

Why Standardized Codes to Capture Discontinued Medication Reasons are Needed

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1. INTRODUCTION

Medications are stopped by patients and their providers for various reasons. Collecting the reasons why medications are discontinued and recording them in a patient's medication history in a comprehensive, structured manner, however, is not always done. Multiple factors and possible barriers exist as to why discontinued medication reasons are not included in a patient's electronic health record (EHR). Among them are the lack of structured coding and terminology detailing such reasons. In order to collect and accurately report discontinued medication reasons as usable data into EHRs and electronic medical records (EMRs), there needs to be uniformity in the reporting codes and terminology developed and used.

Structured discontinued medication reasons are essential for creating a longitudinal medication history for each patient. A longitudinal medication history includes data fields such as drug name, strength, dosage form, dose, and directions for use collected and tracked sequentially from the same patient over time. Unlike a patient's traditional reconciled medication list that only shows current medications, a longitudinal medication history that provides discontinued medication reasons can show patterns of positive and negative medication experiences over time that can guide future treatment decisions based on the recorded effects of their past and present medications.

Using structured codes for collecting and recording discontinued medication reasons will benefit patients, health care professionals, and the health care system, especially as new drugs and therapies are incorporated into the patient's care. In the medication history, a patient's previous medication experiences are crucial for making the best therapy decisions advocating on the patient's behalf in payer utilization management programs. Documenting the patient's reasons for discontinued medications will aid in the prioritization, development, and implementation of structured codes and uniform terminology .

As this paper emphasizes, a critical need exists today for a structured system to collect and record discontinued medication reasons.

2. PURPOSE

Reviewing current standard clinical terminology (e.g., SNOMED CT (Systematized Nomenclature of Medicine Clinical Terms) and PHIT Value Sets) for discontinued medications reason, identifying missing terminology, and highlighting the importance and need for developing standardized nomenclature for discontinued medication reasons are the intent of this paper. For the purpose of this document, a provider is a person within a health discipline that provides care to a patient. This paper will provide guidance to the pharmacy profession and help other clinicians use these codes to achieve the quadruple aim of health care – better patient care experience, improved population health, lower total health care costs, and improved clinician well-being.¹

3. BACKGROUND

Medications may have been started and stopped by patients or their providers. Often what worked and what didn't work was only stored in the memory of these patients and providers. In more recent history, when a medication was discontinued, and if it was documented, it was buried in free text narrative notes by the provider or written in the patient's paper record. Unfortunately, the advent of EHRs has not changed this process much. Reasons for discontinuing medications are still being recorded in narrative notes, if they are recorded at all. Sorting through narrative notes to determine why patients stopped medications is not only time consuming, but the notes may not contain all of



the information necessary to determine why a medication was stopped. Some EHRs incorporate methods to capture discontinued medication reasons using non-narrative short phrases, though this also has several limitations.

Significant effort has been spent over the past decade ensuring that patients' medication lists are reconciled during transitions of care. As part of the medication reconciliation process, medications are often added, changed, or removed. While not captured universally today, reasons for removing medications from the list must be standardized discrete data fields and required as part of the medication reconciliation process.

To illustrate this point, if a patient had a past negative response or experience with a medication, retrying that same medication to satisfy utilization management (step therapy) may cause the patient unnecessary costs, suffering, delay in therapy, and other negative outcomes. On the other hand, if a patient previously had a positive response, restarting that same medication may provide a faster positive outcome and decrease health care costs. Having the reason for a negative or positive experience documented in the patient's electronic record, especially if the medication was discontinued, would be invaluable for tailoring future treatment regimens.

Multiple factors may be impeding consistent capture of discontinued medication reasons: the patient may not recall why the medication was stopped in the past; the provider may be unable to determine the reason based on available information; or the person completing the medication reconciliation does not have the process or tools to capture this information within the electronic record completely or efficiently. With the introduction of standardized codes into the EHR, it is possible to take a universal approach to capture the discontinued medication reason, thereby improving patient care.

4. DISCUSSION

A complete and accurate medication history that includes the patient's current medication list, with discontinued medications and the corresponding reasons for discontinuation, is crucial for optimal patient medication use and safety, improved clinician workflow, and productivity, and reduced health care costs. Recording discontinued medication reasons is critical for the tracking of successful completion of therapy and medication therapy problems, such as adverse drug events (ADEs) and ineffective therapy. Establishing a robust coding structure to capture the discontinued medication reason efficiently is vital to the patient's health care team. To ensure accuracy, it is important to capture the discontinued medication reason from those working with the patient as soon as the decision is made.

