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1 BACKGROUND

The unique identification of an individual is not only an essential requirement for the successful use of the HIPAA-adopted ASC X12 005010X279A1 Health Care Eligibility Benefit Inquiry and Response (270/271) Technical Report Type 3 Implementation Guide (hereafter v5010 270/271, v5010 270, v5010 271), but is also a critical component of identity management – which includes authentication, authorization, transaction control, audit, etc. As the U.S. healthcare community continues to accelerate the move to electronic health records (EHR) and personal health records (PHR) it is increasingly important that the exchange of individual names and other demographic data between healthcare providers and health plans be standardized to the extent reasonable and practicable.

The development of a comprehensive standard for the unique identification of individuals in healthcare is not within the scope of CORE. However, it is reasonable for CORE to develop various rules addressing certain aspects of the identification of individuals that will enhance the automated real time processing of eligibility inquiries and responses. Such CORE rules can, and should be, wherever possible, based on the work of existing standards development organizations.

One such standard being developed is the “Identification of Subjects of Health Care” by the ISO Technical Committee 215 – Health Informatics. ANSI serves as the secretariat for TC 215, and key members from the U.S. include HL7, HIMSS/IHE, ASTM, and the American Dental Association. This standard under development includes detailed specifications for the use of titles, name suffixes, special characters and punctuation in text fields for an individual’s first name, middle name, last name, among others. Since the ASC X12 standards do not address the use of name suffixes, special characters and punctuation in text data elements for names of organizations and individuals, this CORE rule draws heavily on the TC 215 standard currently under development.

2 ISSUE TO BE ADDRESSED AND BUSINESS REQUIREMENT JUSTIFICATION

Healthcare providers and health plans have a requirement to uniquely identify patients (aka subscribers, members, beneficiaries) for the purpose of ascertaining the eligibility of the patient for health plan benefits. At a high level, this identification requirement consists of accurately matching:

- Individuals with records and information that relate to them and to no one else; and
- Disparate records and information held in various organizations’ computer systems about the same individuals.

For health plans, this identification requirement currently is met by uniquely numbering the individuals whereby each person (or a subscriber and dependents) is assigned an identifier by the health plan covering the individual, i.e., a subscriber, member or beneficiary ID. This ID is combined with other demographic data about the individual (e.g., first name, last name, date of birth, gender, etc.) and then used in healthcare transactions, such as eligibility inquiries, claims submissions, etc. Healthcare providers obtain this unique identifier from patients, combine it with other demographic data, and then subsequently use it when conducting electronic transactions with health plans, such as insurance verification and claims submissions. The health plans then use this combination of ID and demographic data to attempt to uniquely locate the individual within their systems. However, oftentimes, while the ID may be valid and correct, the other demographic data submitted by the healthcare provider does not match similar demographic data held by the health plans’ systems, and such transactions are then rejected or denied.

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2.1 Issues with Special Characters

The results from the CORE Patient ID Survey indicate that two-thirds of health plan respondents use special characters as submitted in the matching process and require an exact match on them. The remaining one-third of health plan respondents report that some remove special characters and spaces, convert certain characters to spaces, or do not allow special characters to be used in the name data elements. Thus, the impact to healthcare providers submitting names with special characters embedded can result in a significant percentage of query rejections if the data as submitted does not match exactly with what the health plan has in its system.

How Are Special Characters Handled in a Search?	Number of Respondents
Used in search and require an exact match	10
Remove special characters and spaces	2
Convert certain characters to spaces	1
Not allowed	1
Combination of approaches	1
Total	15

The use of upper case characters in name data elements appears not to present as significant an impact to potential query rejections since all but two health plans reported they either ignore character case or convert lower case characters to all caps prior to performing a search.

How Are Upper/Lower Case Characters Handled in a Search?	Number of Respondents
Used in search and require an exact match	2
Case is ignored or converted to all caps	11
Total	13

Even though the HIPAA-adopted v5010 270/271 Implementation Guide specifies the data elements and data element attributes (e.g., data type, min/max number of characters, etc.) that may be used to identify an individual, the underlying ASC X12 standards do not address one critical aspect of demographic data: requirements and/or restrictions on the use of punctuation and special characters. On the other hand, the ASC X12.6 Application Control Structure v005010 (hereafter X12.6) standard requires the use of the Basic Character Set (which allows only uppercase letters) unless the two trading partners agree to use the Extended Character Set (which includes lowercase letters). See X12.6 § 3.3.1 and § 3.3.2 for the complete specification of character sets.

