a particular infectious disease or pathogen, typically by vaccination.

## 1.1 Immunization Child – Basic Flow

**Actors:**

- Client (Child)
- Parent/Guardian
- Medical administrator
- Registered Nurse (RN)
- Medical Doctor (MD)/Nurse Practitioner (NP)

**Pre-Conditions**

- The client is following the provincial immunization schedule.
- The client is covered under the provincial health care insurance.
- The client is an existing customer at the clinic.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | The **client** arrives at the primary care clinic for an immunization appointment. The **client caregiver** presents the client's health card. | | **Alt.1a** - Immunization at school clinic<br>**Alt.1b** Immunization at a pharmacy<br>**Alt.1c** Immunization at a travel clinic<br>**Alt.1d** - Immunization at Public health clinic |
| 2 | The **medical administrator** swipes the health card and verifies the client's demographic information. | **Person Information**<br>• Person identifier value<br>• Given Name<br>• Middle Name<br>• Surname Name<br>• Pronouns<br>• Name Used<br>• Birth Date<br>• Person Address Street<br>• Person Address City<br>• Person Address Province<br>• Person Address Postal Code<br>• Person Address Country<br>• Person Telecom Value | Client information is verified. (Incl. Name, date of birth, heath card number, contact information). |
| 3 | The **Registered Nurse** (RN) verifies the client's allergy (ies) status. | • Allergy or intolerance status | **Alt.1e** Client is allergic to the immunization compound. |
| 4 | The **RN** record's the client's growth chart statistics and vital signs | **Vital Signs**<br>• Height Percentile<br>• Weight Percentile<br>• Head Circumference<br>• Body Temperature | Growth chart statistics are recorded.<br>**Alt.1f** - Client has fever |

| | | | |
|---|---|---|---|
| 5 | The **Nurse Practitioner (NP)/Medical Doctor (MD)** conducts the developmental milestone assessment. | • Social/Emotional milestones<br>• Language/Communication milestones<br>• Cognitive milestones<br>• Movement/Physical development milestones<br>• Loss of developmental skills | |
| 6 | The **NP/MD** conducts the physical exam. | • Heart Rate<br>• Heart Rhythm<br>• Respiratory Rate<br>• Head Exam<br>• Eye Exam<br>• Nose Exam<br>• Abdominal Exam<br>• Genitourinary and Anorectal Exam<br>• Musculoskeletal Exam<br>• Skin Exam | Example of information verified: listening to heart/lungs, hip dysplasia assessment, verify descended testes etc.<br>Assess mother (if present) for post-partum depression/anxiety (2-4 month client) |
| 7 | The **RN** provides immunization education and obtains consent from client caregiver. | • Immunization target disease<br>• Immunization Education Note | **Alt.1g** Consent not given to immunize. |
| 8 | The **RN** administers DTaP-IPV-Hib, Pneu-C, and Rota-1 immunizations to the client. (administered at 2 and 4 months old) | • Immunization Status<br>• Immunization Reason<br>• Immunization Name<br>• Immunization Lot Number<br>• Immunization Route of Administration<br>• Immunization Site<br>• Immunization Dose Volume<br>• Immunization Dose Number<br>• Immunization supporting document | **Alt.1h** - Client is 6 months old.<br>**Alt.1i** - Client is 12 months old.<br>**Alt.1j**- Client is 15 months old.<br>**Alt.1k** - Client is 18 months old.<br>**Alt.1l** - Client is 4-6 years old.<br>**Alt.1m** - Client is in grade 7.<br>**Alt.1n** - Client is 14-16 years old.<br>Immunization is administered. |
| 9 | The **RN** provides instructs the care giver to remain at the clinic with the client for 15 minutes post-immunization. | | Client and caregiver remain at the clinic. |
| 10 | The client leaves the primary care clinic after 15 minutes. | | **Alt.1i** - Immunization incident |
| 11 | This use case ends. | | |

**Post Conditions**

- Medical record updated in database(s).
- Immunization is administered.
- Immunization record updated.

**Alternate Flows**

1. Immunization at school clinic.
2. Immunization at a pharmacy
3. Immunization at a travel clinic
4. Immunization at a public health clinic
5. Client is allergic to the immunization compound
6. Client has a fever.
7. Consent not given to immunize.
8. Client is at various stages of immunization schedule. (6 months - 16 years old)
9. Immunization incident occurs.

## 1.2 Alt.1a Immunization Child - School clinic

**Actors**:

- School administration
- Public health unit (PHU)
- Parent/guardian
- Public Health Nurse (PHN)
- Client (grade 7 student)

**Pre-Conditions**

- Client is a child following the ON immunization schedule.
- The client is covered under provincial health care insurance.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | The **school administration** coordinates an immunization clinic with the local public health unit (**PHU**). | | Immunization clinic details finalized. |
| 2 | The **PHU** provides immunization education and obtains parent/guardian consent. | • Immunization target disease<br>• Immunization Education Note | **Alt.1g** Consent is not given to immunize. |
| 3 | **The Public Health Nurse (PHN)** provides point of care education on day of immunization. | | Client is informed of possible side effects and overall immunization process. |
| 4 | The **PHN** verifies the client's allergy (ies) status. | • Allergy or intolerance status | **Alt.1e** Client is allergic to the immunization compound. |
| 5 | The **PHN** verifies client's temperature. | | **Alt.1f** Client has a fever. |

| | | | |
|---|---|---|---|
| 6 | The **PH**N administers the immunization. (Men-C-ACYW-135, HB, HPV) | • Immunization Status<br>• Immunization Reason<br>• Immunization Name<br>• Immunization Lot Number<br>• Immunization Route of Administration<br>• Immunization Site<br>• Immunization Dose Volume<br>• Immunization Dose Number | **Alt.1n** Client is 14-16 years old.<br><br>Immunization is administered. |
| 7 | The **PHN** instructs the client to remain in the immunization recovery area for 15 minutes. | | Client remains in the immunization recovery area. |
| 8 | The **PHN** provides the client with an updated vaccine record. | | |
| 9 | Client leaves post-immunization rest area after 15 minutes. | | **Alt.1e** - Immunization incident |
| 10 | This use case ends. | | |

**Post Conditions**

- Medical record updated.
- Immunization is administered.
- Immunization record updated.

**Alternate Flows**

1. Consent not given to immunize.
2. Client has fever.
3. Client is allergic to immunization compound.
4. Client is 14-16 years old.
5. Immunization incident.

## 1.3 Alt.1h Immunization Child – 6 months

**Actors**:

- Client (Child - 6 months)
- Registered Nurse (RN)

| Step # | Description | Data Element(s) collected | Result |
|---|---|---|---|
| 1 | The **RN** administers the DTaP-IPV-Hib immunization to client. | • Immunization dose number<br>• Immunization name<br>• Immunization lot number<br>• Immunization status<br>• Immunization reason<br>• Immunization route of administration<br>• Immunization site<br>• Immunization dose volume<br>• Immunization supporting documents | Immunization is administered. |
| 2 | Continue at step 9 of the Basic flow. | | |

**Post Conditions**

- Immunization is administered.

## 1.4 Alt.1i Immunization Child – 12 months

**Actors**:

- Client (Child - 12 months)
- Registered Nurse (RN)

| Step # | Description | Data Element(s) collected | Result |
|---|---|---|---|
| 1 | The **RN** administers the Pneu-C, MMR and Men-C-C immunizations to client. | • Immunization dose number<br>• Immunization name<br>• Immunization lot number<br>• Immunization status<br>• Immunization reason<br>• Immunization route of administration<br>• Immunization site<br>• Immunization dose volume<br>• Immunization supporting documents | Immunization is administered. |
| 2 | Continue at step 9 of the Basic flow. | | |

**Post Conditions**

- Immunization is administered.

## 1.5 Alt.1j Immunization Child – 15 months

**Actors**:

- Client (Child - 15 months)
- Registered Nurse (RN)

| Step # | Description | Data Element(s) collected | Result |
|---|---|---|---|
| 1 | The **RN** administers the DTaP-IPV-Hib immunization to client. | • Immunization dose number<br>• Immunization name<br>• Immunization lot number<br>• Immunization status<br>• Immunization reason<br>• Immunization route of administration<br>• Immunization site<br>• Immunization dose volume<br>• Immunization supporting documents | Immunization is administered. |
| 2 | Continue at step 9 of the Basic flow. | | |

**Post Conditions**

- Immunization is administered.

## 1.6 Alt.1k Immunization Child – 18 months

**Actors**:

- Client (Child - 18 months)
- Registered Nurse (RN)

| Step # | Description | Data Element(s) collected | Result |
|---|---|---|---|
| 1 | The **RN** administers the DTaP-IPV-Hib immunization to client. | • Immunization dose number<br>• Immunization name<br>• Immunization lot number<br>• Immunization status<br>• Immunization reason<br>• Immunization route of administration<br>• Immunization site<br>• Immunization dose volume<br>• Immunization supporting documents | Immunization is administered. |
| 2 | Continue at step 9 of the Basic flow. | | |

**Post Conditions**

- Immunization is administered.

## 1.7 Alt.1l Immunization Child – 4-6 years

**Actors**:

- Client (Child – 4-6 years)
- Registered Nurse (RN)

| Step # | Description | Data Element(s) collected | Result |
|---|---|---|---|
| 1 | The **RN** administers the Tdap-IPV and MMRV immunizations to client. | • Immunization dose number<br>• Immunization name<br>• Immunization lot number<br>• Immunization status<br>• Immunization reason<br>• Immunization route of administration<br>• Immunization site<br>• Immunization dose volume<br>• Immunization supporting documents | Immunization is administered. |
| 2 | Continue at step 9 of the Basic flow. | | |

**Post Conditions**

- Immunization is administered.

## 1.8 Alt.1m Immunization Child – Grade 7

**Actors**:

- Client (Child – Grade 7)
- Registered Nurse (RN)

| Step # | Description | Data Element(s) collected | Result |
|---|---|---|---|
| 1 | The **RN** administers the Men-C-ACYW-135, HB and HPV immunizations to client. | • Immunization dose number<br>• Immunization name<br>• Immunization lot number<br>• Immunization status<br>• Immunization reason<br>• Immunization route of administration<br>• Immunization site<br>• Immunization dose volume<br>• Immunization supporting documents | Immunization is administered. |
| 2 | Continue at step 9 of the Basic flow. | | |

**Post Conditions**

- Immunization is administered.