Discontinued medication reasons that capture a patient's ADE or poor outcome to a medication and are made available for use in prescribing decisions (e.g., a recurring urinary tract infection (UTI) resistant to an antibiotic) can improve health care outcomes. Patient adherence issues (e.g., dosage form issues), as they pertain to discontinued medication reasons, can be captured and addressed to improve medication outcomes. Positive medication use outcomes and successful treatment (e.g., antibiotic therapy was effective and completed successfully) can be identified and reported. Establishing a standardized, structured list of discontinued medication reasons will provide a clinician the information needed for appropriate clinical decision-making and care coordination for making optimal medication choices for an individual patient.²

Negative effects of medications in particular, such as ADEs, are responsible for nearly two million hospitalizations each year in the United States. Most of these events are preventable. The use of



discontinued medication reasons could help prevent ADEs.

According to 2019 data³, the U.S. spends \$3.8 trillion on health care; \$369.7 billion on prescription drugs, and dispenses over 4.6 billion (estimated) prescriptions annually.⁴ The use of structured discontinued medication reasons can lead to cost savings. Prescribing medications that do not result in successful outcomes can be costly in both direct and indirect costs. Patients may experience poor outcomes by retaking medications that did not work in the past, leading to increased spending on medications and managing ADEs. These poor outcomes may cause additional health care spending on rehospitalizations and other complications of uncontrolled chronic conditions. Structured discontinued medication reasons can also decrease the amount of time providers invest in managing medication orders.

Structured data is an essential element in the health care industry's mission to improve the patient's and health care professional's experience, improve population health, and lower costs. Codified information may also be helpful in clinical investigations and post-marketing surveillance. Industry wide, structured discontinued medication reasons reporting may identify previously unknown ADEs more quickly and effectively than current reporting methods. The effectiveness of a medication can be demonstrated by quantifying patients that discontinue a medication because of achieving a therapeutic goal (e.g., cancer in remission after chemotherapy) or a treatment failure.

Additionally, capturing discontinued medication reasons using structured data is important for the electronic exchange of data. As patients move through various transitions of care and health care teams, being able to share patients' health care data efficiently and accurately will be important. Having patients' medication histories with the associated discontinued medication reasons will enable this information to be readily shared with others for guiding future treatment decisions for patients.

This process of collecting and recording discontinued medication reasons was difficult with paper records and was rarely done. The increased use of EHRs and electronic medical records (EMR), with structured coding nomenclatures, makes a robust longitudinal medication history possible and will provide added value for patients, pharmacists, and other health care providers in managing drug regimens. With documentation using discrete data fields, information can be sorted, retrieved, shared, and analyzed.

In the current health care environment, quality of care may be measured by the use of certain medications for a condition based on peer-reviewed guidelines. There may be sound clinical reasons for not using those medications for a particular patient, and the recording of discontinued medication reasons would provide sound rationale for the decision not to use a certain medication. The coding guidance in this document (see Appendix 9.3) ensures that these reasons are captured so that such patients can be excluded from specific quality measures, ensuring a more accurate reflection of quality of care.

To maximize the use of EHRs, comprehensive coding sets of discontinued medication reasons are needed. Coding options need to be comprehensive so that all of the reasons a patient would discontinue a medication can be captured correctly. Not providing an appropriate option could cause the discontinued reason to be captured incorrectly, leading to misinformed treatment decisions. Discontinued medication reasons should also be well-organized and concise to make it easier for providers to use, as well as be standardized to allow for interoperability of the data. One recommendation is for system vendors to include a drop-down list of reasons to any health care provider discontinuing a medication; the provider would only need to select the appropriate choice.



EHR vendors may allow health systems to develop their own discontinued medication reasons options. However, customized options hinder interoperability and may not be comprehensive. Using discontinued reasons to help make future treatment decisions will also be limited if the quality and scope of the reasons provided are not adequate. This is why establishing a comprehensive, standardized method of capturing this information is crucial.

In addition to using structured codes to document discontinued medication reasons in the patient's electronic record, discontinued reasons may also be useful for the National Council for Prescription Drug Programs (NCPDP) SCRIPT CancelRx transaction. CancelRx functionality is used when a provider discontinues a patient's prescription, and the provider wants to communicate this information to the patient's pharmacy. When the medication is discontinued, an electronic message or "CancelRx request" can be transmitted to the patient's pharmacy to cancel the prescription and any refills that remain. Transmitting discontinued medication reasons codes not only provide information that the medication was discontinued, but the reason as well, which is beneficial to the pharmacist and patient. Instead of modifying the original order/prescription, discontinuing it and sending a CancelRx request reduces the likelihood of medication errors from duplicative therapy, provides an audit trail in the EMR, and allows for the capture of the discontinued medication reasons.

