

# STRUCTURED AND CODIFIED SIG FORMAT IMPLEMENTATION GUIDE

VERSION 1.0

*For prescriptions that are transmitted via electronic means, this implementation guide establishes a convention to be used with standards that support electronic prescribing for the consistent expression of the directions for use to a patient for the corresponding prescription.*

[Full Month][Century Year] (June 2006 draft)

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**DRAFT - For use in 2006 electronic prescribing pilots only**

# **Structured and Codified Sig Format Implementation Guide**

**Version 1.0**

NCPDP recognizes the confidentiality of certain information exchanged electronically through the use of its standards. Users should be familiar with the federal, state, and local laws, regulations and codes requiring confidentiality of this information and should utilize the standards accordingly.

**Published by:  
National Council for Prescription Drug Programs**

**Publication History:  
Version 1.0 [Full Month][Century Year]  
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## **1. INTRODUCTION**

A prescription contains a number of different elements. In addition to the patient and prescriber information, it must state the name, dosage form and strength of the medication; the dose; the amount to be dispensed; the number of refills; and the directions for use, or Sig. "Sig" is an abbreviation for "signatura," Latin for "Mark thou". The Sig contains the instructions explaining how the patient is to take the medication. It must be legible, unambiguous, and complete to ensure the prescriber's instructions for use of the product are understood.

This NCPDP *Structured and Codified Sig Format Implementation Guide* is intended to standardize the portion of an electronic prescription containing the directions for use using existing, accepted electronic transmission standards, such as NCPDP SCRIPT, Health Level 7 (HL7), and ASTM Continuity of Care Records (CCR). This document is intended to facilitate communication between prescribers and pharmacists, to improve the efficiency of the prescribing and dispensing activities and to help reduce the opportunity for errors. This document may also be appropriate for other business cases where the Sig is used.

This NCPDP *Structured and Codified Sig Format Implementation Guide* will also assist developers in implementing a standardized portion of an electronic prescription containing the directions for use that employs accepted electronic transmission standards, e.g., NCPDP SCRIPT, Health Level 7 (HL7), and ASTM Continuity of Care Records (CCR).

Questions regarding the availability or content of the NCPDP *Structured and Codified Sig Format Implementation Guide*, may be directed to [www.ncdp.org](http://www.ncdp.org), the Council office at (480) 477-1000, or via e-mail at [ncdp@ncdp.org](mailto:ncdp@ncdp.org).

## **1.1 DOCUMENT SCOPE**

This document contains the technical specifications and guidance for implementation of a structured and codified Sig. Users of this document should consult the documents listed below for further information and clarification.

### ***NCPDP SCRIPT STANDARD***

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Created to facilitate the transfer of prescription data between pharmacies, prescribers, and payers.

### ***NCPDP DATA DICTIONARY***

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Full reference to all data elements with definition, sizes, and values used in NCPDP documents.

### ***EXTERNAL CODE LIST (ECL)***

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Provides the code values for data elements contained within the NCPDP standards. The values support the various file and telecommunications formats that have been approved by the NCPDP membership.

### ***SNOMED CT (SNOMED CLINICAL TERMS®)***

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Universal health care terminology that enables a consistent way of capturing, sharing and aggregating health data across specialties and sites of care. Among the applications for SNOMED CT are electronic medical records and computerized provider order entry.

### ***ASTM CONTINUITY OF CARE RECORD (CCR)***

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The CCR, or "Continuity of Care Record", is the standard published by ASTM International that defines the essential clinical content within a patient "snapshot" or medical record summary.

### ***HEALTH LEVEL SEVEN (HL7)***

---

Provides standards for the exchange, management and integration of data that support clinical patient care and the management, delivery and evaluation of healthcare services.

## **1.2 BACKGROUND**

The development of a structured and codified Sig format is an industry-wide initiative emanating from testimony given to, and the recommendations promulgated by, the National Committee on Vital and Health Statistics (NCVHS). The committee's 2004 and 2005 meetings focused heavily on the Medicare Prescription Drug Improvement and Modernization Act (MMA) of 2003, specifically the electronic prescribing requirements that will enforce the use of standardized messaging between prescribers and pharmacists. The national emphasis on electronic prescribing (e-prescribing) was reinforced in the initial report from the Office of the National Coordinator for Health Information Technology (July 21, 2004).

Standardizing the Sig has been a discussion topic for many years and in 2004, NCPDP agreed to convene and facilitate an industry-wide task group to create a set of consistent fields and values for conveying instructions to the patient (the Sig) in an electronic prescription. This implementation guide may

be used with the various standards (such as HL7, NCPDP SCRIPT, ASTM CCR) to relay unambiguously the prescriber's instructions for medication use. As such, the task group's guiding principle has been that standardized Sigs must exactly reflect the prescriber's intent while employing the proper elements of the code set utilized.

The NCPDP Structured and Codified Sig task group (the task group) was formed to develop an approach that utilizes standardized codes to assist the members of the health care industry who are using electronic prescribing tools by creating a method of sharing patient instructions that will not be misinterpreted, misread or mis-keyed when prescriptions are filled. Conceptually, standardizing the expression of the Sig is a natural extension of using electronic transactions to relay product information from prescribers to pharmacists.

Members of NCPDP's Work Group 10 Professional Pharmacy Services and Work Group 11 E-prescribing & Related Transactions possess the necessary knowledge of health care operations, data files, telecommunications issues, medical and pharmacy applications, and information systems design to develop a process for standardizing the electronically transmitted Sig. As a result, the NCPDP Board of Trustees requested that participants from these work groups develop the structure and group of code sets to standardize the electronically transmitted Sig.

The task group's charge was to develop a method of standardizing Sigs that can be implemented by current and future electronic prescribing applications. The task group included representation from across the health care industry, including non-NCPDP members. Early on, the group agreed to several operating assumptions. Among these assumptions, the result must:

- Be flexible to accommodate various business needs
- Allow for interoperability among differing standards
- Work across multiple industry segments - hospital, community, long term care
- Meet the 80/20 rule - i.e., must support 80% of the Sigs being written today.

Over time, the 80/20 rule was modified to be 99/1, with the 1% representing the unknown.

Further, efforts were made to avoid duplicating elements that are available in existing electronic prescribing standards, such as "product" information in the NCPDP *SCRIPT* Standard Implementation Guide and "requested give or dispense/give" information in HL7.

Another decision that the task group needed to make was that surrounding which code system/vocabulary to incorporate into the format. There are many vocabularies/code systems in existence, so after review, the decision was made to use SNOMED Clinical Terms®. This decision was based on the completeness and availability of the concepts contained within SNOMED. Testimony was provided to the NCVHS Subcommittee on Standards & Security regarding the disparate vocabularies and the need for guidance.

**IMPORTANT NOTE:** Free text data strings that can be used to transmit textual instructions for use **will not** be replaced by the use of standardized Sigs. Instead, **free text strings must be transmitted** with the electronic prescription to facilitate verification that the code sets have been properly interpreted.

