E-Prescribing Quality Guidelines

Version 2.7

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1 INTRODUCTION

1.1 About Surescripts

Our purpose is to serve the nation with the single most trusted and capable health information network. Since 2001, Surescripts has led the movement to turn health data into actionable intelligence to increase patient safety, lower costs and ensure quality care. For more information, visit surescripts.com and follow us at twitter.com/Surescripts.

1.2 Background

Electronic prescribing (e-prescribing) allows healthcare providers to accurately and efficiently communicate while minimizing or eliminating common sources of medication errors. While often assumed to refer to only brand-new prescriptions, e-prescribing encompasses the following transaction types:

- Prescriber-Initiated
    - CancelRx
    - Census
    - DrugAdministration
    - NewRx
    - NewRxResponseDenied
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While the guidelines outlined in this guide are broadly applicable to all transaction types, this guide is primarily focused on the following transaction types: NewRx, RxRenewal Request and Response, RxChange Request and Response, and CancelRx Request and Response.

The ultimate goal of e-prescribing is the efficient transmission and receipt of timely, complete, clear, accurate and unambiguous information that optimizes end-user workflow and eliminates disruptions

and delays in patient care. Although present-day e-prescribing has significantly improved the safety, effectiveness and efficiency of patient care, its full potential has yet to be optimized.[1]

Surescripts is committed to ensuring the complete benefits of e-prescribing are realized by all stakeholders. To achieve this goal, the Surescripts Performance Optimization Program works to improve the quality of all transactions flowing through the Surescripts network. An important component of this program is to establish and encourage industry-wide adoption of the E-Prescribing Quality Guidelines to assist all technology partners in the optimization of their e-prescribing practices.

1.3 Purpose

The purpose of this document is to provide e-prescribing clinicians, electronic health record (EHR) technology partners, commercial compendium providers, and pharmacy technology partners with guidance regarding key principles and best practices to consider when initiating and transmitting e-prescription transactions. It should be noted that the best practices described within this document are based on proven strategies that have been successfully implemented by EHR and pharmacy technology partners.

This document is **not** to be used in place of the Surescripts E-Prescribing Companion Guide. This guide addresses e-prescribing as a whole and may reiterate network requirements, as well as introduce recommendations and best practices.

2 PRESCRIPTION COMMUNICATION: ENGLISH LANGUAGE

All e-prescribing transactions between healthcare providers should be transmitted in a way that ensures clear, efficient, and safe communication of the prescriber intent.

2.1 GUIDELINE: Transmit Using the English Language

Ensure all e-prescribing transactions are communicated using the English language.

Clinical Relevance/Rationale

- Communicating healthcare information using a common language ensures healthcare providers receiving the transaction can clearly understand prescriber intent and provide the safest experience for the patient. The addition of an extra translation step introduces the risk of mistranslation which could lead to an adverse drug event. Additionally, languages other than English may contain characters which are not supported by the National Council for Prescription Drug Programs* (NCPDP) SCRIPT standard (ex: written Spanish contains the diacritics $\ddot{u}, \tilde{n}, \acute{a})$. Use of such unsupported characters may lead to truncation or mistranslation thereby increasing the risk of an adverse drug event.

[1] Dhavle AA, et al. J Am Med Inform Assoc 2014;0:1–4. doi:10.1136/amiajnl-2014- 002738

*The National Council for Prescription Drug Programs (NCPDP) is an ANSI-accredited, standards development organization responsible for the development of SCRIPT, a widely adopted standard for communicating e-prescriptions and related messages. These guidelines are based primarily on the implementation of SCRIPT version 2017071. For more information about NCPDP, please visit: https://www.ncpdp.org/

3 TRACEABLE ELEMENTS

Electronic transactions should include traceable elements (Message ID, Relates to Message ID, Prescriber Order Number, RxReference Number) whenever the information is available.

3.1 GUIDELINE: Include Traceable Elements in Electronic Transactions

Ensure electronic transactions are populated with the correct traceable elements whenever the information is available.

Clinical Relevance or Rationale

- The primary method of matching transactions within healthcare technology systems is to use the traceable elements. When this information is not included, human intervention is introduced which brings an additional risk of transcription/matching errors. While these elements will not always be available (phoned/faxed RX for example), ensuring these items are included whenever possible will ultimately reduce human touchpoints and subsequently reduce the overall risk of an adverse drug event. Please refer to the NCPDP Script Implementation Recommendations document for additional information on traceable element usage.

4 COMMUNICATION TIMING

A key element of reducing unnecessary transactions and communicating with high quality is to ensure that complete, accurate, and clear information is sent in a timely fashion while reducing the amount of unnecessary transactions end users have to process.

4.1 GUIDELINE: Respond to Requests in a Timely Fashion

Ensure "response" transactions which require manual review prior to a response being issued are transmitted as soon as is practicable, with the vast majority of responses being issued within 48 hours of the request.

Best Practices

For Technology Partners:

- Develop the user interface to bring attention to the existence of requests awaiting a response.

- Consider adding functionality which brings a higher level of attention to requests as they near the 48-hour threshold.

For Prescribers and Pharmacies:

- To reduce the number of incoming or follow-up requests, ensure workflows account for fielding and responding to incoming requests in a timely fashion.
- Ensure requests are transmitted with information that presents a clear objective to the receiver thereby enabling a prompt response.

Clinical Relevance or Rationale

- Many e-prescribing transactions consists of both a “request” and a “response”. The time between the two transactions should be minimized as it represents a pause in the delivery of care to the patient. Unnecessary delays will result in an increased number of follow up requests, often using alternative means (phone or manual fax). This takes up valuable clinician time and increases the risk that the communication chain will leave the electronic channel. Leaving the electronic channel can result in gaps in documentation, added human touchpoints, and less efficient processing on both sides of the network.

4.2 GUIDELINE: Send Follow-Up Requests at an Appropriate Interval

Ensure a follow-up request is not transmitted within 48 hours of the previous request, unless specifically requested by the patient.

Best Practices

For Technology Partners:

- If a configurable automated follow-up function exists in the system, consider adding an alert if the user attempts to configure the setting below 48 hours.

For Pharmacies:

- When performing routine prescriber outreach queue maintenance, avoid sending follow-up requests for items where the previous request was sent less than 48 hours prior.

Clinical Relevance or Rationale

- Follow up requests which are transmitted before the receiver has had sufficient opportunity to review the previous request create unnecessary communication and can increase manual workloads, slowing the overall response for all transactions.

5 PRESCRIPTION CONTENT: DEMOGRAPHICS

Accurate and interpretable demographic information is essential for high-quality e-prescribing. The NCPDP SCRIPT standard contains the following segments to properly identify the patient, prescriber, and pharmacy:

- *Patient segment:* Allows for identification of the patient for which the transaction is intended.
- *Prescriber segment*: Information identifying where the prescription was written and by whom.
- *Pharmacy segment:* Information identifying the pharmacy that the patient intends to use for procurement of the prescription.

5.1 GUIDELINE: Patient Name

Ensure the patient's complete legal name is sent in all transactions. Include the patient's first and last name in the <FirstName> and <LastName> fields. If a middle name is available, include it in the <MiddleName> field.

Clinical Relevance/Rationale

- It is imperative that patient names be consistent across disparate e-prescribing systems and platforms. Ensuring that each patient's full legal name is always sent in the e-prescription message reduces the risk that the patient will receive an incorrect or unintended medication.

5.2 GUIDELINE: Patient Date of Birth

Ensure the patient's accurate date of birth (DOB) is included in all transactions.

Best Practices

For Technology Partners:

- If you are presented with a scenario where a third-party payer has a different date of birth on file, present a separate field in your user interface which allows for billing with the alternate date of birth while still allowing end-users to communicate using the accurate date of birth.

Clinical Relevance/Rationale

- Patient date of birth information is a common differentiator used by healthcare providers especially in scenarios where two or more patients have a similar name. Ensuring the transaction is sent with the accurate date of birth improves efficiency in processing transactions and reduces potential adverse drug events related to similar patient names.

5.3 GUIDELINE: Patient Address

Include the patient's complete address in the transaction. Ensure <AddressLine1> does not contain a P.O. Box or other non-physical address.

Clinical Relevance/Rationale

- It is not uncommon for a healthcare provider to have multiple patients with identical or similar names and dates of birth. For this reason, healthcare providers sometimes use the address sent in the transaction to confirm accurate matching of the patient in the system(s). Therefore, it is imperative that the patient's complete address be sent within the transaction to distinguish between patients with similar descriptors. Furthermore, since the address may also be used by pharmacy personnel to deliver medications to patient homes or nursing facilities, it is important that the address be a physical location and not a P.O. Box or other non-physical address.

5.4 GUIDELINE: Patient Primary Contact Phone Number

Include the patient's primary contact phone number as the primary telephone number in the <CommunicationNumbers.PrimaryTelephone> field.

Clinical Relevance/Rationale

- Healthcare providers frequently need to contact patients via phone regarding their care. With the inclusion of a patient's primary phone number in the transaction, the healthcare provider is better able to expeditiously communicate with the patient if they are not physically in-person. In addition, many pharmacies send "order ready", "problem with filling", "refill reminders" or other alerts via phone or short messaging service (SMS), which further establishes the importance of having a means to best contact the patient.

5.5 GUIDELINE: Pharmacy Address

Display Pharmacy information to prescribers as it exists within the Surescripts Directory.

Best Practices

For Technology Partners:

- Ensuring the Surescripts Directory database is updated on a timely and regular basis with accurate and up-to-date information will provide the best result.

For Prescribers and Office Staff:

- During each patient visit, confirm and update the patient's preferred pharmacy. Double check that the pharmacy is still active on the network. In some cases, the pharmacy may have been updated with a new NCPDPID, causing the old record to no longer be available for transactions. Match the new location/record to the patient record.

5.6 GUIDELINE: Prescriber Information- Surescripts Directory

Ensure all elements of prescriber demographic information, such as <BusinessName>, <Name>, <Address>, etc., matches the same content recorded in the Surescripts Directory for the prescriber SPI record.

Best Practices

For Technology Partners:

- Ensuring the Surescripts Directory database is updated on a timely and regular basis with accurate and up-to-date information will provide the best result.

For Prescribers:

- Ensure the e-prescribing system vendor is alerted when prescriber information is changed to ensure accurate information is pre-populated in the e-prescription message. Communicate any changes or updates to the prescriber's e-prescribing/registration information to the system vendor as soon as practical (within 24 hours) so it can be recorded within the Surescripts Directory. This information is consumed by pharmacies on a regular basis. Thus, inaccurate, and out-of-date information may be used when pharmacies transmit electronic refill renewal requests. This may result in delivery to incorrect prescribing locations and/or the inability to communicate a refill renewal request entirely.

6 PRESCRIPTION CONTENT: DRUG INFORMATION

6.1 Drug Description

The drug segment of the SCRIPT standard allows up to 105 characters within the <DrugDescription> field. Ensure the drug description contains the complete product name, dosage strength and form. To ensure patient health and safety, it is essential that the <DrugDescription> field accurately and unambiguously conveys the prescriber's intent to the receiving pharmacy.

6.1.1 GUIDELINE: Use the E-Prescribing Preferred Name

The content of the <DrugDescription> field most accurately conveys prescriber intent when using the E-Prescribing Preferred Name (EPN) as published by a commercial compendium source, or the RxNorm Prescribable Name (PSN).*

*RxNorm is a normalized naming system with unique identifiers for generic and branded drugs maintained by the National Library of Medicine. For more information, please visit: https://www.nlm.nih.gov/research/umls/rxnorm/.

Best Practices

For Compendia:

- Create EPNs that are complete, accurate, unambiguous, and standardized across all clients. See Guidelines 6.1.2 through 6.1.13 for additional information on what constitutes a preferred EPN.
- Provide detailed implementation guidance and resources on how to accurately retrieve and use the EPN.

For Technology Partners:

- Display the EPN to end users in the final summary screen even if additional alternate names are displayed to end users within the application.
- Only transmit the EPN in the e-prescription message.
- Update the drug database at least weekly to ensure that end users have access to the most current medication files.
- Limit the ability for end users to create or use personalized content (free text) in the <DrugDescription> field.

For Prescribers:

- Only enter the drug description into the designated <DrugDescription> field. Ensure drug descriptions are not entered into the <Note> field. If unable to find a specific medication or product within the drug database, work through internal support channels to request that the product be added prior to e-prescribing.
- Do not add other extraneous information to the drug description such as medication changes, dosage increase, etc.

Clinical Relevance/Rationale

- Incomplete or inaccurate drug descriptions create workflow disruptions on both sides of the network and may introduce risks to patient health and safety. If the end user's system is unable to recognize the drug description, the system may not be able to accurately pre-populate fields which then requires human intervention, thereby increasing the risk of an adverse drug event.
- Entering drug descriptions as free text into the <Note> field rather than using the designated field may result in higher rates of dispensing or processing errors. NCPDP recommends that software providers only use the EPN from the drug database provided by either the drug compendium source or the National Library of Medicine RxNorm data.

The use of standardized drug naming methodology reduces variation, thereby improving operational quality and optimizing e-prescribing processes.

