P16-0371 Panorama Project

Panorama Immunization Management User Manual

PNS IMM 103 Panorama Immunization Forecaster

Version 2.0

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1 PURPOSE

The purpose of this course is to provide an overview of the immunization forecaster used by Panorama. The focus in this course is on explaining the Panorama tools used to support clinical identification of the specific vaccine needs of clients, based on the published immunization schedules in Nova Scotia and best practice rules. This course is intended for all Public Health Immunization providers.

After completing the course, users should be able to:

- Read and interpret the immunization forecaster

- Use the forecaster data in their daily practice

2 IMMUNIZATION FORECASTER

2.1 What is the Immunization Forecaster

The Immunization Forecaster is a decision-support tool contained in the Immunization section of Panorama and used to support clinical identification of the specific vaccine needs of clients based on the Nova Scotia Publicly Funded Vaccine Eligibility Policy, NS Immunization Schedules, best practices and recommendation on immunizations provided through Canadian Immunization Guide, National Advisory Committee on Immunizations, and Product Monographs

The Forecaster tool does not replace clinician judgements about the best care for individual clients based on their unique needs and health situation.

The Immunization Forecaster tool generates a forecast for a client that includes recommendations on which specific immunizations should be administered to a client in the future and the recommended dates of administration.

The Immunization Forecaster assesses all routine, publicly funded immunizations recorded in Panorama. Nova Scotia requirements and immunization guidelines are directly converted into the rules that the Forecaster uses to generate all recommendations.

The Forecaster considers the client's age, gender, administered immunizations, and special considerations such as exemptions and contraindications. If a recorded immunization does not meet the Forecaster rules, the Forecaster will mark it as "Invalid" and the immunization will be displayed in the **Summary Table** with an 'X' in front of the date. Invalid immunizations will not count towards series completion.

The Immunization Forecaster supports clinicians in their decision-making but is not meant to and should never replace clinical judgment. The Immunization Forecaster can save a clinician time and effort in determining the immunizations due or overdue for a client based on a client's clinical history and published clinical guidelines. Your clinical judgment may at times be different from the Immunization Forecaster recommendations. A user can enforce clinical judgment over the Forecaster by 'overriding it' and marking invalid immunizations as valid, as well as the reverse.

The Immunization Forecaster informs all coverage reports, Search Client Forecast results (client immunization status list), and client status in the Mass Immunization Event. This means that whether a client is included in the coverage report or Search Client Forecast as up-to-date or due for an immunization, is based on the Forecaster decision.

To support the Forecaster and the accuracy of a client's individual forecast, as well as other Panorama components such as Search Client Forecast, immunization coverage reports and Mass Immunization Event client lists, **users must ensure that the client immunization history has been correctly documented and validated**. This is an essential component to ensure the future forecast is correct.

A user should verify that all available clinical information for a client has been documented in Panorama.

This includes:

- **Age:** A client must have a documented date of birth documented in Panorama.

- **Gender:** A client must have a gender documented in Panorama.

- **Historical Immunizations**: All past immunizations must be created as historical immunization records. All immunizations valid from the clinical perspective must display as valid and no invalid immunizations may appear as valid.

- **Special Considerations:** If a client has a history of a disease and should be exempt from a vaccination, is a conscientious objector, or is contraindicated for a vaccination due to a clinical condition, this information must be recorded in the Special Considerations.

The above factors directly impact the Forecaster. For example, if a client is exempt from MMR (and is recorded as a **Special Consideration** in Panorama) then the Forecaster will not forecast MMR during the specified time frame recorded.

As a Panorama user, it is your responsibility to provide accurate and up-to-date information about client clinical history to support informed and accurate decision-making for individual client forecasts and immunization reports.

2.2   Reading the Forecaster

The Immunization Forecast section of the client record displays all recommended immunizing agents based upon the NS immunization schedules currently in effect, compared against the client's age, gender, immunization history, contraindications and exemptions recorded for the client.

Antigens are 'rolled up' or combined to be forecasted as agents such as vaccine products like DTaP-IPV-Hib. This agent will be administered as one vaccine instead of each antigen administered separately. The following screenshot shows the agent being forecasted as one vaccine. Where NS does not use a combined vaccine these antigens will be forecasted separately.