## **2. BUSINESS ENVIRONMENT**

### **2.1 OBJECTIVES**

The NCPDP *Structured and Codified Sig Format* will be used when prescriptions are transmitted electronically. With the increasing use of electronic prescribing applications and electronic medical records, a structured and codified Sig offers greater specificity and clarity in medication ordering and at the same time has the added benefit of reducing errors. The output of the NCPDP Industry Sig task group is "location neutral", meaning that it supports prescriptions/orders written and dispensed in ambulatory, transitional, long-term and acute-care settings.

Medical and pharmacy businesses will benefit from the use of a structured and codified Sig. To enhance patient safety, achieve consistency and promote continuity of care, healthcare facilities, provider offices, medical records departments, laboratories, and pharmacies need to share data regarding the prescriber's instructions to the patient for medication use. In today's environment, no standardized method exists for trading partners to share Sig data without the possibility of inaccurate translation by the receiving entity. The Institute of Medicine Reports in 1999 and 2001, "To Err is Human" and "Crossing the Quality Chasm", highlight the growing concern over patient safety with prescribed drugs.

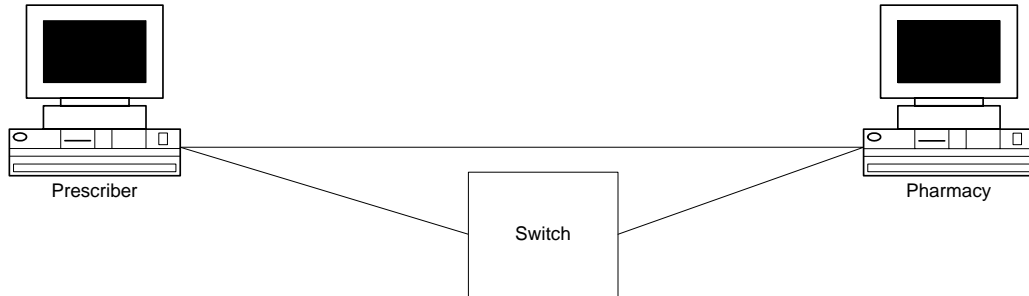
As health care informatics researchers and system implementers share data regarding a prescription's Sig, the use of codes from recognized code sets can save significant development time and resources. Adherence to a standardized data structure will facilitate future standards development and interactive application development, as well as enhancing the quality of stored data. In addition, standardization improves the ability to share meaningful information across different applications and system platforms.

The use of standards and technology also lend themselves to another potential outcome – that of the ability to automate dispensing. Pharmacy applications, upon receipt of a machine-readable electronic prescription with a standard drug identifier and a standardized Sig could then pass the prescription directly to their automated dispensing machine, reducing the number of manual interventions and potential errors.

The NCPDP *Structured and Codified Sig Format Implementation Guide* promotes the voluntary use of the identified structure and associated code sets which will be incorporated into existing electronic transactions and applications, such as NCPDP SCRIPT, HL7 and ASTM CCR. A separate standard, solely for Sig, is neither envisioned nor recommended. Each of the standards development organizations will be responsible for publishing detailed implementation guidance for the use of Sig within their applicable standard.

NCPDP will be the standards development organization responsible for the maintenance of the structured and codified Sig. Requests for changes will be handled through existing processes and any resulting updates will be shared with other standards organizations that have incorporated Sig into their electronic prescribing standards.

## 2.2 PARTICIPANTS



**Figure 1. Participants**

The operating assumption is that the relationship between the prescriber and the pharmacy is the primary relationship. Future use by other entities is not addressed in this document.

A **"PRESCRIBER"** is a licensed entity that prescribes drugs and provides professional medical services.

A **"SWITCH"** is an entity that accepts an electronic transaction from one organization and electronically routes the transaction to a receiving entity.

A **"PHARMACY"** is a retail pharmacy, mail order pharmacy, doctor's office, clinic, hospital, long-term care facility, or any other entity that dispenses prescription drugs in accordance with all applicable regulatory requirements.

## **2.3 RESPONSIBILITIES OF THE PARTICIPANTS**

When using the *NCPDP Structured and Codified Sig Format* the systems employed by the Prescriber, Switch, and Pharmacy are expected to perform specific functions, as outlined below: It is the responsibility of each participant/trading partner to validate their understanding of the use of the *NCPDP Structured and Codified Sig Format*. If the *NCPDP Structured and Codified Sig Format* is not being used by both the receiver and the sender, this must be clearly communicated. Sig must always be sent with a free text field.

### **2.3.1 RESPONSIBILITIES OF THE PRESCRIBER'S SYSTEM**

The Prescriber's System is responsible for:

- Accurately populating all required fields as entered or ordered by the prescriber.
- Accurately populating any applicable or desired situational fields as entered or ordered by the prescriber.
- Reliably transmitting the prescription information to the pharmacy (directly or via a switch).
- Storing all Sig data transmitted/received
- Verifying that the elements of the Sig (fields and code values) accurately depict the textual Sig as created by the prescriber.
- Storing and interpreting received Sig fields from pharmacies or other prescriber systems

### **2.3.2 RESPONSIBILITIES OF THE SWITCH**

The Switch is responsible for:

- Establishing the connection between the prescriber and the pharmacy
- Delivering the transaction from the sender to the receiver.

### **2.3.3 RESPONSIBILITIES OF THE PHARMACY**

The Pharmacy is responsible for:

- Verifying that all required elements of the Sig are present.
- Verifying that the Sig instructions (fields and code values) accurately depict the textual Sig as created by the prescriber.
- Storing all Sig data received and transmitted.
- When sending Sig data, ensuring that the data elements are correctly populated and that the free text Sig accompanies the codified and structured Sig as a means for the receiver to verify its accurate transmission.

## **3. BUSINESS FUNCTIONS**

### **3.1 INTRODUCTION**

Some of the business functions that may use the *NCPDP Structured and Codified Sig Format* include but are not limited to:

1. A new prescription sent electronically from a prescriber to a pharmacy. Multiple settings may be involved:
  - a. Provider office to community or mail order pharmacy
  - b. Provider office to inpatient pharmacy (e.g. remote access to inpatient CPOE system)
  - c. Inpatient facility to community pharmacy (e.g. upon discharge)
  - d. Inpatient facility to inpatient pharmacy
  - e. Long-term care facility to pharmacy
2. A request from a pharmacy to a prescriber requesting a change in a prescription/order
3. A request from a pharmacy to a prescriber requesting a refill or a renewal
4. Additional business functions related to changes or authorizations of a prescription.
  - a. The transfer of prescription information from one pharmacy to another or one prescriber to another.
  - b. Research.
  - c. Quality initiatives.
5. Other transmission of prescription information, including Sig, such as prescriber-to-prescriber, or provider-to-provider.