Patient care and health systems would benefit from using discontinued medication reasons to assist with a payer's prior authorization process. At times, a payer may require that other medications be tried prior to the approval of a certain medication. Clinician documentation may be required to show previous therapy was not appropriate for a patient. This particular information is often extracted manually from records by staff reviewing past medical narratives, which decreases efficiency and increases health care costs. Information required for a payer's prior authorization may be captured through discontinued medication reasons codes, such as "medication ineffective" or "medication caused adverse effect." With the growth of electronic prior authorization processes, having a coded method to transfer this information to payers could be a useful, efficient way to convey this information.

When defining the workflows of a pharmacist's clinical documentation and dispensing functions, system vendors should provide functionality that captures the reasons for discontinued medications. These reasons need to be embedded into the clinical documentation workflow. When a pharmacy discontinues a medication because it received a new medication order or prescription, the discontinued order should have a reason. Reasons could include change in the drug dose or patient instructions. Using structured codes (e.g., SNOMED CT) makes this information available for exchange.

Developing a strong structured coding method to capture the reason medications are discontinued will help with individual patient care. These structured codes also have the potential to assist with postmarketing surveillance of medications.

POSTMARKET SURVEILLANCE

After a drug, device, or biologic product is approved, FDA continues monitoring adverse effects of these products through postmarket surveillance. Postmarket surveillance is essential given the limitations of preapproval clinical trials. These limitations include the duration of the trial, small and narrow trial populations, patients at complex disease stages, and patients excluded from the trial with comorbidities.⁵ Once a product is approved, ongoing monitoring may identify less frequent ADEs, patients with higher risks for ADEs, unexpected patterns of use, drug-drug interactions, drug-food interactions, expected ADEs occurring at an increased frequency or severity, misuse or abuse of drug product, or medication errors.⁶ Sources of postmarketing adverse event data typically



include voluntary reporting (e.g., FDA MedWatch, manufacturer reports), postmarket studies, and active surveillance (e.g., Sentinel Initiative). These surveillance efforts tend to focus on adverse events. In the future, discontinued medication reasons captured using structured codes could be used in postmarket surveillance to provide a more seamless response method that may improve underreporting of adverse events.⁷

Most postmarket surveillance for drugs are voluntary reports from patients, caregivers, and health care professionals. The reports reach the FDA via the manufacturer (95%) or the MedWatch system (5%) and are loaded into the FDA Adverse Event Reporting System (FAERS) database.⁸

The Sentinel Initiative is intended to complement FAERS and is a national electronic system for monitoring the performance of FDA regulated products. FDA launched the Sentinel System in 2016, which currently relies primarily on administrative and claims data from health insurers.⁹ FDA is required to work with key stakeholders (e.g., public, academic, and private entities) to develop a system to obtain information from existing electronic health care data from multiple sources to assess approved medical product safety. Future enhancements to the system will include supplementing the data with clinical data (such as discontinued medication reasons), EHRs, hospital data, Medicare data, and disease registry data.¹⁰

Reporting systems that have evolved from health care settings are mostly used voluntarily by health care practitioners, patients, and caregivers and employ a manual process. At times, reporting may be spontaneous and may pose limitations and issues with using the data. Issues with spontaneous reporting include underreporting, reporting bias, incomplete reports, duplicate reporting, lack of standardization, use of free-text, irretrievable data fields, or the data source is not population-based or reliable. In addition to these limitations and issues, the current system adds additional provider workload, which may deter reporting. Adopting structured coding to detail reasons for discontinuing medications could play a role in resolving issues concerning spontaneous postmarket surveillance reporting.¹¹

PHARMACISTS' ROLE IN DETECTION AND DOCUMENTATION

Pharmacists are well positioned to play an integral role in working with patients to identify and document discontinued medication reasons. The Pharmacists' Patient Care Process, published by the Joint Commission of Pharmacy Practitioners (JCPP), outlines the importance of collecting, assessing, implementing, and documenting patient care information and supports the premise that discontinued medication reasons need to be collected and reported.¹² It is through this process and data collection that pharmacists can optimize "patient health and medication outcomes."¹³

Using a standardized terminology and format, such as SNOMED CT, provides a uniform way to capture the discontinued medication reasons and enables pharmacists to assess and document medication-related outcomes to improve patient care. Pharmacists must collaborate and communicate with others on the care team (e.g., patients, family, caregivers, and other providers) and document care appropriately. Complete and accurate documentation that can be shared with all team members is critical for the ongoing care of the patient. Moreover, the ability to systematically track and document patient care outcomes and reasons medications are discontinued could position pharmacists to develop new processes and methods to improve quality and streamline quality assessment.