Immunizing Agent/Antigen	Forecasted Dose #	Codes	Volume	Brand	Eligible	Due	Overdue	Forecast Status
DTaP-IPV-Hib	1				2016 Mar 20	2016 Apr 07	2016 May 07	Overdue
Pneu-C-13	1				2016 Mar 20	2016 Apr 07	2016 May 07	Overdue
Men-C-C	1				2016 Apr 07	2017 Feb 07	2017 Mar 07	Overdue
MMRV	1				2017 Feb 07	2017 Feb 07	2017 Mar 07	Overdue
HB-regular	1				2016 Feb 07	2028 Sep 01	2029 Jan 01	Eligible
HPV-4	1				2025 Feb 07	2028 Sep 01	2029 Jan 01	Up To Date
Men-C-ACYW-135	1				2017 Feb 07	2028 Sep 01	2029 Jan 01	Eligible
Pneu-P-23	1				2018 Feb 07	2081 Feb 07	2081 Mar 07	Up To Date

Immunization Forecast by Agent/Antigen
Last Forecast Ran On: 2018 Feb 01
Forecast Status calculated as of: 2018 Feb 01
Refresh Forecast

Dose

The Forecasted Dose # column identifies the next dose number for an agent in a multi-dose series for which the client is eligible. Dose # is calculated based on the number of documented valid doses of the agent in the client history.

In the example below, a client has not yet received any doses of MMRV and is forecasted for Dose 1. The client has already received Dose 1 of DTaP-IPV-Hib and is forecasted for Dose 2.

Codes

Users may occasionally notice values present in the **Code** column. There are three codes that may be used to reflect specific situations.

- **EDS** indicates if the forecasted agent is ***Extra Dose Safe***. This relates to an extra dose of an antigen administered in order to give a particular agent. E.g. Client is complete for measles but needs mumps and rubella. The immunization rules will allow MMR to be forecasted providing the additional measles is the only way to support the client's need for mumps and rubella)

- **LOA** indicates a ***Left-Over Antigen***. This situation appears when the available immunization agents for administration do not contain all forecasted antigens. An example of this would be if a client is missing a Diphtheria or Pertussis but Td is forecasted. The Td would appear as forecasted and the Diphtheria would also appear to be forecasted but would carry the code LOA.

- A letter "**M**" (for mixed dose) may display in the Forecasted Dose column instead of a dose number. A mixed dose indicates that the client has received a different number of doses of the antigen components for the forecasted agent. For example, if a client has a single IPV in history, but no Tdap, the forecasted dose for Tdap will show "M" because it is the first dose of Tetanus, Diphtheria and acellular pertussis but the second dose of IPV.

Eligible

The **Eligible** column displays the earliest clinically valid date on which a forecast agent can be given in compliance with the age and minimum interval rules governing vaccine administration.

In the example below, the client became eligible for Dose 1 of Tdap-IPV on 2006 Mar 21.

Immunization Forecast by Agent/Antigen								✓ ⌃
Last Forecast Ran On: 2018 Feb 01								
Forecast Status calculated as of: 2018 Feb 01 ·								Refresh Forecast
Immunizing Agent/Antigen ▲	Forecasted Dose # ⇕	Codes ⇕	Volume ⇕	Brand ⇕	Eligible ⇕	Due ▲	Overdue ⇕	Forecast Status ⇕
Tdap-IPV	1				2006 Mar 21	2006 Apr 07	2006 May 07	Overdue
MMRV	1				2007 Feb 07	2007 Feb 07	2007 Mar 07	Overdue
HB-regular	1				2006 Feb 07	2018 Sep 01	2019 Jan 01	Eligible
HPV-4	1				2015 Feb 07	2018 Sep 01	2019 Jan 01	Eligible
Men-C-ACYW-135	1				2007 Feb 07	2018 Sep 01	2019 Jan 01	Eligible

Due

This column displays the date when the immunization became due. This is the same date as the Eligible date.

Immunization Forecast by Agent/Antigen								✓ ⌃
Last Forecast Ran On: 2018 Feb 01								
Forecast Status calculated as of: 2018 Feb 01 ·								Refresh Forecast
Immunizing Agent/Antigen ▲	Forecasted Dose # ⇕	Codes ⇕	Volume ⇕	Brand ⇕	Eligible ⇕	Due ▲	Overdue ⇕	Forecast Status ⇕
Tdap-IPV	1				2006 Mar 21	2006 Apr 07	2006 May 07	Overdue
MMRV	1				2007 Feb 07	2007 Feb 07	2007 Mar 07	Overdue
HB-regular	1				2006 Feb 07	2018 Sep 01	2019 Jan 01	Eligible
HPV-4	1				2015 Feb 07	2018 Sep 01	2019 Jan 01	Eligible
Men-C-ACYW-135	1				2007 Feb 07	2018 Sep 01	2019 Jan 01	Eligible

Overdue

This column displays the date when the immunization became overdue. Based on the DHW rules, this date is defaulted as 1 month after the Due date.

