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AMERICAN IMMUNIZATION REGISTRY ASSOCIATION

Guidance on Indicating Preferable and Contraindicated Vaccines

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Background

Release 1.5 of the Implementation Guide (IG) for Immunization Messaging outlines the technical details of messaging of a patient specific forecast as part of an RSP^K11 response message. Each forecast (there can be multiple per response message) consists of a set of related observation (OBX) segments contained within a dedicated Order Segment Group (see previous AIRA guidance on message structure when constructing messages). While the set of OBX segments starts with a vaccine type (LOINC code 30956-7) OBX segment to indicate the vaccine group being recommended, the current documentation does not allow for a method to specify preferred or contraindicated vaccine types. These concepts are often part of clinical decision support and are integrated into the Clinical Decision Support for Immunization (CDSi) resources published by the CDC. This document will outline an approach to specify preferred or contraindicated vaccine types in a response message.

Scope of Guidance

In Scope

This document will describe the mechanism for constructing a message containing specific vaccination recommendations as part of a set of related OBX segments comprising the recommendation. Any preferred vaccines being message should not be considered to be a comprehensive list of possible products nor should the recipient clinician assume that they must use one of the preferred vaccines (although they must understand the possible implications of using a non-preferred vaccine).

Out of Scope

The mechanisms used by a system generating the response message to determine preferred or contraindicated vaccine types is core to the clinical decision support process itself, is independent of the messaging of the resulting information and is not addressed in this document.

Expectations of Support

This document does not require that systems conformant to Release 1.5 of the implementation guide support the ability to send or receive preferred or contraindicated vaccine OBX segments. It merely outlines the method for sending this data when both trading partners agree there is value in exchanging preferred and contraindicated vaccines.

A sending system should not assume that the receiving system is capable of receiving preferred or contraindicated vaccine segments in the absence of extensive discussion and testing. In particular, it is critical that a contraindicated vaccine is not misinterpreted as a recommended vaccine type.

Structure of the Return Evaluated History and Forecast (RSP) - Z42 message

A conformant Z42 message will contain one Order Segment group containing patient forecast information. The content of this Order Segment Group is documented in other AIRA guidance documents but is summarized below.

The Forecast Order Segment Group may contain multiple "sets" of related OBX segments with each set detailing a recommendation for a single future administration or series. These sets of OBX segments are linked via an identical subID in OBX-4 (each forecasted administration must have a unique subID).

Within a Forecast Order Segment Group, RXA-5.1 shall be the CVX code 998 and RXA-20 shall be NA. The following OBX segment types are relevant per forecasted series/dose (keep in mind that the single Forecast Order Segment Group may contain multiple related sets of OBX segments when forecasting multiple doses or series):

- Vaccine type (required and must be the first OBX segment among the related group of OBX segments for a forecast) - LOINC code 30956-7
- Status in the immunization series, including on schedule, overdue, completed, immune, too old, not recommended and contraindicated series as supported by the sending system (required) - LOINC code 59783-1
- Reason for recommendation (required when the status indicates the series is contraindicated or not recommended) - LOINC code 30982-3
- Earliest date (required for forecasted (status of on schedule or overdue) doses) - LOINC code 30981-5
- Recommended due date (required for forecasted (status of on schedule or overdue) doses) - LOINC code 30980-7
- Overdue date - LOINC code 59778-1
- Latest date - LOINC code 59777-3
- Schedule used - LOINC code 59779-9
- Series Name - LOINC code 59780-7
- Total number of doses in the series - LOINC code 59782-3
- Dose number of the evaluated event - LOINC code 30973-2

To include preferred or contraindicated vaccines additional OBX segments may be added to the related group of OBX segments. A preferred vaccine should only be indicated where there is a clear preference over other available products. Preferred vaccine OBX segments should not be sent when all possible products are equally valid. Similarly, a preferred vaccine should not be messaged when only a single vaccine is available. As well, other attributes of the recommendation (earliest date, series name, etc.) should apply equally to all preferred vaccines in the recommendation.

In addition to the standard requirements for an OBX segment set forth in the implementation guide, the contents of the OBX segment would be as follows:

- OBX-3 would indicate the "type" of vaccine (preferred or contraindicated) being conveyed
    - Specific LOINC codes have been created to be used in OBX-3
        - 93123-8 (Preferred vaccine type)
        - 93122-0 (Contraindicated vaccine type)
    - It will be possible to include multiple OBX segments for the same vaccine "type" as part of a single recommendation
- OBX-4 will be the same value as other OBX segments in the related segments which comprise a single recommendation

- OBX-5 would indicate the vaccine using a CVX code for the preferred or contraindicated vaccine
    - Note that some CVX codes represent multiple products with substantially similar formulations, so it may not always be possible to represent a specific product
        - The CDSi resources also use CVX codes to document preferred and contraindicated vaccines
    - The use of National Drug Codes (NDCs) is likely to prove too granular but are not excluded from use here
    - Because the OBX segment can repeat only a single vaccine should be present in OBX-5
        - If 3 vaccines are to be messaged for a single recommendation, then 3 separate OBX segments would be required

Example

An immunization forecast patient John Smith. The CDS engine determines that John is due for doses of MMR, influenza, MenB and tetanus/diphtheria. Because John is asthmatic, he is contraindicated for the live intranasal influenza vaccine but may receive any other type of influenza vaccine (recombinant, egg culture or cell culture); no one vaccine type is preferred over the other. Because he began the MenB series with a dose of Bexsero, he is recommended to continue with this product as the two MenB products (Bexero and Trumenba) are not interchangeable. Because John has previously received a dose of pertussis containing vaccine, Td is preferable to Tdap.