## 1.9 Alt.1n Immunization Child – 14-16 years

**Actors**:

- Client (Child – 14=16 years)
- Registered Nurse (RN)

| Step # | Description | Data Element(s) collected | Result |
|---|---|---|---|
| 1 | The **RN** administers the Tdap immunization to client. | • Immunization dose number<br>• Immunization name<br>• Immunization lot number<br>• Immunization status<br>• Immunization reason<br>• Immunization route of administration<br>• Immunization site<br>• Immunization dose volume<br>• Immunization supporting documents | Immunization is administered. |
| 2 | Continue at step 9 of the Basic flow. | | |

**Post Conditions**

- Immunization is administered.

## 1.10 Alt.1.1a Immunization Child – 14-16 years

**Actors**:

- Client (Child – 14=16 years)
- Public Health Nurse (PHN)

| Step # | Description | Data Element(s) collected | Result |
|---|---|---|---|
| 1 | The **PHN** administers the Tdap immunization to client. | • Immunization dose number<br>• Immunization name<br>• Immunization lot number<br>• Immunization status<br>• Immunization reason<br>• Immunization route of administration<br>• Immunization site<br>• Immunization dose volume<br>• Immunization supporting documents | Immunization is administered. |
| 2 | Continue at step 9 of the Basic flow. | | |

**Post Conditions**

- Immunization is administered.

## 2.1 Immunization Adult 18+ - Basic Flow

**Actors:**

- Client (Adult 18+ years old)
- Medical administrator
- Registered Nurse (RN) /Public Health Nurse (PHN)
- Medical Doctor (MD) /Nurse Practitioner (NP)

**Pre-Conditions**

- The client is following the provincial immunization schedule.
- The client is covered under the provincial health care insurance.
- The client is an existing customer at the clinic.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | The **client** arrives at the primary care clinic for an immunization appointment **and** presents their health card. | | **Alt.1d** -Immunization at a public health clinic<br><br>**Alt.1c** -Immunization at a travel clinic<br><br>**Alt.1b** - Immunization at a pharmacy |
| 2 | The **medical administrator** verifies the client's demographic information. | **Person Information**<br><br>• Person identifier value<br>• Given Name<br>• Middle Name<br>• Family Name<br>• Pronouns<br>• Name Used<br>• Birth Date<br>• Person Address Street<br>• Person Address City<br>• Person Address Province<br>• Person Address Postal Code<br>• Person Address Country<br>• Person Telecom Value | Client's person information is verified/updated. |
| 3 | The **Registered Nurse (RN)/Public Health Nurse (PHN)** verifies the client's allergy (ies) status. | • Allergy or intolerance status | **Alt.1e** Client is allergic to the immunization compound. |

| | | | |
|---|---|---|---|
| 4 | The **RN/PHN** confirms client's body temperature. | Vital signs<br>• Body temperature | **Alt.1f** - Client has a fever. |
| 5 | The **RN/PHN** provides immunization education and obtains consent from client caregiver. | • Immunization target disease<br>• Immunization education note | **Alt.1g** Consent not given to immunize. |
| 6 | The **RN/PHN** administers the Tdap immunizations to the 24-26 year old client. | • Immunization status<br>• Immunization name<br>• Immunization lot number<br>• Immunization route of administration<br>• Immunization site<br>• Immunization dose volume<br>• Immunization dose number<br>• Immunization reason<br>• Immunization supporting documents | **Alt.1h** Client is 35+<br>**Alt.1i** Client is 65+<br>Immunization is administered. |
| 7 | The **RN/PHN/Pharmacist** instructs the client to remain at the clinic for 15 minutes post-immunization. | | The client remains at the clinic. |
| 8 | The client leaves the clinic after 15 minutes. | | **3.1** - Immunization incident |
| 9 | This use case ends. | | |

**Post Conditions**

- Medical record updated in database(s).
- Immunization is administered.
- Immunization record is updated.

**Alternate Flows**

1a. Immunization at a public health clinic.
1b. Immunization at a travel clinic.
1c. Immunization at a pharmacy.
1d. Client has a fever.
1e. Client is outside medical directive.
1f. Client does not give consent.
1g. Client is 35+
1h. Client is 65+
1i. Immunization incident.

## 2.2 Alt.1b Immunization at Pharmacy

**Actors:**

- Client (Child 5+ years, Adult 18+)
- Parent/Guardian/Client caregiver
- Pharmacy technician (PT)
- Pharmacist

**Pre-Conditions**

- Client is at least for 5 years+ for influenza immunization and 12 years+ for COVID-19 immunization

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | The **Client and Parent/Guardian/Client caregiver** arrive at a pharmacy for an immunization appointment and presents their health card. | Person information<br>• Person identifier type<br>• Person identifier value | **Alt**. Client not covered by provincial health insurance. **(pending) ON *always free - use pseudo-DIN**. |
| 2 | The **pharmacy technician (PT)** uses the health card to verify the client's demographic information. | **Person Information**<br>• Given name<br>• Surname<br>• Birth date<br>• Person address street<br>• Person address city<br>• Person address province<br>• Person address postal code | **Alt.** New client registration. **(pending)** |
| 3 | The **PT** verifies the client's allergy (ies) status. | • Allergy or intolerance status | **Alt.1e** Client is allergic to the immunization compound. |
| 4 | The **PT** verifies the client's temperature. | Local dB (*may feed into prov/national dB) | **Alt.1** - Client has a fever. |
| 5 | The **pharmacist** provides immunization education and obtains consent from the client. | • Immunization target disease<br>• Immunization education note | **Alt.1** Consent not given to immunize. |

| | | | |
|---|---|---|---|
| 6 | The **pharmacist** administers the immunization(s) to the client. | • Immunization status<br>• Immunization name<br>• Immunization lot number<br>• Immunization reason<br>• Immunization route of administration<br>• Immunization site<br>• Immunization dose volume<br>• Immunization dose number<br>• Immunization supporting documents | Immunization is administered.<br><br>COV-19 (12 years +) and/or influenza (5 years+) |
| 7 | Continue at Step 7 of Basic flow. | | |

**Post Conditions**

- Medical record updated in database(s).
- Immunization is administered.
- Immunization record updated.

**Alternate Flows**

1. Client not covered by provincial health care insurance
2. New client registration
3. Client is allergic to immunization compound.
4. Client has a fever.
5. Consent not given to immunize.

## 2.3 Alt.1c Immunization at Travel Clinic

**Actors:**

- Client (Child 5+ years, Adult 18+)
- Caregiver/Parent/Guardian
- Medical administrator
- Registered Nurse (PHN)

**Pre-Conditions**

- Additional costs associated with immunization.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | The **client** arrives at a travel clinic for an immunization appointment and presents their client's health card. | | |
| 2 | The **medical administrator** uses the health card to verify the client's demographic information. | **Health coverage**<br>• Private health coverage status<br>• Private health plan name<br>• Private health plan group name<br>• Private health plan policy number<br>• Private health plan coverage period<br>• Health coverage notes<br>**Person Information**<br>• Person identifier value<br>• Given Name<br>• Middle Name<br>• Family Name<br>• Pronouns<br>• Name Used<br>• Birth Date<br>• Person Address Street<br>• Person Address City<br>• Person Address Province<br>• Person Address Postal Code<br>• Person Address Country<br>• Person Telecom Value | Client's health coverage and person information is verified/updated.<br>New client's information is entered into the dB. |
| 3 | The **registered nurse (RN)** completes an assessment of the client's health history. | | Health history assessment completed. |
| 4 | The **RN** evaluates the client's itinerary and recommends immunization based on Health Canada, WHO and CDC requirements. | • Immunization education note | |
| 5 | The **RN** verifies the client's allergy (ies) status. | • Allergy or intolerance status | **Alt.1e** Client is allergic to the immunization compound. |
| 6 | The **RN** verifies that the client does not have a fever. | | **Alt.1f** - Client has a fever. |

| | | | |
|---|---|---|---|
| 7 | The **RN** provides immunization education and obtains consent from the client. | • Immunization target disease<br>• Immunization education note | **Alt.1g** Consent not given to immunize. |
| 8 | The **RN** administers the immunization(s) to the client. | • Immunization status<br>• Immunization name<br>• Immunization lot number<br>• Immunization reason<br>• Immunization route of administration<br>• Immunization site<br>• Immunization dose volume<br>• Immunization dose number<br>• Immunization supporting documents | Immunization is administered. |
| 9 | The **medical administrator** charges the client/client caregiver immunization fees for services not covered by the provincial health insurance. | | Client/client caregiver pays applicable fees. |
| 10 | Continue at Step 7 of Basic flow. | | |

**Post Conditions**

- Medical record updated in database(s).
- Immunization is administered.
- Immunization record updated.
- Payment processed

**Alternate Flows**

1. Client is allergic to immunization compound
2. Client has a fever.
3. Consent not given to immunize.

## 2.4 Alt.1d Immunization at Public Health unit

**Actors:**

- Client (Child, Adult 18+)
- Client Caregiver/Parent/Guardian
- Public Health Nurse (PHN)

**Pre-Conditions**

- The client is not up to date on immunizations.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | The **client** arrives at the public health clinic for an immunization appointment **and** presents their health card. | | |
| 2 | The **public health nurse** (PHN) uses the health card to verify the client's demographic information. | Person Information<br>• Person identifier value<br>• Given Name<br>• Middle Name<br>• Family Name<br>• Pronouns<br>• Name Used<br>• Birth Date<br>• Person Address Street<br>• Person Address City<br>• Person Address Province<br>• Person Address Postal Code<br>• Person Address Country<br>• Person Telecom Value | Client information is verified. |
| | Continue at step 3 of the Adult Basic flow or<br><br>Continue at step 7 of the Child Basic flow. | | |

**Post Conditions**

- Client demographic information is verified.

## 2.5 Alt.1e Client is allergic to Immunization Compound

**Actors:**

- Client (Child, Adult 18+)
- Client caregiver, Parent/Guardian
- Registered Nurse (RN)/Public health nurse (PHN)/Pharmacist

| Step # | Description | Data Element(s) collected | Result |
|---|---|---|---|
| 1 | The **RN/PHN/Pharmacist** determines that the client is allergic to a component of the immunization compound. | • Immunization reason not performed | Immunization is not administered. |
| 2 | This use case ends. | | |

**Post Conditions**

- Immunization is not administered.

## 2.6 Alt.1f Client has fever

**Actors:**

- Client (Child, Adult 18+)
- Client Caregiver/Parent/Guardian
- Registered nurse (RN)/ Public health nurse (PHN)/Pharmacist

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | The **RN/PHN/Pharmacist** determines that the client has a fever | • Immunization reason not performed | Immunization is not administered. |
| 2 | This use case ends. | | |

**Post Conditions**

- Immunization is not administered.