### **3.2 NEW PRESCRIPTION/ORDER PROCESS**

In all cases of a new prescription/order being transmitted electronically to the pharmacy, using an accepted electronic prescribing standard, the structured and codified Sig will be included.

### **3.3 PRESCRIPTION/ORDER CHANGE PROCESS**

Pharmacists, in the course of drug use evaluation or other clinical interventions, may request that the prescriber accept a recommended change in the prescription. The original Sig, as presented to the patient by the pharmacy, and the new requested Sig will be transmitted with the change request from the pharmacist to the prescriber.

Prescribers, after reviewing the prescription change request from the pharmacist, may elect to change some or all elements of the Sig and transmit this new information to the pharmacist.

### **3.4 PRESCRIPTION/ORDER REFILL/RENEWAL PROCESS**

Refill requests from pharmacists to prescribers are much more effectively dealt with by the prescriber and his/her staff if complete information (including the original Sig as presented to the patient by the pharmacy) is submitted with the request.

Prescribers may elect to change some elements of the Sig when responding to a refill request from a pharmacist.

### **3.5 ADDITIONAL BUSINESS FUNCTIONS**

The data that is contained within a Sig, once structured and codified becomes a valuable source of information that may be analyzed for various purposes, such as quality improvement initiatives, clinical research, and transfer of a prescription or prescription history.

### ***3.6 OTHER TRANSMISSION OF PRESCRIPTION INFORMATION***

While not specifically addressed within this Implementation Guide, the task group did feel that there would be other potential cases where the *Structured and Codified Sig Format* might be used. These situations would include those circumstances where the prescription itself might be exchanged, such as in prescriber-to-prescriber or pharmacy-to-pharmacy communications.

## 4. GENERAL STRUCTURAL OVERVIEW

Included in the *Structured and Codified Sig Format* of the electronic prescribing transaction are segments, fields and values that are directly related to the prescriber's instructions for use. The complexity of some Sigs requires that the format allow for repetition of segments and elements within a segment. When repetition is required, each electronic prescribing transaction standards organization will need to provide guidance as to the most appropriate way to handle the repetition. When an element(s) needs to repeat, the entire Structured and Codified Sig Format will repeat, with the necessary fields populated.

There is information that while important for electronic prescribing, such is not part of the specific directions for use and these are addressed in the applicable transaction standards (NCPDP *SCRIPT* Standard, HL7, ASTM CCR, etc.). This information may include:

- o Patient instructions—additional directions that the pharmacist provides verbally or in writing.
- o Fulfillment instructions—information from the prescriber to the pharmacist, perhaps relating to the vehicle for compounding or the timing of the delivery of the prescription.
- o Refill—the number of refills authorized is required on the prescription; however, this information is not part of the directions for use of the prescribed product.

<b>Structured and Codified Sig Format</b>			
<b>Segment Name</b>	<b>Segment Description</b>	<b>Mandatory/Situational</b>	<b>Optionality (Required/Situational)</b>
<b>REPEATING Sig SEGMENT</b>	Used when there is more than one Sig, such as for a tapered dose or sliding scale.	M	Required.
<b>DOSE SEGMENT</b>	The dose segment of the Sig which can define a fixed dose or can repeat to define a variable dose, dose range, or dose options.	M	Required.
<b>DOSE CALCULATION SEGMENT</b>	Used to express a dose as a calculation, such as '40mg/kg/day divided into 3 doses'. This segment is used in conjunction with the Dose (Sig) Segment to allow the expression of a dose as a calculation.	S	Required when dose is to be calculated.
<b>VEHICLE SEGMENT</b>	Defines a vehicle specified for the delivery of the product.	S	Required when prescriber specifies.
<b>ROUTE SEGMENT</b>	Defines the route of administration.	S	Required when prescriber specifies.
<b>SITE SEGMENT</b>	Defines the site of administration.	S	Required when prescriber specifies.
<b>FREQUENCY SEGMENT</b>	Defines a frequency of administration. Frequency is events per unit of time.	S	Required when prescriber specifies.
<b>ADMINISTRATION TIMING SEGMENT</b>	Defines a specific administration day, date or time.	S	Required when prescriber specifies.
<b>INTERVAL SEGMENT</b>	Defines a frequency of administration. Interval is the time between events.	S	Required when prescriber specifies.
<b>DURATION SEGMENT</b>	Defines a duration of use/therapy.	S	Required when prescriber specifies.
<b>DOSE RESTRICTION SEGMENT</b>	The dose restriction segment of the Sig which defines a maximum or dose limit.	S	Required when prescriber specifies.

<b>Structured and Codified Sig Format</b>			
<b>INDICATION SEGMENT</b>	Defines the indication for use of the medication as meant to be conveyed to the patient.	S	Required when prescriber specifies.
<b>STOP SEGMENT</b>	Used to express a hard stop, such as the last Sig sequence in a tapering dose, where the last sequence is 'then D/C' or where the therapy/drug is used to treat a condition and that treatment is for a fixed duration with a hard stop, such as antibiotic treatment, etc.	S	Required when prescriber specifies.
<b>Sig FREE TEXT STRING SEGMENT</b>	Used to reflect the text string express of the Sig. It should always be used, and in addition is the only segment to place a free text Sig from a generating system that CANNOT generate a structured Sig.	M	Required

## 5. SPECIFIC FIELD DISCUSSION

For fields labeled "code", "code system" and "code system version", for purposes of the 2006 electronic prescribing pilots, the codes will all be obtained from the specific subset SNOMED has created. These codes will be incorporated into the July 2006 SNOMED release. However, during the pilot period (ending December 31, 2006), the code system will be "1" and the code system version will be CORE20060415.

The following conventions are used in the chart below.

M = Mandatory field

S = Situational field

Structured and Codified Sig Format							
Field Name	Field Description	Mandatory/Situational	Optionality (Mandatory/Situational)	Field Length	Field Characteristics	Qualifier Values	Examples
<b>REPEATING Sig SEGMENT</b>	Used when there is more than one Sig, such as for a tapered dose or sliding scale.	M	Required.				
Sig SEQUENCE POSITION	This must be an integer starting a 1, a Null value means that this is a unique string with no repeat/no sequence.	M	Required.	2	N		
<b>DOSE SEGMENT</b>	The dose segment of the Sig which can define a fixed dose or can repeat to define a variable dose, dose range, or dose options.	M	Required.				