MSH|^~\&|NISTIISAPP|NISTIISFAC|NISTEHRAPP|NISTEHRFAC|20151031145233-0500||RSP^K11^RSP_K11|NIST-IZ-QR-1.2_Response_K11_Z42|P|2.5.1|||NE|NE|||||Z42^CDCPHINVS|NISTIISFAC^^^^^NIST-AA-1^XX^^^100-3322|NISTEHRFAC^^^^^NIST-AA-1^XX^^^100-6482
MSA|AA|NIST-IZ-QR-1.1_Query_Q11_Z44
QAK|IZ-1.1-2015|OK|Z44^Request Evaluated History and Forecast^CDCPHINVS
QPD|Z44^Request Evaluated History and Forecast^CDCPHINVS|IZ-1.1-2015|171122^^^NIST-MPI-1^MR|Smith^John^A^^^^L|Billingsley^^^^^^M|19990214|M|105 Laurel Run Rd^^Bozeman^MT^^^P
PID|1||171122^^^NIST-MPI-1^MR~34500907^^^NIST-IIS-MPI^SR||Smith^John^A^^^^L||19990214|M|||105 Laurel Run Rd^^Bozeman^MT^^^P
<patient history would be present here>
RXA|0|1|20151031||998^no vaccine admin^CVX|999||||||||||||NA
OBX|1|CE|30956-7^vaccine type^LN|1|03^MMR^CVX|||||F|||20151031
OBX|2|CE|59779-9^Immunization Schedule used^LN|1|VXC16^ACIP^CDCPHINVS|||||F|||20151031
OBX|3|DT|30980-7^Date vaccination due^LN|1|20151031|||||F|||20151031
OBX|4|DT|30981-5^Earliest Date to give^LN|1|20151031|||||F|||20151031
OBX|5|CE|30956-7^vaccine type^LN|2|88^ Influenza unspecified formulation^CVX|||||F|||20151031
OBX|6|CE|59779-9^Immunization Schedule used^LN|2|VXC16^ACIP^CDCPHINVS|||||F|||20151031
OBX|7|DT|30980-7^Date vaccination due^LN|2|20151031|||||F|||20151031
OBX|8|CE|93122-0^Contraindicated Vaccine Type^LN|2|149^ influenza, live, intranasal, quadrivalent^CVX|||||F|||20151031
OBX|9|CE|30956-7^vaccine type^LN|3|164^ Meningococcal B unspecified formulation^CVX|||||F|||20151031
OBX|10|CE|59779-9^Immunization Schedule used^LN|3|VXC16^ACIP^CDCPHINVS|||||F|||20151031

OBX|11|DT|30980-7^Date vaccination due^LN|3|20151031||||||F|||20151031
OBX|12|CE|93123-8^Preferred Vaccine Type^LN|3|163^Meningococcal B, OMV^CVX||||||F|||20151031
OBX|13|CE|30956-7^vaccine type^LN|4|139^Td (adult)^CVX||||||F|||20151031
OBX|14|CE|59779-9^Immunization Schedule used^LN|4|VXC16^ACIP^CDCPHINVS||||||F|||20151031
OBX|15|DT|30980-7^Date vaccination due^LN|4|20151031||||||F|||20151031
OBX|16|CE|93123-8^Preferred Vaccine Type^LN|4|09^Td (adult), 2 Lf tetanus toxoid, preservative free, adsorbed^CVX||||||F|||20151031
OBX|17|CE|93123-8^Preferred Vaccine Type^LN|4|113^Td (adult), 5 Lf tetanus toxoid, preservative free, adsorbed^CVX||||||F|||20151031

For the yellow highlighted recommendation, a preferred vaccine OBX segment is not present as only one formulation of MMR vaccine is available.
For the blue highlighted recommendation, a contraindicated vaccine OBX segment is present as the patient should not receive the intranasal vaccine as it is contraindicated for persons with asthma. Preferred vaccine OBX segments are not present as all other formulations of influenza vaccine are equally appropriate.
For the green highlighted recommendation, a single preferred vaccine OBX segment is present as Bexsero is more appropriate than Trumenba.
For the grey highlighted recommendation multiple preferred vaccine OBX segments are included because either Td formulation is acceptable but Tdap is not preferred.

Summary

Some CDS engines are capable of determining preferred and contraindicated vaccines as part of creating a patient's immunization forecast. This document outlines the methodology for sending this data using OBX segments when both trading partners agree to exchange these parts of the forecast. Support for preferred or contraindicated vaccines is not required of any system claiming conformance to the Release 1.5 Implementation Guide. As well, systems may agree to exchange one type of data (either preferred or contraindicated) but not the other.