6.1.2 GUIDELINE: Optional Inclusion of a Reference Name

A standardized reference drug name sourced from the compendia may be conditionally included in parentheses after the EPN to help with drug selection and patient safety, but is not intended to be interpreted as the specific product prescribed; furthermore, ensure the EPN (and not the reference drug name) exactly corresponds to the product identifiers (e.g., NDC, RxNorm, etc.)

- Example standardized Format: “EPN (Reference drug name)”
  - Example: “diltiazem ER 120 mg capsule, extended release 12hr (Cardizem SR)”

In addition, for the implementation of drug descriptions that include a parenthetical reference drug name, follow the recommended implementation guidance below:

1. If the prescribed drug is a brand/single-source brand, send the trade name as the EPN. Note, a reference generic name may be sent in parenthesis.
   a. Align the representative NDC, RxNorm code and RxNorm qualifier to that branded trade EPN
   b. Do not send truncated names. If brand and generic names do not both fit within the 105-character limit of the field, only send the EPN
   c. If substitution code =1 (meaning the Prescriber selects “DAW”), ensure the EPN only indicates the brand name (Note: do NOT send a reference generic name in parentheses)
2. In all other non-brand / SSB scenarios, send format of generic EPN + (branded trade name)
   a. For old products where the branded trade name is no longer available, the drug description may be sent without the reference branded trade name
   b. Align all reference names and product indicators (e.g., representative NDC, RxNorm code and qualifier) with the EPN per Orange Book and Compendia guidelines
   c. Note: Do NOT send substitution code = 1 in this scenario
3. For patient safety, it is recommended that the e-prescription drug description that is sent to the pharmacy match what was displayed to the prescriber.
4. Ensure the drug description sent in the e-prescription specifies a single product as intended by the prescriber. Multiple trade names may not be sent in the drug description field.

Clinical Relevance/Rationale

- For certain products, the compendium’s EPN alone may not always provide enough clarity to distinguish between similar multi-ingredient products or products with slightly different formulations – e.g., the generic extended-release metformin equivalents for Fortamet, Glumetza, or Glucophage XR (none of which are freely interchangeable or AB-rated by the FDA). Furthermore, ISMP also recommends the inclusion of an additional drug name to help distinguish between Look-alike-Sound-alike (LASA) medications as an additional

safety check. Hence, a reference generic name in parentheses strategically appended after a brand EPN or a reference brand name in parentheses strategically appended after a generic EPN can provide supplemental information that may help drive improved product selection, clarity, and dispensing accuracy.

6.1.3 GUIDELINE: How to Create an E-Prescribing Drug Name

The following sections detail recommendations on an optimal EPN. These recommendations are not meant to replace your drug compendium's EPN.

6.1.4 GUIDELINE: E-Prescribing Drug Name Sequence

At a minimum, ensure the EPN includes the product name, strength, strength unit and dosage form. Additionally, ensure the EPN is in the following sequence: product name, strength, strength unit and dosage form.

Best Practices

- For non-medications, transmit the complete product name. Non-medications (e.g., test strips, insulin pump machine) rarely have an applicable strength or dosage form, thus all elements may not be available.
- The EPN may also include a dosage route or drug delivery device. See Guidelines 6.1.11 and 6.1.13 for further guidance on these topics.

Example

- Use "Hydroxyzine hydrochloride 100 mg tablet" or "Hydroxyzine HCl 100 mg tablet" instead of "Hydroxyzine HCl tablet 100 mg."

6.1.5 GUIDELINE: Proper Use of Punctuation

Best Practices

- Use hyphens (i.e., "-") instead of forward slashes, back slashes, or pipes (i.e., "/", "\", "|") to separate similar elements. Use "Augmentin 875 mg-125 mg tablet" or "Augmentin 875-125 mg tablet" instead of "Augmentin 875/125 mg tablet."
- When large numbers are required, use commas to separate groups of three digits in numbers of 1,000+. Use "Heparin 10,000 unit subcutaneous injection" instead of "Heparin 10000 unit subcutaneous injection."
- Use a forward slash to write a concentration or proportion per unit of volume. Use "Fluticasone 50 mcg/actuation nasal spray" instead of "Fluticasone, 50 mcg per actuation, nasal spray."

- Ensure a space is used between numbers and the units to which they refer. Use “simvastatin 80 mg tablet” instead of “simvastatin 80mg tablet.”

6.1.6 GUIDELINE: Multiple Salts

When there are multiple drug formulations with different salts, include the specific salt name in the drug description. When sending the salt, ensure it follows the drug name in sequence.

Best Practices

- Only United States Pharmacopeia Convention (USP) approved abbreviations, including, but not limited to, K, Na, HBr and HCl may be used. Otherwise, spell the salt name out in its entirety.

Examples

- Use “Hydroxyzine hydrochloride 100 mg tablet” or “Hydroxyzine HCl 100 mg tablet” instead of “Hydroxyzine 100 mg tablet.”
- Use “Metoprolol tartrate 50 mg tablet” instead of “Metoprolol 50 mg tablet.”
- Use “Hydroxyzine pamoate 25 mg capsule” instead of “Hydroxyzine PAM 25 mg capsule.”

Clinical Relevance/Rationale

- Providing complete and accurate salt form names is a critical method of avoiding confusion or misinterpretation, especially for medications that come in similar formulations. The inclusion of the salt component allows for better differentiation, thus ensuring appropriate drug selection and dispensing by the pharmacist during prescription fulfillment.

6.1.7 GUIDELINE: Brand & Generic Names

Communicate only one concept in the EPN, either the proprietary “brand” name of the product or the chemical “generic” name of the product. When there is no generic product commercially available, use the proprietary “brand” name as the EPN.

Examples

- Use “ProAir 90 mcg/actuation solution for inhalation” or “albuterol sulfate hfa 90 mcg/actuation aerosol inhaler (Proair HFA)” instead of “albuterol (ProAir, Ventolin HFA) 90 mcg/actuation.”
- Use “Harvoni 90-400 mg tablet” instead of “ledipasvir-sofosbuvir (Harvoni) 90-400 mg tablet” or “ledipasvir-sofosbuvir 90-400 mg tablet.”

Clinical Relevance/Rationale

- Pharmacies are limited by each state's board of pharmacy regulations and scope of practice rules. Many states have specific regulations regarding the use of generic products in place of brand- name products that may take into account the U.S. Food and Drug Administration (FDA) bioequivalence ratings, the pharmacokinetic/pharmacodynamic properties or the therapeutic outcome of the medication (e.g., narrow therapeutic index medications, biosimilars, etc.). It is important that the drug description clearly references either a brand or a generic product, so the pharmacy can determine the single prescribed medication. This helps the pharmacist interpret the Dispense as Written code value indicated by the prescriber to determine if substitution may occur.

6.1.8 GUIDELINE: Dosage Strength Values

For dosage strength, use only Arabic (decimal) numbers rather than Roman numerals or abbreviations such as "M" for thousands or millions. Always use a leading zero when a decimal point is required. Do not use trailing zeroes.

Examples

- Use "Aspirin 325 mg tablet" instead of "Aspirin V grains."
- Use "Pancrelipase 12,000-38,000-60,000 units delayed release capsules" instead of "Pancrelipase 12M-38M-60M delayed release capsules."
- Use "Digoxin 0.25 mg tablet" instead of "Digoxin .25 mg tablet."
- Use "Warfarin 5 mg tablet" instead of "Warfarin 5.0 mg tablet.

Best Practices

For Technology Partners:

- When appropriate, develop mechanisms to identify non-numeric values and implement logic to identify decimals without a leading or trailing zero(s). When appropriate, also implement decision support or default values to reduce manual entry.

For Prescribers:

- When possible, avoid the use of zeroes by employing alternative units of measure (e.g., use 30 mcg instead of 0.03 mg).

Clinical Relevance/Rationale

- The clear identification of numbers, including the proper use of zeroes and decimals, prevents ten- or hundred-fold dosing errors and reduces risks to patient safety.

6.1.9 GUIDELINE: Dosage Strength Units

Ensure dosage strength units accurately and completely indicate the dosage form strength (e.g., 250 mg, 250 mg/5 mL), delivery rate (e.g., 12 mcg/hour), dosage form concentration (e.g., 0.05%), or dosage released from a single-delivery device actuation (e.g., 90 mcg/actuation). All units are to be metric measurements of weight and/or volume. Apothecary and avoirdupois systems of weight and volume units are not to be used. Do not abbreviate units of measure, except in the case of USP standard abbreviations for dosage units, which are listed below:

m (lower case) = meter	**kg** = kilogram	**mmol** = millimole
L (upper case) = liter	**g** = gram	**mcg** = microgram*
mEq = milliequivalent	**mg** = milligram	**mL** (lower/upper case) = milliliter**

*Do not use the Greek letter µ as µg which has been misread as mg
**Do not use cc which has been misread as U or the number 4

These abbreviations are also recommended by ISMP.

*The Institute for Safe Medication Practices (ISMP) is a nationally recognized nonprofit healthcare agency devoted to medication error prevention and safe medication use. They produce several newsletters and educational documents, including the List of Error-Prone Abbreviations, Symbols and Dose Designations. For more information about ISMP, visit: ismp.org.

Examples

- Use “Advair Diskus 100 mcg-50 mcg/actuation powder for inhalation” instead of “Advair Diskus 100 mcg-50 mcg powder for inhalation.”
- Use “Aspirin 81 mg tablet” instead of “Aspirin 1 ¼ grains.”
- Use “Heparin 10,000 units” instead of “Heparin 10,000u.”

6.1.10 GUIDELINE: Dosage Strengths for Active Ingredients

Provide the dosage strength(s) of each active ingredient for drugs with three or fewer active ingredients and group them together after the drug name.

The proprietary name alone, without accompanying strength and strength units, is only acceptable when the list of active ingredients is too lengthy to be entered into the field. However, include the dose strengths of all active ingredients on prescriptions for controlled substances, particularly narcotic combinations. For oral contraceptive prescriptions, include dosage strengths (for estrogen, progestin, and iron) to assist with decision-making and clinical support for these drugs. It is acceptable to either include or exclude any inert or placebo ingredients.

A number of drug categories do not require a listing of all active ingredients, including multivitamins, hydration solutions, bowel preparation therapies and other medications with four or more active ingredients.

Examples

- Use “Augmentin 875 mg-125 mg tablet” instead of “Augmentin 875 mg tablet."
- Use “Norel SR 325 mg-8 mg-40 mg-50 mg sustained-release tablet” or “Norel SR tablet." Both are acceptable. Note: Norel SR contains four active ingredients.
- Use “Ortho Tri-Cyclen Lo 28-day 0.18-0.215-0.25 mg 25 mcg tablets." Do not use “Ortho Tri-Cyclen Lo 28-day tablets,” as there are two active ingredients whose strengths change by phase.
- Use “Prenatal Plus Iron tablet” instead of listing the strengths for the 10 vitamins and four minerals in the drug.
- Use “PEG-3350 and electrolytes for oral solution” or “NuLYTELY Powder for Solution” instead of a complete or partial strengths list.
- Use “Fioricet with Codeine 325-50-40-30 mg capsule” to include all active ingredient strengths, especially the essential narcotic dose strength.

Clinical Relevance/Rationale

- Sound medication therapy management requires that healthcare team members be given access to a complete list of the patient’s current medication(s), including all active ingredients. An incomplete list of medications or active ingredients increases the risk of misinterpretation. This may cause dispensing errors at the receiving pharmacy during the initial fill, subsequent refill(s) and/or prescription transfers.

6.1.11 GUIDELINE: Include Route of Administration

Include the route of administration for all e-prescriptions. It is of critical importance in cases when the drug name and strength combination can be administered via different routes.

Best Practices

- Ensure the identified dosage route is specific and not abbreviated.
- List the route after the dosage strength and strength unit, and before the dosage form in the EPN.

Examples

- Use “Ofloxacin 0.3% ophthalmic solution” instead of “Ofloxacin 0.3% solution.”

- Use “Flovent 50 mcg/actuation nasal suspension” instead of “Flovent 50 mcg/actuation suspension.”

Clinical Relevance/Rationale

- A drug may have multiple forms in which it is delivered for different clinical indications (e.g., ciprofloxacin otic versus ophthalmic solution). Despite having the same drug name and active ingredients, it is clinically important to identify which medication is to be dispensed to the patient. One medication formulation may have different physical, chemical, or pharmacokinetic/pharmacodynamic properties and may therefore produce significantly different clinical outcomes in patients than another formulation.

6.1.12 GUIDELINE: Use the Complete Dosage Form

Include the complete dosage form for all medications. Ensure the dosage form indicates any modified release forms of a drug. It is particularly important to include modified release forms when a drug is described as any of the following:

- Sustained release
- Controlled release
- Extended release
- Timed release
- Continuous release

Examples

- Use “Toprol XL 100 mg extended-release tablet” instead of “Toprol XL 100 mg tablet.”
- Use “Allegra-D 24 Hour 180 mg-240 mg extended-release tablet” instead of “Allegra-D 24 Hour tablet.”

Best Practices

- Do not abbreviate the dosage form, even in the case of a modified release dosage form.
- Though a brand name may include an abbreviation, acronym, symbol, or code to indicate a modified release form, there is no industry standard for such extensions; specify the type of release with the dosage form.
- The use of “24 hour” or similar indicators is not recommended to fully convey the modified release form of a drug, and instead, use this in conjunction with a more specific indicator (e.g., “24 hour extended-release”) or not at all.

