E-Prescribing Quality Guidelines

Version 2.2

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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 clinicians to accurately and efficiently communicate prescribed patient drug therapy to dispensing pharmacies while minimizing or eliminating many common sources of medication errors. The ultimate goal of e-prescribing is the efficient transmission and receipt of complete, accurate and unambiguous prescription orders that optimize pharmacy processing and fulfillment, thereby eliminating disruptions in workflow 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 realized.[1]

Surescripts is committed to ensuring the complete benefits of e-prescribing are realized by all stakeholders. To achieve this goal, the Surescripts Clinical Quality Management Program embraces a philosophy of continuous quality improvement (CQI) to help incrementally improve the e-prescribing process and related outcomes.[2] 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 and electronic health record (EHR) technology partners with guidance regarding key principles and best practices to consider when initiating and transmitting electronic prescription orders. Community pharmacists will also find this document to be a useful resource in the education of staff and local prescribers. 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 Prescription Routing Implementation Guides. These guidelines address e-prescribing as a whole and may reiterate network requirements, as well as introduce recommendations and best practices.

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

[2] Dhavle AA, et al. Am J Med Qual. 2014 Dec 11. pii: 1062860614562948

2   PRESCRIPTION CONTENT: DEMOGRAPHICS

Accurate and interpretable demographic information is essential for high-quality e-prescribing. The National Council for Prescription Drug Programs* (NCPDP) SCRIPT standard contains a Patient segment that allows prescribers to identify the patient for whom the e-prescription is intended. Data fields in the Patient segment include:

- Patient name (includes first, middle and last names, suffix and prefix in discrete fields)
- Date of birth
- Patient gender
- Patient identification numbers
- Address (includes two elements for street address, and city, state and zip code)
- Communication numbers
- Relationship to cardholder

In addition to patient information, the e-prescription should also include accurate prescriber information identifying where the prescription was written and by whom. The following communication of prescriber information is mandatory within the e-prescription message:

- Prescriber name (includes first, middle and last names in separate fields)
- Suffix or prefix
- Address of practice (includes elements for street address, city, state and zip code)
- Clinic name
- Communication number(s)
- E-prescribing network ID (e.g. Surescripts provider ID (SPI))
- Prescriber identification numbers (e.g. NPI, Medicare number, etc.)
- Some identification numbers may be required by law or regulation such as DEA registration number or state license number
- Supervisor or prescriber agent identity

In addition to communicating prescriber information, the designated pharmacy information should be sent within the Pharmacy segment, which includes the following fields:

- Pharmacy/store name
- Address (includes elements for street address, city, state and zip code)
- Communication number(s). The addition of up to three pharmacy communication numbers, with qualifiers, is permitted
- Pharmacy identification numbers (e.g. NCPDP ID, NPI, etc.)

*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 10.6. For more information about NCPDP, please visit: https://www.ncpdp.org/

2.1 GUIDELINE: Patient Name

The patient's complete legal name should be sent in all e-prescriptions issued by the prescriber and shall, at minimum, include the patient's first and last name in the <FirstName>* and <LastName> fields. If a middle name is available, it should be sent 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 medication.

2.2 GUIDELINE: Patient Address

The patient's complete address should be sent in e-prescription(s) issued by the prescriber. <AddressLine1> shall not contain a P.O. Box or other non-physical address.

Clinical Relevance/Rationale

It is not uncommon for a pharmacy to have multiple patients with identical or similar names and dates of birth. For this reason, pharmacies sometimes use the address sent in the e-prescription to confirm accurate matching of the received prescription with the correct patient in the system(s). Therefore, it is imperative that the patient's complete address be sent within the e-prescription message 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.

2.3 GUIDELINE: Patient Primary Contact Phone Number

When available, the patient's primary contact phone number should be sent in the <CommunicationNumber> field.

Clinical Relevance/Rationale

Pharmacies frequently need to contact patients via phone regarding prescriptions. With the inclusion of a patient's primary phone number in the e-prescription, the pharmacy is better able to expeditiously communicate with the patient if he or she is not present at the pharmacy. In addition, many pharmacies send refill reminders or other alerts via phone or short messaging service (SMS), which further establishes the importance of having a means to contact the patient via phone.

> *For illustrative purposes, this document contains references to Extensible Markup Language (XML) element names, but it is not intended to represent this as the only allowable message format.

2.4   GUIDELINE: Pharmacy Address

Pharmacy information should be displayed to prescribers as it exists within the Surescripts Directory.

