Patient Name (PID-5) Updates to Support Patient Matching

Executive Summary

Updated specifications for PID-5, patient name, are provided to support improved representation of patient names in messaging and improved patient matching between systems. Specifications include the usage of coded values within the HL70200 value set, clarification on data type specifications by name type code, clarifications on what name type codes should be used in different circumstances, and requirements related to components within a patient name.

Key requirements for patient name include:

- Systems SHALL support name type code 'L', i.e., submitting/querying systems SHALL support population and submission of the 'L' name type code in VXU and QBP messages and receiving/responding systems SHALL support recognition of this name type code. Additionally,
  - Systems SHALL send the closest representation of the patient's legal name with name type code 'L'. I.e., systems SHALL NOT send a name that does not reflect the patient's legal name with the name type code 'L'.
  - Submitting/querying systems SHOULD send the 'L' name type in the first repetition of PID-5; however, receiving/responding systems SHALL accept this name in any repetition.
- Systems SHOULD support name type codes 'M', NB', and 'N'.
- Systems SHALL follow data type specifications for the name code used.
- Systems SHALL strive to accurately record and transmit patient name, e.g.:
  - Systems SHALL preserve space(s) and hyphen(s) in a patient's name.
  - Systems SHALL support commonly used special characters in name components by storing as is or, if necessary, downgrading commonly used special characters according to transliterations provided for storage.

Background

The PID-5 field identifies the name of a patient in HL7 messaging, with field repetitions to indicate different instances of the name of a given patient. According to the National IG, Release 1.5 (2018), the first repetition of the PID-5 field in a VXU "shall contain the legal name," indicated by name type code 'L'. This requirement supports backward compatibility to HL7 v2.2. The AIRA Guidance on Messaging Preferred Name of Patient adds to the National IG specifications by indicating that a patient's preferred name be sent with name

type code 'N', which aligns with the HL7 concept of nickname or 'Nickname/"Call me" Name/Street Name'.

The specifications in this TAB remove the requirement to support backward compatibility. In addition, new specifications are added that define usage for additional name type codes, specify data type requirements by name type code, provide requirements for the messaging of name type codes that SHALL and SHOULD be supported, and indicate requirements for name components, such as special characters, hyphens, spaces, and length. Included are recommended specifications for messaging temporary newborn names using the name type code 'NB.' While support for this code is encouraged, it is not required.

These specifications are intended to support accurate representation of patient names in HL7 messaging, which in turn supports improved record matching between systems.

Scope

In scope

- Messaging patient name in HL7 to facilitate record lookup and matching between systems, primarily patient name in submitted VXU messages and patient name in queried QBP messages and, where indicated, return of patient name in RSP messages
- By extension, requirements for storage of patient name in EHR/health IT systems and, in some cases, requirements for storage of patient names in IIS to support representation of patient name in HL7 messaging as indicated

Out of scope

- Specific naming policies and protocols for birthing hospitals/facilities for unnamed newborns; however, these facilities are strongly encouraged to implement best practices for distinct identification of unnamed newborns, as discussed in referenced guidance documents[1]
- Specific requirements for patient matching algorithms; however, specifications provided should be used to inform these requirements
- Business rules associated with deduplication and consolidation of patient records, which may influence storage and return of patient name

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[1] Joint Commission-accredited hospitals and critical access hospitals that provide labor and delivery services are required to use distinct methods of identification for newborn patients (Joint Commission, Newborn Identification, 2018). The American Health Information Management Association (AHIMA) Naming Policy Framework 2023: Essential Person Demographic Data Elements for Electronic Health Information details guidelines and examples for the implementation of distinct newborn naming conventions.

Clarifications and Conformance Expectations

Name type code (HL70200) Value Set usage for PID-5

System requirements for supporting name type codes in the HL70200 Value Set for inclusion in PID-5 follow. In the context of immunization messaging, "support" refers to the ability of submitting/querying systems (e.g., EHR systems) to store and send patient names with these name type codes in VXU and QBP messages and the ability of receiving/responding systems (i.e., IIS) to recognize these name type codes as valid values (and not return a severity 'E' error due to presence of the code) in submitted messages.