Clinical Relevance/Rationale

- When applicable, it is essential for prescribers and healthcare teams to know the modified release forms so they can identify the time period over which a drug is released. This information is crucial for issues such as dosing intervals and drug-drug interactions. Effective communication of the modified release form, and thus the drug's bioavailability, is important for healthcare decision-making.
- Using only "24 hour" or similar indicators is not considered sufficient for conveying extended-release drug forms. Some compounds that are described as "24 hour" may have ingredients that slowly absorb into the bloodstream due to their chemical properties, but do not actually require any special time-release delivery mechanisms.

6.1.13 GUIDELINE: Include Drug Delivery Mechanism or Device

When a drug is available in multiple variants of the same dosage strength and dosage form, communicate the drug delivery mechanism or device in conjunction with either the drug name or the dosage form. Do not modify or eliminate the drug name and/or dosage form due to the addition of the delivery method or device.

Examples

Lantus (insulin glargine) subcutaneous solution may be dispensed as:

- "Lantus 100 units/mL subcutaneous solution" (interpreted as vial).
- "Lantus SoloStar Pen 100 units/mL subcutaneous solution" or "Lantus 100 units/mL subcutaneous solution Pen."

Clinical Relevance/Rationale

- The communication of specific drug delivery mechanisms or devices is important for differentiating between multiple drug variants, thus reducing pharmacy outreach to prescribers for further clarification and the risk of erroneously dispensing unintended drug forms.

6.2 Drug Identifiers

Drug identifiers, which are numeric values used to represent a specific drug concept, can be communicated in two ways using the current NCPDP SCRIPT 2017071 standard: the <ProductCode> field or the <DrugDBCode> field. The <ProductCode> field facilitates the transmission of the National Drug Code (NDC) while the <DrugDBCode> field can be used to transmit the RxNorm Concept Unique Identifier (RxCUI), which is created and maintained by the National Library of Medicine (NLM).

A representative NDC is required to be included if the prescribed product is commercially available with a nationally recognized NDC. A representative NDC is one of any 11- digit

NDC codes belonging to the same product concept that is nationally available, not repackaged, not obsolete, not private label, and not unit dose (unless it is the only NDC available).

A product concept describes a medication or non-medication that has the same active ingredient, strength, route, dosage form, drug delivery system or packaging, and therapeutic use/indication. Product concepts also have brand and generic distinctions. For example, one product concept may be uniquely associated with a brand product, while another product concept may be uniquely associated with a generic version of the product. A representative NDC is intended to supplement the "description" of an electronic communication message and is used to convey a product concept between disparate technology systems to facilitate automation.

Ensure the NDC semantically matches the product description. Note that the NDC is not intended to infer specificity or preference to the imbedded manufacturer/labeler for dispensing or administration purposes, nor is it intended to indicate a substitution preference. When the representative NDC does not match to the description, there is a potential patient safety concern if the pharmacy dispenses the incorrect medication based on the NDC. At minimum, this mismatch results in workflow disruptions because the pharmacy staff has to manually correct the system-selected medication based on its description.

NewRx Description	Example of a representative NDC	Example of what **not** to send		
		NDC	NDC description	Reason
Glumetza 500 mg extended release tablet	68012-0002-XX	68180-0338-XX	Metformin 500 mg extended release film coated tablet	Brand vs generic mismatch
Levothroid 100 mcg oral tablet	00456-1323-XX	00074-6624-XX	Synthroid 0.1 mg oral tablet	Brand vs brand mismatch
Methylprednisolone 4 mg tablet dose pack	00781-5022-XX	59762-3327-XX	MethylPREDNISolone 4 MG oral tablet	Different package/unit of use
Metoprolol tartrate 50 mg tablet	00093-0733-XX	00378-4598-XX	Metoprolol succinate 50 MG extended release oral tablet	Different product

6.2.1 GUIDELINE: Representative NDC - Include Brand and Generic Distinctions

A representative NDC denotes the medication concept to be prescribed, including the same medication or chemical ingredient in the same strength, form, route of administration, drug delivery mechanism or device, and a brand or generic distinction.

Example

- A prescriber selects atorvastatin 20 mg oral tablets to be ordered. The drug identifier that the prescriber's system transmits is representative of a generic product, such as NDC 00378-3951-09. It would be inappropriate to transmit a representative NDC for the brand Lipitor 20 mg oral tablet.

6.2.2 GUIDELINE: Use RxNorm RxCUI Values and Term Types

If available in the RxNorm database, transmit the RxNorm RxCUI values in the <DrugCoded.DrugDBCode> field in conjunction with the associated RxNorm Term Type value in the <DrugCoded.DrugDBCodeQualifier> field.

Example

- A prescriber selects atorvastatin 20 mg oral tablets to be ordered; the drug identifiers that the prescriber's system transmits includes both the RXCUI and Term Type, which is representative of the generic product, RxCUI: 617310 and Term Type: SCD, respectively. When sending a drug description for atorvastatin, it would be inappropriate to transmit a RXCUI and Term Type for the brand Lipitor 20 mg oral capsules as RxCUI: 617318 and Term Type: SBD.

6.2.3 GUIDELINE: Drug Description Matches the Drug Identifiers

Ensure the drug identifier(s) used in conjunction with the drug description conceptually match the product written in that field. Ensure the EPN makes a clear brand/generic distinction, thus the representative NDC or RxNorm CUI and Term Type also match (i.e., if the drug description is for a brand-name product, the NDC and/or the RxNorm RxCUI and Term Type also convey a brand-name product).

Example

- A prescriber prescribes a brand medication, Levoxyl 88 mcg tablet. The drug identifier the prescriber's system transmits would therefore include a representative NDC 60793-0853-01, which is associated with the Levoxyl 0.088 mg tablet and the RxNorm RxCUI 966175. In addition, the Term Type SBD is also associated with the brand Levoxyl 88mcg.

Best Practices

For Drug Compendia:

- Ensure the database remains up to date with e-prescribing drug identifiers that are correctly associated with the appropriate drug descriptions.
- If an RxNorm concept exists, associate the RxCUI that relates to the compendia recommended EPN.

- If an RxNorm concept does not exist, associate the NDC that relates to the compendia recommended EPN.
- In certain cases (e.g., insulin syringe), no RxCUI or NDC may be available. In these cases, the compendia are encouraged to use another identifier (e.g., UPC, HRI, etc.) that relates to the compendia recommended EPN.
- Provide detailed, consistent guidelines to e-prescribing system vendors describing which data elements in their proprietary database systems are to be used to construct an appropriate EPN that is linked to its corresponding drug identifier.

For Technology Partners:

- When an RxNorm value is transmitted, it is essential that the value correspond with both the drug description and NDC transmitted in the e-prescription message. If an RxNorm concept exists, transmit the RxCUI/Term Type and the compendia recommended EPN. If an RxNorm concept does not exist, associate the NDC that relates to the compendia recommended EPN.
- Regularly (preferably weekly, but at least once per month) update drug database(s) to consistently send correct and up to date NDC and RxCUI numbers, and ensure that no obsolete, repackaged, private-label or unit dose NDCs are sent.
- Limit end users to using only pre-formatted drug description strings provided by the application.
- If the application allows the end user to modify any part of the pre-formatted drug description, then employ a system check to ensure correct correspondence of the numerical code and drug description.

Clinical Relevance/Rationale

- The drug identifier, when used in conjunction with the drug description, ensures accurate communication of the prescriber's intent regarding the product to be dispensed. If the drug identifier does not exactly match the drug product and the full details in the drug description, the pharmacy may be required to contact the prescriber for clarification, thereby disrupting pharmacy and prescriber workflows, which may cause a delay in patient care.

7 PRESCRIPTION CONTENT: PATIENT DIRECTIONS (SIG)

Patient directions (SIG), a set of medication instructions for the patient, can be communicated via the <SigText> field alone, or by also sending the more robust structured and codified elements. In the majority of cases, the patient directions provide the following information:

- Action of how to administer the medication (e.g., take, instill, inject, inhale, apply, etc.)
- Dose of the medication
- Dose units of the medication (e.g., tablet, capsule, units, milliliters, mEq, etc.)
- Route of administration (e.g., orally, rectally, vaginally, topically, subcutaneously, intramuscularly, etc.)
- Frequency or timing of the therapy (e.g., twice a day, every other day, every morning 30 minutes before breakfast, every night before bedtime, etc.)
- Auxiliary information including durations or indications (e.g., for 14 days, for headaches, for nasal sinus infection, etc.) and any additional pertinent information (e.g., with drink, without food on an empty stomach, etc.)

The NCPDP Structured and Codified Sig segment standardizes the portion of a transaction containing the directions for use of the medication by the patient. This is intended to facilitate communication between prescribers and pharmacists through the use of accepted electronic transmission standards, such as NCPDP SCRIPT, to improve the efficiency of prescribing, dispensing and patient counseling activities and to reduce the opportunity for errors. [2]

The intent of the Structured and Codified Sig segment is not to facilitate the reconstruction of the Sig to human readable form (English), but rather to communicate the Sig components through electronic means in a controlled, well-defined structure.

The Structured and Codified Sig segment uses Federal Medication Terminologies (FMT) and Systemized Nomenclature of Medicine Clinical Terms (SNOMED CT®) code sets. SNOMED CT® is a clinical multi-lingual healthcare terminology that was selected for its comprehensive content and international use, managed by the International Health Terminology Standards Development Organization (IHTSDO) with U.S.-specific extensions maintained by the National Library of Medicine.* Each piece of clinical information is captured by a SNOMED CT® concept identifier. This identifier conveys the essence of the information, independent of how it may be defined in different locales or languages. The NCPDP Structured and Codified Sig segment uses SNOMED CT® concept IDs as the primary means for conveying timing, indications, and other administration aspects.

Industry use and other standards do not force the SNOMED CT® preferred term to be sent as the text description accompanying the SNOMED CT® concept ID. Organizations can choose whether to send the preferred term, a SNOMED CT® identified synonym or a local description.

Ensure end users do not expect that the receiving system display the exact text that was sent; the receiving system may instead choose to display the preferred SNOMED CT® term related to the Concept ID or a synonym appropriate for its locale and user base (e.g., “oral route,” “orally,” “by mouth,” etc.).

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2 National Council for Prescription Drug Programs SCRIPT Implementation Recommendations https://www.ncpdp.org/Resources/ePrescribing. (Accessed September, 2015)

*Systematized Nomenclature of Medicine Clinical Terms (SNOMED CT®) is a comprehensive clinical terminology that is owned, maintained, and distributed by the International Health Terminology Standards Development Organisation (IHTSDO). The SNOMED CT® code sets can be obtained from: http://www.nlm.nih.gov/research/umls/Snomed/snomed_main.html FAQs and guides to using SNOMED CT® codes can be found at: http://www.nlm.nih.gov/research/umls/Snomed/snomed_faq.html and http://ihtsdo.org/fileadmin/user_upload/doc/

7.1 GUIDELINE: Use a SIG Builder

Ensure the vast majority of patient directions are created using a standardized SIG composition function whenever possible.

Best Practices

For Technology Partners:

- Implement a robust Sig-builder tool to help end users construct high quality, repeatable directions.
- Develop the Sig-builder tool to be able to accommodate complex patient instructions. Complete comprehensive usability testing with end users prior to implementation of the system to ensure that the Sig-builder can adequately represent complex strings.
- Ensure the default option to create a SIG is by use of the SIG builder.
- There will be a limited number of instructions that even a complex Sig-builder cannot accommodate. In these cases, allow end users to enter free-text patient instructions; however, hide the ability to add free-text information behind an additional screen click. Append any user entered information to the properly formatted Sig.

Clinical Relevance/Rationale

- The utilization of a SIG builder is an important step in the creation of a high quality, repeatable SIG. Use of a SIG builder ensures variability in patient directions is reduced as the directions are inserted by the system in the same format each time. This helps ensure all needed elements are present and reduces the amount of human manipulation needed thereby reducing the overall risk of an adverse drug event.

7.2 GUIDELINE: Ensure the Directions are Complete and Accurate

Ensure all information in the patient directions is clinically correct and complete, with all the required components written in the same order as listed above (i.e., action, dose, dose units, route, frequency, and auxiliary information). The only exception to this syntax is directions which simply state "Take/use as directed/instructed." See guideline 5.8: Qualify "Take as Directed."

Example

- Use “Take 1 tablet by mouth daily” instead of just “Daily.”

Best Practices

For Technology Partners:

- Ensure the SIG builder provides all needed elements in the composed SIG.
- Using compendia sourced information, when possible, prepopulate or provide the user with the “action”, “dose unit”, and “route” based on the drug selected.
- If the end user is unable to convey the complete and accurate instructions with appended free-text, allow the end user to disable the Sig-builder and write an entirely free-text Sig.
- To improve efficiency, allow end users to save favorite, properly formatted Sig strings for future use.

For Prescribers:

- Save the most commonly written Sigs, including tapered doses and other complex regimens.
- Ensure that the Sig is constructed with all essential elements in the appropriate order so the patient directions will be clearly understood.

Clinical Relevance/Rationale

- Since directions contain the information for patient use of a drug/therapy, it is critical that the information be accurate, complete, and unambiguous. The use of a Structured and Codified Sig standardizes the structure and syntax of the prescriber’s directions to the dispensing pharmacist and patient, thereby reducing the opportunity for misinterpretation of the prescriber’s intent.