Best Practices

For Technology Partners:

- Allow the prescriber to search pharmacies in the area by pharmacy name, phone number and/or zip code. Restrict the search to specific geographic boundaries or locations to avoid misrouting of e-prescriptions, except in the case of transmitting e-prescriptions to mail-order pharmacies.

- Pre-populate the pharmacy information fields with the patient's preferred pharmacy, as provided by the patient. If the pharmacy or prescriber are able to rename pharmacies within the system(s), the system must be able to allow accurate mapping (i.e. matching) of the pharmacy or prescriber-chosen name to the official directory name to prevent misrouting of the e-prescription; The official pharmacy name, as provided in the Surescripts directory, must be used in the transaction.

- Ensure the Surescripts Directory database is updated regularly (within 24 hours) with accurate and up-to-date information.

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. The new location/record should be matched to the patient record.

2.5   GUIDELINE: Prescriber Information Must Match the Surescripts Directory

All elements of prescriber demographic information sent, such as <ClinicName>, <Name>, <Address>, etc.,   should be the same content recorded in the Surescripts Directory for the prescriber SPI record.

Best Practices

For Technology Partners:

Certify that prescribers are registered in the Surescripts Directory and that the same information is used in both content and formatting when transmitting e-prescriptions. Develop processes and procedures to ensure this information remains current and in alignment among internal databases, as it   may change over time. The prescriber identity fields within the e-prescription interface should be pre-populated when the prescriber signs into the system.

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. Any changes or updates to the prescriber's e-prescribing/registration information should be communicated to the system vendor as soon as practical (preferably 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.

3   PRESCRIPTION CONTENT: DRUG INFORMATION

3.1 Drug Description

The drug segment of the SCRIPT standard allows up to 105 characters within the <DrugDescription> field. The drug description shall contain 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.

3.1.1 GUIDELINE: Use the E-Prescribing Drug Name

The content of the <DrugDescription> field should only include an E-Prescribing Drug Name (EPN) as published by a commercial compendium source. If the commercial compendium does not have the specific drug description available, then the RxNorm prescribable name (PSN) should be used. *

*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 3.1.2.1 through 3.1.1.10 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:

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

For Prescribers:

- Drug descriptions should be entered only into the designated <DrugDescription> field. Drug descriptions should NOT be 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 at the pharmacy during prescription fulfillment and may introduce risks to patient health and safety. If the pharmacy's system is unable to recognize the drug description, the system may not be able to accurately prepopulate fields within the pharmacy's prescription processing application.

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

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

The following sections detail recommendations on an optimal e-Prescribing Drug Name (EPN). These recommendations are not meant to replace your drug compendium's EPN.

3.1.3 GUIDELINE: E-Prescribing Drug Name Sequence

At a minimum, the EPN should include the product name, strength, strength unit and dosage form. The EPN should be 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 3.1.2.8 and 3.1.2.10 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."

3.1.4 GUIDELINE: Use of Punctuation

Limit the 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, commas should be used 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."

- The forward slash should be used 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."

- A space should be used between numbers and the units to which they refer. Use "simvastatin 80 mg tablet" instead of "simvastatin 80mg tablet."

3.1.5 GUIDELINE: Multiple Salts

When there are multiple drug formulations with different salts, the specific salt name should be included in the drug description. When sending the salt, it should follow 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, the salt name should be spelled out in its entirety.

Examples

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

- Use "Metopropol tartrate 50 mg tablet" instead of "Metopropol 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.

3.1.6 GUIDELINE: Brand & Generic Names

There should be only one concept communicated 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, only use the proprietary "brand" name.

Examples

- Use "ProAir 90 mcg/actuation solution for inhalation" instead of "albuterol (ProAir, Ventolin HFA) 90 mcg/actuation."
- Use "Harvoni 90-400 mg tablet" instead of "ledipasavir-sofosbuvir (Harvoni) 90-400 mg tablet" or " ledipasavir-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.

3.1.7 GUIDELINE: Dosage Strength Values

Dosage strength should only consist of 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.

3.1.8 GUIDELINE: Dosage Strength Units

Dosage strength units should 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 should be metric measurements of weight and/or volume. Apothecary and avoirdupois systems of weight and volume units are not to be used. Units of measure should not be abbreviated, except in the case of USP standard abbreviations for dosage units, which are listed below:

m (lower case) = meter

kg = kilogram

g = gram

mg = milligram

mcg* = microgram (do not use the Greek letter µ as µg which has been misread as mg)

L (upper case) = liter

mL* (lower/upper case) = milliliter (do not use cc which has been misread as U or the number 4)

mEq = milliequivalent mmol = millimole

These abbreviations are also recommended by ISMP.*

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*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."