- Systems SHALL support name type code 'L'.
- Systems SHOULD support name type codes 'M', 'NB' and 'N'.
- Systems MAY support name type codes 'A', 'B', 'C', 'T', 'REL', 'MSK', 'NOUSE', and 'U'.
- The other name type codes in Table 1 SHOULD NOT or SHALL NOT be supported for PID-5.

Table 1. Name type code (HL70200) Value Set usage for PID-5

Code	HL7 Definition	Description	Conformance Expectations	
			Usage	Notes
L	**Official Registry Name**	Formal name which corresponds to patient's legal name, as recorded on official documentation.	**R**	**SHALL support**
M	Maiden Name	Patient's previous name before marriage[2]	P	SHOULD support
NB	Newborn Name	Temporary name assigned at birth, e.g., "Baby Smith", to facilitate record-keeping before a name is chosen.	P	
N	Nickname	Preferred name, i.e. "Call me" name/street name.	P	
A	Assigned Name (previous: Alias)	Assigned by an organization due to not knowing the patient's name or to maintain anonymity. May be an "alias" name.	P	MAY support

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[2] The 'M' name type code specifically refers to the patient's previous name before marriage. The broader concept of "previous name" is not in the HL70200 value set. However, IIS may choose to map a submitted 'M' name to any previous name.

Code	HL7 Definition	Description	Conformance Expectations	
			Usage	Notes
C	Adopted Name	Acquired by adoption	P	
B	Birth Name	Given name at birth that may have changed later	P	
T	Indigenous/ Tribal	e.g., Chief Red Cloud	P	
MSK	Masked	Indicates information exists but withheld due to privacy, security, or other reasons	P	
NOUSE	No Longer to Be Used	Not to be used anymore for personal reasons	P	
REL	Religious	e.g., Sister Mary Francis	P	
U	Unknown (previous: Unspecified)	Unknown	P	
NAV	Temporarily Unavailable	Not available but expected later	P	SHOULD NOT support
TEMP	Temporary Name		P	
BAD	Bad Name	Wrongly used in the past	P	
D	Customary Name (previous: Display)	Known as/conventional/the one you use. May also be known as a preferred name.	P	
F	Father's Name		E	SHALL NOT support
I	Licensing Name		E	
K	Business Name	Used in professional/ business context	E	
P	Name of Partner/Spouse	For backward compatibility	E	

Data type specifications by name type code

The data type specifications for a patient name vary depending on the name type code.

- Name type codes 'L' and 'NB' SHALL have a data type of XPN.
- Name type codes 'M', 'N', 'A', and 'U' SHALL have a data type of XPN_[Flavor].[3]

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[3] The flavor name will be defined in the next version of the National Implementation Guide for Immunization Messaging. Note, the flavor name is not necessary for the implementation of these specifications.

Refer to Table 2 for specifications for these data types as they relate to the name types.

Table 2. Usage for name components, by name type

Name Type (Name Type Code)	Data Type	Given (First) Name XPN.2	Second/ Further Given (Middle) Name XPN.3	Family (Last) Name XPN.1	Type Code XPN.7
• **Official registry name ('L')** • **Newborn name ('NB')** [4]	XPN	R	RE	R	R
• **Maiden name ('M')** [5] • **Nickname ('N')**	XPN_ [Flavor]	RE	RE	R when first/given name is not valued, otherwise RE	R

Scenarios for submission of name(s) in PID-5

Scenarios for the submission of name types that SHALL and SHOULD be supported for immunization messaging are outlined below. See local IIS specifications for requirements related to submission of additional name types that may be supported locally.

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[4] Joint Commission-accredited hospitals and critical access hospitals that provide labor and delivery services are required to use distinct methods of identification for newborn patients (Joint Commission, Newborn Identification, 2018). The American Health Information Management Association (AHIMA) Naming Policy Framework 2023: Essential Person Demographic Data Elements for Electronic Health Information provides guidelines and examples for the implementation of distinct newborn naming conventions.

[5] Note, this is the patient's maiden name, which is different from patient's mother's maiden name (PID-6) and will have a different data type than XPN_M. (For XPN_M, first and middle name are optional and last name is required).