## 2.7 Alt.1g Consent not given to immunize

**Actors:**

- Client (Child, Adult 18+)
- Client caregiver/Parent/Guardian
- Registered nurse (RN)/ Public health nurse (PHN)/Pharmacist

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | The **Client/Client caregiver/Parent/Guardian** does not consent to the immunization. | • Immunization reason not performed | Immunization is not administered. |
| 2 | This use case ends. | | |

**Post Conditions**

- Immunization is not administered.

## 2.8 Alt.1h Client is 35+

**Actors:**

- Client (Adult 35+ years old)
- Registered nurse (RN)/Public health nurse (PHN)

**Pre-Conditions**

- The client is not up-to-date on required immunization.

| Step # | Description | Data Element(s) collected | Result |
|---|---|---|---|
| 1 | The **RN/PHN** administers Td immunizations to client. | • Immunization dose number<br>• Immunization name<br>• Immunization lot number<br>• Immunization status<br>• Immunization reason<br>• Immunization route of administration<br>• Immunization site<br>• Immunization dose volume<br>• Immunization supporting documents | Immunization is administered. (required every 10 years) |
| 2 | Continue at step 7 of the Basic flow. | | |

**Post Conditions**

- Immunization is administered.

## 2.9 Alt.1i Client is 65+

**Actors:**

- Client (Adult 65+ years old)
- Registered nurse (RN)/Public health nurse (PHN)

**Pre-Conditions**

- The client is not up-to-date on required immunization.

| Step # | Description | Data Element(s) collected | Result |
|---|---|---|---|
| 1 | The **RN/PHN** administers Pneu-P-23 and Shingles immunizations to client. | • Immunization dose number<br>• Immunization name<br>• Immunization lot number<br>• Immunization status<br>• Immunization reason<br>• Immunization route of administration<br>• Immunization site<br>• Immunization dose volume<br>• Immunization supporting documents | Immunization is administered. |
| 2 | Continue at step 7 of the Basic flow. | | |

**Post Conditions**

- Immunization is administered.

## 3.1 Immunization Incident – Basic Flow

**Actors:**

- Client (Child/Adult/Senior)
- Client caregiver
- Registered Nurse (RN)/Public Health Nurse (PHN)

**Pre-Conditions**

- Client has received an immunization.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | The **RN/PHN** detects that the incorrect dosage of immunization (over/under dose) was administered to the **client**. | • Medication Incident Description | **Alt.1a** Incorrect immunization<br><br>**Alt.1b** Expired immunization<br><br>**Alt.1c** Immunization reaction (allergy)<br><br>A detailed immunization Incident report is completed including details related to events that occurred, process followed to notify client/client caregiver, disclosure of the event to clinic manager/ordering physician and client harm scale assessment. |
| 2 | The **RN/PHN** follows the immunization incident protocol. | | Includes monitoring client for adverse effects and scheduling follow-up immunization as needed. |
| 3 | This use case ends. | | |

**Post Conditions**

- Immunization incident (incorrect/expired immunization, incorrect dosage).
- Client follow-up and monitoring of adverse effects.
- Schedule additional immunization dose as needed.
- Immunization incident protocol followed.

**Alternate Flows**

1. Incorrect immunization.
2. Expired immunization.
3. Immunization reaction

## 3.2 Alt.1a Incorrect Immunization

**Actors:**

- Client (Child/Adult/Senior)
- Registered Nurse (RN)/Public Health Nurse (PHN)

**Pre-Conditions**

- The client has received an immunization.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | The **RN/PHN** detects the incorrect immunization was administered to the **client**. | | A detailed immunization Incident report is completed including details related to what happened, the process followed to notify client/client caregiver and disclosure of the event to clinic manager/ordering physician and client harm scale. |
| 2 | Continue at step 2 of the Immunization Incident basic flow. | | |

**Post Conditions**

- Incorrect immunization administered to the client.

## 3.3 Alt.1b Expired Immunization

**Actors:**

- Client (Child/Adult/Senior)
- Registered Nurse (RN)/Public Health Nurse (PHN)

**Pre-Conditions**

- The client has received an immunization.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | The **RN/PHN** detects that expired immunization was administered to the **client**. | | A detailed immunization Incident report is completed including details related to what happened, the process followed to notify client/client caregiver and disclosure of the event to clinic manager/ordering physician and client harm scale. |
| 2 | Continue at step 2 of the Immunization Incident basic flow. | | |

**Post Conditions**

- Expired immunization administered to the client.

## 3.4 Alt.1c Immunization Reaction

**Actors:**

- Client (Child/Adult 18+ years)
- Registered Nurse (RN)/Public Health Nurse (PHN)/Pharmacist)

**Pre-Conditions**

- The client has received an immunization.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | The **client** experiences a reaction to the immunization. | • Immunization reaction<br>• Immunization reaction date<br>• Immunization reaction time | A detailed immunization Incident report is completed including information about what happened, the process followed to notify client/client caregiver and disclosure of the event to clinic manager/ordering physician and client harm scale. |
| 2 | The **RN/PHN** assesses the reaction and takes steps to minimize **client** harm. | | |
| 3 | Continue at step 2 of the Immunization Incident basic flow. | | |

**Post Conditions**

- The client experiences a reaction to the immunization.

# II. Allergies and Intolerances

**Definition –** An immunological hypersensitivity (allergy) or a non-immunological adverse reaction (intolerance) to a substance. Examples of allergies are reactions to bee venom, pollen, and tree nuts. Examples of intolerances are reactions to gluten and lactose.

## 4.1 Allergy Health Concern- Basic Flow

**Actors:**

- Client/Client Caregiver
- Medical administrator
- Registered Nurse (RN)

- Medical Doctor (MD)/Nurse Practitioner (NP)

**Pre-Conditions**

- The client is covered under the provincial health care insurance.
- The client is an existing customer at the clinic.
- The client has no confirmed pre-existing allergy

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | The **client** arrives at the primary care clinic for an appointment. The **client/client caregiver** presents the client's health card. | | |
| 2 | The **medical administrator** swipes the health card and verifies the client's demographic information. | **Person Information**<br>• Person identifier value<br>• Given Name<br>• Middle Name<br>• Family Name<br>• Pronouns<br>• Name Used<br>• Birth Date<br>• Person Address Street<br>• Person Address City<br>• Person Address Province<br>• Person Address Postal Code<br>• Person Address Country<br>• Person Telecom Value | Client's personal information is verified/updated. |
| 3 | **RN** records description/symptoms of the health concern | • Health concern code(s)<br>• Health concern body site<br>• Health concern date of onset<br>• Health concern reporting source<br>• Health concern verification status | Client/client caregiver describes possible allergy health concern.<br><br>**Alt.1a** Confirmed Allergy: Routine Primary health care visit.<br><br>**Alt.1b** Client Experiencing a Non-Life-threatening Allergic Reaction<br><br>**Alt.1c** Follow-up after Emergency Room allergy-related incident |

| | | | |
|---|---|---|---|
| 4 | **RN** records current medications and allergies | • Allergy or intolerance status<br>• No Active Medications flag | |
| 5 | **RN** records the client's vital signs. | • Blood pressure body location<br>• Blood pressure body position<br>• Blood pressure value<br>• Heart rhythm<br>• Respiratory rate | Client vital signs are recorded. |
| 6 | **MD/NP** validates the health concern described by client. | • Health concern code(s)<br>• Health concern category<br>• Health concern body site<br>• Health concern clinical status<br>• Health concern date of onset<br>• Health concern severity<br>• Allergy or intolerance exposure route<br>• Allergy or intolerance reaction<br>• Allergy or intolerance reaction description<br>• Allergy or intolerance reaction date of last occurrence | |
| 7 | **MD/NP** completes a referral document. | • Service request organization<br>• Service request date<br>• Service request reason<br>• Service request type<br>• Service request ID<br>• Service request urgency<br>• Service requestor first name<br>• Service requestor last name<br>• Service requestor ID<br>• Provider receiving service request ID<br>• Provider receiving service request first name<br>• Provider receiving service request last name | Electronic referral sent to specialist. |

| | | | |
|---|---|---|---|
| 8 | **MD/NP** recommends interim care for symptom management. | • several possible data elements dependent on client's condition | Symptom management care plan provided. |
| 9 | This use case ends. | | |

**Post Conditions**

- Medical record updated in database(s).
- Interim symptom management plan recommended.
- Electronic referral sent.

**Alternate Flows**

1. Alt.1a - Confirmed Allergy: Routine Primary health care visit.
2. Alt.1b - Client Experiencing a Non-Life-threatening Allergic Reaction
3. Alt.1c - Follow-up after Emergency Room allergy-related incident

## 4.2 Alt.1a Confirmed Allergy: Routine visit Primary Health Care

**Actors:**

- Client/Client caregiver
- Registered Nurse **(RN**)
- Medical Doctor (**MD**)/Nurse Practitioner (**NP**)

**Pre-Conditions**

- The client has a confirmed allergy(ies).

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | **RN** records current medications and allergies | • Allergy or intolerance status<br>• Allergy or intolerance code<br>• Allergy or intolerance criticality<br>• Allergy or intolerance clinical status<br>• Allergy or intolerance date of resolution<br>• Allergy or intolerance category<br>• No Active Medication flag | Allergy status and medication statuses recorded. |

| | | | |
|---|---|---|---|
| 2 | **RN** records the client's vital signs. | • Blood pressure body location<br>• Blood pressure body position<br>• Blood pressure value<br>• Heart rhythm<br>• Respiratory rate | Vital sign recorded |
| 3 | **MD/NP** validates the health concern described by client. | • Health concern code(s) | Health concern validated. |
| 4 | **MD/NP** assesses the client, confirms existing allergies/medications and recommends a treatment plan. | | Medication and allergy status confirmed; health concern addressed. |
| 5 | This use case ends. | | |

**Post Conditions**

- Medical record updated in database(s).
- Health concern is addressed.