3.1.9 GUIDELINE: Dosage Strengths for Active Ingredients

Dosage strength(s) of each active ingredient should be provided for drugs with three or fewer active ingredients and should be grouped 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, prescriptions for controlled substances, particularly narcotic combinations, must include the dose strengths of all active ingredients. Oral contraceptive dosage strengths (for estrogen, progestin and iron) should be included 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.

3.1.10 GUIDELINE: Include Route of Administration

The route of administration should be included for all e-prescriptions, but is of critical importance in cases when the drug name and strength combination can be administered via different routes.

Best Practices

- The identified dosage route should be specific and not abbreviated.
- The route should be listed 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 should 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.

3.1.11 GUIDELINE: Use the Complete Dosage Form

The complete dosage form should be included for all medications. The dosage form should indicate 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

- The dosage form should not be abbreviated, 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; the type of release should be specified 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, should be used in conjunction with a more specific indicator (e.g. "24 hour extended-release") or not used 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.

3.1.12 GUIDELINE: Include Drug Delivery Mechanism or Device

When a drug is available in multiple variants of the same dosage strength and dosage form, the drug delivery mechanism or device should be communicated in conjunction with either the drug name or the dosage form. The drug name and/or dosage form should not be modified or eliminated 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 OptiClik Cartridge 100 units/mL subcutaneous solution" *or* "Lantus 100 units/mL subcutaneous solution OptiClik."

- "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 calls to prescribers for further clarification and the risk of erroneously dispensing unintended drug forms.

3.2 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 v10.6 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 must be included for all e-prescriptions (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.

The NDC must semantically match 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.

NEWRXDescription	Example of a representative NDC	Example of what **not** to send		
		NDC	NDCdescription	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

3.1.13 GUIDELINE: Representative NDC Should Include Brand and Generic Distinctions

A representative NDC should denote 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 should include a brand or generic distinction.

Example

A prescriber selects amoxicillin 500 mg oral capsules to be ordered. The drug identifier that the prescriber's system transmits should be representative of a generic product, such as NDC 63304076282. It would be inappropriate to transmit a representative NDC for the brand Amoxil 500 mg oral capsules.

3.1.14 GUIDELINE: Use RxNorm RxCUI Values and Term Types

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

Example

A prescriber selects amoxicillin 500 mg oral capsules to be ordered; the drug identifiers that the prescriber's system transmits should include both the RXCUI and Term Type, which should be representative of the generic product, RxCUI: 308191 and Term Type: SCD, respectively. When sending a drug description for amoxicillin, it would be inappropriate to transmit a RXCUI and Term Type for the brand Amoxil 500 mg oral capsules as RxCUI: 200988 and Term Type: SBD.

3.1.15 GUIDELINE: Drug Description Must Match the Drug Identifier

The drug identifier is used in conjunction with the drug description and should conceptually match the product written in that field. The EPN makes a clear brand/generic distinction, thus the representative NDC or RxNorm CUI and Term Type must also match (i.e. if the drug description is for a brand-name product, the NDC and/or the RxNorm RxCUI and Term Type must 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 60793085301, 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 Levothyroxine Sodium 0.088 mg oral tablet [Levoxyl].

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 should 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 prescribers to using only pre-formatted drug description strings provided by the e-prescribing application.

- If the application allows the prescriber to modify any part of the pre-formatted drug description, then a system check should be employed 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.

4   PRESCRIPTION CONTENT: PATIENT DIRECTIONS (SIG)

Patient directions, a set of medication instructions for the patient, can be communicated in two ways using the current NCPDP SCRIPT v10.6 standard via the <Directions> field or the more robust <StructuredSig> segment within the <MedicationPrescribed> segment. In the majority of cases, the patient directions (Sig) of an e-prescription 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 an e-prescription 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.[3]

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.

Prescribers should not expect the receiving system to 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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3 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/

4.1 GUIDELINE: Use Structured and Codified Sig

Patient directions should always be sent 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 commonly prescribed Sig concepts and make sure the system can fully accommodate the construction and transmission of these Sig strings. System enhancements should also be developed to accommodate the codification of less frequently used Sigs.

- The complete string within <Directions> should be displayed to the prescriber prior to the e-prescription being transmitted and it should semantically match the information in the <SigFreeText> field of the Structured and Codified Sig segment.

- The string in the <SigFreeText> field should correspond with the discrete codes in the Structured and Codified Sig segment. For example, the text in the <SigFreeText> field should not convey "by mouth" when the route of administration code is for "subcutaneous."

- Route of administration should always be sent for medications.

- Ensure the 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. Otherwise, the version used should be specified in the <SNOMEDVersion> element using the date format CCYYMMDD.