USING CODES FOR CLINICAL DOCUMENTATION

Structured codes transform free text documentation in progress notes into discrete data points structured to describe the care provided to an individual patient. Health IT software systems already capture many types of information as discrete data, including diagnoses, medications, and



laboratory results. However, much of the patient's clinical information remains embedded in free text and is not able to be extracted for reporting and analytics purposes. Using coded terminologies to capture clinical findings, problems, interventions, and outcomes as discrete data points enables providers, payers, patients, and other stakeholders to use the information efficiently.

SNOMED CT is a structured coding terminology used for clinical documentation and a federally recognized standard for health information technology in the United States.¹⁴ SNOMED CT codes are standardized terms used to document findings, problems, interventions, and outcomes.¹⁵ Additional structured coding terminology used in health care includes LOINC (Logical Observation Identifiers Names and Codes) for laboratory results, RxNorm for medications, ICD-10 (International Classification of Diseases), and CVX (vaccine administered) for immunizations. These terminologies and their specific codes are used to capture different types of clinical information within EMR systems. SNOMED CT codes specifically support clinical documentation and allow for easier collecting and reporting of clinical data. Providers who use electronic systems to document care do not need to learn each specific code. The software should be designed to allow providers to choose a discontinued medication reason from a list and automatically log the corresponding code in the background. In addition, software should be able to require codified documentation of discontinued medication reasons in certain clinical situations.

Electronic systems (e.g., EHRs, EMRs, patient portals, patient health record applications) have the capacity to capture discontinued medication reasons using structured data. For example, when an antibiotic is stopped because it is ineffective, the pharmacist could document the discontinued reason as "medication not effective". The SNOMED CT code 435501000124106 is recorded into the database. This code could be correlated with the RxNorm code of the antibiotic, as both are stored in a structured way and associated with the specific patient based on their unique medical record number.

5. SNOMED CT CODES AND PHIT VALUE SETS COMPARED AND REVIEWED

The goal of capturing discontinued medication reasons is to optimize health care and overall patient health. In order to accomplish this, there must be a well-outlined method for measuring quality through detailed documentation using structured data. SNOMED CT and other standardized terminologies allow software vendors to implement documentation workflows that capture data, as providers manage patients. Data can be modeled in ways that allow rich information to be captured and reported to measure quality.

The Pharmacy Health Information Technology Collaborative's (PHIT) Pharmacy Services Documentation and Coding Workgroup, a collaboration of pharmacy professionals from diverse backgrounds in pharmacy practice, developed a preliminary list of reasons medications are discontinued. A crosswalk (see Appendix 9.4) comparing PHIT's preliminary list all to available SNOMED CT codes was created to assess the need for additional codes. The list of discontinued medication reasons will continue to evolve as more work is done in this area.

The approved list of codes for discontinued medication reasons (see Appendix 9.3) can be found in the National Library of Medicine (NLM) [Value Set Authority Center](#) (VSAC). As new discontinued medication reasons are identified, they are submitted to the PHIT Value Set Committee (VSC) for consideration and, if approved, will be forwarded to the NLM for final approval.



Some examples included in the reasons for discontinued medication value set:

- Discontinued medication to avoid potential adverse effects
 - Medication not safe for patient because of renal function
 - Medication not safe for patient because of liver function
- Discontinued medication because of an adverse medication event
 - Unsafe because of a drug-disease interaction
 - Dose increase/decrease too fast
- Discontinued medication because of payer
 - Changed to new product because of third party payer preference
 - Changed to new product because of payer formulary change

Additionally, PHIT and the Pharmacy Quality Alliance (PQA) each worked to develop a standardized list of medication therapy problems and correlated them to SNOMED CT codes to document assessment of a patient's medication regimen. PQA prepared a document, "Medication Therapy Problem Categories Framework,"¹⁶ that is similar to PHIT's "Guidance for Use of SNOMED CT in Pharmacists' Documentation of Medication-Related Outcomes."¹⁷ The PHIT guidance paper provides an example of how using this medication therapy problem framework to categorize PHIT's discontinued medication reasons may help users navigate the many reasons why medications could be discontinued.

Medication therapy problem structure that pharmacists use to care for their patients, however, cannot be utilized exclusively for the capture of medication discontinuation reasons because medications can be discontinued for many reasons other than medication therapy problems. A medication may be discontinued because it was effective and is no longer necessary. There may also be temporary reasons, such as pregnancy or an upcoming procedure, that may cause a provider to stop a medication. The PHIT working group added these other clinical scenarios to create a more complete discontinued medication reasons value set.