## 4.3 Alt.1b Client Experiencing Non-Life-Threatening Allergic Reaction

**Actors:**

- Client/Client caregiver
- Registered Nurse (RN)
- Medical Doctor (MD)/Nurse Practitioner (NP)

**Pre-Conditions**

- Client has confirmed existing allergy(ies)

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | RN records the reason for the visit | • Health concern code<br>• Allergy or intolerance exposure route<br>• Allergy or intolerance reaction<br>• Allergy or intolerance reaction description<br>• Allergy or intolerance reaction severity<br>• Allergy or intolerance reaction date of onset<br>• Allergy or intolerance reaction date of last occurrence | |

| | | | |
|---|---|---|---|
| 2 | RN records current allergies and medications | • Allergy or intolerance status<br>• No Active medications flag | Medication DEs completed if client is currently taking medications. |
| 3 | **RN** records the client's vital signs. | • Blood pressure body location<br>• Blood pressure body position<br>• Blood pressure value<br>• Heart rhythm<br>• Respiratory rate | |
| 4 | **MD/NP** validates the reason for the visit. | | |
| 5 | **MD/NP** assesses the client, confirms existing allergies and recommends a treatment plan. | | Continue at step 7 of the Basic flow for referral to a specialist. |
| 6 | This use case ends. | | |

**Post Conditions**

- Medical record updated in database(s).
- Allergy status recorded.
- Referral to a specialist (as needed)

## 4.4 Alt.1c Follow-up after Emergency Room Allergy Incident

**Actors:**

- Client/Client Caregiver
- Registered Nurse (RN)
- Medical Doctor (MD)/Nurse Practitioner (NP)

**Pre-Conditions**

- The client is covered under the provincial health care insurance.
- The client has no previous documented history of allergies.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | **MD/NP** validates the details of the emergency room allergy incident described by client. | • Allergy or intolerance code<br>• Allergy or intolerance criticality<br>• Allergy or intolerance clinical status<br>• Allergy or intolerance category<br>• Allergy or intolerance onset<br>• Allergy or intolerance exposure route<br>• Allergy or intolerance reaction<br>• Allergy or intolerance reaction description<br>• Allergy or intolerance reaction severity<br>• Allergy or intolerance reaction date of onset | Review ER electronic document; validate event details/symptoms. |
| 2 | **MD/NP** completes a referral document. | • Service request organization<br>• Service request date<br>• Service request reason<br>• Service request type<br>• Service request ID<br>• Service request urgency<br>• Service requestor first name<br>• Service requestor last name<br>• Service requestor ID<br>• Provider receiving service request ID<br>• Provider receiving service request first name<br>• Provider receiving service request last name | Electronic referral sent to specialist. |
| 3 | **MD/NP** recommends interim care plan. | • several possible data elements dependent on client's condition | |
| 4 | This use case ends. | | |

**Post Conditions**

- Medical record updated in database(s).

- Electronic referral sent.
- Symptom management plan recommended.

# III. Medication Statement

**Definition –** A summary record of all the medication(s) a client has taken, is taking, or could be taking. Medication Statement includes any medication that could induce drug interactions or have an impact on client health such as prescription medications, non-prescription medications, and natural health products.

## 5.1 Medication Statement - Basic Flow

**Actors:**

- Client/Client caregiver
- Medical administrator
- Registered Nurse (RN)
- Medical Doctor (MD)/Nurse Practitioner (NP)

**Pre-Conditions**

- The client is covered under the provincial health care insurance.
- The client is an existing customer at the clinic.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | The **client** arrives at the primary care clinic for an appointment. The **client/client caregiver** presents the client's health card. | | |
| 2 | The **medical administrator** swipes the health card and verifies the client's demographic information. | **Person Information**<br>• Person identifier value<br>• Given Name<br>• Middle Name<br>• Family Name<br>• Pronouns<br>• Name Used<br>• Birth Date<br>• Person Address Street<br>• Person Address City<br>• Person Address Province<br>• Person Address Postal Code<br>• Person Address Country<br>• Person Telecom Value | Client information verified/updated. |

| | | | |
|---|---|---|---|
| 3 | **RN** records current medications and allergies. | • No Active Medications flag<br>• No Active allergies or intolerances flag | **Alt.1a** Client provides Medication Statement<br><br>**Alt.1b** Caregiver provides Medication Statement<br><br>Client is not currently taking medication. Allergy status is recorded. |
| 4 | **RN** records description/symptoms of the health concern | • Health concern code(s)<br>• Health concern body site<br>• Health concern date of onset<br>• Health concern reporting source<br>• Health concern verification status | Health concern symptoms recorded. |
| 5 | **RN** records the client's vital signs. | • Blood pressure body location<br>• Blood pressure body position<br>• Blood pressure value<br>• Heart rhythm<br>• Respiratory rate | Client vital signs are recorded. |
| 6 | **MD/NP** validates the health concern described by client. | • Healt concern codes)<br>• Health concern body site<br>• Health concern date of onset<br>• Health concern body site<br>• Health concern reporting source<br>• Health concern verification status<br>• Health concern category<br>• Health concern clinical status<br>• Health concern date of onset<br>• Health concern severity<br>• Health concern code(s) | Health concern symptoms validated. |
| 7 | **MD/NP** addresses health concerns and recommends a care plan. | | Health concern is addressed. |
| 8 | This use case ends. | | |

**Post-Conditions**

- Medical record updated in the database.
- The medication statement and allergy status are recorded.
- Health concern is addressed.

## 5.2 Alt.1a Client provides Medication Statement

**Actors:**

- Client
- Registered Nurse (RN)

**Pre-Conditions**

- Client is currently taking medication(s)

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | The **Client** provides the **RN** a list of current medication(s)**.** | • Medication code<br>• Medication usage status<br>• Medication usage status reason<br>• Medication statement period<br>• Medication statement date and time<br>• Medication indication<br>• Medication frequency and timing of administration<br>• Medication dosage as needed flag<br>• Medication route of administration<br>• Medication quantity per administration | Medication statement is recorded. |
| 2 | Continue at step 4 of the Basic flow. | | |

## 5.3 Alt.1b Client Caregiver provides Medication Statement

**Actors:**

- Client/Client caregiver
- Registered Nurse (RN)

**Pre-Conditions**

- Client is unable to provide a complete medication statement.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | The **Client caregiver** provides the **RN** a list of the **Client's** current medication(s)**.** | • Medication code<br>• Medication statement status reason text<br>• Medication statement period<br>• Medication statement date and time<br>• Medication indication<br>• Medication frequency and timing of administration<br>• Medication dosage as needed flag<br>• Medication route of administration<br>• Medication quantity per administration | Medication statement is recorded. |
| 2 | Continue at step 4 of the Basic flow. | | |

# IV. Medication Request

**Definition –** An order for medication or medical device by a clinician. An order typically includes the medication name, number of refills and frequency.

## 6.1 Medication Request - Basic Flow

**Actors:**

- Client/Client caregiver
- Medical administrator
- Registered Nurse (RN)
- Medical Doctor (MD)/Nurse Practitioner (NP)

**Pre-Conditions**

- The client is covered under the provincial health care insurance.
- The client is an existing customer at the clinic.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | The **client** arrives at the primary care clinic for an appointment. The **client/client caregiver** presents the client's health card. | | |
| 2 | The **medical administrator** swipes the health card and verifies the client's demographic information. | **Person Information**<br>• Person identifier value<br>• Given Name<br>• Middle Name<br>• Surname<br>• Pronouns<br>• Name Used<br>• Birth Date<br>• Person Address Street<br>• Person Address City<br>• Person Address Province<br>• Person Address Postal Code<br>• Person Address Country<br>• Person Telecom Value | Client information verified/updated. |
| 3 | **RN** records the client's current medications and allergies. | • Medication statement date and time<br>• Medication usage status<br>• Medication usage status reason<br>• Allergy or intolerance status<br>• Allergy or intolerance code<br>• Allergy or intolerance substance | Medication statement and allergies are recorded. |
| 4 | **RN** records description/symptoms of the health concern. | • Health concern(s)<br>• Health concern body site<br>• Health concern date of onset<br>• Health concern severity | Health concern symptoms recorded. |

| | | | |
|---|---|---|---|
| 5 | **RN** records the client's vital signs. | • Blood pressure body location<br>• Blood pressure body position<br>• Blood pressure value<br>• Heart rhythm<br>• Respiratory rate | Client vital signs are recorded. |
| 6 | **MD/NP** addresses the health concern and recommends a care plan. | • Health concern date of diagnosis<br>• Health concern clinical status<br>• Health concern category | Health concern is addressed. |
| 7 | **MD/NP** prescribes a new medication. | • Medication code or description<br>• Medication route of administration<br>• Medication supporting information<br>• Medication request authored date<br>• Prescribed brand no substitution indicator flag<br>• Medication start date and/or time<br>• Medication end date and/or time<br>• Medication dosage as needed flag<br>• Medication dose per administration<br>• Medication dose unit of measure<br>• Medication duration value<br>• Medication duration units of time<br>• Medication repeats<br>• Medication notes | Alt.1a - Renew medication request<br><br>Alt.1b - Update medication request<br><br>Alt.1c - Verify medication request<br><br>Alt.1d - Check medication request status<br><br>Alt.1e - Cancel Medication request |
| 8 | **MD/NP** provides information about the medication | • Medication reason<br>• Medication dosage instructions | Client is educated (re-educated) about the medication. |
| 9 | This use case ends. | | |

**Post-Conditions**

- Medical record is updated in the database.
- Health concern is addressed.

- Medication request is created.

**Alternate Flows**

1. Renew medication request
2. Update medication request
3. Verify medication request
4. Check medication request status
5. Cancel medication request

## 6.2 Alt.1a Renew Medication Request

**Actors:**

- Client/Client caregiver
- Medical Doctor (MD)/Nurse Practitioner (NP)

**Pre-Conditions**

- The client is currently taking medication.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | **MD/NP** addresses the health concern and renews the client's current medication. | • Medication code<br>• Medication route<br>• Medication supporting information<br>• Medication reason<br>• Medication request authored date<br>• Prescribed brand no substitution indicator flag<br>• Medication start date and/or time<br>• Medication end date and/or time<br>• Medication dosage as needed flag<br>• Medication dose per administration<br>• Medication dose unit of measure<br>• Medication duration<br>• Medication repeats<br>• Medication dosage additional instruction<br>• Prescribed medication dose type<br>• Prescribed medication dosage sequence<br>• Medication notes | Health concern is addressed and medication request is renewed. |

| | | | |
|---|---|---|---|
| 2 | Continue at step 8 of the Basic flow. | | |

**Post-Conditions**

- Medication request is renewed.

## 6.3 Alt.1b Update Medication Request

**Actors:**

- Client/Client caregiver
- Medical Doctor (MD)/Nurse Practitioner (NP)

**Pre-Conditions**

- The client is currently taking medication

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | **MD/NP** addresses the health concern and updates the client's current medication. | • Medication code or description<br>• Medication route of administration<br>• Medication supporting information<br>• Medication request authored date<br>• Prescribed brand no substitution indicator flag<br>• Medication start date and/or time<br>• Medication end date and/or time<br>• Medication dosage as needed flag<br>• Medication dose per administration<br>• Medication dose unit of measure<br>• Medication duration value<br>• Medication duration units of time<br>• Medication repeats<br>• Medication notes | Health concern is addressed, and medication request is updated. |
| 2 | Continue at step 8 of the Basic flow. | | |

**Post-Condition**

- Medication request is updated.