Clinical Relevance/Rationale

Adoption of Structured and Codified Sig minimizes ambiguity and assists in the standardization of Sigs. 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 should 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.

4.2 GUIDELINE: Directions Must be Complete and Accurate

All information in the patient directions should be 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 are directions which simply state "Take/use as directed/instructed." See guideline 4.4: Qualify "Take as Directed."

Example

Use "Take 1 tablet by mouth daily" instead of just "Daily."

Best Practices

For Technology Partners:

- Implement a Sig-builder tool to help prescribers construct complete directions. The Sig-builder tool should be able to accommodate complex patient instructions. Comprehensive usability testing with prescribers must be completed prior to implementation of the system to ensure that the Sig-builder can adequately represent complex strings. There will be a limited number of instructions that even a complex Sig-builder cannot accommodate. In these cases, prescribers should be allowed to enter free-text patient instructions, which should then be appended to the formatted Sig.
- If the prescriber is unable to convey the complete and accurate instructions with appended free-text, the prescriber should be allowed to disable the Sig-builder and write an entirely free-text Sig.
- To improve efficiency, allow prescribers 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.

4.3 GUIDELINE: Send an Indication

Including an indication in patient directions is not required, but strongly recommended. The indication is a statement of the reason or therapeutic objective for the prescribed medication. The use of "PRN" (i.e. "as needed") should only be used in conjunction with an indication or intended therapeutic objective.

Note: The use of an indication should **not** replace the use of the <Diagnosis> segment, which should remain separate and 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 prescribers to enter the specific indication or conditions for PRN use if the prescriber selects a PRN frequency.

For Prescribers:

- The indication should be entered 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.

4.4 GUIDELINE: Qualify "Take as Directed"

The use of statements such as "Take as directed" and "Use as instructed" should only be used when followed by a qualifier that clearly dictates where or from whom the patient can obtain the specific directions. It should be included as part of a complete set of patient 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 prescribers to enter the specific source of the instruction after selecting the "Take/use as directed/instructed" option before they can finalize the e-prescription.
- Ensure the Sig-builder tool requires a specific indication or condition to be entered if "PRN" is selected by the prescriber.

For Prescribers:

- The use of these statements should be limited 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.
- If the patient directions include PRN, make sure the explicit conditions or indications for when the drug is to be used are communicated clearly.
- Ensure that only patient directions are written in the <Directions> field; any information for the pharmacist regarding medication dispensing or counseling should be reserved for the <Note> field.

Clinical Relevance/Rationale

Using a Sig such as "Take as directed" without referencing the source of the instructions, may cause a patient to become confused about the medication dosage, route or frequency. Such vague instructions can lead to a patient-safety risk due to incorrect and unsafe medication usage.

4.5 GUIDELINE: Specify Duration of Therapy for Acute Treatments

Duration of therapy should only be specified for medications with a defined length of therapy (e.g. antibiotics).

Examples

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) instead of "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 listed for a chronic medication may be misinterpreted as a limit and may create a risk to patient safety if the patient believes he or she must stop the medication at the end of the specified therapy duration.

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.

4.6 GUIDELINE: Avoid Abbreviations, Acronyms or Symbols

The use of all abbreviations (including Latin), acronyms and symbols should be avoided when communicating patient instructions. Most terms should be spelled 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 should never be used in any part of an e-prescription.[4]

Examples

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

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

Best Practices

For Technology Partners:

If the use of Latin abbreviations is desired, the system should include the ability to expand Latin abbreviations into plain English text via keystroke accelerators. The expanded text form of the patient directions must be displayed to the prescriber to ensure an accurate transition from abbreviations to full text.

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.

4.7 GUIDELINE: Never Truncate or Split Directions

Patient directions should never be truncated, as important information may be lost. If patient directions are being transmitted in an unstructured way using the Drug segment and they exceed the 140-character limit, they should be communicated by other means, such as by faxing the information to the pharmacy or printing out and providing the instructions to the patient. Patient directions should not be written in the <Note> field if they exceed the 140-character limit.

Best Practices

For Technology Partners:

- Develop applications to detect the character count of the <Directions> field and warn prescribers when the count nears or exceeds 140. Consider replacing directions that exceed 140 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 140 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 his or her 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.

4.8 GUIDELINE: Contain Only Patient Directions

The <Directions> field should not contain information for which another designated field exists in the SCRIPT standard (e.g. the patient directions should 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 should be entered in the <Directions> field to optimize the benefits from the decision support tools as well as improve the overall quality of the e-prescription.