7.3 GUIDELINE: Never Truncate or Split Directions

Truncating patient directions increases the risk of losing important clinical information. If patient directions are being transmitted in an unstructured way and they exceed the 1000-character limit, then communicate by other means, such as by faxing the information to the pharmacy or printing out and providing the instructions to the patient. Patient directions that exceed the 1000-character limit should not overflow into any notes field.

Best Practices

For Technology Partners:

- Warn end users when the character count nears or exceeds 1000. Consider replacing directions that exceed 1000 characters with “take as directed per physician written instructions” and develop workflow(s) to educate patients about the instructions and/or provide printed copies of the directions.
- Create default directions that are less than 1000 characters for commonly prescribed lengthy patient directions, such as tapered doses and titrations. For example, for a 60 mg prednisone taper using 10 mg tablets write, “Take 6 tabs orally daily for 2 days, 5 tabs daily for 2 days, 4 tabs daily for 2 days, continue to decrease by 1 tab every 2 days until gone.”

Clinical Relevance/Rationale

- The receipt of incomplete patient directions prevents the pharmacist from performing clinical checks. More importantly, the pharmacist will not be able to fully counsel the patient on how to take/use their medication. Or the pharmacist may provide information to the patient that conflicts with the prescriber’s recommendation. This can lead to patient confusion and possible medication errors.

7.4 GUIDELINE: Clear and Concise Directions

Ensure information in the <SigText> field is not unnecessarily repeated, Also, ensure all included information does not conflict in any way with any other field of the e-prescription.

Example:

- Use “Take 1-2 tablets by mouth daily as needed for pain” instead of “1 PO QD. Take 1-2 tablets as needed for pain.”
- Use “Take 1 capsule (40 mg) by mouth daily” instead of “Take 1 capsule (40 mg total) by mouth once daily Take 2 capsules (80mg total) by mouth once daily.

Best Practices

For Technology Partners:

- Construct the final patient directions using any discrete elements from a Sig-builder in the normal Sig pattern: action, dose, dose unit, route, frequency. Avoid delineators in the final directions.
- Always clearly display the final fully constructed Sig to the end user prior to transmission.

Clinical Relevance/Rationale

- If the patient instructions are vague, ambiguous or in conflict with information elsewhere in the transaction, it will be necessary to contact the prescriber for clarification. This creates workflow disruptions for pharmacies and prescribers alike. Moreover, if such conflicts result in misinterpretation and incorrect directions on the prescription label, they can threaten patient safety.

7.5 GUIDELINE: Contain Only Patient Directions

Ensure the <SigText> field only contains information relating to the patient directions. Do not include information for which another designated field exists in the SCRIPT standard (e.g., ensure the patient directions never include the quantity, drug name, NDC or RxCUI values, etc.).

Example:

- Use “Take 1 tablet by mouth once daily” instead of “Take 1 tablet by mouth once daily, #30 3 Refills.”

Clinical Relevance/Rationale

- Many clinical decision support tools leverage the e-prescription’s discrete data fields and rely on specific types of information being entered in the correct designated fields intended to accommodate it. Thus, only patient directions are to be entered in the <SigText> field to optimize the benefits from the decision support tools as well as improve the overall quality of the e-prescription.

7.6 GUIDELINE: Use Structured and Codified Sig

Send patient directions in a structured and codified manner following the SCRIPT standard.

Best Practices

For Technology Partners:

- When initiating implementation of Structured and Codified Sig, determine the 100 most common Sig concepts and make sure the system can fully accommodate the construction and transmission of these Sig strings. Develop system enhancements to accommodate the codification of less frequently used Sigs.
- Develop functionality to ensure the string in the <SigText> field corresponds with the discrete codes in the Structured and Codified Sig segment. For example, display an alert if the text in the <SigText> field conveys “by mouth” when the route of administration code is for “subcutaneous.”
- Always send route of administration for medications.
- Send the dose delivery method whenever possible
- Ensure the code systems remain up to date with newly published versions of SNOMED CT® and FMT code sets. It is recommended that the most recent version of the code system be used.

Clinical Relevance/Rationale

- Adoption of Structured and Codified Sig minimizes ambiguity and assists in the standardization of Sigs in effort to avoid the possibility of inaccurate translation by the receiving partner. Standardization minimizes permutations, facilitates accuracy, promotes patient safety, and improves efficiency. Standardized, structured data reduces the potential for transcription errors and enables automated monitoring of quality metrics. When prescription directions are transmitted using a structured data format and standard terminologies, the meaning is preserved in a system-processable form.

  Because the clinical components such as route of administration and administration timing are represented as standardized terms, every receiving system will interpret the information in the same way. Moreover, each receiver can map the Sig components to its internal data structures to support clinical alerts, dispensing automation, or other processing.

7.7 GUIDELINE: Send an Indication

Including an indication in patient directions is strongly recommended. The indication is a statement of the reason or therapeutic objective for the prescribed medication. Only use "PRN" (i.e., "as needed") in conjunction with an indication or intended therapeutic objective.

Note: The use of an indication does not replace the use of the <Diagnosis> segment, which remains separate and is to be completed whether an indication is added to the patient directions or not.

Examples

- Use "Take 1 tablet by mouth every 4 hours as needed for mild to moderate pain."
- Use "Use according to instructions on dose pack for poison ivy rash."

Best Practices

For Technology Partners:

- If the Sig-builder tool is used, ensure that it requires end users to enter the specific indication or conditions for PRN use if the prescriber selects a PRN frequency.

For Prescribers:

- Enter the indication into the Sig whenever possible to help the patient and the pharmacist fully understand the intended use of the medication.

Clinical Relevance/Rationale

- The inclusion of indications is helpful to patients, pharmacists, and other prescribers. Including indications on prescriptions helps patients better understand and manage their medications. Pharmacists use indications when counseling patients and to help ensure the correct drugs have been prescribed. Prescribers may find indications helpful when they see patients who have been or are concurrently being treated by other prescribers.
- Using PRN without any added information assumes the patient or caretaker fully understands and remembers what the direction "as needed" signifies. This understanding may not exist or may be very short-lived. Without the full indication, PRN provides little to no additional information upon which the pharmacist can base patient counseling, thus it can lead to incorrect and possibly unsafe use by the patient.

7.8 GUIDELINE: Qualify "Take as Directed"

Qualify the use of statements such as "Take as directed" and "Use as instructed" to clearly dictate where or from whom the patient can obtain the specific directions.

Examples

- Use "Inject subcutaneously as directed per sliding scale provided by physician" instead of "Inject as directed."
- Use "Use as instructed per instructions on package" instead of "Use as instructed."

Best Practices

For Technology Partners:

- If a Sig-builder tool is used, ensure that it requires end users to enter the specific source of the instruction after selecting the "Take/use as directed/instructed" option before they can finalize the transaction.

For Prescribers:

- Limit the use of these statements to specific scenarios when a set of instructions is clearly provided to the patient and/or caretaker.
- When entering "Take/use as directed/instructed," make sure the specific source of the directions/instructions is made clear in the e-prescription and to the patient.
- Ensure that only patient directions are written in the <SigText> field; enter any information for the pharmacist regarding medication dispensing or counseling into the <Note> field.

Clinical Relevance/Rationale

- Using a Sig such as “Take as directed” without referencing the source of the instructions, may cause confusion for the patient regarding the medication dosage, route, or frequency. Vague instructions can lead to a patient-safety risk due to incorrect and unsafe medication usage.

7.9 GUIDELINE: Specify Duration of Therapy for Acute Treatments

Only specify duration of therapy for medications with a defined length of therapy (e.g., antibiotics).

Examples

- Appropriate: Use “amoxicillin 250 mg/5 ml suspension; take 5 mL by mouth 3 times a day **for 10 days**” (duration of therapy appropriately indicated for acute antibiotics treatment).
- Inappropriate: “Lipitor 40 mg tablet; take 1 tablet by mouth every night **for 30 days**” (duration of therapy inappropriately specified for a chronic medication regimen).

Best Practices

For Technology Partners:

- Ensure the system does not enter default durations of therapy for all medications in the patient directions.

Clinical Relevance/Rationale

- Most prescriptions are written for chronic medications. A duration of therapy may be appropriate for acute medications, as the defined duration may enhance a patient’s understanding of his or her therapy and increase adherence to the treatment plan. A duration of therapy listed for a chronic medication may be misinterpreted as a limit and may create a risk to patient safety if the patient believes they are intended to stop the medication at the end of the specified therapy duration.

7.10 GUIDELINE: Avoid Abbreviations, Acronyms or Symbols

Avoid the use of abbreviations (including Latin), acronyms and symbols when communicating patient instructions. Spell most terms out completely in English.

The Institute for Safe Medication Practices (ISMP) provides a complete list of Error-Prone Abbreviations, Symbols, and Dose Designations. The abbreviations, symbols

and dose designations included in this list are never be used in any part of an e-prescribing transaction.[3]

Examples

- Use “Take one tablet by mouth twice daily” instead of “1 tablet po bid.”
- Use “Instill one drop into both eyes once daily” instead of “1 gtt ou qday.”

Clinical Relevance/Rationale

- Latin abbreviations, as well as other abbreviations, are often misinterpreted. These misinterpretations can cause patients to take/use medications incorrectly, resulting in patient-safety risks.

8 PRESCRIPTION CONTENT: NOTES

On occasion a need may arise for the initiator of the transaction to send additional patient-specific information that is relevant to the prescription, but for which a dedicated field does not currently exist in the standard. This need should be exceedingly rare, but when necessary, the NCPDP SCRIPT v2017071 standard allows for the transmission of the information in two ways. First, the <PatientCodifiedNote> field is able to relay a set of pre-defined notes using a standardized code system. Second, the optional 210-character free-text <Note> field.

8.1 GUIDELINE: Send Codified Notes

Ensure when a note can be sent in a codified fashion it is done so using the <PatientCodifiedNote> field.

Examples

- In order to relay the need for the patient to make an appointment or schedule labs, send “AL” in the patient codified note element and leave the <Note> field null.
- In order to relay the information that this prescription is a vacation supply, send “AP” in the patient codified note element and leave the <Note> field null.

Best Practices

For Technology Partners:

[3] ISMP’s List of Error-Prone Abbreviations, Symbols, and Dose Designations. (2015). Retrieved October 5, 2015 from http://www.ismp.org/tools/errorproneabbreviations.pdf

- Develop systems to have the ability to send and receive <PatientCodifiedNote> using the current named version of the NCPDP External Code List.
- Ensure end users have a means to quickly populate codified note information without the need to populate free text into the <Note> field.
- Submit a Data Element Request Form (DERF) to NCPDP for any note concepts which are frequently utilized but for which the ECL does not currently support.

Clinical Relevance/Rationale

- Sending information in a clear, codified fashion reduces the potential for error by reducing the reliance on a human to identify, transcribe, and respond to the information. Further, systems can be developed to systematically respond to codified notes, reducing the amount of clinician time spent reading notes and ensuring all notes are processed.

8.2 GUIDELINE: Appropriate Use of Notes

Any information that has a designated field (e.g., patient identifiers, prescriber name, drug description, quantity, etc.) is not to be written in the <Note> field. In addition, ensure information in the <Note> field does not conflict with information in any other fields of the e-prescription.

Examples of information that have their own discrete fields and therefore are **NOT** to be transmitted through the <Note> field includes, but is not limited to:

Example	Appropriate Field
“Pt. needs an appointment for further refills.”	Patient Codified Note
“DOB: 12-12-1900”	Patient Segment
“Prescribed by: Dr. XYZ NPI: 123456789”	Prescriber Segment
“DAW 1” or “OK to substitute”	Substitutions
“Dispense 30 tablets”	Quantity
“Take 1 tablet by mouth twice daily”	SIG
“Metoprolol Tartrate 50 mg oral tablet”	Drug
“Dx: 401.9”	Diagnosis
Discount card or coupon information	Benefits Coordination
“90-day supply”	Days Supply
Indication for use	SIG
Prescriber DEA or NADEAN (“XDEA”) numbers	Prescriber Segment

Clinical Relevance/Rationale

- The <Note> field of a transaction is intended to allow prescribers and pharmacists to communicate information that is relevant to the transaction but is not contained in another designated field. Due to the free text nature of the <Note> field, it is not automatically or systematically reviewed by the receiving technology system, and therefore requires manual review. It is crucial that all key prescription information be entered into the designated fields. This helps improve patient safety by reducing the amount of unnecessary information healthcare providers review, reduces human touchpoints, and helps leverage e-prescribing technology to increase efficiency in the dispensing workflow.

8.3 GUIDELINE: Labeling of the <Note> Field

Label the <Note> field as "Notes to the Pharmacist" or "Pharmacist Notes" to clearly convey the purpose of the field, and present or display to the prescriber toward the end of the prescription writing workflow.

Best Practices

For Technology Partners

- In addition to altering the name of the field, include an explanatory watermark (i.e., an embedded overlay reminder statement) in the <Note> field that briefly describes the intent of the field (e.g., "This field is for additional non-structured information needed for the pharmacist to dispense the prescription.") Studies demonstrate this approach to be successful at decreasing the incidence of inappropriate Sig-related information in the <Note> field.[4]
- Provide default selections for commonly written notes to help prescribers save time and standardize such notes (e.g., "flavor this medication," "dose changed," etc.).
- Consider implementing an additional step or click to access the <Note> field to discourage use of the field when it is not needed.