## 6.4 Alt.1c Verify Medication Request

**Actors:**

- Client/Client caregiver
- Medical Doctor (MD)/Nurse Practitioner (NP)

**Pre-Conditions**

- The client is currently taking medication.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | **MD/NP** addresses the health concern and verifies the client's current medication. | • Medication code<br>• Medication route<br>• Medication supporting information<br>• Medication reason<br>• Medication request authored date<br>• Prescribed brand no substitution indicator flag<br>• Medication start date and/or time<br>• Medication end date and/or time<br>• Medication dosage as needed flag<br>• Medication dose per administration<br>• Medication dose unit of measure<br>• Medication duration<br>• Medication repeats<br>• Medication dosage additional instruction<br>• Prescribed medication dose type<br>• Prescribed medication dosage sequence<br>• Medication notes | Health concern is addressed and medication request is verified. |
| 2 | Continue at step 8 of the Basic flow. | | |

**Post-Condition**

- Medication request is verified.

## 6.5 Alt.1d Check Medication Request Status

**Actors:**

- Client/Client caregiver
- Medical Doctor (MD)/Nurse Practitioner (NP)

**Pre-Conditions**

The client is currently taking medication.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | **MD/NP** addresses the health concern and checks the status of the client's current medication. | • Medication code or description<br>• Medication route of administration<br>• Medication supporting information<br>• Medication request authored date<br>• Prescribed brand no substitution indicator flag<br>• Medication start date and/or time<br>• Medication end date and/or time<br>• Medication dosage as needed flag<br>• Medication dose per administration<br>• Medication dose unit of measure<br>• Medication duration value<br>• Medication duration units of time<br>• Medication repeats<br>• Medication notes | Health concern is addressed and medication request status is confirmed. |
| 2 | Continue at step 8 of the Basic flow. | | |

**Post-Condition**

- Medication request status is verified.

## 6.6 Alt.1e Cancel Medication Request

**Actors:**

- Client/Client caregiver
- Medical administrator
- Registered Nurse (RN)
- Medical Doctor (MD)/Nurse Practitioner (NP)

**Pre-Conditions**

- The client is currently taking medication.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | **MD/NP** addresses the health concern and cancels the client's current medication. | • Medication code or description<br>• Medication route of administration<br>• Medication supporting information<br>• Medication request authored date<br>• Prescribed brand no substitution indicator flag<br>• Medication start date and/or time<br>• Medication end date and/or time<br>• Medication dosage as needed flag<br>• Medication dose per administration<br>• Medication dose unit of measure<br>• Medication duration value<br>• Medication duration units of time<br>• Medication repeats<br>• Medication notes | Health concern is addressed and medication request is cancelled. |
| 2 | This use case ends. | | |

**Post-Conditions**

- Medication request is cancelled.

# V. Medication Administration

**Definition –** The process by which medication is given to a patient. Information regarding the route of administration, dose, and schedule may be documented.

## 7.1 Medication Administration - Basic Flow

**Actors:**

- Client/Client caregiver
- Medical administrator
- Registered Nurse (RN)
- Medical Doctor (MD)/Nurse Practitioner (NP)

**Pre-Conditions**

- The client is covered under provincial health care insurance.
- The client is an existing customer at the clinic.
- Medication is being administered for the first time

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | The **client** arrives at the primary care clinic for an appointment. The **client/client caregiver** presents the client's health card. | | |
| 2 | The **medical administrator** swipes the health card and verifies the client's demographic information. | **Person Information**<br>• Person identifier type<br>• Person identifier value<br>• Given Name<br>• Middle Name<br>• Family Name<br>• Pronouns<br>• Name Used<br>• Birth Date<br>• Person Address Street<br>• Person Address City<br>• Person Address Province<br>• Person Address Postal Code<br>• Person Address Country<br>• Person Telecom Value | Client information verified/updated |
| 3 | **RN** records description/symptoms of the health concern. | • Health concern code(s)<br>• Health concern body site<br>• Health concern date of onset | |

| | | | |
|---|---|---|---|
| 4 | **RN** records current medications and allergies | • Medication<br>• Medication Dose Value<br>• Medication Dose Unit of Measure<br>• Prescribed Medication Dose Type<br>• Medication Ingredient Strength Value<br>• Medication Ingredient Strength Unit of Measure<br>• Medication Route of Administration<br>• Medication Timing<br>• Medication Dosage as Needed Flag<br>• Medication Duration Value<br>• Medication Duration Unit of Time<br>• Medication Total Quantity Value<br>• Medication Total Quantity Unit of Measure<br>• Medication Repeats<br>• Medication Usage Start Date and Time<br>• Prescribed Medication No Substitution Flag<br>• Medication End Date and Time<br>• Medication Dosage Instructions<br>• Medication Statement Date and Time*<br>• Medication Usage Status*<br>• Medication Usage Status Reason*<br>• Medication Incident Description*<br>• Medication Reason<br>• Allergy or intolerance status | Medication statement and allergies are recorded. |
| 5 | **RN** records the client's vital signs. | • Blood pressure body location<br>• Blood pressure body position<br>• Blood pressure value<br>• Heart rhythm<br>• Respiratory rate | Client vital signs are recorded. |

| | | | |
|---|---|---|---|
| 6 | **MD/NP** addresses the health concern and recommends a care plan. | | A care plan is recommended.<br><br>Alt.1a - Pre-scheduled Medication Administration |
| 7 | **MD/NP** administers medication as part of the care plan. | • Medication<br>• Medication Lot Number<br>• Medication Dose Value<br>• Medication Dose Unit of Measure<br>• Prescribed Medication Dose Type<br>• Medication Route of Administration<br>• Medication Usage Start Date and Time<br>• Medication End Date and Time<br>• Medication reason<br>• Medication Notes<br>• Medication Supporting Information<br>• Medication Administration Body Site<br>• Medication Administration Status<br>• Medication Administration Status Reason<br>• Medication Administration Date and Time<br>• Medication Incident Description | Medication is administered to the client.<br><br>Alt.1b Oral medication administration<br><br>Alt.1c Intermuscular or subcutaneous medication administration |
| 8 | The client remains at the clinic for 15 minutes post-injection. | | Alt.1d Medication administration - Incident |
| 9 | The client leaves the clinic. | | |
| 10 | This use case ends. | | |

**Post-Conditions**

- Medical record is updated in the database.
- Health concern is addressed.
- Medication is administered.

**Alternate Flows**

1. Pre-scheduled medication administration
2. Oral medication administration
3. Intramuscular or subcutaneous medication administration
4. Medication administration - Incident

## 7.2 Alt.1a Pre-Scheduled Medication Administration

**Actors:**

- Client/Client caregiver
- Medical administrator
- Registered Nurse (RN)
- Medical Doctor (MD)/Nurse Practitioner (NP)

**Pre-Conditions**

- The client's care plan includes pre-scheduled medication administration.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | **MD/NP** administers the scheduled medication to the client. | | Alt 1.b Oral medication administration<br><br>Alt.1.c Intermuscular or subcutaneous medication administration |
| 2 | Continue at step 9 of the Basic flow. | | |

**Post Conditions**

- Medication is administered to the client.

## 7.3 Alt.1b Oral Medication Administration

**Actors:**

- Client/Client caregiver
- Medical Doctor (MD)/Nurse Practitioner (NP)

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | **MD/NP** administers the medication to the client. | • Medication<br>• Medication Lot Number<br>• Medication Dose Value<br>• Medication Dose Unit of Measure<br>• Prescribed Medication Dose Type<br>• Medication Route of Administration<br>• Medication Usage Start Date and Time<br>• Medication End Date and Time<br>• Medication reason<br>• Medication Notes<br>• Medication Supporting Information<br>• Medication Administration Body Site<br>• Medication Administration Status<br>• Medication Administration Status Reason<br>• Medication Administration Date and Time<br>• Medication Incident Description | The oral medication is administered to the client. |
| 2 | Continue at step 9 of the Basic flow. | | |

**Post-Condition**

- Oral medication is administered to the client.

## 7.4 Alt.1c Intermuscular or Subcutaneous Medication Administration

**Actors:**

- Client/Client caregiver
- Medical Doctor (MD)/Nurse Practitioner (NP)

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | **MD/NP** administers the scheduled medication to the client. | • Medication<br>• Medication Lot Number<br>• Medication Dose Value<br>• Medication Dose Unit of Measure<br>• Prescribed Medication Dose Type<br>• Medication Route of Administration<br>• Medication Usage Start Date and Time<br>• Medication End Date and Time<br>• Medication reason<br>• Medication Notes<br>• Medication Supporting Information<br>• Medication Administration Body Site<br>• Medication Administration Status<br>• Medication Administration Status Reason<br>• Medication Administration Date and Time<br>• Medication Incident Description | Intermuscular or subcutaneous medication is administered to the client. |
| 2 | Continue at step 8 of the Basic flow. | | |

**Post-Condition**

- Intermuscular or subcutaneous medication is administered to the client.

## 7.5 Alt.1d Medication Administration - Incident

**Actors:**

- Client/Client caregiver
- Registered Nurse (RN)

**Pre-Conditions**

- The client is having an adverse reaction to the medication administered.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | The **client** experiences a reaction to the medication. | • Medication incident | A detailed Incident report is completed including information on what happened, the process followed to notify client/client caregiver and disclosure of the event to clinic manager/ordering physician and client harm scale. |
| 2 | The **RN** assesses the reaction and takes steps to minimize **client** harm. | | |
| 3 | Continue at step 9 of the Basic Flow. | | |

**Post Conditions**

- Client receives assistance to minimize harm as a result of an adverse reaction to administered medication.
- Incident details are recorded in a report.

# VI. Health Concerns

**Health Concern Definition –** Any health-related condition(s), situation(s), or problems(s) related to a person's health that may be documented in an encounter. Health Concern includes physical (e.g. difficulty breathing) and psychosocial (e.g. Social Determinants of Health) health concern(s).

**Anxiety Definition –** Anxiety is an emotion characterized by feelings of tension, worried thoughts, and physical changes like increased blood pressure. Anxiety is not the same as fear, but they are often used interchangeably. Anxiety is considered a future-oriented, long-acting response broadly focused on a diffuse threat.