4.9 GUIDELINE: Clear and Concise Directions

Information should not be unnecessarily repeated in the <Directions> field nor should information be included that conflicts with any other field of the e-prescription.

Example:

- Use "Take 1 tablet by mouth once daily" instead of "1 PO QD - take 1 tab orally 1x per day."
- 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."

Best Practices

For Technology Partners:

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

Clinical Relevance/Rationale

If the pharmacy receives patient instructions that are vague, ambiguous or in conflict with information elsewhere in the e-prescription, 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.

5 PRESCRIPTION CONTENT: NOTES

The NCPDP SCRIPT v10.6 allows the transmission of the optional 210-character free-text <Note> field. The <Note> field is intended to allow prescribers the option of including additional patient-specific information that is relevant to the prescription, but for which a dedicated field does not currently exist in the standard.

5.1 GUIDELINE: Appropriate Use of Notes

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

Information that may be transmitted through the <Note> field includes, but is not limited to:

- Prescription pick-up times
- Instructions to place a prescription on hold/file
- Patient-preferred language or labeling instructions
- Medication flavoring requests
- Number of prescriptions in batch
- Mail order bridge, vacation, lost, stolen, replacement supply
- Instruction to counsel patient on a specific side effect or interaction

Information that should **not** be transmitted through the <Note> field includes, but is not limited to:

- "DOB: 12-12-1900"
- "Prescribed by: Dr. XYZ NPI: 123456789"
- "DAW 1" or "OK to substitute"
- "Dispense 30 tablets"
- "Take as directed by AC Clinic"
- "Metoprolol Tartrate 50 mg oral tablet"
- "Dx: 401.9"
- Discount card or coupon information

Clinical Relevance/Rationale

The <Note> field of an e-prescription is intended to allow prescribers and pharmacists to communicate information that is relevant to the e-prescription, but is not contained in another designated field. Since the <Note> field is not automatically or systematically reviewed by the pharmacy dispensing system, it is crucial that all key prescription information be entered into the designated fields. This helps leverage e-prescribing technology and increase efficiency in the dispensing workflow.

5.2 GUIDELINE: Labeling of the <Note> Field

The <Note> field should be labeled as "Notes to the Pharmacist" or "Pharmacist Notes" to clearly convey the purpose of the field, and should be presented or displayed 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. [5]

- Provide default selections for commonly written notes to help prescribers save time and standardize such notes (e.g. "place a prescription on hold," "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's not needed.

Clinical Relevance/Rationale

Use of the free-text <Note> field by prescribers is often unnecessary and/or inappropriate. Prescribers should be instructed 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.

5.3 GUIDELINE: Distinction between Directions and Notes

The <Note> field should be free of any and all patient directions. Patient directions must ONLY be written in the <Directions> field or Structured and Codified Sig segment.

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."

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

Best Practices

For Technology Partners:

- To reduce the likelihood a prescriber 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 prescriber 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 him or her 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 (<Directions> 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.

5.4 GUIDELINE: Programmed Insertion of Information into <Note> Field

Information should not be automatically inserted into the <Note> field of a new electronic prescription.

Best Practices

For Technology Partners:

Ensure that default information is consistently applied to the designated field. For example, any patient benefit or pharmacy discount card information should be transmitted 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.

6   PRESCRIPTION CONTENT: QUANTITY & POTENCY UNIT CODE

An e-prescription message requires prescribers to communicate the specific quantity of the prescribed product to be dispensed, along with its corresponding qualifier. The current NCPDPD SCRIPT v10.6 Standard uses the <PotencyUnitCode> 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.[6]

6.1   GUIDELINE: Accuracy of the Quantity and its Corresponding Qualifier

A correct, numerical value should be entered in the <Quantity> field. This value should not conflict with the information entered in the <DaysSupply> and <Directions> fields. Furthermore, the Quantity Unit of Measure value entered in the <PotencyUnitCode> field must appropriately qualify the quantity entered and be 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 should be "100" and "C28254 (Milliliter)" instead of "100" and "C48542 (tablets)" or "C48477 (bottles)."
- 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

- The drug compendia should 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, the prescription metric decimal quantity options displayed to the prescriber should 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).
- The quantity and Quantity Unit of Measure description along with the package information should be provided to EHR systems and displayed to the prescriber to help guide his or her selection.
- The drug compendia should create such specific guidance as described in the above bullets for e-prescribing system vendors to facilitate the integration of their products in e-prescription messaging.

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6 NCPDP Terminology Files. (2015, July 1). Retrieved August 12, 2015, from http://evs.nci.nih.gov/ftp1/NCPDP/About.html

For Technology Partners:

- Once the prescriber has identified the specific drug and drug dosage being prescribed, the system should display 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 potency unit codes.