Structured and Codified Sig Format							
Field Name	Field Description	Mandatory/Situational	Optionality (Mandatory/Situational)	Field Length	Field Characteristics	Qualifier Values	Examples
Dose Indicator	Indicates the action to be taken on the Dose Segment fields.	M	Required.	1	N	1 = Specified - remaining fields populated 2 = As needed - skip rest of Dose Segment. 3 = As directed - skip rest of Dose Segment. 4 = Unspecified - see free text.	
DOSE DELIVERY METHOD TEXT	The textual representation of the Dose Delivery Method Code. This is the method in which the dose is delivered (describes how the dose is administered/consumed)	S	Required when Dose Indicator = 1	50	A/N		take, apply, swish, swallow, inject, insert, chew, use, give, sprinkle, mix, dissolve...
DOSE DELIVERY METHOD CODE	The code representing the Dose Delivery Method Text.	S	Required when Dose Indicator = 1	11	A/N		
DOSE DELIVERY METHOD CODE SYSTEM	The code system for the Dose Delivery Method Code.	S	Required when dose delivery method code is used.	2	A/N	1 = SNOMED 2 = other - not used	
DOSE DELIVERY METHOD CODE SYSTEM VERSION	This is the code system version.	S	Required when dose delivery method code is used.	11	A/N	CORE20060415	

Structured and Codified Sig Format							
Field Name	Field Description	Mandatory/Situational	Optionality (Mandatory/Situational)	Field Length	Field Characteristics	Qualifier Values	Examples
DOSE DELIVERY METHOD MODIFIER TEXT	Further modifies the method in which the dose is delivered (further clarifies Dose Delivery Method Text).	S	Required when needed to clarify dose delivery method.	50	A/N		sparingly, frequently, repeatedly, gently, lightly, every
DOSE DELIVERY METHOD MODIFIER CODE	The code represented by the Dose Delivery Method Modifier Text.	S	Required when dose delivery method modifier is used.	11	A/N		
DOSE DELIVERY METHOD MODIFIER CODE SYSTEM	The code system of Dose Delivery Method Modifier Code.	S	Required when dose delivery method modifier code is used.	2	A/N	1 = SNOMED 2 = other - not used	
DOSE DELIVERY METHOD MODIFIER CODE SYSTEM VERSION	The code system version.	S	Required when dose delivery method modifier code is used.	11	A/N	CORE20060415	
DOSE	The numeric expression of the dose.	S	Required when Dose Indicator = 1	18	N		A simple dose example would be '250mg' where the numeric value in this field would be '250'.
DOSE UNITS TEXT	The textual representation of the Dose Units Code.	S	Required when Dose Indicator = 1	50	A/N		tablet, milligram, teaspoon
DOSE UNITS CODE	The code represented by the Dose Units Text.	S	Required when Dose Indicator = 1	11	A/N		

Structured and Codified Sig Format							
Field Name	Field Description	Mandatory/Situational	Optionality (Mandatory/Situational)	Field Length	Field Characteristics	Qualifier Values	Examples
DOSE UNITS CODE SYSTEM	The code system of the Dose Units Code.	S	Required when Dose Units Code is used.	2	A/N	1 = SNOMED 2 = other - not used	
DOSE UNITS CODE SYSTEM VERSION	The coding system version.	S	Required when Dose Units Code is used.	11	A/N	CORE20060415	
RATE of ADMINISTRATION	The amount of time for a {single} dose to be administered	S	Required when prescriber specifies.	11	A/N		
RATE UNIT OF MEASURE TEXT	The textual representation of Rate Unite of Measure Code for the period of time (seconds, minutes, hours, days) in which the dose is to be administered.	S	Required when rate of administration is used.	50	A/N		
RATE UNIT OF MEASURE CODE	The code represented by the Rate Unit Of Measure Text.	S	Required when rate of administration is used.	11	A/N		
RATE UNIT OF MEASURE CODE SYSTEM	The coding system of the Rate Unit Of Measure Code.	S	Required when rate of administration is used.	2	A/N	1 = SNOMED 2 = other - not used	
RATE UNIT OF MEASURE CODE SYSTEM VERSION	The code system version.	S	Required when rate of administration is used.	11	A/N	CORE20060415	

Structured and Codified Sig Format							
Field Name	Field Description	Mandatory/Situational	Optionality (Mandatory/Situational)	Field Length	Field Characteristics	Qualifier Values	Examples
DOSE RANGE MODIFIER TEXT	Conjunction used to Signify that the Sig contains more than one dose in a range or option.	S	Required when applicable fields repeat.	50	A/N		TO and OR are used to Signify that the Sig contains more than one dose which represent a dose range (TO) (for example - 250 - 500 mg) or contains a dose option (OR) (for example - 1 or 2 tablets).
<b>DOSE CALCULATION SEGMENT</b>	Used to express a dose as a calculation, such as '40mg/kg/day divided into 3 doses'. This segment is used in conjunction with the Dose (Sig) Segment to allow the expression of a dose as a calculation.	S	Required when dose is to be calculated.				Use SNOMED Values 1. As Needed For 2. For (need examples) 3. As Directed For 4. When:
DOSE CALCULATED	The numeric or text expression of the calculated dose.	S	Required when Dose Calculation Segment is used.	18	N		An example of a calculated dose would be '40mg/kg/day divided into 3 doses'. The value in this field for this example would be '40'.
DOSE CALCULATED UNITS TEXT	The textual representation of the Dose Calculated Units Code.	S	Required when Dose Calculation Segment is used.	50	A/N		

Structured and Codified Sig Format							
Field Name	Field Description	Mandatory/Situational	Optionality (Mandatory/Situational)	Field Length	Field Characteristics	Qualifier Values	Examples
DOSE CALCULATED UNITS CODE	The code represented by the Dose Calculated Units Text.	R	Required when Dose Calculation Segment is used.	11	A/N		
DOSE CALCULATED UNITS CODE SYSTEM	The coding system of Dose Calculated Units Code.	S	Required when Dose Calculated Units Code field is populated.	2	A/N	1 = SNOMED 2 = other - not used	
DOSE CALCULATED UNITS CODE SYSTEM VERSION	The code system version.	S	Required when Dose Calculated Units Code field is populated.	11	A/N	CORE20060415	
DOSE CALCULATION EQUATION CODE	The calculation equation code for a dose calculation.	S	Required when Dose is to be calculated.	11	A/N		
DOSE CALCULATION EQUATION CODE SYSTEM	The code system of Dose Calculation Equation Code.	S	Required when Dose Calculation Equation Code field is populated.	2	A/N	1 = SNOMED 2 = other - not used	
DOSE CALCULATION EQUATION CODE SYSTEM VERSION	The code system version.	S	Required when Dose Calculation Equation Code field is populated.	11	A/N	CORE20060415	
RATE of ADMINISTRATION	The amount of time for a {single} dose to be administered	S	Required when prescriber specifies.	11	A/N		