In the example below, the client became overdue for Dose 1 of Tdap-IPV on May 7, 2006.

Immunization Forecast by Agent/Antigen								✓ ⌃
Last Forecast Ran On: 2018 Feb 01								
Forecast Status calculated as of: 2018 Feb 01 ·								Refresh Forecast
Immunizing Agent/Antigen ▲	Forecasted Dose # ⇕	Codes ⇕	Volume ⇕	Brand ⇕	Eligible ⇕	Due ▲	Overdue ⇕	Forecast Status ⇕
Tdap-IPV	1				2006 Mar 21	2006 Apr 07	2006 May 07	Overdue
MMRV	1				2007 Feb 07	2007 Feb 07	2007 Mar 07	Overdue
HB-regular	1				2006 Feb 07	2018 Sep 01	2019 Jan 01	Eligible
HPV-4	1				2015 Feb 07	2018 Sep 01	2019 Jan 01	Eligible
Men-C-ACYW-135	1				2007 Feb 07	2018 Sep 01	2019 Jan 01	Eligible

Forecast Status

Four types of immunization status exist for clients:

Up to Date: The client is not yet eligible (e.g., "Eligible in the future"), and the minimum interval and/or minimum age has not yet been satisfied.

Eligible: The Eligible date has been reached (minimum interval and/or minimum age have been satisfied), but the Due date is in the future.

Due: The recommended date for vaccine administration according to the current schedule date; this implies minimum intervals and/or minimum age have been satisfied.

Overdue: For *routine immunization schedules*, forecasted agents are considered overdue one (1) month after the Due date has passed,. For *school immunization schedules*, forecasted agents are considered overdue four (4) months after the due date. Overdue status also considers minimum intervals: if a client is behind on immunizations, the status will remain Up to Date until the minimum interval has passed, then it will become Overdue.

Reforecasting

Panorama automatically updates a client's immunization forecast when new immunizations, exemptions/contraindications are added, updated, or deleted, or/and a birth date or gender changes. User also have the option to execute a forecast on demand by clicking the **Refresh** button.

Immunization Forecast by Agent/Antigen								
Last Forecast Ran On: 2018 Feb 01								
Forecast Status calculated as of: 2018 Feb 01							Refresh Forecast	
Immunizing Agent/Antigen ▲	Forecasted Dose # ⇕	Codes ⇕	Volume ⇕	Brand ⇕	Eligible ⇕	Due ▲	Overdue ⇕	Forecast Status ⇕
Tdap-IPV	1				2006 Mar 21	2006 Apr 07	2006 May 07	Overdue
MMRV	1				2007 Feb 07	2007 Feb 07	2007 Mar 07	Overdue
HB-regular	1				2006 Feb 07	2018 Sep 01	2019 Jan 01	Eligible
HPV-4	1				2015 Feb 07	2018 Sep 01	2019 Jan 01	Eligible
Men-C-ACYW-135	1				2007 Feb 07	2018 Sep 01	2019 Jan 01	Eligible

Whenever a client's forecast is re-executed, the validity and dose number of each of the client's immunizations is re-evaluated, updated, and displayed. All valid immunizations will be renumbered sequentially based on the order within the series.

Any immunizations that are marked as invalid after the re-forecast will not be affected. They will be displayed as their intended dose #: the next valid dose will continue with the next available dose number.

Any immunizations that were not forecast will not be affected.

Invalid Immunizations

Any vaccinations that do not meet the forecaster rules are marked as invalid in Panorama. Invalid doses are displayed with an 'X' mark in the immunization date in the **Immunization History- Summary Grid** table.

In the example below, a client was administered MMRV below the minimum age of 12 months, and an X is displayed in the **Summary Grid** table alerting the clinician that this

dose is invalid. Additionally, the status of the dose is identified as Invalid in the **Detailed Data Table** below the Summary Grid.

Invalid doses will not be counted towards the client's total series when planning future doses. For example, the client in the above example will require Dose 1 of MMR to be administered as the Invalid dose will not count as Dose 1.

Invalid doses will be considered when calculating minimum intervals for planned doses for safety/clinical effectiveness reasons.

Each antigen will be listed with one of the following corresponding invalidation reasons:

- **Client administered with same agent on same day:** If two doses of the same agent/antigen are given on the same day, Dose 1 is marked valid and Dose 2 is marked as invalid. All the antigens within the invalid dose will have this reason.

- **Additional dose resulting from use of a multi-antigen agent:** If an antigen in a multi-antigen agent is not "Extra Dose Safe" (EDS), and is provided as an additional dose as part of this agent, this reason will display for the invalid antigen.