6.2 GUIDELINE: Avoiding the Use of the Code for "Unspecified"

When available, the most specific metric potency unit code should be used to qualify the dispense quantity of the prescribed product. The Potency Unit Code (PUC) value of "C38046 (Unspecified)" should not be used, except for translation purposes 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 Potency Unit Code of "C28254 (Milliliter)," instead of a quantity of "1" and Potency Unit 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.

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

When available, the most specific metric potency unit code should be used to qualify the dispense quantity of the prescribed product. The potency unit 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 Potency Unit Code of "C28254 (Milliliter)," instead of a quantity of "1" and Potency Unit 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 Potency Unit 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 Potency Unit Codes that should be used at all times with the appropriate quantity values. For test strips, use a quantity of "100" and Potency Unit Code of "C48538 (Strips)."

NCPDP Preferred Term	NClt Code
Strip	C48538
Lancet	C120263
Pen Needle	C120216
Device	C16830

Clinical Relevance/Rationale

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

- Patient safety: The patient must receive 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.

7   PRESCRIPTION CONTENT: DAYS SUPPLY

7.1 GUIDELINE: Correct Numerical Value Entered for Days Supply

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

"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**") should convey 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 should convey the length of time a single fill of the prescription should 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:

- The system should guide prescribers 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.
- Implement a clinical decision-support tool to prevent erroneous Days Supply values from being sent in the e-prescription.
- 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. The field should not be sent.

For Prescribers:

- Days Supply should be omitted from an e-prescription if the dose form is ambiguous for a medication such as a gel, cream or ointment. Days Supply should only be sent in these cases if there is a specific dose of measurable quantity, such as separated gel packs.
- If needed, the free-text <Note> field may be used to provide further information regarding the Days Supply; it should 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.

8 PRESCRIPTION CONTENT: WRITTEN DATE AND EFFECTIVE DATE

8.1 GUIDELINE: Written Date Should be the Date Transmitted

In most cases, the value in the <WrittenDate> field should be exactly the same as the date the message was transmitted. There may be instances where the Written Date precedes the transmitted date, however the Written Date must not precede the transmitted date by more than three days and must never be after the transmitted date.

8.2 GUIDELINE: Effective Date Used as Earliest Fill Date

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 should **never** 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 should be populated to clearly communicate this intent.

<WrittenDate>

<Date>2015-08-01</Date>

</WrittenDate>

<EffectiveDate>

<Date>2015-09-01</Date>

</EffectiveDate>

9   PRESCRIPTION CONTENT: DIAGNOSIS

The NCPDP SCRIPT v10.6 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.

9.1   GUIDELINE: Inclusion of Diagnosis

A diagnosis code (ICD-9 or ICD-10) should be sent in every e-prescription message. When sending the primary diagnosis, use the <Primary.Value> field. When sending a secondary diagnosis, use the <Secondary.Value> field.

Example

Drug Description: Divalproex sodium 500 mg extended release oral tablet Directions: Take 1 tablet by mouth daily

Quantity: 30 tablets

Diagnosis Code: 346.03 (Chronic Migraine with Aura with intractable migraine, so stated with migrainosus)

Best Practices

For Technology Partners:

- Require all e-prescriptions to be associated with a diagnosis code prior to transmission.
- Develop practical workflows for prescribers that allow diagnosis codes to be associated with e-prescriptions.
- When receiving diagnosis code(s), the application should display 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.

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 pharmacists validate the e-prescription's purpose. This can improve patient counseling and help pharmacists identify opportunities to optimize patient care.

9.2 GUIDELINE: Diagnosis Codes

The diagnosis code should be communicated without the decimal (ICD-9 and ICD-10) and should always be accompanied by the appropriate qualifier code in the <Primary.Qualifier> or <Secondary.Qualifier> fields.

Example

ICD-9: Diagnosis Code: 25011, Qualifier: DX ICD-10: Diagnosis Code: S93401, Qualifier: ABF Note: ICD-9 or ICD-10 are not valid qualifiers.

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.

10 PRESCRIPTION CONTENT: OBSERVATION

While the inclusion of patient observation information (e.g. height, weight and blood pressure) is not required by NCPDP SCRIPT v10.6, the transmission of this information is supported through the Observation segment of an e-prescription.

10.1 GUIDELINE: Inclusion of Observation Information

Patient observation information (e.g. weight, height, systolic and diastolic blood pressures, along with the exact dates the values were measured), should be included 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. The e-prescription sent should therefore include 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:

- An e-prescribing system should be able to capture commonly documented clinical values in an EHR, such as height, weight and blood pressure, and alert the prescriber that the data will be populated within the e-prescription message. At a minimum, the height and weight should be transmitted when available.