Clinical Relevance/Rationale

- Use of the free text <Note> field by prescribers is often unnecessary and/or inappropriate. Instruct prescribers on the appropriate use of this field; the label name and field description are a passive, yet crucial part of this process. The position of the field within the workflow of the application can also have an impact on its use and can affect behavior. Placement of the <Note> field near the end of the prescription-writing workflow (after drug selection and the input of directions, quantity information and days supply) can help deter the entry of information that has a designated field elsewhere in the e-prescription.

[4] Dhavle AA, et al. Appl Clin Inform. 2014 Aug 6;5(3):699-707. doi: 10.4338/ACI-2014-03-CR-0022. eCollection 2014

8.4 GUIDELINE: Distinction between Directions and Notes

Ensure the <Note> field is free of any and all patient directions. Patient directions are ONLY to be written in the <SigText> field alone or along with the Structured and Codified Sig information populated.

Examples

- Use Sig: “Take 1 tablet orally twice daily.” Notes: “Null” instead of Sig: “Take 1 tablet twice daily.” Notes: “Take orally.”
- Use Sig: “Take 1 tablet by mouth once a day with breakfast.” Notes: “Null” instead of Sig: “Take 1 tablet by mouth once a day.” Notes: “take at breakfast.”

Best Practices

For Technology Partners:

- To reduce the likelihood an end user will enter patient directions in the <Note> field, enhance the sig-builder tool to:
    - Include all discrete parts of a prescription.
    - Accommodate complex directions.
    - Default to or suggest common directions for frequently prescribed medications.
    - Allow the end user to append free-text instructions to the structured Sig created by the Sig- builder tool.
    - If the prescriber is unable to convey complete instructions with appended free-text, allow them to disable the Sig-builder and write entirely free-text patient directions.

For Prescribers:

- If you are not able to construct patient directions in the Sig-builder tool or Sig free-text (<SigText> field), do not attempt to send the prescription electronically. Use handwritten, fax or phone prescribing instead.

Clinical Relevance/Rationale

- The inclusion of patient directions in the <Note> field can result in patient harm. Depending on when the content of the field is reviewed during the dispensing workflow at the pharmacy, it can result in a change in process. For example, if the content of the <Note> field is not reviewed during data entry in the pharmacy, it may require the prescription to be edited later in the workflow. Due to such a deviation from normal pharmacy workflow, there is an increased risk that the directions will not be captured on the patient label.

8.5 GUIDELINE: Avoid Programmed Insertion of Information into <Note> Field

Ensure information is not automatically inserted into the <Note> field of a new transaction.

Best Practices

For Technology Partners:

- Ensure that default information is consistently applied to the designated field. For example, transmit any patient benefit or pharmacy discount card information in the Coordination of Benefits segment, not the <Note> field.

For Prescribers:

- If given the functionality to save prescription orders for future use, omit any notes from the saved prescription and reconsider the need for a patient-specific note each time a new e-prescription is transmitted.

9 PRESCRIPTION CONTENT: QUANTITY & QUANTITY UNIT OF MEASURE

An electronic transaction requires end users to communicate the specific quantity of the prescribed product to be dispensed, along with its corresponding qualifier. The current NCPDP SCRIPT v2017071 Standard uses the <QuantityUnitOfMeasure> field to qualify the quantity of medication to be dispensed. This field uses the National Cancer Institute Thesaurus (NCIt) code subset for Quantity Unit of Measure. [5]

9.1 GUIDELINE: Accuracy of the Quantity and its Corresponding Qualifier

Enter a correct, numerical value into the <Quantity> field. Ensure this value does not conflict with the information entered in the <DaysSupply> and <SigText> fields. Furthermore, ensure that the Quantity Unit of Measure value entered in the <QuantityUnitOfMeasure> field appropriately qualifies the quantity entered and is correctly associated with the drug product entered in the <DrugDescription> or drug identifier field.

Example

- For amoxicillin 400 mg/5 mL oral suspension with the NDC “00093416173” and RxCUI of “308189”:
    - The quantity and quantity qualifier used would be “100” and “C28254 (Milliliter)” instead of “100” and “C48542 (tablets)” or “C48477 (bottles).”

[5] NCPDP Terminology Files. from http://evs.nci.nih.gov/ftp1/NCPDP/About.html

- The drug description and drug identifiers all indicate the product formulation is a liquid suspension, not a tablet, and the quantity value of 100 implies that dispensing 100 bottles to the patient would be illogical and excessive.

Best Practices

For Drug Compendia

- Provide guidance for displaying unit-of-use packaging to e-prescribing system vendors so the metric-decimal quantity and the quantity qualifier description are displayed to the prescriber when creating an e-prescription.
- For drugs/items that are measured in volume (mL) or weight/mass (gm) and are dispensed in unit- of-use packaging, ensure the prescription metric decimal quantity options displayed to the prescriber represent what is commercially available from the pharmaceutical company for the drug/item prescribed (e.g., eye drops – 5 mL, 10 mL, or 15 mL).
- Provide the quantity and Quantity Unit of Measure description along with the package information to technology providers to display to the end users to help guide their selection.
- Create specific guidance as described in the above bullets for e-prescribing system vendors to facilitate the integration of their products in e-prescription messaging.

For Technology Partners:

- Once the end user has identified the specific drug and drug dosage being prescribed, ensure the system displays a list of appropriate quantities and quantity qualifiers (e.g., the commercially available package sizes and quantities for the prescribed product).
- Ensure that systems regularly check the most recently published Quantity Unit of Measure code set (at least monthly) and continuously create new mappings to any newly published quantity unit of measure codes.

9.2 GUIDELINE: Avoiding the Use of the Code for “Unspecified”

When available, use the most specific metric quantity unit of measure code to qualify the dispense quantity of the prescribed product. The Quantity Unit of Measure Code (QUOM) value of “C38046 (Unspecified)” is only to be used when a quantity qualifier value is not available for use in the version of the NCIt Codes.

Example

- For “amoxicillin 400 mg/5 mL oral suspension” use a quantity of “100” and a Quantity Unit of Measure Code of “C28254 (Milliliter),” instead of a quantity of “1” and Quantity Unit of Measure Code of “C38046 (Unspecified).”

- This amoxicillin suspension is available in three bottle sizes - 50 mL, 75 mL and 100 mL, and the pharmacy will need to know exactly which size bottle to dispense.

9.3 GUIDELINE: Limiting the Use of the Code for "Each"

When available, use the most specific metric quantity unit of measure code to qualify the dispense quantity of the prescribed product. The quantity unit of measure code "C64933 (Each)" is only to be used for products that are not measured in volume or weight and can only be expressed in units of one/each, such as canes, wheelchairs, various braces or orthotics and other DME supplies.

Examples

- For "amoxicillin 400 mg/5 mL oral suspension," use a quantity of "100" and Quantity Unit of Measure Code of "C28254 (Milliliter)," instead of a quantity of "1" and Quantity Unit of Measure Code of "C64933 (Each)."
    - This amoxicillin suspension is available in three bottle sizes - 50 mL, 75 mL and 100 mL, and the pharmacy will need to know which size bottle to dispense.
- For non-drugs such crutches, use a quantity of "1" and Quantity Unit of Measure Code of "C64933 (Each)," as there is not a more specific code available to convey the concept of "crutches" for qualifying the dispense quantity.
- Some non-drugs such as diabetic test strips, lancets, needles, and devices have specific Quantity Unit of Measure Codes that are to be used at all times with the appropriate quantity values. For test strips, use a quantity of "100" and Quantity Unit of Measure Code of "C48538 (Strips)."

NCPDP Preferred Term	NCIt Code
Strip	C48538
Lancet	C120263
Pen Needle	C120216

Clinical Relevance/Rationale

It is important to transmit and receive accurate quantity and quantity qualifier information for the following reasons:

- Patient safety: Ensuring the patient receives the correct quantity intended for therapy by the prescriber. Ambiguity or discrepancies in any of the fields can result in patient harm or reduced efficacy.

- Patient expense: Additional and/or unnecessary patient expense can occur if the desired quantity is unspecified or ambiguous to the pharmacist, who may as a result, face auditing difficulties related to reimbursement.
- Workflow disruptions: Additional call-backs from the pharmacy to the prescriber's office to clarify the quantity appropriate for the patient can be avoided.

10 PRESCRIPTION CONTENT: DAYS SUPPLY

10.1 GUIDELINE: Correct Numerical Value Entered for Days Supply

Ensure the value entered into the <DaysSupply> field appropriately conveys the number of days that one fill of the prescription will last the patient. Ensure the Days Supply information does not contradict the information in other fields, specifically the quantity and patient directions fields.

Note: "Days Supply" and "length of therapy" are different concepts that have different uses. Length of therapy information (e.g., "take 1 tablet per day **for 10 days**") conveys the specific time period during which the drug regimen will be used. This information is entered as part of the patient directions and is a set duration regardless of the dispense quantity. In contrast, Days Supply conveys the length of time a single fill of the prescription will last the patient as calculated using the dispense quantity and the patient directions.

Example

- If a physician writes a quantity of "40" with patient directions of "One tablet four times daily," the <DaysSupply> field would be "10" to be consistent with the information entered in the other two fields.
- Alternatively, if a physician writes a quantity of "300 mL" with the Sig "Take 5 mL by mouth three times a day; take for 14 days and then discard the remainder," the Days Supply would be 20 days, but the length of therapy would be 14 days.

Best Practices

For Technology Partners:

- Ensure the system guides end users to enter correct numerical values into the <DaysSupply> field to accurately represent the intent of the prescriber.
- When possible, prepopulate the <DaysSupply> field to reduce the possibility of incorrect values being entered and to shorten the time required for writing e-prescriptions.
    - If the calculated Days Supply is not a whole number, round down to the nearest whole number.

- Implement a clinical decision-support tool to prevent erroneous Days Supply values from being sent in the transaction.
- If the prescriber did not manually enter a value, and the number of doses in a container or package is unknown, or the fill duration cannot be calculated, do not send a value of “0” in the Days Supply field. However, be aware that although Days Supply is an optional field in the standard, it may still be mandated by state regulations and required to be transmitted for opioid products.

For Prescribers:

- Omit Days Supply from an e-prescription if the dose form is ambiguous for a medication such as a gel, cream, or ointment unless it is mandated by state regulations – e.g., for opioids. For non-opioid products, only send Days Supply in these cases if there is a specific dose of measurable quantity, such as separated gel packs.
- Double-check to ensure the Days Supply value is an accurate reflection of both the medication directions and written quantity in all cases where the Days Supply is included and transmitted.
- If needed, the free text <Note> field may be used to provide further information regarding the Days Supply; ensure it does not merely repeat the Days Supply value.

Clinical Relevance/Rationale

- The Days Supply value may be used by the pharmacist to double-check the dispense quantity or the patient directions by using any two values to solve for the third. Days Supply can provide useful information to the pharmacist for monitoring patients’ adherence to the prescribed regimen. This information can also provide an acceptable rationale for dispensed quantities in the event of third-party audits.

11 PRESCRIPTION CONTENT: WRITTEN DATE AND EFFECTIVE DATE

11.1 GUIDELINE: Written Date is the Date Transmitted

In most cases, the value in the <WrittenDate> field will match the date the message was transmitted. The <WrittenDate> cannot be for a future date.

11.2 GUIDELINE: Effective Date Used as Earliest Fill Date

In 2017071 the Effective Date is sent in the “OtherMedicationDate” composite with the “OtherMedicationDateQualifier” of “EffectiveDate”. The Effective Date is intended to denote the earliest fill date. It is the date after which the e- prescription being transmitted can be dispensed

(i.e., “do not fill before date”), as authorized by the prescriber. This field can be helpful for titrated or controlled medications. The Effective Date cannot precede the Written Date.

Example

- The prescriber sends two prescriptions for methylphenidate 5 mg oral tablets intending to have the pharmacy dispense one prescription now and the other in 30 days. For the second prescription, the Effective Date field is populated to clearly communicate this intent.

```
<WrittenDate>
<Date>2020-08-01</Date>
</WrittenDate>

<OtherMedicationDate>
    <OtherMedicationDate>
        <Date>2020-09-01</Date>
    </OtherMedicationDate>
    <OtherMedicationDateQualifier>EffectiveDate</OtherMedicationDateQualifier>
</OtherMedicationDate>
```

12 PRESCRIPTION CONTENT: DIAGNOSIS

The NCPDP SCRIPT v2017071 currently allows for the transmission of a diagnosis code under the ICD-9 or ICD-10 format in the optional Diagnosis composite within the Medication Prescribed segment.

12.1 GUIDELINE: Inclusion of Diagnosis

Include a diagnosis code (ICD-10) in every transaction. Ensure the first occurrence of the diagnosis element aligns to the primary diagnosis. If a secondary diagnosis is needed, a second occurrence of the diagnosis element may be sent. Populate the primary code of each occurrence with ICD-10 information.