2.2 Issues with Last Name Suffixes and Prefixes

The results from the CORE Identifiers Subgroup preliminary research indicate that it is very difficult to standardize suffix and prefix data entry requirements. Additional challenges identified include:

- No guidance on definition of legal name or allowable suffixes and prefixes
- Different types of suffixes in use:
 - Academic (Ph.D., M.D.)
 - Honorary/professional (Esq., CPA, FHFMA, etc.)
 - Birth Order or Social (Jr., Sr., III)
- Prefixes include forms of address, e.g., Mr., Ms., Dr., Rev., etc.
- Unknown volume of names with suffixes and prefixes in health plan/provider databases (initial CORE survey did not include this although one health plan estimated that 4% of names in its database contain a suffix)

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The impact on healthcare providers submitting names with name suffixes or prefixes either separately or embedded with the last name can result in a reasonable percentage of query rejections if the data as submitted do not match exactly with what the health plan has in its system. CAQH survey responses of CORE Identifiers Subgroup participants regarding issues for name suffixes showed the following variations in suffix handling:

- Some systems have capability to store suffix as separate data element
- Some systems with capability to store suffix separately do not enforce this during data entry
- Some systems have entered the suffix as part of the last name field in order to meet Medicare’s previous exact match requirements
- Some systems have a single field for full name with each name component delimited by a comma
- Some systems have a single field for full name with each name component delimited by either a comma or a space and no delimiter for suffix
- Some systems with delimited name fields parse name into separate components in the v5010 270

Table of Last Name and Suffix Examples

NM103: Last Name	NM107: Suffix
Smith-Wesson Sr.	
Smith-Wesson, Sr.	Sr.
Smith-Wesson Sr., M.D.	
Smith-Wesson, M.D. Sr.	
SMITH SR	
SMITHSR	
SMITH	SR
Smith-Wesson, Jr., MD, FHFMA	
Smith-Wesson, Esq.	

Although not separately surveyed, CORE participants’ analyses indicate that the issue with prefixes being embedded into the NM103 Last Name field is no different from the suffix issue.

3 SCOPE

3.1 What the Rule Applies To

This CORE Rule applies to the HIPAA-adopted v5010 270/271 transactions and specifies the requirements for a CORE-certified health plan (or information source) to normalize a person’s last name during any name validation or matching process by the health plan (or information source).

This CORE rule applies only to certain characters in a person’s last name including:

- Punctuation values as specified in §4.2.3
- Upper case letters
- Special characters as specified in §4.2.3
- Name suffixes and prefixes specified as character strings in §4.2.2

3.2 When the Rule Applies

This CORE rule applies only when:

- The trading partners are using the ASC X12 Basic Character Set (see §3.6. below for explanation).
- And
- A member ID (MID) is submitted in Loop 2100C of the v5010 270 inquiry transaction
- And

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- A Last Name (LN) is submitted in Loops 2100C/2100D of the v5010 270 inquiry transaction
And
- The Last Name (LN) is used in the health plan's (or information source's) search and match logic.

3.3 When the Rule Does Not Apply

This CORE rule does not apply when:

- Trading partners have agreed to use the ASC X12 Extended Character Set
Or
- The Last Name (LN) is not used in the health plan's (or information source's) search and match logic.

3.4 Recommendation for Validation of Last Name in Other Transactions

Health plans are encouraged to employ a no-more-restrictive name validation logic in other HIPAA administrative transactions than what is employed for the v5010 270/271 transactions.