Structured and Codified Sig Format							
Field Name	Field Description	Mandatory/Situational	Optionality (Mandatory/Situational)	Field Length	Field Characteristics	Qualifier Values	Examples
RATE UNIT OF MEASURE TEXT	The textual representation of Rate Unite of Measure Code for the period of time (seconds, minutes, hours, days) in which the dose is to be administered.	S	Required when rate of administration is used.	50	A/N		
RATE UNIT OF MEASURE CODE	The code represented by the Rate Unit Of Measure Text.	S	Required when rate of administration is used.	11	A/N		
RATE UNIT OF MEASURE CODE SYSTEM	The coding system of the Rate Unit Of Measure Code.	S	Required when rate of administration is used.	2	A/N	1 = SNOMED 2 = other - not used	
RATE UNIT OF MEASURE CODE SYSTEM VERSION	The code system version.	S	Required when rate of administration is used.	11	A/N	CORE20060415	
DOSE RANGE MODIFIER	Can have one of two values - TO and OR are used to Signify that the Sig contains more than one dose which represent a dose range (TO) (for example - 250 - 500 mg) or contains a dose option (OR) (for example - 1 or 2 tablets).	S	Required when Dose Sequence Position is used.	50	A/N		

Structured and Codified Sig Format							
Field Name	Field Description	Mandatory/Situational	Optionality (Mandatory/Situational)	Field Length	Field Characteristics	Qualifier Values	Examples
DOSE VARIABLE ELEMENT	Variable for dose calculations. For the example this variable would be '1' for a dose that is 'mg/kg' and '1' for 'kg/day' and '3' for '3 doses' and the DOSE VARIABLE UNITS TEXT (see below) would be 'kg' and 'day' and 'doses'.	S	Required when a dose is to be calculated.	18	N		
DOSE VARIABLE UNITS TEXT	The dose variable units - the units should be standardized (SNOMED CT mapped to NCPDP Units, for example). For the example, above, the DOSE VARIABLE UNITS would be 'kg' and 'day' and 'doses'.	S	Required when a dose is to be calculated.	50	A/N		
VARIABLE SEQUENCE POSITION	Defines the sequence position for the DOSE VARIABLE. This must be an integer starting a 1, a Null value means that this is a unique string with no repeat/no sequence. For the example, for a dose that is '___mg/kg/day', '1kg' is in VARIABLE SEQUENCE POSITION '1' and '1 day' is in VARIABLE SEQUENCE POSITION '2' and '3 doses' is in VARIABLE SEQUENCE POSITION '3'.	S	Required when applicable fields repeat.	2	A/N		

Structured and Codified Sig Format							
Field Name	Field Description	Mandatory/Situational	Optionality (Mandatory/Situational)	Field Length	Field Characteristics	Qualifier Values	Examples
DOSE CALCULATION EQUATION	The calculation equation for a dose calculation. For the example it would be 'DOSE VARIABLE (Fn1) DOSE VARIABLE (Fn2) DOSE VARIABLE (Fn3) DOSE VARIABLE' for '40 mg/kg/day/3 doses' (40 milligrams per kilogram per day divided into three doses), with VARIABLE1 = '40', fn1 = VARIABLE2 = '1' fn 2 = '/', VARIABLE3 = '1' fn3 = '/', and VARIABLE4 = '3'.		Is there a need for a calculation type?	2	A/N		
<b>VEHICLE SEGMENT</b>	Defines a vehicle specified for the delivery of the product.	S	Required when prescriber specifies.				
VEHICLE NAME	The name of the vehicle.	S	Required when segment is used.	50	A/N		An example of a vehicle is Normal Saline.
VEHICLE NAME CODE	The code representing the Vehicle Name.	S	Required when Vehicle Name is used	11	A/N		
VEHICLE NAME CODE SYSTEM	The coding system of Vehicle Name Code.	S	Required when Vehicle Name Code is used.	2	A/N	1 = SNOMED 2 = other - not used	
VEHICLE CODE NAME SYSTEM VERSION	The code system version.	S	Required when Vehicle Name Code System is used.	11	A/N	CORE20060415	

Structured and Codified Sig Format							
Field Name	Field Description	Mandatory/Situational	Optionality (Mandatory/Situational)	Field Length	Field Characteristics	Qualifier Values	Examples
VEHICLE VOLUME	A volume, expressed in a value.	S	Required when segment is used.	18	N		
VEHICLE VOLUME UNITS TEXT	The textual representation of Vehicle Volume Units Code.	S	Required when segment is used.	50	A/N		
VEHICLE VOLUME UNITS CODE	The code represented by Vehicle Volume Units Text.	S	Required when segment is used.	11	A/N		
VEHICLE VOLUME CODE SYSTEM	The coding system of Vehicle Volume Units Code.	S	Required when segment is used.	2	A/N	1 = SNOMED 2 = other - not used	
VEHICLE VOLUME CODE SYSTEM VERSION	This is the code system version.	S	Required when segment is used.	11	A/N	CORE20060415	
MULTIPLE VEHICLE MODIFIER	Used with the values AND or OR to denote if for an instance of more than one vehicle if all vehicles are used together (AND), or if each of the listed vehicles is an option (OR).	S	Required when applicable fields repeat.	50	A/N		
<b>ROUTE SEGMENT</b>	Defines the route of administration.	S	Required when prescriber specifies.				

Structured and Codified Sig Format							
Field Name	Field Description	Mandatory/Situational	Optionality (Mandatory/Situational)	Field Length	Field Characteristics	Qualifier Values	Examples
ROUTE TEXT	The textual representation of the Route Code.	S	Required when segment is used.	50	A/N		Examples include orally, by mouth, apply, administer, swallow, insert.
ROUTE CODE	The code represented by Route Text.	S	Required when segment is used.	11	A/N		
ROUTE CODE SYSTEM	The coding system of Route Code.	S	Required when segment is used.	2	A/N	1 = SNOMED 2 = other - not used	
ROUTE CODE SYSTEM VERSION	The code system version.	S	Required when segment is used.	11	A/N	CORE20060415	
MULTIPLE ROUTE MODIFIER	Used with the values AND or OR to express when there is more than one route as to whether the routes are all required to be used (AND) or if any of the routes can be used (OR).	S	Required when applicable fields repeat.	50	A/N		
<b>SITE SEGMENT</b>	Defines the site of administration.	S	Required when prescriber specifies a site.				
SITE TEXT	The textual representation of Site Code. It is the site of administration.	S	Required when segment is used.	50	A/N		Examples include left ear, affected area, antecubital vein.
SITE CODE	The code represented by Site Code	S	Required when segment is used.	11	A/N		

Structured and Codified Sig Format							
Field Name	Field Description	Mandatory/Situational	Optionality (Mandatory/Situational)	Field Length	Field Characteristics	Qualifier Values	Examples
SITE CODE SYSTEM	The coding system of Site Code.	S	Required when segment is used.	2	A/N	1 = SNOMED 2 = other - not used	
SITE CODE SYSTEM VERSION	The code system version.	S	Required when segment is used.	11	A/N	CORE20060415	
MULTIPLE SITE MODIFIER	Used with the values , NOT, AND or OR to express when there is more than one site as to whether the sites are all required or excluded to be used (AND) or if any of the sites can be used (OR).	S	Required when applicable fields repeat.	50	A/N		
<b>FREQUENCY SEGMENT</b>	Defines a frequency of administration. Frequency is events per unit of time.	S	Required when prescriber specifies.				
FREQUENCY	The numeric interval for the event. Used to define a FREQUENCY of administration, such as four times per day.	S	Required when segment is used.	11	A/N		
FREQUENCY UNITS TEXT	The textual representation of Frequency Units Code.	S	Required when segment is used.	50	A/N		
FREQUENCY UNITS CODE	The code represented by Frequency Units Text.	S	Required when segment is used.	11	A/N		