Example

- Drug Description: Divalproex sodium 500 mg extended-release oral tablet Directions: Take 1 tablet by mouth daily Quantity: 30 tablets
    - Diagnosis Code: G43.111 (Migraine with Aura, intractable, with migrainosus)

Best Practices

For Technology Partners:

- Require all transactions to be associated with a diagnosis code prior to transmission.
- Develop practical workflows for end users that allow diagnosis codes to be associated with transactions
- When receiving diagnosis code(s), ensure the application displays this information in a meaningful manner.
- Enable clinical decision support tools to screen for potential drug-disease interactions and to allow for better dose alerts based on diagnosis.
- Ensure the diagnosis code is included in any subsequent transaction referencing the original NewRx (RxRenewal Request, RxChange Request, etc.)

For Prescribers:

- Associate the pertinent diagnosis with the medication, which may not be the same as the primary visit diagnosis.

Clinical Relevance/Rationale

- The inclusion of diagnosis information in its designated field can help healthcare providers validate the prescription's purpose. This can improve patient counseling and help providers identify opportunities to optimize patient care.

12.2 GUIDELINE: Diagnosis Codes

Transmit the diagnosis code without the decimal and include the appropriate qualifier code in the <Primary.Qualifier> or <Secondary.Qualifier> fields.

Example

- Diagnosis Code: S93401, Qualifier: ABF
- Note: ICD-10 is not a valid qualifier value.

Clinical Relevance/Rationale

- To increase interoperability and improve data quality, it is important to adhere to the standard(s) to ensure that all parties are able to send, receive and interpret the information in a meaningful way.

13 PRESCRIPTION CONTENT: ALLERGY OR ADVERSE EVENT

The NCPDP SCRIPT v2017071 currently allows for the transmission of allergy or adverse event information in the optional AllergyOrAdverseEvent element.

13.1 GUIDELINE: Avoid Duplicative/Conflicting Allergy Information

Send either the "NoKnownAllergies" element or the "Allergies" element, never both.

Example

- Send <NoKnownAllergies> element with value of "Y" and do not send the <Allergies> element.
    - Do NOT send <NoKnownAllergies> element with a value of "Y" and the <Allergies> element with specific product information.
- Send the <Allergies> element with specific product information and do not send the <NoKnownAllergies> element
    - Do NOT send the <NoKnownAllergies> element with a value of "Y" and also send the <Allergies> element populated with "No Known Allergies"

Best Practices

For Technology Partners:

- Ensure the system does not allow both elements to be populated and transmitted in the same message.

Clinical Relevance/Rationale

- Duplicative or contradictory allergy information results in confusion and leads to an increase in clarification communications. Additionally, inclusion of the "No Known Allergy" indicator when a true allergy exists increases the risk the patient allergies will not be assessed, potentially leading to an adverse drug event.

13.2 GUIDELINE: Transmit All Allergies

Transmit all of the reported drug and chemical allergies.

Clinical Relevance/Rationale

- Receiving only a portion of the patient allergy or adverse event profile my provide the receiver of the transaction with a false sense of security that they have all of the clinical information needed to appropriately verify the prescription. This could lead to a patient allergy record not being added to the profile and not taken into consideration when DUR and profile review are performed.

13.3 GUIDELINE: Transmit Codified Information

Transmit the <AdverseEvent><Text> and the appropriate enumerated <AdverseEvent><Code> and <DrugProductCoded><Code> and <DrugProductCoded><Qualifier>.

Example

	<AdverseEvent>		<DrugProductCoded>		
	<Text>	<Code>	<Text>	<Code>	<Qualifier>
Send	Drug Allergy	416098002	Codeine	Q830PW7520	UN
Don't Send	"Affect Muscles"		HCTZ		

Clinical Relevance/Rationale

- There will always be a need to transmit free-text allergy information, however this should be exceptionally rare. When information is standardized and codified, health technology systems are able to process the information in an automated fashion which reduces human touchpoints and the potential for interpretation and transcription errors.

14 PRESCRIPTION CONTENT: OBSERVATION

While the inclusion of patient observation information (e.g., height, weight, and blood pressure) is not required by NCPDP SCRIPT v2017071, the transmission of this information is supported through the Observation segment of the standard.

14.1 GUIDELINE: Inclusion of Observation Information

Include patient observation information (e.g., weight, height, systolic and diastolic blood pressures, along with the exact dates the values were measured), in e-prescription messages for all patients when available, especially the pediatric patient population or where weight-based dosing is necessary.

Example

- When prescribing antibiotics to treat otitis media in a four-year-old patient, the prescriber wants to dose the patient with amoxicillin 90 mg/kg/day divided into two doses for a duration of five days. The pharmacist is expected to double-check the appropriateness of the prescribed dose for the patient, calculated using the patient's weight. In this scenario, it is imperative that the e-prescription includes the patient's weight (e.g., 15 kg) and the date the measurement was taken (e.g., CCYY-MM-DD). The calculated dose would be 675 mg/dose.

Best Practices

For Technology Partners:

- Ensure the system is able to capture commonly documented clinical values, such as height, weight, and blood pressure. At a minimum, transmit the height and weight when available.
- When receiving Observation data, ensure the application can display this information in a meaningful manner.

For Prescribers:

- Ensure the most recent, up-to-date height, weight or blood pressure measurements are entered when creating e-prescriptions along with the dates the measurements were taken.

Clinical Relevance/Rationale

- The dosage of many drugs is calculated based on a patient's weight or body surface area (BSA). This approach is especially used for pediatric and neonatal populations, as they require higher precision in dosing and tend to have greater fluctuations in weight. Furthermore, some medications can be contraindicated when a patient's blood pressure is elevated or depressed, and pharmacists can use blood pressure information to assess for drug-disease interactions and therapeutic outcomes. This information is essential for pharmacists to provide clinical decision support and double-checks to ensure that the patient receives the appropriate dose(s) of the prescribed medication(s).

15 PRESCRIPTION CONTENT: SUBSTITUTIONS

As part of the Medication Prescribed segment, the NCPDP SCRIPT v2017071 standard includes the <Substitutions> field, which allows the prescriber to identify whether the prescribed medication may be substituted for a therapeutic and bio-equivalent medication product. The Dispense as Written (DAW) code is used to communicate the substitution authorization for each prescription.

15.1 GUIDELINE: Use of DAW Codes

Use the <Substitutions> field to indicate "Dispense as Written" codes. Ensure substitution information is not included in the <Note> field unless it is required by law.

Best Practices

For Technology Partners:

- Ensure this field defaults to "0" to indicate substitution is allowed, thus saving the prescriber time during order entry. The prescriber would need to actively select "1" to indicate a

substitution is not allowed (i.e., Dispense as Written) if they choose to order a brand-name medication and have the patient receive the brand-name medication.

For Prescribers:

- Some state programs (e.g., Medicaid) require the prescriber to include the phrase “Brand medically necessary” in addition to the substitution indication. Currently, this phrase can only be entered into the <Note> field. For all other insurers, it is not necessary or appropriate to denote substitution preference in the <Note> field.
- Do not indicate “Dispense as Written” (Substitution = 1) for generic medications. If the prescriber wants a brand-name medication to be dispensed, select the brand-name medication from the database and indicate “Substitution Not Allowed (1).”

Clinical Relevance/Rationale

- In most states, when a prescriber issues a prescription for a brand-name drug, regulations allow the pharmacist to substitute an FDA-approved generic medication in its place. However, a prescriber may override such rules by prescribing brand-name/trade-name drugs and requesting that they be dispensed as written. Pharmacists rely on the substitutions indicator to determine whether they are allowed to dispense a generic equivalent. It is important that the information in this field be accurate and that prescribers are familiar with the appropriate use cases. Since generic medications are typically less expensive than their branded counterparts, there may be financial implications for the patient and/or pharmacy if incorrect or inconsistent information is transmitted.

16 PRESCRIPTION CONTENT: BENEFITS COORDINATION

The NCPDP SCRIPT standard includes an optional segment that is used to convey a patient’s benefit information from the prescriber to the pharmacy. This segment contains information received from the pharmacy benefit manager (PBM).

16.1 GUIDELINE: Inclusion of Third-Party Payer Information

Use the Benefits Coordination and Patient segments to communicate all patient benefit information that is provided within the Eligibility Response transaction from the PBM or obtained by other means.

Best Practices

For Technology Partners:

- Programmatically include data obtained from eligibility requests and responses into the Benefits Coordination and Patient segment in the e-prescription.

Clinical Relevance/Rationale

The communication of all available benefit information on the original prescription can reduce the need for unnecessary calls from pharmacy staff to prescribers to obtain this information, thereby increasing the efficiency of the e-prescribing workflow and facilitating faster dispensing of e-prescriptions.

17 OPERATIONAL/PROCESS: DUPLICATES

There are aspects of electronic data interchange (EDI) that contribute to duplicate transactions being sent through intermediaries and received by pharmacies. Duplicate prescriptions can be sent for many reasons, such as application design or end user workflow. It is important to develop mechanisms and implement procedures that ensure duplicate transactions are not transmitted, as duplicates have the potential to cause workflow problems and risks to patient safety.

17.1 GUIDELINE: Do Not Send Duplicate Messages

Do not send duplicate transactions that contain identical content within 24 hours (one calendar day) of sending the original transaction unless the original transaction resulted in an error.

Note: There may be situations where it would be appropriate to send a duplicate e-prescription within 24 hours of sending the original message. For example, the patient may tell the prescriber that the pharmacy does not have the prescription that was sent earlier in the day, and to ensure timeliness in the delivery of care, the prescriber may opt to send a duplicate e-prescription to the pharmacy. These types of scenarios will be infrequent.

Best Practices

For Technology Partners:

- Consider creating an alert in the application notifying the end user that a duplicate content message (DCM) is about to be sent. Within the alert, provide the transmission date/time of the original message to the prescriber and the status of the original message. Also, consider implementing an acknowledgement requirement or hard-stop within the application to confirm the transmission of the duplicate transaction.

Clinical Relevance/Rationale

- Sending duplicate transactions can cause many issues for the receiver such as workflow inefficiencies, risks to patient safety and operational costs. Many pharmacies use an e-prescribing queue to process received e-prescriptions. When duplicate prescription messages are received, non-fillable transmissions are processed in the pharmacy e-prescribing queue, which results in a loss of productivity and diminished operational performance. In addition, if a duplicate e-prescription is not caught by the pharmacy's proprietary drug utilization review (DUR) checks, by the pharmacy staff or by the patient's plan during adjudication, a duplicate

e-prescription may be dispensed. This may result in an adverse drug event (ADE) if consumed or be a violation of state and/or federal laws or regulations.

18 OPERATIONAL/PROCESS: DIRECTORIES

The e-prescribing network includes directories for both pharmacies and prescribers. All pharmacies and prescribers are to be added to the Directory prior to transmitting messages across the network. The information needs to be updated regularly. Prescribers frequently work in different practice settings, so it is important to identify whether the prescriber-patient relationship is valid, and the patient's medical records are maintained.

The Surescripts Provider Identifier (SPI) is the routing identifier that is assigned to a registered practice location on the Directory. Based on the vendor's business model, a SPI is assigned to each respective practice location and used to route messages from that location accordingly, or, if the vendor participates in the Learning Directory, Surescripts will learn the additional practice locations based on the NewRx address content and append them in the Directory. All learned locations will have the same registered SPI; refill renewal requests will be routed to the registered SPI for all locations.

Prescribers

The Drug Enforcement Agency (DEA) number and the National Provider Identifier (NPI) are widely used to identify prescribers. However, these identifiers cannot be used alone to identify prescribers due to various nuances, such as organizational versus individual NPIs, and multiple DEA numbers existing for a single prescriber.

For electronic prescribers, Surescripts uses a SPI to route messages. The SPI number is communicated by prescribers in e-prescription messages and is stored/catalogued by pharmacies upon receipt of messages.

The prescriber technology partner administrator will maintain the accuracy of prescriber information in directories and make necessary updates using the following actions:

- Add a new prescriber to the directory.
- Update existing prescriber information.
- Download directory information to identify prescribers associated with the prescriber technology partner.
- Download the list of pharmacies on the network.

Pharmacies

The NCPDP ID is used as the pharmacy's Surescripts routing number. The pharmacy technology partner administrator will maintain the accuracy of the pharmacy's information within the Surescripts Directory. This helps ensure that timely and regular updates are performed, thus preserving the accuracy and relevance of the data. Make sure to do the following:

- Add new pharmacies to the directory.
- Update existing pharmacy information.
- Download directory information to identify pharmacies associated with the pharmacy technology partner.
- Download the list of prescribers on the network.
- In the event that a NCPDP ID changes for a pharmacy location, contact the Surescripts Support team to discuss opportunities to transition the location with minimal impact to the pharmacy business.

18.1 GUIDELINES: Update and Maintain Directories

Update directory information daily, using the nightly "delta" file to apply updates to your respective, internal databases. Complete a full update (or "true up") at least once per week and do not block incoming prescription routing messages based on local directory information.