**Type 2 Diabetes Definition –** Type 2 Diabetes affects how your body uses sugar (glucose) for energy. It stops the body from using insulin properly, which can lead to high levels of blood sugar if left untreated.

## 8.1 Health Concern - Basic Flow

**Actors:**

- Patient/Patient Caregiver
- Medical administrator
- Registered Nurse (RN)
- Medical Doctor (MD)/Nurse Practitioner (NP)

**Pre-Conditions**

- The patient is covered under the provincial health care insurance.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | The **client** arrives at the primary care clinic for an appointment. The **client/client caregiver** presents the client's health card. | | |
| 2 | The **medical administrator** swipes the health card and verifies the client's demographic information. | **Person Information**<br>• Person identifier value<br>• Given Name<br>• Middle Name<br>• Surname<br>• Pronouns<br>• Name Used<br>• Birth Date<br>• Person Address Street<br>• Person Address City<br>• Person Address Province<br>• Person Address Postal Code<br>• Person Address Country<br>• Person Telecom Value | |
| 3 | **RN** records *reason for the visit from the patient perspective.* | • Health concern(s)<br>• Health concern date of onset<br>• Health concern date of resolution<br>• Health concern body site<br>• Health concern severity<br>• Health concern evidence code*<br>• Health concern clinical status<br>• Health concern verification status<br>• Health concern category<br>• Health concern date of diagnosis<br>• Health concern supporting documents | |

| | | | |
|---|---|---|---|
| 4 | **RN** records current medications and allergies | • Allergy or intolerance status<br>• Medication code or description<br>• Medication usage status<br>• Medication usage status reason<br>• Medication statement period<br>• Medication statement date and time<br>• Medication reason<br>• Medication timing<br>• Medication dosage as needed flag<br>• Medication route of administration<br>• Medication administration dose value<br>• Medication administration dose unit of measure | Medication statement and allergies are recorded. |
| 5 | **RN** records the client's vital signs. | • Blood pressure body location<br>• Blood pressure body position<br>• Blood pressure value<br>• Heart rhythm<br>• Respiratory rate | Client vital signs are recorded. |
| 6 | **MD/NP** addresses the health concern. | | Top health concerns in Canada:<br><br>**Alt.1a** - Anxiety<br><br>**Alt.2a** - Type2 diabetes<br><br>Alt.1 - Hypertension<br><br>Alt.1 - Depressive episodes<br><br>Alt.1 - Joint pain<br><br>Alt.1 - Othe chronic pain<br><br>Alt. 1 - Symptoms related to emotional state<br><br>Alt.1 - Cholesterol<br><br>Alt1 - Acute stress<br><br>Alt.1 - Dorsalgia (unspecified back pain) |

| | | | |
|---|---|---|---|
| 7 | This use case ends. | | |

**Post Conditions**

- Various depending on condition and severity.

**Alternate Flows**

1. Anxiety
2. Type 2 Diabetes

## 8.2 Alt.1a Anxiety - Basic Flow

**Actors:**

- Client/Client caregiver
- Medical Doctor (MD)/Nurse Practitioner (NP)

**Pre-Conditions**

- The client is experiencing anxiety.
- The client is an existing customer at the clinic.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | **MD/NP** assesses whether the client is experiencing suicidal/homicidal ideations or thoughts of self-harm. | | Client's experiencing ideations and pose a threat to themselves, or others may be transferred to the nearest Emergency room. |

| | | | |
|---|---|---|---|
| 2 | **MD/NP** assesses the client's symptoms to determine an appropriate course of action. | • Health concern reporting source<br>• Health concern(s)<br>• Health concern body site<br>• Health concern severity<br>• Health concern evidence code<br>• Health concern date of onset<br>• Health concern date of resolution<br>• Health concern date of diagnosis<br>• Health concern clinical status<br>• Health concern category<br>• Health concern verification status<br>• Health concern supporting documents | Category of anxiety is assessed.<br><br>Alt.1b - Anxiety (Chronic)<br><br>Alt.1c - Anxiety (Episodic) |
| 3 | **MD/NP** schedules a follow-up assessment | | Follow-up assessment scheduled. |
| 4 | This use case ends. | | |

**Post-Conditions**

- Medical record updated in database(s).
- Follow-up assessment is scheduled.

**Alternate flows**

- Alt.1b - Anxiety (Chronic)
- Alt.1c - Anxiety (Episodic)

## 8.3 Alt.1b Chronic Anxiety

**Actors:**

- Client/Client caregiver
- Medical Doctor (MD)/Nurse Practitioner (NP)

**Pre-Conditions**

- The client is experiencing chronic anxiety.
- The client has a documented history of anxiety.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | **MD/NP** assesses the client's chronic anxiety. | • Health concern(s)<br>• Health concern body site<br>• Health concern severity<br>• Health concern evidence<br>• Health concern date of onset<br>• Health concern date of resolution<br>• Health concern date of diagnosis<br>• Health concern clinical status<br>• Health concern category<br>• Health concern verification status<br>• Health concern supporting documents | The clinician assesses the client's chronic anxiety. |
| 2 | **MD/NP** reviews the current treatment plan and reviews barriers to success. | | Assessment of current treatment plan and barriers to success may include, but are not limited to:<br>• Short-term leave from work<br>• Referral to counselling for chronic anxiety<br>• Dietitian counselling<br>• Lifestyle management recommendations<br>• Social prescribing (prescription for health/wellbeing/social supports). |

| | | | |
|---|---|---|---|
| 3 | **MD/NP** reviews the client's current medications. | • Medication<br>• Medication Dose Value<br>• Medication Dose Unit of Measure<br>• Prescribed Medication Dose Type<br>• Medication Ingredient Strength Value<br>• Medication Ingredient Strength Unit of Measure<br>• Medication Route of Administration<br>• Medication Timing<br>• Medication Dosage as Needed Flag<br>• Medication Duration Value<br>• Medication Duration Unit of Time<br>• Medication Total Quantity Value<br>• Medication Total Quantity Unit of Measure<br>• Medication Repeats<br>• Medication Usage Start Date and Time<br>• Prescribed Medication No Substitution Flag<br>• Medication End Date and Time<br>• Medication Dosage Instructions<br>• Medication Statement Date and Time*<br>• Medication Usage Status*<br>• Medication Usage Status Reason*<br>• Medication Incident Description*<br>• Medication Reason | Review current medications; this may include changes to dosage, new medication prescribed. |
| 4 | **MD/NP** orders investigation(s) to screen for underlying medical condition(s). | | Requisition for diagnostic test(s) completed. |
| 5 | Continue at step 3 of the Basic flow. | | |

**Post-Conditions**

- Assessment of current treatment plan.
- Review/change current medications.
- Screen for underlying medical condition(s).
- Assessment of aggravating factors

## 8.4 Alt.1c Episodic Anxiety

**Actors:**

- Client/Client caregiver
- Medical Doctor (MD)/Nurse Practitioner (NP)

**Pre-Conditions**

- Client has no documented history of anxiety

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | **MD/NP** reviews the client's history and assesses the severity of the episode of anxiety. | • Health concern reporting source<br>• Health concern(s)<br>• Health concern body site<br>• Health concern severity<br>• Health concern evidence code<br>• Health concern date of onset<br>• Health concern date of resolution<br>• Health concern date of diagnosis<br>• Health concern clinical status<br>• Health concern category<br>• Health concern verification status<br>• Health concern supporting documents | Severity of episode of anxiety is assessed.<br><br>Alt.1d - Mild episode of Anxiety<br><br>Alt.1e - Moderate/Severe episode of Anxiety<br><br>Alt.1f - Possible Medical cause for episode of Anxiety |
| 2 | Continue at step 3 of the Basic flow. | | |

**Post-Conditions**

- Medical record updated in database(s).
- Severity of anxiety is assessed.

**Alternate flows**

1. Alt.1d - Mild episode of Anxiety
2. Alt.1e - Moderate/Severe episode of Anxiety
3. Alt.1f - Possible Medical cause for episode of Anxiety

## 8.5 Alt.1d Mild Episode of Anxiety

**Actors:**

- Client/Client caregiver
- Medical Doctor (MD)/Nurse Practitioner (NP)

**Pre-Conditions**

- The client is experiencing a mild episode of anxiety

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | **MD/NP** recommends a care plan to treat the episode of anxiety. | | Recommended care plan may include but not limited to:<br>• Referral to counselling services<br>• Lifestyle management recommendations (nutrition management, exercise etc.) |
| 2 | Continue at step 3 of the Basic flow. | | |

**Post-Conditions**

- Anxiety care plan is recommended

## 8.6 Alt.1e Moderate/Severe Episode of Anxiety

**Actors:**

- Client/Client caregiver
- Medical Doctor (MD)/Nurse Practitioner (NP)

**Pre-Conditions**

- The client is experiencing a moderate/severe episode of anxiety

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | **MD/NP** recommends a care plan to treat the moderate/severe episode of anxiety. | | Recommended care plan may include, but not limited to:<br>• Referral to counselling services<br>• Lifestyle management recommendations (nutrition, exercise etc.)<br>• Discuss possible medication options<br>• Transfer to hospital emergency room (if client is in imminent danger to themselves/others or critical underlying medical condition exists) |
| 2 | Continue at step 3 of the Basic flow. | | |

**Post-Conditions**

- Anxiety care plan is recommended.
- Medication options explored
- Transfer to hospital emergency room

## 8.7 Alt.1f Possible Medical Reason for Anxiety

**Actors:**

- Client/Client caregiver
- Medical Doctor (MD)/Nurse Practitioner (NP)

**Pre-Conditions**

- The client is experiencing an episode of anxiety with possible underlying medical issue.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | **MD/NP** recommends a care plan to treat the possible underlying cause of the anxiety. | | Recommended care plan may include but not limited to:<br>• Referral to a specialist (when client's life is in danger)<br>• Transfer to Emergency room |

| | | | |
|---|---|---|---|
| 2 | **MD/NP** orders out-patient investigation(s). | | Investigations may include, but are not limited to<br>• Diagnostic tests |
| 3 | Continue at step 3 of the Basic flow. | | |

**Post-Conditions**

- Anxiety care plan is recommended.
- Out-patient diagnostic testing ordered.
- Referral to a specialist.
- Transfer to hospital emergency room

## 9.1 Alt.2a Type 2 Diabetes - Basic Flow

**Actors:**

- Client/Client caregiver
- Medical Doctor (MD)/Nurse Practitioner (NP)

**Pre-Conditions**

- The client is experiencing symptoms of Type 2 Diabetes.
- The client is an existing customer at the clinic.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | **MD/NP** assesses the client's Type 2 diabetes symptoms. | • Health concern reporting source<br>• Health Concern(s)<br>• Health Concern Body Site<br>• Health concern severity<br>• Health concern evidence<br>• Health concern date of onset<br>• Health concern date of resolution<br>• Health concern date of diagnosis<br>• Health concern clinical status<br>• Health Concern Category<br>• Health Concern Verification Status<br>• Health Concern Supporting Documents | The Type 2 diabetes symptoms are assessed.<br>Alt.2b – Type 2 Diabetes (Chronic)<br>Alt.2c – Type 2 Diabetes (first-time diagnosis)<br>Alt.2d - Follow-up appointment |

| | | | |
|---|---|---|---|
| 2 | **MD/NP** schedules a follow-up assessment | | Follow-up assessment scheduled. |
| 3 | This use case ends. | | |

**Post-Conditions**

- Medical record updated in database(s).
- Follow-up assessment is scheduled.