When the patient's name is known and can be submitted:

- Systems SHALL send the closest representation of the patient's legal name with name type code 'L'.
    - Submitting/querying system SHOULD send the official registry name (name type code 'L') in the first repetition.
    - Receiving/responding system SHALL accept the official registry name (name type code 'L') sent in any repetition of PID-5. I.e., if the 'L' name type code is not submitted in the first repetition of PID-5, the receiving/responding system shall still accept and process the message and return this 'L' name in a response message.
    - Submitting/querying systems SHALL NOT send a name that does not represent the official registry name with the name type code 'L'.
- In addition to sending the 'L' name, when known and if applicable, submitting/querying systems:
    - SHOULD send the patient's maiden name with name type code 'M' in a separate PID-5 repetition. Receiving systems SHOULD accept and process names with name type code 'M'.
    - SHOULD send a nickname/preferred name using the name type code 'N' in a separate PID-5 repetition. Receiving systems SHOULD accept and process names with name type code 'N'.

When the patient's name is not known and the patient is an unnamed newborn baby:

- Submitting systems SHALL NOT send a placeholder temporary newborn name with the name type code 'L'.
- If the 'NB' name type is used, submitters SHALL follow these specifications:
    - Submitting systems SHALL send a placeholder temporary newborn name (named using distinct methods for identification within the submitting system[6]) for unnamed newborn babies with newborn immunizations, using name type code 'NB'.
    - Once the newborn is named, the submitting system SHALL send the closest representation of the patient's legal name using name type code 'L' and the newborn name using name type code 'NB' in the same PID-5 field.[7]

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[6] Joint Commission-accredited hospitals and critical access hospitals that provide labor and delivery services are required to use distinct methods of identification for newborn patients (Joint Commission, Newborn Identification, 2018). The American Health Information Management Association (AHIMA) Naming Policy Framework 2023: Essential Person Demographic Data Elements for Electronic Health Information provides guidelines and examples for the implementation of distinct newborn naming conventions.

[7] Per the Scenarios TAB, the recording of a patient's legal name for the first time SHALL trigger a VXU containing the patient's complete vaccination history for submission to the IIS. This may be an 'add' or 'update' message (as indicated in RXA-21).

- o After sending both the official registry name and newborn name in the same PID-5 field, submitting/querying systems MAY continue sending the newborn name along with the patient's legal/official registry name.

Name requirements

The following specifications provide further clarity on requirements related to name components. In the context of immunization messaging, "support" refers to the ability of submitting/querying systems (e.g., EHR systems) to store and send patient names with these characteristics in VXU and QBP messages and the ability of receiving/responding systems (i.e., IIS) to process, store, and return patient names as stated below.[8]

- Systems SHALL support preservation of space(s) and hyphen(s) in a patient's name (i.e., if the patient has a hyphenated last name, the system SHALL support representation of the hyphenated last name).
- Systems SHALL support preservation of name components in a patient name (i.e., if the patient has two first names, the system SHALL support representation of both first names in the first name field).
- Systems SHALL support commonly used special characters (as identified in Table 3) in name components by either:
  - o Preserving commonly used special characters in stored names or
  - o Downgrading special characters by following transliteration recommendations in Table 3 for stored names
- Systems SHOULD support preservation of case in a patient's name.
- Systems SHOULD support names with up to 64 characters in the first, middle, and last name components.[9]
- Systems MAY support other special characters (not listed in Table 3) in name components.

Additionally, IIS MAY have additional validation requirements related to acceptance of patient names, e.g., reject what appear to be placeholder/inaccurate names, require at least 2-character first and/or last names, etc. If an accurate name is submitted to the IIS, but the name is not accepted (i.e., rejected) for data quality issues, the IIS SHALL offer submitters an alternate (non-HL7) process to ensure the record is accurately reflected in the IIS.

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[8] Support for name components up to 64 characters is intended to support instances of long names. However, if a submitter is consistently sending names of this length, follow-up is warranted to determine if there is a data quality issue.
[9] Informed by International Civil Aviation Organization Standards for Machine-Readable Travel Documents, Part 3, Specifications Common to all MRTDs

Table 3. Commonly used special characters and transliterations

Description	Special Character*	Recommended Transliteration, if necessary*
A acute	á	a
A circumflex	â	a
A grave	à	a
E acute	é	e
E circumflex	ê	e
E diaeresis	ë	e
E grave	è	e
I acute	í	i
I circumflex	î	i
I diaeresis	ï	i
O acute	ó	o
O circumflex	ô	o
U acute	ú	u
U circumflex	û	u
U diaeresis	ü	u
U grave	ù	u
C cedilla	ç	c
N tilde	ñ	n

*Lowercase is indicated for illustrative purposes, but uppercase may also apply.