3.5 Applicable Data Elements & Loops

This rule covers the following specified data element and loops in the v5010 270 and v5010 271 transactions:

Loop ID and Name
Loop 2100C Subscriber Name
Data Element Segment Position, Number & Name
NM103-1035 Last Name
AAA03-901 Reject Reason Code
INS03-875 Maintenance Type Code
INS04-1203 Maintenance Reason Code
Loop ID and Name
Loop 2100D Dependent Name
Data Element Segment Position, Number & Name
NM103-1035 Last Name
AAA03-901 Reject Reason Code
INS03-875 Maintenance Type Code
INS04-1203 Maintenance Reason Code

3.6 Outside the Scope of this Rule

This rule does not:

- Require CORE-certified entities to internally store these and other data elements in conformance with this rule, but rather requires that all parties conform to this rule when conducting the HIPAA-adopted v5010 270/271 transactions electronically;
- Require conversion of letter case and/or special characters by any party for subsequent processing of the data through internal systems;
- Specify whether or not a health plan (or information source) must validate the full last name or may validate only a portion of the last name;
- Specify the search criteria used by a health plan (or information source) to identify a patient;

3.7 Approved Basic Character Set

The ASC X12 Basic Character Set consists of:

- (1) Upper case letters from A to Z
- (2) Digits from 0 to 9

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(3) Special characters

! " & ' () * + , - . / : ; ? =

(4) The space character

Note: Special characters are removed from this category when used as delimiters.

3.8 Use of Extended Character Set

The ASC X12 Extended Character Set as specified in X12.6 §3.3.2 is outside the scope of this rule and may be used only by agreement between trading partners. The ASC X12 Extended Character set includes the lowercase letters, other special characters, national characters and select language characters.

3.9 Assumptions

The following assumptions apply to this rule:

- This rule is a component of the larger set of Phase II CORE rules; as such, all the CORE Guiding Principles apply to this rule and all other rules;
- All entities seeking Phase II CORE certification must first be Phase I CORE-certified as Phase I CORE provides a foundation for Phase II CORE;
- Requirements for the use of the applicable loops and data elements apply only to the HIPAA-adopted v5010 270/271;
- Health plans (and information sources) are able, in a reasonable timeframe, to maintain the relevancy, accuracy, and timeliness of data returned in the v5010 271;
- This rule is not a comprehensive companion document specifying the complete content of either the v5010 270 or v5010 271 transactions. The focus in this rule is on specifying requirements for the v5010 271 to address the Phase II CORE Last Name Normalization requirements;
- The submitter of the v5010 270 knows which data elements and values were submitted in the v5010 270 (i.e., member identifier, first name, last name, date of birth).

4 RULE

4.1 Basic Recommendations for Submitters of the v5010 270

4.1.1 When Name Suffix is Stored Separately

When the submitter's system enables the capture and storage of a person's name suffix in a separate data field, the person's name suffix should be submitted in the NM107-1039 Name Suffix data element in Loops 2100C/2100D.

4.1.2 When Name Suffix is Not Stored Separately

When the person's name suffix is stored internally as part of a person's last name, the submitter's system must attempt to identify and parse the last name data element to extract the name suffix such that it will be transmitted in the NM107-1039 Name Suffix data element in Loops 2100C/2100D.

When a name suffix or prefix cannot be stored separately, it should be separated from the last name by a space, a comma or a forward slash (see §4.2.3) when storing it.

4.2 Basic Requirements for Health Plans & Information Sources

4.2.1 Normalizing Last Name

A health plan (or information source) must:

normalize the last name as submitted in the v5010 270 inquiry

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AND

normalize the last name as stored in the health plan's (or information source's) eligibility system prior to using the submitted last name and the stored last name.

To normalize the submitted and stored last name:

remove all of the character strings specified in §4.2.2 when they are preceded by one of the punctuation values specified in §4.2.3 and followed by a space or when they are preceded by one of the punctuation values specified in §4.2.3 and are at the end of the data element

AND

remove the special characters specified in §3.7 in the name element.

If the normalized last name is successfully matched or validated, the health plan (or information source) must return the complete v5010 271 as required by the Phase II CORE 260 Eligibility & Benefits (270/271) Data Content Rule (developed as part of Phase II CORE rulemaking).

If the normalized last name is not successfully matched or validated, the health plan (or information source) must return a v5010 271 response with a AAA segment using the appropriate error code as specified in Phase II CORE 259 AAA Error Codes Reporting Rule regarding errors in Subscriber/Patient Identifiers and Names.