Clinical Relevance/Rationale

- Updating and maintaining directories is an integral part of a successful and efficient e-prescribing network. If the accuracy of prescriber and pharmacy information is not maintained, the pharmacy may not be able to contact the prescriber if needed. In addition, the pharmacy may not be able to route electronic refill renewal requests with certainty that the transaction is being delivered to the correct location.
- When a pharmacy cannot locate correct and complete information for a prescriber in the directory, a faxed refill renewal request may be initiated by the pharmacy. It is strongly recommended that the prescribers ensure the Surescripts Directory registration, and the transaction content are in full alignment from a formatting and standardization perspective. Out-of-alignment fields can create workflow inefficiencies for both the prescriber and the pharmacy, resulting in the delay of refill request responses being transmitted to the pharmacy. Faxing refill renewal requests can also result in e- prescriptions being sent to incorrect locations, thus further establishing the need for an accurate, up-to-date directory.

19 E-PRESCRIBING OF CONTROLLED SUBSTANCES (EPCS)

The DEA's Interim Final Rule (IFR), “Electronic Prescriptions for Controlled Substances,” revised the DEA's regulations to provide practitioners with the option of writing e-prescriptions for controlled substances. The regulations also permit pharmacies to receive, dispense and archive these e-prescriptions. The rule was published in the Federal Register on Wednesday, March 31, 2010, and became effective on June 1, 2010. Addressing the comprehensive and rigorous requirements of this rule is beyond the scope of this document.

19.1 GUIDELINE: EPCS DEA NCIt Code

Send e-prescriptions for controlled substances with the appropriate DEA Schedule NCIt code as determined by the schedule of the medication within the <DrugDescription> field.

Best Practices

- Prescriber technology partners, conduct regular internal audits to identify prescribers who are sending e-prescriptions for controlled substances that do not qualify as valid EPCS transactions per the DEA’s EPCS IFR requirements. Surescripts performs validation checks to determine, based on NDC, whether the NEWRX message is considered a controlled substance at both the federal and state levels. However, due diligence and performing prior-to-transmission-checks will help to mitigate the occurrence of non-DEA compliant EPCS transactions.
- It may be difficult to systemically decipher whether a compound contains a controlled substance. Nonetheless, send an NDC for a controlled medication if it is included as a compound ingredient. Consider creating commonly ordered compound records that contain controlled substances that are linked to specific medication records. This will allow you to capture discrete information such as drug identifiers. You may also develop a similar workflow that allows prescribers to associate a compound to an existing medication from the database that can be used to associate to additional discrete information.

Clinical Relevance/Rationale

- It is essential that all federal and state regulations and requirements established for EPCS transactions be strictly adhered to during the e-prescribing process. Non-adherence may result in fines and penalties for prescribers and/or pharmacies, as well as disciplinary action by various law enforcement agencies. In addition, EPCS transactions that do not comply with DEA regulations cannot be filled by receiving pharmacies, which may result in operational inefficiencies as well as delays in patient care.

20 TEST OR DUMMY E-PRESCRIPTIONS

In some instances, network prescribers have sent “test” NewRx e-prescriptions in the live production environment to pharmacies. In all of these instances, prescribers did not actually intend for the pharmacy to dispense the prescribed medication orders. It is important to note that significant potential risks may arise if pharmacies dispense such “test” prescription orders.

20.1 GUIDELINE: Do not transmit “test” or “dummy” e-prescriptions

Transmission of “test” e-prescription orders is a violation of Surescripts network requirements established in both the contracts signed by network participants and the Network Operations Guide (NOG). The transmission of “test” e-prescriptions can result in not only severe patient safety consequences, but also Surescripts Compliance cases being opened to the original EHR vendor system, and in extreme cases, even the temporary suspension of an entire EHR vendor system from the Surescripts network as well.

Best Practices

- Ensure that no “test” e-prescriptions are sent in the live environment.
- Only transmit e-prescriptions that are intended for the pharmacist to dispense to the patient
- Engage with end-users and provide additional training to correct any inappropriate prescribing behaviors

Clinical Relevance or Rationale

- When a “test” or “dummy” e-prescription is sent, pharmacies may not always be able to discern the prescriber’s intent for a “test” order that was transmitted for the sole purpose of determining the insurance coverage versus an intended fillable prescription. The result can be an adverse event that directly affects patient safety. For example, a patient may be inadvertently placed on two anticoagulants such as apixaban and warfarin for several days before the dispensing error is detected.

CORRESPONDENCE

For additional questions or feedback, please contact the Surescripts Clinical Quality Team at: quality@surescripts.com.

Thank you for your dedication to continuous quality improvement in e-prescribing.

APPENDIX A

Physician's Guide for Creating Quality Prescriptions

PRESCRIBER INFORMATION

Ensure prescriber demographic information transmitted to the pharmacy in a new prescription matches your registered Surescripts Directory listing (visit surescripts.com and select "Find E-Prescribing Physicians" to view your current Surescripts Directory listing). Participants activated on the Learning Directory are able to send additional practice locations in prescriptions and they will be appended to the Directory by Surescripts.

Action: Alert your e-prescribing/EMR vendor when the prescriber's information changes to ensure accurate information is pre-populated in the e-prescription message.

DRUG DESCRIPTION

- The <DrugDescription> field contains a 105-character limit. Ensure this field contains the complete product name, dosage strength and form.
- Only enter the drug description information into the designated <DrugDescription> field, not the <Note> or <SigText> fields. Never add extraneous information to the drug description, including therapy changes or dosage increases.

Action: If you are unable to find a specific medication or product in your database, reach out to ask your internal support teams for assistance.

DOSAGE STRENGTH VALUES

Ensure the dosage strength only consists of Arabic (decimal) numbers rather than Roman numerals or abbreviations such as "M" for thousands or millions. Always include a **leading** zero when a decimal point is required but never have **trailing** zeroes. Avoid the use of zeroes whenever possible by employing alternative units of measure.

PREFERED	NON-PREFERED
Aspirin 325 mg tablet	Aspirin V grains
Pancrelipase, 12,000-38,000-60,000 units delayed release capsule	Pancrelipase 12M-38M-60M delayed release capsule
Digoxin 0.25 mg tablet	Digoxin .25 mg tablet
Warfarin 5 mg tablet	Warfarin 5.0 mg tablet
30 mcg	0.03 mg

Action: If your EHR application does not display information in any of the above recommended formats, please alert internal support teams so they can ask their contracted drug compendia for support.

PATIENT DIRECTIONS (SIG)

Patient directions (a set of medication instructions) can be communicated in two ways:

1. <SigText> field alone, or
2. <SigText> field and the corresponding Structured and Codified Sig information (a more robust series of fields within the <MedicationPrescribed> segment)

The Sig of an e-prescription provides details for the patient and in most cases includes the following information:

- Action of how to ingest or administer the medication (e.g., take, instill, inject, inhale, apply, etc.)
- Dose of the medication
- Dose units of the medication (e.g., tablet, capsule, units, milliliters, mEq, etc.)
- Route of administration (e.g., orally, topically, subcutaneously, intramuscularly, etc.)
- Frequency or timing of the therapy (e.g., twice a day, every night before bedtime, etc.)
- Auxiliary information including durations or indications (e.g., for 14 days, for headaches, etc.) and any additional pertinent information (e.g., with drink, without food on an empty stomach, etc.)

Action: Ensure that only patient directions are written in the <SigText> field. Reserve any information intended for the pharmacist regarding medication dispensing or counseling for the <Note> (Notes to Pharmacy) field.

USE A SIG BUILDER/COMPOSER WHENEVER POSSIBLE

The utilization of a SIG builder is an important step in the creation of a high quality, repeatable SIG. Use of a SIG builder ensures variability in patient directions is reduced as the directions are inserted by the system in the same format each time. This helps ensure all needed elements are present and reduces the amount of human manipulation needed thereby reducing the overall risk of an adverse drug event.

DIRECTIONS ARE COMPLETE AND ACCURATE

Ensure all information in the Sig is clinically correct and complete. To ensure complete patient directions will be understood, construct the Sig with all essential elements in the following order:

↓ Action

↓ Dose

↓ Dose units

↓ Route

↓ Frequency

↓ Auxiliary information

The only **exception** to this syntax are Sigs which simply state “Take/use as directed/instructed.”

DO	DON’T
Take 1 tablet by mouth daily	Daily

Action: Save your most commonly written Sigs to a favorites list, including tapered doses and other complex regimens.

QUALIFY “TAKE AS DIRECTED”

The use of statements such as “Take as directed” and “Use as instructed” are to be limited to situations in which you are able to clearly reference a set of instructions provided to the patient and/or caretaker. Follow the statement with a qualifier that clearly states where or from whom the patient and/or caretaker can obtain the specific directions.

DO	DON’T
Inject subcutaneously as directed per sliding scale provided by physician	Inject as directed
Use as instructed as needed for hives per instructions on package	Use as instructed

INDICATION

The inclusion of an indication within the Sig is not required but strongly recommended. Enter the indication into the Sig whenever possible to help the patient and the pharmacist fully understand the intended use of the medication. **Note:** The use of an indication does not replace the use of the <Diagnosis> segment, which is separate and to be completed whether an indication is added to the Sig or not.

DO	DON’T

Take 1 tablet by mouth 3 times a day as needed for knee pain	Take 1 tablet by mouth 3 times a day prn

Action: Always send an indication or specific intended therapeutic objective in the Sig, especially when the selected frequency is PRN (“as needed”).

NEVER TRUNCATE OR SPLIT DIRECTIONS

Ensure Sig information is never truncated because important information may be lost. If the patient directions are being transmitted in an unstructured way using the <SigText> (Sig) segment, and they exceed the 1000-character limit, communicate them by other means.

Action: Do NOT write Sig information into the <Note> field if it exceeds the 1000- character limit.

Example of what not to write: Take 1 tablet once a month in the am 1 hr before eating or drinking, with 1 C water. Remain upright x 1 hour and nothing by mouth, then resu [*instruction cut off*]

APPROPRIATE USE OF NOTES

Ensure notes to the pharmacist do not contain the following content: patient, prescriber and pharmacy names or identifiers; drug description; patient directions; dispense quantity; days supply or duration of therapy; DAW information; diagnosis codes, patient benefit information, or appointment reminders. Ensure information in the notes never conflicts with any information entered in other fields of the e-prescription.

If a change in therapy is needed that requires the discontinuation of a previously issued prescription, it is recommended that a cancel prescription (CancelRx) message be sent. For more information on whether your EHR/e-prescribing system supports the CancelRx message/workflow, please ask your EHR/e-prescribing contact.

Action: If given the functionality to save prescription orders for future use, **omit any notes from the saved prescription** and reconsider the need for patient-specific notes each time you transmit a new e-prescription.

DISTINCTION BETWEEN DIRECTIONS AND NOTES

Keep the <Note> field free of any and all patient directions. Patient directions are only to be written in the <SigText> field or Structured and Codified Sig segment.

For more information on whether your EHR/e-prescribing system supports Structured and Codified Sig, please ask your EHR/e-prescribing contact.

DO	DON'T
Sig: Take 1 tablet orally twice daily **Notes**: Null	**Sig**: Take 1 tablet twice daily **Notes**: Take orally

Action: If you are not able to construct patient directions within your Sig-builder tool or Sig free-text (<SigText> field), do not attempt to send the prescription electronically. The inclusion of patient directions in the <Note> field can result in patient harm because the field is not designated for patient directions.

CORRECT NUMERIC VALUE ENTERED FOR DAYS SUPPLY

The value entered into the <DaysSupply> field conveys the number of days that one fill of a prescription is to last the patient. This cannot contradict the information supplied in other fields, specifically the Quantity and Sig fields.

Days Supply and Duration of Therapy are different concepts and have different uses:

- Days Supply: Used to convey the length of time a single fill of the prescription is to last the patient as calculated using the dispensed quantity and the Sig.
- Duration of Therapy: Used to convey the specific time period during which the drug regimen will be used (e.g., "take 1 tablet per day for 10 days"). This information is entered as part of the Sig and is a set duration regardless of the dispense quantity.

For example, if a physician writes a quantity of "40" with a Sig "1 tablet 4 times daily," the <DaysSupply> field would be "10" to be consistent with the information entered in the other two fields.

Alternatively, if a physician writes a quantity of "300 mL" with the Sig "Take 5 mL by mouth 3 times a day; take for 14 days and then discard the rest," then Days Supply would be 20 days, but the Duration of Therapy would be 14 days.

Action: Days supply may be omitted from an e-prescription if the dose form is ambiguous, such as medications in the form of a gel, cream, or ointment. Days Supply would only be sent in these cases if there is a specific dose of measurable quantity, such as separated gel packs.

INCLUSION OF DIAGNOSIS

A diagnosis code (i.e., ICD-10) that is associated with the prescribed product is to be sent in every e-prescription message. Functionality exists to send up to two diagnoses codes.

EXAMPLE:

Drug Description: Divalproex sodium 500 mg extended-release oral tablet Directions: Take 1 tablet by mouth daily, Quantity: 30 tablets

Diagnosis Code: G43.111 (Migraine with Aura, intractable, with migrainosus)

Action: Associate the pertinent diagnosis that relates to the medication, which may not be the same as the visit diagnosis.

PRESCRIPTION CONTENT – OBSERVATION

While the inclusion of patient observation information (e.g., height, weight, blood pressure, etc.) is not required, the transmission of this information is supported through the <Observation> segment of an e- prescription.

Patient observation information, along with the exact dates the values were measured, are to be included in e-prescription messages when available, particularly for pediatric patients.

For example, a prescriber is prescribing antibiotics to treat otitis media in a four-year-old patient and wants to dose the patient with Amoxicillin 90 mg/kg/day divided into two daily doses for a duration of five days.