**Alternate flows**

1. Alt.2b – Type 2 Diabetes (Chronic)
2. Alt.2c – Type 2 Diabetes (first-time diagnosis)
3. Alt.2d - Follow-up appointment

## 9.2 Alt.2b Chronic Diabetes

**Actors:**

- Client/Client caregiver
- Medical Doctor (MD)/Nurse Practitioner (NP)

**Pre-Conditions**

- The client is experiencing symptom related to diabetes.
- The client has a documented history of Type 2 diabetes.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | **MD/NP** addresses the client's type 2 diabetes symptoms. | • Health concern reporting source<br>• Health Concern(s)<br>• Health Concern Body Site<br>• Health concern severity<br>• Health concern evidence<br>• Health concern date of onset<br>• Health concern date of resolution<br>• Health concern date of diagnosis<br>• Health concern clinical status<br>• Health Concern Category<br>• Health Concern Verification Status<br>• Health Concern Supporting Documents | The clinician addresses the client's Type 2 diabetes symptoms. |

| | | | |
|---|---|---|---|
| 2 | **MD/NP** reviews the current treatment plan | | |
| 3 | **MD/NP** makes the necessary adjustments to the client's treatment plan | • Medication<br>• Medication dose value<br>• Medication dose unit of measure<br>• Prescribed medication dose type<br>• Medication Ingredient strength value<br>• Medication ingredient strength unit of measure<br>• Medication route of administration<br>• Medication timing<br>• Medication dosage as needed flag<br>• Medication duration value<br>• Medication duration unit of time<br>• Medication total quantity value<br>• Medication total quantity unit of measure<br>• Medication repeats<br>• Medication usage start date and time<br>• Prescribed medication no substitute flag<br>• Medication end date and time<br>• Medication dosage instructions<br>• Medication reason<br>• Medication notes<br>• Medication supporting information<br>• Medication request authored on date<br>• Medication request status<br>• Medication request status reason | Actions may include, but are not limited to:<br>• Changes to medication<br>• Referral to specialty care<br>• Referral to Hospital emergency room<br>• Requisition for investigation(s) |
| 4 | Continue at step 2 of the Basic flow. | | |

**Post-Conditions**

- Assessment of current treatment plan.
- Review/change current medications

## 9.3 Alt.2c Type 2 Diabetes New Diagnosis

**Actors:**

- Client/Client caregiver
- Medical Doctor (MD)/Nurse Practitioner (NP)

**Pre-Conditions**

- The client is experiencing symptoms of Type 2 diabetes.
- The client has no documented history of Type 2 diabetes.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | **MD/NP** addresses the client's Type2 diabetes symptoms. | • Health concern reporting source<br>• Health Concern(s)<br>• Health Concern body site<br>• Health concern severity<br>• Health concern evidence<br>• Health concern date of onset<br>• Health concern date of resolution<br>• Health concern date of diagnosis<br>• Health concern clinical status<br>• Health Concern category<br>• Health Concern verification status<br>• Health Concern supporting documents | The clinician addresses the client's Type 2 diabetes symptoms. |
| 2 | **MD/NP** orders investigations to help diagnose. | No DEs yet | Clinician orders investigations.<br><br>Send patient to ER if symptoms require immediate attention. |
| 3 | Continue at step 2 of the Basic flow. | | |

**Post-Conditions**

- Investigation ordered for diagnosis confirmation.
- Patient sent to ER for symptoms that require immediate attention.

## 9.4 Alt.2d Type 2 Diabetes Follow-up Appointment

**Actors:**

- Client/Client caregiver
- Medical Doctor (MD)/Nurse Practitioner (NP)

**Pre-Conditions**

- The client has a documented history of Type 2 diabetes.
- The client is managing Type 2 diabetes with a care plan that includes 3–6-month follow-up appointments with the primary health care provider.

| Step # | Description | Data element(s) collected | Result |
|---|---|---|---|
| 1 | **MD/NP** addresses the client's type 2 diabetes symptoms. | • Health concern body site<br>• Health concern date of onset<br>• Health concern reporting source<br>• Health concern date of onset<br>• Health concern date of resolution<br>• Health concern severity<br>• Health concern clinical status<br>• Health concern verification status<br>• Health concern category<br>• Health concern date of diagnosis<br>• Health concern supporting documents | The clinician addresses the client's Type 2 diabetes symptoms. |
| 2 | **MD/NP** reviews the current treatment plan. | | |

| | | | |
|---|---|---|---|
| 3 | **MD/NP** makes the necessary adjustments to the client's treatment plan. | • Medication code<br>• Medication route<br>• Medication supporting information<br>• Medication reason<br>• Medication usage status<br>• Medication usage status reason<br>• Medication request authored date<br>• Prescribed brand no substitution indicator flag<br>• Medication start date and/or time<br>• Medication end date and/or time<br>• Medication dosage as needed flag<br>• Medication dose per administration<br>• Medication dose unit of measure<br>• Medication duration<br>• Medication repeats<br>• Medication dosage additional instruction<br>• Prescribed medication dose type<br>• Prescribed medication dosage sequence<br>• Medication notes | Actions may include, but are not limited to:<br>• Changes to medication<br>• Referral to specialty care<br>• Referral to Hospital emergency room<br>• Requisition for investigation |
| 4 | Continue at step 3 of the Basic flow. | | |

# Appendix A – PCHDCF Business Rules

| Rule # | Rule Description | Use Case(s) Impacted |
|---|---|---|
| BR.1 | Given Name or Last Name must be present | All basic flows |
| BR.2 | Immunization Date must be present | Immunization |
| BR.3 | A client may receive one or more immunizations during their lifetime. | Immunization |
| BR.4 | A client's immunization needs to be recorded | Immunization |
| BR.5 | During an immunization encounter both trade name or generic vaccines can be administered | Immunization |
| BR.6 | During an immunization encounter, the provider should record historical immunization information if the information is available. | Immunization |
| BR.7 | client's may or may not remember the exact date of an historical immunization in which case the Provider should capture the approximate date | Immunization |
| BR.8 | Immunization records should include the following: Dose volume, dose unit of measure, dose number, flag indication vaccine education was provided, Reason for vaccine admin etc. | Immunization |

| | | |
|---|---|---|
| BR.9 | In the event that an immunization causes a reaction, the following information should be recorded: date/time of reaction, reaction type, and who provided the reaction information. | Immunization |
| BR.10 | Immunization records should contain the drug lot number of the administered immunization adherence to Vanessa's law. | Immunization |
| BR.11 | The drug lot number and expiration date of the administered vaccine is not necessary for historical immunizations | Immunization |
| BR.12 | An immunization can be administered by an organization that is different from the organization that owns the drug inventory | Immunization |
| BR.13 | The name of the individual that performed the immunization must be recorded, but not required for historical immunizations | Immunization |
| BR.14 | The name of the prescriber should be recorded but may not be available for historical immunizations. | Immunization |
| BR.15 | More than one names can be recorded for a client patient | All basic flows |
| BR.16 | At least one person's name is required for each person. The name type is always required. | All basic flows |
| BR.17 | Person birth date is always required | All basic flows |
| BR.18 | The language of service for a patient must should be identified | All basic flows |
| BR.19 | A client will always have at least one health identifier. | All basic flows |
| BR.20 | In cases where the client cannot provide a health identifier, the provider organization will use its internally assigned identifier (i.e. MRN) | All basic flows |
| BR.21 | The health identifier type is always required | All basic flows |
| BR.22 | Client can identify themselves with a non-health identifier (e.g. passport) | All basic flows |
| BR.23 | The preferred pronoun(s) should be recorded for a person | All basic flows |
| BR.24 | In the event of a person's death, the death date and time must be recorded | All basic flows |
| BR.25 | Drug concepts within Canada should align with the Canadian Clinical Drug Dataset (CCDD) standard model to leverage business concepts and value sets | Medication |
| BR.26 | Drug codes from any type (substance, generic drug or trade drug) can be selected as appropriate for immunization, medication request, medication statement or any other medication event | Medication |
| BR.27 | If the drug is part of the CCDD it is not necessary to capture medication active or inactive ingredients and their strengths on their own since the ingredients and strengths are already embedded into the drug description | Medication |

| | | |
|---|---|---|
| BR.28 | Geography data can be derived from linked to Postal codes through a collaboration between Canada Post and Statistics Canada which releases the PCCF-Postal Code Conversion File. | Geography |
| BR.29 | Both geography data and postal code data require storing of history. To support scenarios such as: a city or town that existed in a previous census may be amalgamated in the next census and therefore will not exist as city anymore, postal code changes due to restructuring | Geography |
| BR.30 | Indigenous communities must be represented in the geography data (identified by Statistics Canada as Subdivision Type) | Geography |
| BR.31 | On reserve Indigenous communities should be represented in the Geography data using the postal code | |
| BR.32 | For privacy purposes, address information must be associated with the role that the party is playing | All basic flows |
| BR.33 | Free text addresses should be allowed for addresses that don't conform to the North American format (street #, suffix, name, type, etc.) | Address and Location |
| BR.34 | Reactions are always reported recorded during a client's encounter | Allergy and Intolerances |
| BR.35 | Client's health concerns must be recorded. | Health Concerns |
| BR.36 | A client can report more than one health concern during an encounter | Health Concerns |
| BR.37 | For each health concern there must be at least on evidence | Health Concerns |
| BR.38 | Health concern evidence can be supported with additional referenced documentation | Health Concerns |
| BR.39 | The medication description (entered description, drug description or both) must have a meaningful value. | All Medication scenarios |
| BR.40 | If medication dose per administration quantity is specified, then the dose unit of measure must be specified as well, and vice versa. | All Medication scenarios |