Structured and Codified Sig Format							
Field Name	Field Description	Mandatory/Situational	Optionality (Mandatory/Situational)	Field Length	Field Characteristics	Qualifier Values	Examples
FREQUENCY UNITS CODE SYSTEM	The coding system of Frequency Units Code.	S	Required when Frequency Units Code is used.	2	A/N	1 = SNOMED 2 = other - not used	
FREQUENCY UNITS CODE SYSTEM VERSION	The code system version.	S	Required when Frequency Units Code is used.	11	A/N	CORE20060415	
VARIABLE FREQUENCY MODIFIER	Used with the values AND or OR to express when there is more than one FREQUENCY as to whether the frequencies are all required to be used (AND) or if any of the frequencies can be used (OR). An example would be 'bid or tid'.	S	Required when applicable fields repeat.	50	A/N		
<b>ADMINISTRATION TIMING SEGMENT</b>	Defines a specific administration day, date or time.	S	Required when prescriber specifies.				

Structured and Codified Sig Format							
Field Name	Field Description	Mandatory/Situational	Optionality (Mandatory/Situational)	Field Length	Field Characteristics	Qualifier Values	Examples
ADMINISTRATION TIMING TEXT	The textual representation of Administration Timing Code.	S	Required when segment is used.	50	A/N		Can be a text string (Morning, Evening, Before Meals, 1 Hour After Meals, 3 Hours After Meals, Before Bed) or an exact time. Exact dates and/or times should be expressed in a format consistent with ISO-8601 Date-Time Format – yyyy-mm-ddThh:mm.
ADMINISTRATION TIMING CODE	The code representing the Administration Timing Text.	S	Required when segment is used.	11	A/N		
ADMINISTRATION TIMING CODE SYSTEM	The coding system of Administration Timing Code. An appropriate coding system needs to be identified (recommend SNOMED CT working with NCPDP, HL7, and ASTM (CCR) to develop the appropriate text strings and their coding).	S	Required when segment is used.	2	A/N	1 = SNOMED 2 = other - not used	
ADMINISTRATION TIMING CODE SYSTEM VERSION	The code system version.	S	Required when segment is used.	11	A/N	CORE20060415	

Structured and Codified Sig Format							
Field Name	Field Description	Mandatory/Situational	Optionality (Mandatory/Situational)	Field Length	Field Characteristics	Qualifier Values	Examples
MULTIPLE ADMINISTRATION MODIFIER	Used with the values AND or OR to express when there is more than one ADMINISTRATION TIME as to whether the times are all required to be used (AND) or if any of the times can be used (OR).	S	Required when applicable fields repeat.	50	A/N		
INTERVAL SEGMENT	Defines a frequency of administration. Interval is the time between events.	S	Required when prescriber specifies.				
INTERVAL VALUE	The numeric time between events. Used to define an INTERVAL of administration, such as every 15 minutes, every four hours, etc.	S	Required when segment is used.	18	N		
INTERVAL UNITS TEXT	The textual representation of Interval Units Code.	S	Required when segment is used.	50	A/N		Hours, Minutes, Days
INTERVAL UNITS CODE	The code represented by Interval Units Text.	S	Required when segment is used.	2	A/N		
INTERVAL UNITS CODE SYSTEM	The coding system of Interval Units Code.	S	Required when Interval Units Code is used.	2	A/N	1 = SNOMED 2 = other - not used	
INTERVAL UNITS CODE SYSTEM VERSION	The code system version.	S	Required when Interval Units Code is used.	11	A/N	CORE20060415	

Structured and Codified Sig Format							
Field Name	Field Description	Mandatory/Situational	Optionality (Mandatory/Situational)	Field Length	Field Characteristics	Qualifier Values	Examples
VARIABLE INTERVAL MODIFIER	Used with the values AND or OR to express when there is more than one INTERVAL as to whether the intervals are all required to be used (AND) or if any of the frequencies can be used (OR). An example would be '1 hour post meals' AND '3 hours post meals'.	S	Required when applicable fields repeat.	50	A/N		
<b>DURATION SEGMENT</b>	Defines a duration of use/therapy.	S	Required when prescriber specifies.				
DURATION TEXT	The textual representation of Duration Units Code. Defines a duration of therapy/use.	S	Required when segment is used.	50	A/N		
DURATION UNITS	The numeric duration units.	S	Required when segment is used.	11	A/N		
DURATION UNITS CODE	The code represented by the Duration Units Text.	S	Required when segment is used.	11	A/N		
DURATION UNITS CODE SYSTEM	The coding system of Duration Units Code.	S	Required when segment is used.	2	A/N	1 = SNOMED 2 = other - not used	
DURATION UNITS CODE SYSTEM VERSION	The code system version.	S	Required when segment is used.	11	A/N	CORE20060415	

Structured and Codified Sig Format							
Field Name	Field Description	Mandatory/Situational	Optionality (Mandatory/Situational)	Field Length	Field Characteristics	Qualifier Values	Examples
VARIABLE DURATION MODIFIER	Used with the values AND or OR to express when there is more than one DURATION as to whether the durations are all required to be used (AND) or if any of the durations can be used (OR). Examples would be 'x 3-5 days' or 'for 3 days unless symptoms persist, then x 7 days'.	S	Required when applicable fields repeat.	50	A/N	AND OR	
DOSE RESTRICTION SEGMENT	The dose restriction segment of the Sig which defines a maximum or dose limit.	S	Required when prescriber specifies.				This segment is useful for pediatrics, narcotics, ototoxic and renal toxic scripts. It allows the max to be calculated, be a single max or a range.
DOSE MAXIMUM VALUE	Defines a DOSE MAXIMUM, so that the Sig can represent the concept, 'Not to exceed ____.' Expression of a DOSE MAXIMUM involves placing the core dose value in this field and the units and variables in the fields that follow.	S	Required when Dose Restriction Segment is used.	18	N		Examples: '10 Tablets in 24 Hours' or '1000 mg/kg/hr' - for these examples the value '10' or '1000' would go in this DOSE MAXIMUM VALUE field.