6. CONCLUSION/RECOMMENDATIONS

The development of standardized codes to capture the reasons medications are discontinued has significant potential to improve patient care and population health. The benefit of these codes, however, may not be realized until pharmacists widely adopt the CancelRx transaction and clinical documentation systems. Vendors should provide the functionality in clinical documentation systems to maximize the codes and embed them so they are easily accessed. To begin reaping the benefits, some new electronic record components will need to be established. Work will also need to be done to bridge the SNOMED CT codes to other structured coding systems. The following recommendations to organizations and software developers will move capturing discontinued medication reasons forward:



1. Health care organizations' clinical staff should establish policies that call for the use of discontinued medication reasons whenever possible.
2. Provide a standardized method to categorize these reasons into parent codes (broadest level of description) with child codes (more specific description). As the number of available choices for discontinued medication reasons grows, users may be faced with an increasingly large list from which to select. Providing a method to categorize these reasons will benefit users.
3. Adopting clinical documentation systems with user-friendly elements, such as drop-down lists of discontinued medication reasons or smart search that display human-readable discontinued medication reasons rather than the machine-readable functionality. For example, if a medication was discontinued because of an allergic reaction, the provider could select "Allergy to Medication" from a drop down menu. The SNOMED CT code 416098002 for "Allergy to Medication" would be coded into the patient's EHR, reviewed, analyzed, and transferred to another EHR to help care for this patient or for further analysis of population-based health needs.
4. Codify the discontinued medication reasons for intolerances identified as ADE. In order to get a complete picture of a reason for a discontinued medication there needs to be a link between identification of the reason(s) a medication is discontinued to the intolerance (e.g., rash, nausea) that occurred during an adverse drug event including the severity of the reaction.
5. A longitudinal medication history should be compiled for each patient. This medication list should minimally include:
 - Name of medication
 - Dose
 - Dosage form
 - Route
 - Directions
 - Frequency
 - Start date
 - Stop date
 - Reason started (indication)
 - Reason discontinued (allow for more than one reason if needed)All current and past medications should remain on this list for each patient.
6. The longitudinal medication list should be sortable by each of the fields.
7. The discontinued medication reason options should be provided to all health care providers who discontinue medications so that these providers have the codes immediately available to them. This is important as time passes, since the memory of the event might change over time.
8. Ensure the Pharmacists' Patient Care Process is supported in the electronic record. Specifically, pharmacists need to have access to the discontinued medication reasons. In addition, the electronic records should provide structured codes for supporting documentation of interventions pharmacists may complete as part of the pharmacist patient care process. An



example of intervention documentation involves capturing pharmacist-performed patient education on how to destroy discontinued medications.

9. In order to optimally care for patients, it will be important for system vendors to develop systems to allow sharing of this information from the electronic record to

- patients and caregivers;
- providers who care for the patient and have access to the patient's electronic record;
- providers who care for the patient but do not have access to the patient's electronic record;
- community pharmacies to assist them in caring for their patients;
- payers to support the electronic prior authorization process and provide data for quality measurements; and
- third parties that support patient management such as companies that provide medication therapy management (MTM) and companies providing electronic prior authorization tools; and quality measurements.

10. For purposes of population health, EMR vendors should develop systems that compile and share discontinued medication reasons information with organizations, such as

- registries such as immunizations, specialized medication, disease state;
- quality organizations;
- FDA; and
- public health departments.

11. As the practice of capturing medication discontinuation reasons matures, developing additional codes or linking to other codes would allow for more robust capture of patients' information. For example, if a medication is being discontinued because of an adverse reaction, linking "Adverse Reaction" to "Red Spots on Abdomen" and to "Severe" could provide future prescribers significant detail about the reason this medication was discontinued. Electronic record vendors should consider what will need to be completed to accommodate potential growth and expansion of these codes and links between codes.

12. Discontinued medication reasons are captured each time a medication is stopped and when any medication order is changed.

13. Once a reason for discontinued medication is codified, system vendors should add additional workflow processes to help patients and providers document tracking medication destruction or disposal.

7. ADDITIONAL RESOURCES

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9. APPENDIX

9.1 Pharmacists' Patient Care Process

The pharmacists' patient care process was developed by examining a number of key source documents on pharmaceutical care and MTM. Patient care process components in each of these resources were cataloged and compared to create the following process that encompasses a contemporary and comprehensive approach to patient-centered care that is delivered in collaboration with other members of the health care team.²⁰