4.2.2 Character Strings to be Removed During Name Normalization

The following character strings represent the complete set of character strings to be removed when normalizing a last name as specified in §4.3.1. Any other character strings not included in this section are not covered by this rule. This requirement is in addition to other requirements specified in the Phase II CORE 259: AAA Error Codes Reporting Rule regarding errors in Subscriber/Patient Identifiers & Names.

JR, SR, I, II, III, IV, V, RN, MD, MR, MS, DR, MRS, PHD, REV, ESQ

4.2.3 Punctuation Values Used as Delimiters in Last Name

The following punctuation values represent the recommended set of punctuation values to be used to delimit (separate) a last name from a name suffix or prefix when a name suffix, prefix or a title cannot be stored separately in internal systems.

space, comma, forward slash

4.3 Required Response for Name Validation

If the name validation is successful, the health plan must return the complete v5010 271 as required by the Phase II CORE 260: Eligibility & Benefits (270/271) Data Content Rule (developed as part of Phase II CORE rulemaking).

If the un-normalized stored last name does not match the un-normalized submitted last name, the v5010 271 must include:

the last name as stored prior to normalization in the health plan's (or information source's) eligibility system in the NM103-1035 Last Name data element in either Loop 2100C or Loop 2100D as appropriate

AND

the INS segment with the appropriate codes as specified in Table 4.3 Last Name Validation 271 INS Segment Reporting Requirements below.

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Table 4.3 Last Name Validation v5010 271 INS Segment Reporting Requirements

Validation Results	Patient is Subscriber	Patient is Dependent	INS Segment Returned	Code	NM1 Segment Returned
Valid Last Name	Yes	No	2100C	INS03 = 001 Change INS04 = 25 Change in Identifying Data elements	NM103 = Last Name of Subscriber As Stored in Health Plan's Eligibility System
Valid Last Name	No	Yes	2100D	INS03 = 001 Change INS04 = 25 Change in Identifying Data elements	NM103 = Last Name of Patient As Stored in Health Plan's Eligibility System

If the name validation fails, the appropriate AAA error code and other data elements as required by §4.5 of the Phase II CORE 259 AAA Error Codes Reporting Rule regarding errors in Subscriber/Patient Identifiers & Names rule must be returned.

4.4 Basic Requirements for Receivers of the v5010 271

The receiver of a v5010 271 (defined in the context of this CORE rule as the system originating the v5010 270) is required to comply with §4.2 of the Phase II CORE 259 AAA Error Codes Reporting Rule regarding Subscriber/Patient Identifiers & Names.

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5 CONFORMANCE REQUIREMENTS

Conformance with this rule is considered achieved when all of the required detailed step-by-step test scripts specified in the CORE Phase II Certification Test Suite are successfully passed.

For Phase II, the certification testing approach will be similar to the Phase I testing approach. In Phase I, entities were not tested for their compliance with all sections of a rule, rather just certain sections as testing is not exhaustive and is paired with the CORE Enforcement policy. CORE certification requires entities to be compliant with all aspects of the rule when working with all trading partners, unless the CORE-certified entity has an exemption. Refer to the Phase II CORE Certification Test Suite for details.

6 GLOSSARY OF TERMS AND DEFINITIONS USED IN THIS RULE

Term	Definition
Normalize	<p>1. To make normal, especially to cause to conform to a standard or norm.¹</p> <p>2. To make (a text or language) regular and consistent, especially with respect to spelling or style.²</p> <p>Text normalization is a process by which text is transformed in some way to make it consistent in a way which it may not have been before. Text normalization is often performed before a text is processed in some way, such as generating synthesized speech, automated language translation, storage in a database, or comparison.</p> <p>Examples of text normalization:</p> <ul style="list-style-type: none">• Unicode normalization• converting all letters to lower or upper case• removing punctuation• removing letters with accent marks and other diacritics• expanding abbreviations <p>While this may be done manually, and usually is in the case of ad hoc and personal documents, many programming languages support mechanisms which enable text normalization.³</p>

¹ American Heritage® Dictionary of the English Language, Third Edition

² Ibid.

³ From Wikipedia, the free encyclopedia – http://en.wikipedia.org/wiki/Text_normalization