Structured and Codified Sig Format							
Field Name	Field Description	Mandatory/Situational	Optionality (Mandatory/Situational)	Field Length	Field Characteristics	Qualifier Values	Examples
DOSE MAXIMUM UNITS TEXT	The textual representation of the Dose Maximum Units Code.	S	Required when Dose Restriction Segment is used.	50	A/N		Examples values 'Tablets' or 'mg' would be placed in this field
DOSE MAXIMUM UNITS CODE	The code represented by the Dose Maximum Units Text.	S	Required when Dose Restriction Segment is used.	11	A/N		
DOSE MAXIMUM UNITS CODE SYSTEM	The code system of Dose Maximum Units Code.	S	Required when Dose Maximum Units Code is used.	2	A/N	1 = SNOMED 2 = other - not used	
DOSE MAXIMUM UNITS CODE SYSTEM VERSION	The code system version.	S	Required when Dose Maximum Units Code is used.	11	A/N	CORE20060415	
DOSE MAXIMUM VARIABLE UNITS	The numeric representation of the maximum dose calculations.	S	Required when Dose Restriction Maximum includes a range in quantity or interval.	18	N		Example: the value in this field would be '24' for the first example and '1' and '1' for a dose that is '____mg/kg/hr' for the second example.
DOSE MAXIMUM VARIABLE UNITS TEXT	The textual representation of the Dose Maximum Variable Units Code.	S	Required when dose maximum variable units is used.	50	A/N		Example: this would be 'Hours' for the first example and 'kg' and 'hr' for the second example.

Structured and Codified Sig Format							
Field Name	Field Description	Mandatory/Situational	Optionality (Mandatory/Situational)	Field Length	Field Characteristics	Qualifier Values	Examples
DOSE MAXIMUM VARIABLE UNITS CODE	The code represented by the Dose Maximum Variable Units Text.	S	Required when dose maximum variable units is used.	11	A/N		
DOSE MAXIMUM VARIABLE UNITS CODE SYSTEM	The coding system of Dose Maximum Variable Units Code.	S	Required when dose maximum variable units code is used.	2	A/N	1 = SNOMED 2 = other - not used	
DOSE MAXIMUM VARIABLE UNITS CODE SYSTEM VERSION	The code system version.	S	Required when dose maximum variable units code is used.	11	A/N	CORE20060415	
DOSE MAXIMUM CALCULATION EQUATION CODE	The calculation equation code for a dose calculation.	S	Required when dose maximum calculation equation code is available.	11	A/N		
DOSE MAXIMUM CALCULATION EQUATION CODE SYSTEM	The coding system of Dose Maximum Calculation Equation Code.	S	Required when dose maximum calculation equation code is used.	2	A/N	1 = SNOMED 2 = other - not used	
DOSE MAXIMUM CALCULATION EQUATION CODE SYSTEM VERSION	The code system version.	S	Required when dose maximum calculation equation code is used.	11	a/n	CORE20060415	

Structured and Codified Sig Format							
Field Name	Field Description	Mandatory/Situational	Optionality (Mandatory/Situational)	Field Length	Field Characteristics	Qualifier Values	Examples
VARIABLE DOSE RESTRICTION MODIFIER	Used with the values AND or OR to express when there is more than one DURATION as to whether the durations are all required to be used (AND) or if any of the durations can be used (OR). Examples would be 'x 3-5 days' or 'for 3 days unless symptoms persist, then x 7 days'.	S	Required when applicable fields repeat.	50	A/N		
INDICATION SEGMENT	Defines the indication for use of the medication as meant to be conveyed to the patient.	S	Required when prescriber specifies.				
INDICATION TIMING TEXT	The textual representation of Indication Timing.	S	Required when prescriber specifies.	50	A/N		
INDICATION TIMING CODE	The indication timing code.	S	Required when prescriber specifies.	11	A/N		Use SNOMED Values 1. As Needed For 2. For (need examples) 3. As Directed For 4. When:
INDICATION TIMING CODE SYSTEM	The code system for indication timing code.	S	Required when prescriber specifies.	2	A/N	1 = SNOMED 2 = other - not used	

Structured and Codified Sig Format							
Field Name	Field Description	Mandatory/Situational	Optionality (Mandatory/Situational)	Field Length	Field Characteristics	Qualifier Values	Examples
INDICATION TIMING CODE SYSTEM VERSION	The code system version.	S	Required when prescriber specifies.	11	A/N	CORE20060415	
INDICATION TEXT	The textual representation of Indication Code.	S	Required when segment is used.	50	A/N		
INDICATION CODE	The indication for use code.	S	Required when segment is used.	11	A/N		
INDICATION CODE SYSTEM	The coding system of Indication Code.	S	Required when segment is used.	2	A/N	1 = SNOMED 2 = other - not used	
INDICATION CODE SYSTEM VERSION	The code system version.	S	Required when Indication Code System is used.	11	A/N	CORE20060415	
INDICATION VALUE	The numeric expression of a value when it applies to an Indication.	S	Required when segment is used.	18	N		Example: 'Fingerstick Blood Glucose >180'.
INDICATION VALUE UNITS	The textual representation of the units of measure associated with INDICATION VALUE	S	Required when segment is used and when Units are applicable to the Indication.	50	A/N		
INDICATION VALUE UNITS CODE	The code represented by Indication Value Units Text.	S	Required when segment is used.	11	A/N		
INDICATION VALUE UNITS CODE SYSTEM	The coding system of Indication Value Units Code.	S	Required when Indication Value Units Code is used.	2	A/N	1 = SNOMED 2 = other - not used	

Structured and Codified Sig Format							
Field Name	Field Description	Mandatory/Situational	Optionality (Mandatory/Situational)	Field Length	Field Characteristics	Qualifier Values	Examples
INDICATION VALUE UNITS CODE SYSTEM VERSION	The code system version.	S	Required when Indication Value Units Coding System is used.	11		CORE20060415	
VARIABLE INDICATION MODIFIER	Used with the values AND or OR to express when there is more than one INDICATION as to whether all the indications must apply (AND) or if any of the indications can apply (OR). Examples would 'fever and cough' and 'pain or inflammation'.	S	Required when applicable fields repeat.	50	A		
<b>STOP SEGMENT</b>	Used to express a hard stop, such as the last Sig sequence in a tapering dose, where the last sequence is 'then D/C' or where the therapy/drug is used to treat a condition and that treatment is for a fixed duration with a hard stop, such as antibiotic treatment, etc.	S	Required when prescriber specifies.				
STOP INDICATOR	Defines if a stop is present.	S	Required when segment is used.	1	A/N	blank/null = Not Specified 1 = Yes 2 = No	
STOP TEXT	The textual representation of the Stop Code	S	Required when segment is used.	50	A/N		

Structured and Codified Sig Format							
Field Name	Field Description	Mandatory/Situational	Optionality (Mandatory/Situational)	Field Length	Field Characteristics	Qualifier Values	Examples
STOP CODE	The stop code.	S	Required when segment is used.	11	A/N		
STOP CODE SYSTEM	The stop code system	S	Required when Stop Code is used.	2	A/N		
STOP CODE SYSTEM VERSION	The stop code system version	S	Required when Stop Code is used.	11	A/N	CORE20060415	
<b>Sig FREE TEXT STRING SEGMENT</b>	Used to reflect the text string express of the Sig. It should always be used, and in addition is the only segment to place a free text Sig from a generating system that CANNOT generate a structured Sig.	M	Required				
Sig FREE TEXT STRING INDICATOR	Indicates the system capability of representing the instructions.	M	Required	1	A/N	Recommended values: 1. Capture what the prescriber ordered. 2. Completely from structured Sig. 3. Pure free text. 4. Fulfillment Instructions 5. Patient Instructions	
FREE TEXT STRING	Free Text	M	Required	140	A/N		

## 6. VERSION IDENTIFICATION SYSTEM

A Version/Release level reference scheme is in place for the NCPDP *Structured and Codified Sig Format Implementation Guide*. The reference scheme consists of a two-digit enumerator in the format X.Y, where:

X = Version Identification

Y = Release Identification

The Release Identification changes are "downward compatible" with their corresponding Master Version Identification. New releases enable additional functionality through the use of the new fields, additional values that may be placed in an existing field, and updated documentation or clarification of existing or new data elements.