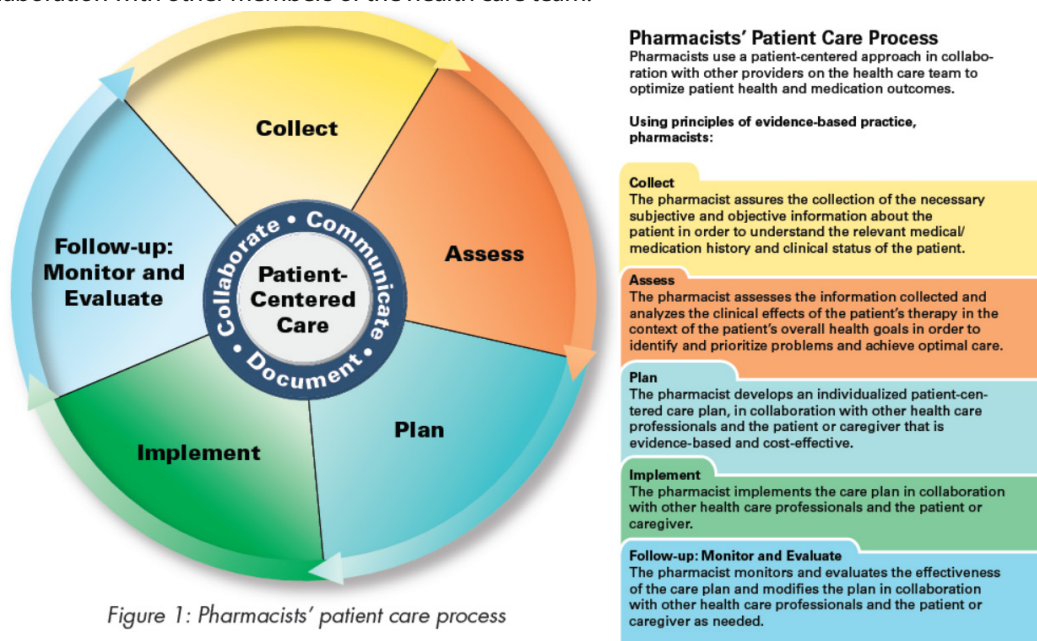


Figure 1: Pharmacists' patient care process



9.2 Connecting Reasons for Discontinued Medications to ADE

The discontinued medication reasons and suggested categorizing method using SNOMED CT should be considered a starting point. A variety of users have the potential to interact with and benefit from the use of discontinued medication reason information. It will be important to review and understand the needs of all users to determine the best method to develop this standardized coding system. If discontinued medication reasons are captured in the patient's electronic record using SNOMED CT, further investigation will be needed in order to ensure that this information leads to reporting of an ADE.

Coding work for adverse reactions and allergies has been under way for several years by NCPDP and United States Pharmacopeia (USP). Work will need to be accomplished with adverse reactions and allergies so clinical manifestation information can be documented in the electronic record when medications are discontinued. There is a SNOMED CT code (#62014003)- for "Adverse reaction caused by drug (disorder)"; however, this code is likely too general and does not provide the level of detail needed. Adverse reaction could be defined as a SNOMED CT parent code with child codes that define different specific adverse reactions. The provider could drill down with codes to capture and document the adverse reaction at the level of detail needed.

9.3 Table: Categories for Discontinued Medication Reasons

The current list of codes for discontinued medication reasons can be found in the National Library of Medicine (NLM) Value Set Authority Center (VSAC). As new discontinued medication reasons are identified, they are submitted to the PHIT Collaborative Value Set Committee (VSC) for consideration, and if approved, will be forwarded to NLM for final approval.

Metadata	Name:	OID:
Description	Reasons for Interventions Related to Medication Management, Discontinue Medication	2.16.840.1.113762.1.4.1096.218
	Code System:	Steward: Contact
	SNOMEDCT	Pharmacy e-Health Information Technology Collaborative
Value Set Definition		
	Definition Type:	Definition Version: ?
	Extensional	20210331
Expansion Details		
	Expansion Profile	View
	Most Recent Code System Versions in VSAC	

This update was generated by VSAC to align with code changes published by SNOMEDCT