Examples

Examples showing population of the PID-5 field with various name types:

Official registry name
- Patient: Madelynn Ainsley Snow
- Note: Systems SHALL support the 'L' name type code. The 'L' name type code SHOULD be submitted in the first repetition; however, it SHALL be supported in any repetition.

  |Snow^Madelynn^Ainsley^^^^L|

Official registry name and preferred first name
- Patient: Madelynn Ainsley Snow, goes by first name 'Maddie'
- Note: Systems SHALL support the 'L' name type code. Systems SHOULD support the 'N' name type code for nickname/preferred name.

|Snow^Madelynn^Ainsley^^^^L~^Maddie^^^^N|

Official registry name and preferred last name
- Patient: Madelynn Ainsley Snow, goes by last name 'Harris'
- Note: Systems SHALL support the 'L' name type code. Systems SHOULD support the 'N' name type code for nickname/preferred name.

|Snow^Madelynn^Ainsley^^^^L~Harris^^^^^N|

Official registry name and preferred first and last name
- Patient: Madelynn Ainsley Snow, goes by first name 'Maddie' and last name 'Harris'
- Note: Systems SHALL support the 'L' name type code. Systems SHOULD support the 'N' name type code for nickname/preferred name.

|Snow^Madelynn^Ainsley^^^^L~Harris^Maddie^^^^N|

Official registry name and maiden name
- Patient: Madelynn Ainsley Snow, maiden last name 'Jones'
- Note: Systems SHALL support the 'L' name type code. Systems SHOULD support the 'M' name type code for maiden name.

|Snow^Madelynn^Ainsley^^^^L~Jones^Madelynn^^^^M|

Official registry name, preferred name, and maiden name
- Patient: Madelynn Ainsley Snow, goes by 'Maddie Harris', maiden last name 'Jones'
- Note: Systems SHALL support the 'L' name type code. Systems SHOULD support the 'M' name type code for maiden name and SHOULD support the 'N' name type code for nickname/preferred name.

|Snow^Madelynn^Ainsley^^^^L~Harris^Maddie^^^^N~Jones^Madelynn^^^^M|

Temporary newborn baby name, single birth
- Patient Mother's First Name: Katherine; Patient Mother's Last Name: Smith
- Note: Systems SHOULD support the 'NB' name type code.

Temporary newborn name. (Note, XPN.2 is recommended to include an indication of the baby's sex, with 'Girl', 'Boy' or 'Baby' for undetermined as follows)

|Smith^GirlKatherine^^^^^NB|

|Smith^BoyKatherine^^^^^NB|

|Smith^BabyKatherine^^^^^NB|

Official registry name and temporary newborn name for the same patient

|Smith^Olivia^Lucía^^^^L~Smith^GirlKatherine^^^^^NB|

|Smith^Noah^Liam^^^^L~Smith^BoyKatherine^^^^^NB|

|Smith^Rowan^Adrian^^^^L~Smith^BabyKatherine^^^^^NB|

Temporary newborn names, twin birth

- Twins: Girl, Boy. Patient Mother's First Name: Katherine; Patient Mother's Last Name: Smith.
- Note: Systems SHOULD support the 'NB' name type code.

Temporary newborn names. (Note, XPN.2 is recommended to include an indication of the baby's sex, with 'Girl', 'Boy' or 'Baby' for undetermined and an indication of the birth order, as follows)

Twin baby 1 temporary newborn name

|Smith^Girl1Katherine^^^^^NB|

Twin baby 2 temporary newborn name

|Smith^Boy2Katherine^^^^^NB|

Twin baby 1 official registry name and temporary newborn name

|Smith^Olivia^Lucía^^^^L~Smith^Girl1Katherine^^^^^NB|

Twin baby 2 official registry name and temporary newborn name

|Smith^Noah^Liam^^^^L~Smith^Boy2Katherine^^^^^NB|

Example of special characters:

- Patient name: José González
- VXU PID-5 submission: |González^José^^^^^L|
- RSP PID-5 response:
  - |González^José^^^^^L|
    -- or --
  - |Gonzalez^Jose^^^^^L|

Implications: Frequently Asked Questions

Does the name indicated as the 'L' name need to match official government documentation?