		Agent ▲	Date Administered	Age at Administration	Status ⇅	Trade Name ⇅	Body Site ⇅	Volume ⇅
○		DTaP-IPV-Hib	2016 Apr 19	2m 12d	Valid			
○		M	2017 Apr 12	1y 2m	Valid			
○		MMRV	2017 Feb 01	11m 25d	Invalid			
○		MMRV	2017 Jun 13	1y 4m	Valid			

Special Considerations | AEFI | Allergies | Deferrals | Risk Factors | TB Skin Test | IGRA Tests | Mass Imms Event | View Consent | IHI

Antigen Count

Immunization Forecast by Agent/Antigen

Last Forecast Ran On: 2018 Feb 02

Forecast Status calculated as of: 2018 Feb 02   [Refresh Forecast]

Immunizing Agent/Antigen ▼	Forecasted Dose # ⇅	Codes ⇅	Volume ⇅	Brand ⇅	Eligible ⇅	Due ⇅	Overdue ⇅	Forecast Status ⇅
Pneu-P-23	1				2018 Feb 07	2081 Feb 07	2081 Mar 07	Up To Date
Pneu-C-13	1				2016 Mar 20	2016 Apr 07	2016 May 07	Overdue
MMRV (Measles (M)*)	M	EDS			2017 Jul 11	2017 Aug 07	2017 Sep 07	Overdue
Men-C-C	1				2016 Apr 07	2017 Feb 07	2017 Mar 07	Overdue
Men-C-ACYW-135	1				2017 Feb 07	2028 Sep 01	2029 Jan 01	Eligible
HPV-4	1				2025 Feb 07	2028 Sep 01	2029 Jan 01	Up To Date
HB-regular	1				2016 Feb 07	2028 Sep 01	2029 Jan 01	Eligible
DTaP-IPV-Hib	2				2016 May 17	2016 Jun 07	2016 Jul 07	Overdue

- **Administered date is less than or greater than eligibility date:** If neither of the above two reasons are given, the dose will have this reason. This is what will be seen most often, meaning that a minimum interval, minimum age, or maximum age was violated.

The Forecaster will not invalidate doses in the following cases:

- Additional doses beyond a series end are administered that meet minimum interval requirements

- Dose was received by a route other than what is recommended

- Higher (or lower) than recommended vaccine dosage was administered (except for HB Engerix-B Adult 1.0ml and 2.0ml which have different minimum age eligibilities, and Recombivax Ped 0.5ml and 0.25ml which have different maximum age eligibility)

- Less than a full dose of vaccine given due to syringe/needle malfunction

These and other reasons can be applied by an authorized user to manually mark vaccines as invalid.

Immunization doses that have been overwritten and marked as invalid by the user will be marked with 'OX' (as overridden) not 'X'.

Immunization Details

Immunization History - Summary Grid

	Agent ▲	Date Administered ▲	Date Administered ⇅	Date Administered ⇅	Date Administered ⇅	Date Administered ⇅	Date Administered ⇅
⊖	DTaP-IPV-Hib	2016 Apr 19 (OX)					

Immunization Override

There are two types of immunization overrides. These include:

- From Valid to Invalid, and
- From Invalid to Valid

If a clinician determines that a recorded immunization that is marked as Valid is actually invalid for a particular reason (such as an incorrect route or dosage or some other clinical reason), the status of this immunization can be manually set to Invalid.

Only users authorized to make such decisions should proceed to invalidate immunizations as this action directly affects the Forecaster and the recommendations for client immunizations.

2.3   Special Considerations and the Forecaster

The Immunization Forecaster is a clinical decision support tool used in the Immunization module of Panorama. The Immunization Forecaster produces a forecast for a client, based on recommendations regarding the specific immunizations that should be administered in future and when they should be administered.

Clients may have contraindications or exemptions for a specific vaccine in their presenting condition or history that should temporarily or permanently suspend (delay or stop) the forecast for a vaccine. The forecaster will only use this information if it is recorded under **Special Considerations** in Panorama. It is important to ensure that the exemption and contraindication information in Panorama is always up-to-date as it has a direct impact on the forecaster and client safety.

Active contraindications and exemptions will put the forecast on hold and exclude the client from overdue lists (Query Client Forecast), show the client status as **Not Forecasted** in the Mass Immunization Event Worksheet, and list the client as being up-to-date for a vaccine in coverage reports. **If a client has an exemption or contraindication for a vaccine but it is not documented in Panorama, this vaccine will still be forecasted.**