Code	Descriptor	Code System	Version	Code System OID
182834008	Drug course completed (situation)	SNOMEDCT	2021-03	2.16.840.1.113883.6
182841002	Doctor stopped drugs - ineffective (situation)	SNOMEDCT	2021-03	2.16.840.1.113883.6
182843004	Doctor stopped drugs - inconvenient (situation)	SNOMEDCT	2021-03	2.16.840.1.113883.6
182844005	Doctor stopped drugs - patient dislikes (situation)	SNOMEDCT	2021-03	2.16.840.1.113883.6
182846007	Doctor stopped drugs - medical aim achieved (situation)	SNOMEDCT	2021-03	2.16.840.1.113883.6
182891003	Patient misunderstood treatment instructions (finding)	SNOMEDCT	2021-03	2.16.840.1.113883.6
183966005	Drug treatment not indicated (situation)	SNOMEDCT	2021-03	2.16.840.1.113883.6
2101000124106	Unable to self-administer medication (finding)	SNOMEDCT	2021-03	2.16.840.1.113883.6
249486008	Unable to swallow (finding)	SNOMEDCT	2021-03	2.16.840.1.113883.6
274512008	Drug therapy discontinued (situation)	SNOMEDCT	2021-03	2.16.840.1.113883.6
395006008	Medication stopped - interaction (situation)	SNOMEDCT	2021-03	2.16.840.1.113883.6
395007004	Medication stopped - ineffective (situation)	SNOMEDCT	2021-03	2.16.840.1.113883.6
395008009	Medication stopped - contra-indication (situation)	SNOMEDCT	2021-03	2.16.840.1.113883.6
395009001	Medication stopped - side effect (situation)	SNOMEDCT	2021-03	2.16.840.1.113883.6
407563006	Treatment not tolerated (situation)	SNOMEDCT	2021-03	2.16.840.1.113883.6
408347001	Drug interactions identified - drug changed (finding)	SNOMEDCT	2021-03	2.16.840.1.113883.6
408355008	Drug treatment no longer needed (situation)	SNOMEDCT	2021-03	2.16.840.1.113883.6
408367005	Patient forgets to take medication (finding)	SNOMEDCT	2021-03	2.16.840.1.113883.6
412782003	Inappropriate medication stopped (situation)	SNOMEDCT	2021-03	2.16.840.1.113883.6
42961100012410	Patient unable to obtain medication (finding)	SNOMEDCT	2021-03	2.16.840.1.113883.6
43152100012410	More effective medication therapy available (finding)	SNOMEDCT	2021-03	2.16.840.1.113883.6
43240100012410	Patient refuses to take medication (situation)	SNOMEDCT	2021-03	2.16.840.1.113883.6
43546100012410	Medication taken to treat adverse drug reaction (finding)	SNOMEDCT	2021-03	2.16.840.1.113883.6
43548100012410	Multiple medications taken for condition appropriately treated with single medication therapy (finding)	SNOMEDCT	2021-03	2.16.840.1.113883.6
43550100012410	Medication not effective (finding)	SNOMEDCT	2021-03	2.16.840.1.113883.6
43552100012410	Patient condition appropriate for non-medication therapy (finding)	SNOMEDCT	2021-03	2.16.840.1.113883.6
448056004	Medication dosage interval too long (finding)	SNOMEDCT	2021-03	2.16.840.1.113883.6
448057008	Medication dosage interval too short (finding)	SNOMEDCT	2021-03	2.16.840.1.113883.6
448058003	Duration of medication therapy too short (finding)	SNOMEDCT	2021-03	2.16.840.1.113883.6
448089004	Medication dose too high (finding)	SNOMEDCT	2021-03	2.16.840.1.113883.6
448151007	Cost effective medication alternatives available (finding)	SNOMEDCT	2021-03	2.16.840.1.113883.6
448152000	Medication dose too low (finding)	SNOMEDCT	2021-03	2.16.840.1.113883.6
448174006	Duration of medication therapy too long (finding)	SNOMEDCT	2021-03	2.16.840.1.113883.6
6111000124105	Medication dosage form inappropriate (finding)	SNOMEDCT	2021-03	2.16.840.1.113883.6
70732231000132	Duplicate drug therapy discontinued (situation)	SNOMEDCT	2021-03	2.16.840.1.113883.6

9.4 Crosswalk Used to Identify Codes Needed for Discontinued Medication Reasons by Related Needs (e.g., Indication, Effectiveness, Safety, and Adherence).

As a result of the crosswalk, the PHIT Value Set Committee submitted a complete value set for “Reasons for Interventions Related to Medication Management, Discontinue Medication” to the NLM VSAC, as shown in Appendix 9.3.

Medication Related Needs	Medication Therapy Problem Categories or Corresponding Absence of a Medication Therapy Problem	Discontinued Reason	PHIT Value Set	SNOMED CT Code
Indication				
	Necessary medication therapy	Medication held - temporary situation (e.g. seasonal medication)		
	Unnecessary medication therapy	Unnecessary medication therapy.(parent code)	Drug treatment not indicated	183966005



Medication Related Needs	Medication Therapy Problem Categories or Corresponding Absence of a Medication Therapy Problem	Discontinued Reason	PHIT Value Set	SNOMED CT Code
		Duplicate therapy	Multiple medications taken for condition appropriately treated with single med therapy (finding)	43548100012410
		No medical indication at this time		
		Non-medication therapy more appropriate	Patient condition appropriate for non-medical therapy (finding)	43552100012410
		Progression of disease		
		Treating avoidable adverse medication reactions	Medication taken to treat adverse drug reaction (finding)	43546100012410
Effectiveness				
	Effective medication	Effective: completed course of therapy		
	Ineffective medication	Medication not effective	Medication not effective	43550100012410
		More effective medication available	More effective medical therapy available	43152100012410
		Condition refractory to medication		
		Dosage form inappropriate	Medication dosage form inappropriate	611100012405
		Ineffective: completed course of therapy		
	Ineffective: dose too low			