The e-prescription sent will need to therefore include the patient's weight (e.g., 15 kg.) and date the measurement was taken (e.g. the date the patient was seen at the doctor's office, 2016-01-01) if it is expected that the pharmacist will need to do any calculations related thereto.

PRESCRIPTION CONTENT – SUBSTITUTIONS

The <Substitutions> field allows the prescriber to identify whether the prescribed drug may be substituted for the generic equivalent. Dispense as Written (DAW) codes are used to communicate substitution authorization for each prescription and transmitted in the <Substitutions> field. Do NOT include this information in the <Note> field unless it is required by law.

Some state programs (e.g., Medicaid) require the prescriber to include the phrase "brand medically necessary" in addition to the substitution indication. Currently, this phrase may be entered into the <Note> field.

Action: Do not indicate "Dispense as Written" (Substitution = 1) for generic medications. If a brand- name medication is intended to be dispensed, select the brand-name medication from your database and indicate (Substitution = 1).

INCLUSION OF INSURANCE / BENEFITS INFORMATION

The Benefits Coordination and Patient segments are used to communicate all patient insurance information that is provided within the Eligibility response from the insurer/PBM. Coupon/discount card information can also be provided here in the absence of PBM-provided patient benefits.

The communication of all available insurance information in the original prescription can reduce calls from the pharmacy to the prescriber to obtain this information. This increases the efficiency of the e-prescribing system and facilitates faster dispensing of prescriptions, which in turn optimizes overall prescription fulfillment.

DO NOT SEND DUMMY OR TEST E-PRESCRIPTIONS

No e-prescription is to be sent with the intention of solely testing for communication functionalities or insurance coverage checking, etc. Do not transmit an order for a product that the prescriber does not intend to be ultimately dispensed. Even if free-texted messages of "*Do not dispense this; dummy e-Rx*", or "*Test e-Rx*", or "*This is a TEST, please ignore*", etc. are present in the Notes field or any other free-text field.

When the aforementioned information is inappropriately sent, additional unnecessary risks to patient safety and increased chances of misfills are introduced, especially when the free-texted instructions to ignore the "test" or dummy order in data fields not intended to accommodate such information as originally defined by the NCPDP SCRIPT Standard.

APPENDIX B

Success Criteria for HTV/EHR Performance Optimization Program Metrics

Prescription Accuracy

1) **Drug Description**
   a) Drug description is an exact string match to an E-Prescribing Drug Name (EPN) as published by a commercial compendium source or is an RxNorm PSN.
   b) A reference drug name (may be optionally included) is sourced from a commercial compendium source and included in parenthesis after the EPN.

2) **Drug Identifiers – Representative NDC**
   a) A valid EPN is sent as outlined in the Drug Description section above.
   b) An 11-digit NDC is populated in the <ProductCode.Code> field with a valid qualifier of “ND” in the <ProductCode.Qualifier> field.
   c) The NDC populated is defined as a representative NDC per the compendium.

3) **Drug Identifiers – RXNORM**
   a) A valid EPN is sent as outlined in the Drug Description section above
   b) An 11-digit NDC which is associated with the EPN is populated in the <ProductCode.Code> field with a valid qualifier of “ND” in the <ProductCode.Qualifier> field.
   c) RxCUI and Term Type are populated in the <DrugDBCode.Code> and <DrugDBCode.Qualfiier> fields, respectively.
   d) RxCUI aligns with EPN based on compendium data.
   e) Term Type aligns with the RXCUI based on compendium data.
   f) RxCUI and Term Type includes correct brand or generic distinction.

4) **Quantity Unit of Measure (QUOM)**
   a) A valid National Cancer Institute Thesaurus (NCIt) code is included in the <QuantityUnitOfMeasure.Code> field.
   b) The NCIt code aligns to the compendia recommended QUOM based on the NDC sent

5) **Structured & Codified SIG**
   a) <SNOMEDVersion> field is populated with a valid SNOMED code set version in the NCPDP recommended format of CCYYMMDD
   b) <DoseDeliveryMethod.Code> and/or <RouteOfAdministration.Code> fields are populated.
   c) All SNOMED and FMT codes included in the SIG segment are active and exist in their respective code sets.
   d) Of all Structured and Codified SIG’s sent, the number of which contain all valid codes over the given timeframe must be greater than or equal to 90% in order to receive any points.

6) **Rare SIG**
   a) SIG string sent is used at least 4 times in a sample of 2,000,000 randomly selected prescriptions
   b) Measures the percentage of prescriptions which were sent using a rare SIG.

7) **Days Supply**
   a) Days Supply is populated in the <DaysSupply> field in a NewRx for an opioid medication.
   b) Days Supply is successful when the stated days supply is an accurate reflection of the calculated days supply using the patient directions and written quantity.
      i) Surescripts calculated day supply is rounded down to the nearest whole number
   c) If Surescripts is unable to calculate the Days Supply, the NewRx will be excluded from the measure.

Adoption Acceleration

8) **RxChange Enablement**
   a) Measures the number of active providers enabled for RxChange divided by the number of active providers enabled for RxRenewal.
   b) Active provider is defined by:
      - Having a valid SPI13 in the Surescripts directory.
      - Having sent a valid NewRx or RxRenewal Response transaction in the past 30 days.

9) **RxChange Response Rate**
   a) Valid RxChange Response is sent as a response to a valid RxChange Request.
   b) RxChange Response is not an automatic response.
   c) Measures number of RxChange Responses as a percentage of total valid RxChange Requests received.

10) **RxChange Response Time**
   a) RxChange Response sent in response to a RxChange Request within 48 hours of receiving the request.
   b) Measures percentage of RxChange Responses sent within 48 hours of receiving the RxChange Request.

11) **CancelRx**
   a) Valid CancelRx transaction sent.
   b) Measures count of CancelRx transactions as a percentage of total NewRx transactions.

12) **Electronic Prescription for Controlled Substances (EPCS)**
   a) NewRx transaction for a controlled substance sent using EPCS.
   b) Measures count of EPCS transactions as a percentage of total NewRx transactions.

Process Improvements

13) **Note Free Rate**
   a) NewRx transaction sent without information included in the note field.
   b) Measures the percentage of all NewRX for which the note field is ‘null’. (higher is better)

14) **Appropriate Use of Note – Benefits**
   a) The note field does not contain 2 or more of the following terms: BIN, PCN, GRP, Group, Coupon.

15) **Appropriate Use of Note – Diagnosis**
   a) The note field does not contain 2 or more of the following terms: ICD, DX, E10, E11, 250, J44, J45, Diagnosis

16) Diagnosis Code Populated

a) Diagnosis-Primary Code is populated with a valid ICD-10 code
b) Diagnosis-Primary Qualifier is populated with “ABF”
c) Measures percentage of all NewRx which have an ICD-10 code populated

17) Duplicate Messages

a) A NewRx will be considered a duplicate if it contains the same values in all the following data elements and is sent within 24 hours (one calendar day) of the first NewRx containing said data elements:
    - Prescriber Account ID
    - Pharmacy Account ID
    - Prescriber NPI
    - Pharmacy NCPDPID
    - Patient Date of Birth
    - Patient First Name
    - Patient Last Name
    - Patient Middle Name
    - Patient Zip Code
    - Patient Gender
    - Drug Description
    - NDC
    - Strength
    - Sig Text
    - Quantity
    - Quantity Unit of Measure
    - Refill Quantity
    - Note
    - Substitution Code
    - Days Supply
    - Written Date
    - Start Date
    - Expiration Date
b) NewRx will not be flagged as a duplicate if the original NewRX is cancelled using a valid CancelRx message prior to the duplicate being sent, or if the original NewRx resulted in an error.

Directory Integrity

18) Directory

Scores based on Provider Elements in NewRx message content against Directory SPI record

a) Provider End User First Name – The value communicated in the prescriber first name field is an exact string match to Directory SPI record.
b) Provider End User Last Name – The value communicated in the prescriber last name field is an exact string match to Directory SPI record.

c) National Provider Identification (NPI) – The value entered into the prescriber NPI field is an exact string match to what is entered in the Directory SPI record.
d) Drug Enforcement Agency (DEA) – First 9 characters match the Directory SPI record (hyphenated extension is ignored).
    i) When DEA is not populated in the Directory record but included in the message content, the value is considered a match.
    ii) When DEA is not populated in the NewRx transaction, the NewRX transaction is excluded from DEA validation.
e) Address Line 1 – Exact string match to Directory SPI record; Does not use Address Line 2 information (e.g., floor, suite, etc.) unless it is a part of the Address Line 1 string.
f) Phone – The primary phone number provided is an exact string match to the Directory SPI record.
g) Fax – The fax number provided is an exact string match to the Directory SPI record. When the fax number is not populated in the message content, the value is considered a match.
h) Clinic Name – The clinic name provided is an exact string match to the Directory SPI record.

Scores based on Provider Elements in Directory SPI Record against the National Plan and Provider Enumeration System (NPPES) Directory on the last day of the time period being measured.

a) NPI in NPPES – The Directory NPI value must be found and classified as an Individual NPI entity type
b) First and Last Name in NPPES – The Provider's First Name OR Last Name must be found, and exact string matched against the NPPES field elements.

APPENDIX C

Success Criteria for Pharmacy Performance Optimization Program Metrics

Prescription Accuracy

1) **Drug Description**
   a) Drug description is an exact string match to an E-Prescribing Drug Name (EPN) as published by a commercial compendium source.
   b) A reference drug name (may be optionally included) is sourced from a commercial compendium source and included in parenthesis after the EPN.

2) **Drug Identifiers – Representative NDC**
   a) A valid EPN is sent as outlined in the Drug Description section above.
   b) An 11-digit NDC is populated in the <ProductCode.Code> field with a valid qualifier of “ND” in the <ProductCode.Qualifier> field.
   c) The NDC populated is defined as a representative NDC per the compendium.

3) **Drug Identifiers – RXNORM**
   a) A valid EPN is sent as outlined in the Drug Description section above
   b) An 11-digit NDC which is associated with the EPN is populated in the <ProductCode.Code> field with a valid qualifier of “ND” in the <ProductCode.Qualifier> field.
   c) RxCUI and Term Type are populated in the <DrugDBCode.Code> and <DrugDBCode.Qualfiier> fields, respectively.
   d) RxCUI aligns with EPN based on compendium data.
   e) Term Type aligns with the RXCUI based on compendium data.
   f) RxCUI and Term Type includes correct brand or generic distinction.

4) **Quantity Unit of Measure (QUOM)**
   a) A valid National Cancer Institute Thesaurus (NCIt) code is included in the <QuantityUnitOfMeasure.Code> field.
   b) The NCIt code aligns to the compendia recommended QUOM based on the NDC sent

5) **Structured & Codified SIG**
   a) <SNOMEDVersion> field is populated with a valid SNOMED code set version in the NCPDP recommended format of CCYYMMDD
   b) <DoseDeliveryMethod.Code> and/or <RouteOfAdministration.Code> fields are populated.
   c) All SNOMED and FMT codes included in the SIG segment are active and exist in their respective code sets.
   d) Of all Structured and Codified SIG’s sent, the number of which contain all valid codes over the given timeframe must be greater than or equal to 90% in order to receive any points.

6) **Rare SIG**
   a) SIG string sent is used at least 4 times in a sample of 1,000,000 RxRenewal Requests
   b) Measures the percentage of prescriptions which were sent using a rare SIG.

7) **Diagnosis Code Populated**
   a) Diagnosis-Primary Code is populated with a valid ICD-10 code
   b) Diagnosis-Primary Qualifier is populated with “ABF”
   c) Measures percentage of all RxRenewal Requests which have an ICD-10 code populated

8) **RTMID Population**
   a) Measures the percentage of RxRenewal Request messages which have a “Relates to Message ID” populated.

9) **PON Population**
   a) Measures the percentage of RxRenewal Request messages which have the “Prescriber Order Number” populated.

Adoption Acceleration

10) **RxChange Enablement**
   a) Measures the total number of pharmacy locations enabled for RxChange divided by the total number of active pharmacy locations.

11) **RxChange Active Pharmacies**
   a) Measures the total number of pharmacy locations sending RxChange Requests divided by the total number of active pharmacy locations.

12) **CancelRx Enablement**
   a) Measures the total number of pharmacy locations enabled for CancelRx divided by the total number of active pharmacy locations.

13) **CancelRx Response Rate**
   a) CancelRx Response issued in response to an incoming CancelRx transaction.
   b) Measures the overall response rate to incoming CancelRx messages.

Directory Integrity

14) **Directory**

Scores based on Pharmacy Elements in RxRenewal Request message content against Directory Pharmacy record

   a) Pharmacy Address Line 1 – The value communicated in the RxRenewal Request is an exact string match to the Directory Pharmacy record.

b) Pharmacy City – The value communicated in the RxRenewal Request is an exact string match to the Directory Pharmacy record.
c) Pharmacy State - The value communicated in the RxRenewal Request is an exact string match to the Directory Pharmacy record.
d) Pharmacy Store Name – The value communicated in the RxRenewal Request is an exact string match to the Directory Pharmacy record.
e) Pharmacy Postal Code – The value communicated in the RxRenewal Request is an exact string match to the Directory Pharmacy record.