- When receiving Observation data, the application should display this information in a meaningful manner.

For Prescribers:

- Prescribers should 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.

The observation information entered must be displayed in the pharmacy system upon receipt of the e-prescription. 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).

11 PRESCRIPTION CONTENT: SUBSTITUTIONS

As part of the Drug segment, the NCPDP SCRIPT v10.6 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 should be utilized for the communication of substitution authorization for each prescription.

11.1 GUIDELINE: Use of DAW Codes

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

Best Practices

For Technology Partners:

This field should default to "0" to indicate substitution is allowed, thus saving the prescriber time during order entry. The prescriber should have to actively select "1" to indicate a substitution is not allowed (i.e. Dispense as Written) if he or she chooses 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.

12 PRESCRIPTION CONTENT: REFILLS

The Refills element of an e-prescription allows for the prescriber to authorize additional refills to be dispensed after the initial quantity is used.

12.1 GUIDELINE: Integer Values for Refill Quantity

When sending a refill quantity, it should only be integer values.

Example

Use "Refills: 11" instead of "Refills: PRN."

Clinical Relevance/Rationale

PRN refills do not constitute a definitive indication of the prescriber's intent with respect to the duration of therapy and may subject the pharmacy to negative insurer audit results. Furthermore, some regulatory agencies such as the Federal Drug Enforcement Administration (DEA) prohibit the use of PRN refills as a valid indication of refill quantities on prescriptions for controlled substances. Last, PRN is not supported in future versions of NCPDP SCRIPT.

13 PRESCRIPTION CONENT: 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) within the Eligibility Response (271 transaction). This segment includes a means to communicate information such as:

- Insurer ID
- Cardholder ID
- Relationship to Cardholder
- Processor Control Number (PCN)
- BIN Number
- Rx Group Number
- Cardholder Name

In addition to the transmission of the Benefits Coordination (COO) segment, there is a PBM Unique Member ID that can be communicated in the Patient segment. This value is a unique number created by the PBM and assigned to a member to uniquely identify the beneficiary. The transmission of this identifier within the Patient segment is especially important when sending prescription messages to mail-order pharmacies, as it aids in operational efficiency and plan-holder identification during the prescription fulfillment process.

13.1 GUIDELINE: Inclusion of Insurance Information

The Benefits Coordination (COO segment) and Patient segment should be used 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 ASC X12 270/271 eligibility requests and responses into the Benefits Coordination and Patient segment in the e-prescription.
- If available, include the patient relationship to the cardholder in the Patient segment.
- Prescriber vendors would benefit from mapping the identified NCPDPID included in the 271 message to the end user for, as appropriate, mail order processing.

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.

14 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 prescriber workflow. It is important to develop mechanisms and implement procedures that ensure duplicate prescriptions are not transmitted, as duplicates have the potential to cause workflow problems for pharmacy operations and risks to patient safety.

14.1 GUIDELINE: Do Not Send Duplicate Messages

Prescribers should not send duplicate e-prescriptions that contain identical content within 24 hours (one calendar day) of sending the original e-prescription, unless the original e-prescription resulted in an error. It is recommended that the following data elements be used to determine whether the content is the same between multiple e-prescription messages, and therefore considered to be a duplicate content message (DCM):

- PrescriberAccountID
- PharmacyAccountID
- Prescriber_Identification_NPI
- Pharmacy_Identification_NCPDPID
- Patient_DateOfBirth
- Patient_Name_FirstName
- Patient_Name_LastName
- Patient_Name_MiddleName
- Patient_Address_ZipCode
- Patient_Gender
- MedicationPrescribed_DrugDescription
- MedicationPrescribed_DrugCoded.ProductCode
- MedicationPrescribed_DrugCoded.Strength
- MedicationPrescribed_Directions
- MedicationPrescribed_StructuredSig_SigFreeText
- MedicationPrescribed_Quantity_Value
- MedicationPrescribed_Quantity_PotencyUnitCode
- MedicationPrescribed_Refills_Quantity
- MedicationPrescribed_Refills_Qualifier
- MedicationPrescribed_Note
- MedicationPrescribed_Substitutions
- MedicationPrescribed_DaysSupply
- MedicationPrescribed_WrittenDate_DateTime
- MedicationPrescribed_EffectiveDate_DateTime
- MedicationPrescribed_ExpirationDate_DateTime
- MedicationPrescribed_DoNotFill

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 should not happen regularly.