Medication Related Needs	Medication Therapy Problem Categories or Corresponding Absence of a Medication Therapy Problem	Discontinued Reason	PHIT Value Set	SNOMED CT Code
		Dose too low		
		Frequency inappropriate	Medication dosage interval is too long (finding)	448056004
		Incorrect administration		
		Medication interaction		
		Incorrect storage		
		Duration inappropriate	Duration of med therapy too short (finding)	448058003
Safety				
	Discontinued medication to avoid potential adverse effects	Medication discontinued to avoid undesirable effect (parent code)		
		Medication not safe in pregnancy (discontinued to avoid harm to fetus)		
		Medication not safe in breastfeeding (discontinued to avoid harm to breastfed infant)		
		Medication discontinued to avoid drug interaction		
		Medication discontinued to avoid adverse effects due to patient's renal function		



Medication Related Needs	Medication Therapy Problem Categories or Corresponding Absence of a Medication Therapy Problem	Discontinued Reason	PHIT Value Set	SNOMED CT Code
		Medication discontinued to avoid adverse effects due to patient's liver function		
		Medication discontinued to avoid adverse effects due to patient's age		
		Medication discontinued to avoid a drug disease interaction (e.g., low platelet)		
		Discontinued medication to avoid a contraindication		
		Discontinued medication to avoid an allergic reaction		
		Discontinued medication to avoid QTc prolongation		
		Discontinued medication to avoid long term use of addictive medication		
		Discontinued medication to avoid potential abnormal drug metabolism identified through pharmacogenomic testing		



Medication Related Needs	Medication Therapy Problem Categories or Corresponding Absence of a Medication Therapy Problem	Discontinued Reason	PHIT Value Set	SNOMED CT Code
	Discontinued medication: adverse medication event occurred	Patient experienced an undesirable effect (parent code with specifics in child codes)		
		Unsafe medication for patient		
		Unsafe because of a drug disease interaction		
		Unsafe because of a patient's compromised renal function		
		Unsafe because of a patient's QTc interval prolongation		
		Unsafe because of a drug and diet interaction		
		Unsafe because of a drug and smoking interaction		
		Unsafe because of an intolerance to dosage form		
		Unsafe because of a history of substance abuse		
		Medication interaction	Drug interaction Identified-drug changed	408347001
		Incorrect administration		
		Allergic reaction		
		Adverse reaction occurred		



Medication Related Needs	Medication Therapy Problem Categories or Corresponding Absence of a Medication Therapy Problem	Discontinued Reason	PHIT Value Set	SNOMED CT Code
		Dose increase/decrease too fast		
		Treatment not tolerated	Treatment not tolerated	407563006
	Discontinued medication as dose was too high	Dose too high	Medication dose too high (finding)	448089004
		Frequency inappropriate	Medication dosage interval too short (finding)	448057008
		Duration inappropriate	Duration of medication therapy too long	448174006
		Medication interaction		
	Discontinued because of monitoring	Medication discontinued because of monitoring requirements		
Adherence				
	Adherence	Patient does not understand directions	Patient misunderstood treatment instructions	182891003
		Too complicated regimen		
		Patient prefers not to take	Patient refused to take medication (situation)	43240100012410
		Patient forgets to take	Patient forgets to take medication	408367005
		Medication product not available	Patient unable to obtain medication (finding)	42961100012410



Medication Related Needs	Medication Therapy Problem Categories or Corresponding Absence of a Medication Therapy Problem	Discontinued Reason	PHIT Value Set	SNOMED CT Code
		Medication product not available because of inventory shortage (child code of medication product not available)		
		Unable to take dosage form (parent code)		
		Intolerance to dosage form		
		Patient cannot swallow (child code)	Unable to swallow	249486008
		Patient cannot administer the medication (child code)	Unable to self-administer medication	21010000124106
		Patient does not like the taste		
		No provider or specialist available to reorder medication		
		Uncertain of the form dispensed		
	Cost	Changed to new product because third party payors preference		
		Changed to new product because payors formulary change		



Medication Related Needs	Medication Therapy Problem Categories or Corresponding Absence of a Medication Therapy Problem	Discontinued Reason	PHIT Value Set	SNOMED CT Code
		New payor does not cover medication		
		Patient cannot afford medication		
		More cost-effective medication available		

10. ACKNOWLEDGEMENTS

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