| | | |
|---|---|---|
| BR.41 | If medication dose total quantity is specified, then the dose unit of measure must be specified as well. | All Medication scenarios |
| BR.42 | If medication duration value is specified, then the duration unit of measure must be specified as well. | All Medication scenarios |
| BR.43 | There can be only one medication administration of the same drug to the same client at the same time. | Medication administration |
| BR.44 | If the client is known not to be on any active medications at the time of a health-service encounter, there can be no medication statements for the client at that time. | Medication statement |
| BR.45 | The prescribed start date/time of a medication must precede end date/time, if both are known. For prescriptions with multiple stages or dosage instructions, this rule applies only within the same stage/instruction. | Medication request, administration |
| BR.46 | The start date/time of a medication prescription event must be no later than its end date/time, if both are known.<br><br>*Note: these dates and times are not necessarily identical to those on the medication prescription itself (see BR RSA.10); for example, a doctor may order a medication to start being taken some time after it is prescribed.* | Medication prescription |
| BR.47 | The start date/time of a medication administration event must be no later than its end date/time, if both are known.<br>Note: these dates and times are not necessarily identical to those of the administration itself; for example, an administration of medication may end before the administration event if the client needs to be monitored for some time during the administration. | Medication administration |
| BR.48 | A medication dosage instruction can apply either to a medication request or to a medication statement. | Medication request, statement, administration |
| BR.49 | A medication dosage instruction applies either to a medication request or to a medication statement or else to a medication administration event. | Medication prescription, statement, administration |
| BR.50 | Organization name must be in English or French separately, or English only, or French only, or English and French combined. | All basic flows |
| BR.51 | Organization name effective date must be earlier than organization name expiry date. | All basic flows |
| BR.52 | Organization type set effective date must be earlier than the organization type set expiry date. | All basic flows |
| BR.53 | Effective date/time cannot be later than Expiry Date/time | All scenarios |

# Appendix B – Environmental Scans

## 1.1 Immunization

| Source # | Description | Source |
|---|---|---|
| 1 | Travel clinic | • https://www.swiftclinics.ca/services-and-pricing/travel-medicine-clinic/<br>• https://ottawatravelclinic.com/vaccinations/ |
| 2 | Ontario routine vaccine schedule. | • https://www.ontario.ca/page/ontarios-routine-immunization-schedule<br>• https://www.ontario.ca/files/2024-01/moh-immunization-poster-lifespan-en-2024-01-18.pdf<br>• https://www.ontario.ca/files/2024-01/moh-publicly-funded-immunization-schedule-en-2024-01-23.pdf |
| 3 | Ottawa public health | https://www.ottawapublichealth.ca/en/public-health-topics/immunization.aspx |
| 4 | Toronto Public health | https://www.toronto.ca/community-people/health-wellness-care/health-programs-advice/immunization/ |
| 5 | Vancouver Coastal health | https://www.vch.ca/en/health-topics/immunization |
| 6 | Horizon Health Network (Fredericton, NB) | https://horizonnb.ca/services/public-health/immunization/ |
| 7 | Pharmacy (Shoppers Drug Mart) National immunization service<br><br>excl Nunavut, NWT | https://www.shoppersdrugmart.ca/en/health-and-wellness/pharmacy-services/adult-vaccinations?province=ON |
| 8 | Pharmacy immunization in ON | https://opatoday.com/10yearsofimmunizations/ |
| 9 | School immunization - ON | https://www.ontario.ca/page/vaccines-children-school |
| 10 | Recommended immunization guideline Canada | https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-1-key-immunization-information/page-13-recommended-immunization-schedules.html |
| 11 | School immunization program - City of Toronto | https://www.toronto.ca/community-people/health-wellness-care/health-programs-advice/immunization/school-immunization-program/ |
| 12 | Immunizations schedule - BC | https://immunizebc.ca/children/immunization-schedules |
| 13 | Adverse Event Following Immunization Reporting for Health Care Providers in Ontario | Fact Sheet - Adverse Event Following Immunization Reporting For Health Care Providers In Ontario (publichealthontario.ca) |

| | | |
|---|---|---|
| 14 | British Columbia Data Standards Minimum Immunization Data Set Interoperability Guide | https://www2.gov.bc.ca/assets/gov/health/practitioner-pro/mids-interoperability-guide-20171220.pdf |

## 1.2 Allergies and Intolerances

| Source # | Description | Source |
|---|---|---|
| 1 | Food allergy diagnosis (Food allergy Canada) | https://foodallergycanada.org/food-allergy-basics/food-allergies-101/diagnosis/ |
| 2 | Allergy management in non-hospital settings (College of physicians and surgeons of BC). | https://www.cpsbc.ca/news/publications/college-connector/2022-V10-02/06 |
| 3 | Treatment in primary care | https://www.pcpforlife.com/how-does-a-primary-care-physician-help-with-seasonal-allergies.php#:~:text=Here |
| 4 | Personal use case of allergy referral to specialist from a PHC setting. | Personal experience in ON. |
| 5 | What to expect during an allergy test | https://appletreemedicalgroup.com/medical-services/programs-clinics/allergy-testing/#:~:text=An%20allergy%20assessment%20begins%20with,allergen%20is%20causing%20the%20problems. |
| 6 | Kids allergy testing | https://www.healthline.com/health/allergies/allergy-testing-for-children#skin-prick-test |

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|---|---|---|
| 7 | Pediatric allergists | https://www.csaci.ca/pediatrics/ |
| 8 | Treatment post-ER anaphylaxis visit | https://cps.ca/en/documents/position/emergency-treatment-anaphylaxis |
| 9 | Adverse Drug Reaction - Allergy information recorded | 3.19 Recording Adverse Drug Reaction and Allergy Information in PharmaNet - Province of British Columbia (gov.bc.ca) |
| 10 | Allergy Tests and Results by Allergist - Gov of BC | Allergy Tests \| HealthLink BC |
| 11 | Allergy in EMR - USA | Add Allergies or Adverse Reactions – Profile EMR User Help (zendesk.com) |

## 1.3 Medication Statement

| Source # | Description | Source |
|---|---|---|
| 1 | Medication statement FIHR definition | https://build.fhir.org/ig/HL7/fhir-ips/StructureDefinition-MedicationStatement-uv-ips-definitions.html |
| 2 | Best practices - Recording a Medication statement | https://www.nice.org.uk/about/nice-communities/social-care/quick-guides/effective-record-keeping-ordering-medicines |
| 3 | Caregiver access to health records | https://insights.infoway-inforoute.ca/2023-access-to-health-records-as-caregiver/ |
| 4 | Medication Ontology Guide | Medication Ontology Guide (gov.bc.ca) |
| 5 | Medication Prescribing in Hospital (page 52) | H164-195-1-2019-eng.pdf (publications.gc.ca) |
| 6 | Medication renewal (page 61)<br><br>Along with many other examples | cihi.sharepoint.com/sites/Interoperability/Shared Documents/Forms/AllItems.aspx?id=%2Fsites%2FInteroperability%2FShared Documents%2F240 Reference Material%2F10 Informal%2FRon Parker 2023-11-30 DH Data Reference Package%2FLotL Life of the Lamberts%2FLife of the Lamberts Generic%2Epdf&parent=%2Fsites%2FInteroperability%2FShared Documents%2F240 Reference Material%2F10 Informal%2FRon Parker 2023-11-30 DH Data Reference Package%2FLotL Life of the Lamberts&p=true&ct=1715864379486&or=Outlook-Body&cid=EE1E6276-B343-49FA-9025-0EB58CC36CD2&ga=1 |
| 7 | Adverse Drug Reaction record | 3.19 Recording Adverse Drug Reaction and Allergy Information in PharmaNet - Province of British Columbia (gov.bc.ca) |
| 8 | Medication Reconciliation | Medication Reconciliation Post-Discharge (MRP) - Data Exchange For Quality Measures Implementation Guide v4.0.0 (fhir.org) |

## 1.4 Medication Request

| Source # | Description | Source |
|---|---|---|
| 1 | A primary care case study with PrescribeIT | https://ehealthce.ca/userContent/documents/Research and Evaluation/QBIC/Case study - ePrescribing October 14 2020.pdf |
| 2 | Medication Adverse reaction | 3.19 Recording Adverse Drug Reaction and Allergy Information in PharmaNet - Province of British Columbia (gov.bc.ca) |

| | | |
|---|---|---|
| 3 | Medication Ontology guide | Medication Ontology Guide (gov.bc.ca) |
| 4 | Medication diagram sample | H164-195-1-2019-eng.pdf (publications.gc.ca) |
| 5 | Medication request - USCDI | https://www.healthit.gov/isp/uscdi-data/medication-request |
| 6 | FIHR Medication Detailed Description | https://build.fhir.org/medicationrequest-definitions.html |
| 7 | Electronic prescribing in Primary Care | https://ismpcanada.ca/bulletin/electronic-prescribing-in-primary-care-effects-on-medication-safety/ |

## 1.5 Medication Administration

| Source # | Description | Source |
|---|---|---|
| 1 | A primary care case study with PrescribeIT | https://ehealthce.ca/userContent/documents/Research and Evaluation/QBIC/Case study - ePrescribing October 14 2020.pdf |
| 2 | Ontario ACT association - Medication administration guidelines | https://ontarioactassociation.com/wp-content/uploads/2019/12/Oral-Medication-Admin-Guidelines.pdf |
| 3 | Safe medication administration - BC | https://opentextbc.ca/clinicalskills/chapter/6-1-safe-medication-adminstration/ |
| 4 | Medication management standards - Alta | https://www.nurses.ab.ca/media/orgfnt5n/12-medication-management-standards-2022.pdf |
| 5 | Canadian Medical Protective Association (CMPA) - Medication Safety | https://www.cmpa-acpm.ca/en/education-events/good-practices/the-healthcare-system/medication-safety |

## 1.6 Health Concerns

| Source # | Description | Source |
|---|---|---|
| 1 | Alliance data - Top 10 Health concerns in CHC (ON | 2024_04_15 - PHC Chartbook draft_v0.9.pptx (sharepoint.com) [slide 23] |
| 2 | Chronic diseases and conditions | Chronic Diseases and Conditions \| Public Health Ontario |
| 3 | 10 Common conditions in primary care | https://www.cfp.ca/content/cfp/64/11/832.full.pdf |
| 4 | Top 25 reasons for primary care visits in Canada | https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8360367/ |
| 5 | Addresses several topics including - diabetes, osteoarthritis, knee pain | Life of the Lamberts Use Case |

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