The use of the 'L' name type code indicates that the name is the patient's formal name, which may correspond to legal name but may not be a 1:1 match to the legal name as indicated on government documentation. However, it SHALL be the closest possible representation of that legal name, e.g., with special characters, spaces, and/or hyphens if applicable.

Does the 'L' name type always need to be in the first repetition of the PID-5 field?

These specifications remove the requirement that the official registry name must be in the first repetition; however, it is good practice to continue sending the 'L' name

type in the first repetition. Per these specifications, the order of 'L' name type code in PID-5 would no longer be enforced by health IT certification processes. Additionally, IIS must demonstrate they can read and understand name type, including 'L' name type, in any repetition.

Depending on the circumstances, the PID-5 field may not contain the 'L' name type. For example, if the patient is an unnamed newborn baby, the PID-5 field may contain the temporary newborn name, with name type code 'NB' and no official registry name/legal name (name type code 'L').

Are IIS required to accept patient records submitted without the name type code 'L"?

Acceptance and processing of patient records submitted without the name type code 'L' is a local determination based on jurisdictional policies and needs. For example, while the specifications indicate how the newborn name type code 'NB' can be used to support messaging of a patient's newborn temporary name, the specifications do not require an IIS to accept and store a record without a legal name.

Why should an IIS accept an 'NB' name?

Submitting systems and receiving systems are encouraged to support name type code 'NB', to accurately represent this type of name in an HL7 message. The 'NB' name type code provides a mechanism for this information to be exchanged and understood between systems. For newborn babies that do not yet have a legal name, use of the 'NB' name type code allows for timely submission of immunization administration information to an IIS.

Withholding submission of this information until the patient has a legal name recorded is a non-HL7-based strategy that systems may employ; however, this may have implications for timeliness of immunization reporting, vaccine stock decrementing, and vaccine program accountability and reporting.

Additionally, capture of the record can support overall IIS data completeness. Specifications are provided to facilitate updating to the official registry name/legal name once the baby is named. IIS can also monitor records and address through reconciliation efforts.

Use of the 'NB' name type code allows for this information to be submitted in a timely and accurate manner to an IIS. An IIS may choose not to accept patient records without the name type code 'L'. In that case, the record would be accepted once the official registry name/legal name is submitted.

Must IIS store other names besides the patient's legal name?

No, these specifications do not require that IIS store other names besides a patient's official registry name ('L'). However, storage of additional names is encouraged to support use in patient matching/deduplicaiton and consolidation.

What are the minimum components for submitting a patient's name to an IIS?

The required components depend on the name type submitted:

- Official registry name/legal name (name type code 'L'): first and last name are required.
- Temporary newborn name (name type code 'NB'): first and last name are required.
- Preferred name/nickname (name type code 'N'): first or last name must be valued
- Maiden name (name type code 'M'): first or last name must be valued

How can IIS tell if a submitted name is accurate? E.g., if the patient has two first names or if the middle name happened to be submitted as part of the first name?

IIS rely on submitters to transmit accurate information. According to this TAB guidance, systems SHALL strive to accurately record and transmit names. IIS assume accuracy of the information submitted unless there is reason to believe otherwise. This may be information from other sources, such as vital records and/or other provider submissions. It may also be information gleaned from reviewing a submitter's messages and looking for patterns, e.g., an unusually high proportion of their patients are submitted with two first names and no middle names.

Deduplication and consolidation of records is out of scope for this document; however, the Consolidating Demographic Records Guide provides useful discussion of this topic. In particular, see "BR201, Information needed to make consolidation decisions" and "BR901, Use information with highest confidence level."

Are IIS required to save names with special characters?

No, IIS are not required to store names with special characters. If an IIS cannot store names with special characters, the IIS SHALL downgrade the special characters following the transliteration recommendations provided.