Best Practices

For Technology Partners:

- Create an alert in the application notifying the prescriber 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 (e.g. description of 000 or 010). Also, consider implementing an acknowledgement requirement or hard-stop within the application to confirm the transmission of the duplicate e-prescription.

Clinical Relevance/Rationale

Sending duplicate e-prescriptions 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.

15 OPERATIONAL/PROCESS: DIRECTORIES

The e-prescribing network includes directories for both pharmacies and prescribers. All pharmacies and prescribers must be added to the Directory prior to transmitting e-prescription messages across the network. The information for each Directory must 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 must be communicated by prescribers in e-prescription messages and should be stored/catalogued by pharmacies upon receipt of messages.

The prescriber technology partner administrator must 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.

For Pharmacies

The NCPDP ID is used as the pharmacy's Surescripts routing number. The pharmacy technology partner administrator must 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.

15.1 GUIDELINES: Update and Maintain Directories

All network participants should update directory information on a daily basis, using the nightly "delta" file to apply updates to their respective, internal databases. Participants must complete a full update (or "true up") at least once per week and must 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.

16 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.

16.1 GUIDELINE: EPCS DEA NCIt Code

E-prescriptions for controlled substances should be sent with the appropriate DEA Schedule NCIt code as determined by the schedule of the medication within the \<DrugDescription\> field.

Best Practices

- Prescriber technology partners should 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 prior-to-transmission-checks should be performed 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, an NDC must be sent 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.

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

Prescriber demographic information transmitted to the pharmacy in a new prescription must match 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. This field must contain the complete product name, dosage strength and form in that exact sequence.

The drug description should only be entered into the designated <DrugDescription> field and should not be written in the <Note> field. 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, you will need to ask your e-prescribing/EMR vendor for assistance.

DOSAGE STRENGTH VALUES

Dosage strength should only consist of Arabic (decimal) numbers rather than Roman numerals or abbreviations such as "M" for thousands or millions. It should always have 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 them 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. <Directions> field, or

2. Structured and Codified <Sig> segment (a more robust series of fields within the <MedicationPrescribed> segment)

The Sig of an e-prescription provides details for the patient that may include 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 <Directions> field. Any information intended for the pharmacist regarding medication dispensing or counseling should be reserved for the <Note> (Notes to Pharmacy) field.

DIRECTIONS MUST BE COMPLETE AND ACCURATE

All information in the Sig must be clinically correct and complete. To ensure complete patient directions will be understood, the Sig must be constructed 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" should be limited to situations in which you are able to clearly reference a set of instructions provided to the patient and/or caretaker. The statement must be followed by 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. The indication should be entered 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 should not replace the use of the <Diagnosis> segment, which should remain separate and 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

Sig information should never be truncated because important information may be lost. If the patient directions are being transmitted in an unstructured way using the <Directions> (Sig) segment, and they exceed the 140-character limit, they should be communicated by other means.

Action: Sig information should NOT be written into the <Note> field if it exceeds the 140-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

Notes to the pharmacist should 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 or patient benefit information. Information in the notes should never conflict with any information entered in other fields of the e-prescription.

Information that **may** be transmitted in the <Note> field includes, but is not limited to:

- Prescription pick-up times
- Patient-preferred language or labeling instructions
- Medication flavoring requests
- Number of prescriptions in batch
- Mail order bridge, vacation, lost, stolen, replacement supply
- Change in therapy or increase/decrease in dose

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.

Information that should **not** be transmitted through the <Note> field includes, but is not limited to:

- DOB: 01-01-1974
- Prescribed by: Dr. Smith NPI: 000000009
- DAW 1, OK to substitute
- Dispense 30 tablets
- Take as directed by AC Clinic
- Metoprolol Tartrate 50 mg oral tablet
- Dx: 401.9
- Discount card or coupon information

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

The <Note> field should be free of any and all patient directions. Patient directions must only be written in the <Directions> 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	**Sig**: Take 1 tablet twice daily
Notes: Null	**Notes**: Take orally

Action: If you are not able to construct patient directions within your Sig-builder tool or Sig free-text (<Directions> 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 should 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:** Should convey the length of time a single fill of the prescription should last the patient as calculated using the dispensed quantity and the Sig.

- **Duration of Therapy:** Should 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 should 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 should 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: 346.92 (MIGRAINE, UNSPECIFIED, WITHOUT MENTION OF INTRACTABLE MIGRAINE WITH STATUS 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, should 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 should 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 should be used to communicate substitution authorization for each prescription and transmitted in the <Substitutions> field. This information should not be sent 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 should 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 should be 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.