The Version Identification changes are made when non-compatible changes are made to the existing standard; these are typically changes that alter the interpretation of the standard. This may involve changes in field sizes, field formats, and deletions of values, fields, and re-definitions of existing values used in a particular field.

NCPDP maintains and makes available the latest release from the last two (2) Master Versions of the NCPDP *Structured and Codified Sig Format Implementation Guide*.

## **7. STANDARD CONVENTIONS**

### **7.1 REQUIRED AND SITUATIONAL USAGE**

For this document, the following conventions apply.

Mandatory -

If the field and/or segment indicates "Mandatory", then this must always be populated.

Required when –

Used in the Situation column, "Required when" designates the field is to be used when the requirement is satisfied. For example, "Required if Patient ID is used" means that if the Patient ID field contains a value, the Patient ID Qualifier must also contain a valid value.

### **7.2 CHARACTER SETS DESIGNATION**

This is a chart to explain the different designations in the tables in 4 and 5. This is only for explanation to give guidance on what fields are numeric and which are alphanumeric. The specific implementation guide syntax that uses this *Structured and Codified Sig Format* will adapt to whatever conventions are normally found in that standard.

N	Unsigned Numeric, always right justified, zero filled. When decimals are supported, a Format statement is included. Example: 9(7)v999 or 9(7)v9(3) is represented as 9999999999 9(3) is represented as 999
A/N	Alpha/Numeric, always left justified, space filled. A-Z, Ø-9, and printable characters.

Note: To clearly show the 0 (zero) character, in this document the slashed Ø is used.

### **7.3 REPETITION AND MULTIPLE OCCURRENCES**

NCPDP *Structured and Codified Sig Format* includes the ability to repeat certain fields and groups of fields. The complexity of some Sigs requires that the format allow for repetition of segments and elements within a segment. When repetition is required, each electronic prescribing transaction standards organization will need to provide guidance as to the most appropriate way to handle the repetition. When an element(s) needs to repeat, the entire Structured and Codified Sig Format will repeat, with the necessary fields populated.

Examples:

If the Sig includes a stop, such as "then stop", the last sequence of the Sig format would have only the Repeating Sig Segment, Dose Indicator and Stop Segments populated.

If the Sig were written to say "take 1 each morning upon awakening, then take 1 each evening", in the first instance, the administration timing segment would include "morning" with "upon awakening" as the modifier. The second instance would include only "evening" in the Administration Timing segment.

## 8. STRUCTURED AND CODIFIED SIG FORMAT EXAMPLES

### 8.1 EXAMPLE 1: TAKE 1 TABLET ORALLY EVERY MORNING

Field Name	Take 1 tablet orally every morning.
<b>REPEATING Sig SEGMENT</b>	
Sig SEQUENCE POSITION	∅
<b>DOSE SEGMENT</b>	
Dose Indicator	1
DOSE DELIVERY METHOD TEXT	take
DOSE DELIVERY METHOD CODE	419652∅∅1
DOSE DELIVERY METHOD CODE SYSTEM	1
DOSE DELIVERY METHOD CODE SYSTEM VERSION	CORE2∅∅6∅415
DOSE	1
DOSE UNITS TEXT	tablet
DOSE UNITS CODE	385∅55∅∅1
DOSE UNITS CODE SYSTEM	1
DOSE UNITS CODE SYSTEM VERSION	CORE2∅∅6∅415
<b>ROUTE SEGMENT</b>	
ROUTE TEXT	orally
ROUTE CODE	26643∅∅6
ROUTE CODE SYSTEM	1
ROUTE CODE SYSTEM VERSION	CORE2∅∅6∅415
<b>FREQUENCY SEGMENT</b>	
FREQUENCY	every
FREQUENCY UNITS TEXT	
FREQUENCY UNITS CODE	C4438∅8
FREQUENCY UNITS CODE SYSTEM	1
FREQUENCY UNITS CODE SYSTEM VERSION	CORE2∅∅6∅415
<b>ADMINISTRATION TIMING SEGMENT</b>	
ADMINISTRATION TIMING TEXT	morning
ADMINISTRATION TIMING CODE	73775∅∅8
ADMINISTRATION TIMING CODE SYSTEM	1
ADMINISTRATION TIMING CODE SYSTEM VERSION	CORE2∅∅6∅415
<b>Sig FREE TEXT STRING SEGMENT</b>	
Sig FREE TEXT STRING INDICATOR	2
FREE TEXT STRING	Take one tablet orally every morning.

Version 1.0

[Full Month][Century Year]

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## 8.2 EXAMPLE 2: PREDNISONE TAPERING DOSE SIG

Field Name	Prednisone 10 mg Take 4 tablets orally every day for 3 days, then take 3 tablets orally every day for 3 days, then take 2 tablets orally every day for 3 days, then take 1 tablet orally every day for 3 days, then discontinue.				
<b>REPEATING Sig SEGMENT</b>					
Sig SEQUENCE POSITION	1	2	3	4	5
<b>DOSE SEGMENT</b>					
Dose Indicator	1	1	1	1	1
DOSE DELIVERY METHOD TEXT	take	take	take	take	
DOSE DELIVERY METHOD CODE	419652001	419652001	419652001	419652001	
DOSE DELIVERY METHOD CODE SYSTEM	1	1	1	1	
DOSE DELIVERY METHOD CODE SYSTEM VERSION	CORE20060415	CORE20060415	CORE20060415	CORE20060415	
DOSE	4	3	2	1	
DOSE UNITS TEXT	tablet	tablet	tablet	tablet	
DOSE UNITS CODE	385055001	385055001	385055001	385055001	
DOSE UNITS CODE SYSTEM	1	1	1	1	
DOSE UNITS CODE SYSTEM VERSION	CORE20060415	CORE20060415	CORE20060415	CORE20060415	
<b>ROUTE SEGMENT</b>					
ROUTE TEXT	orally	orally	orally	orally	
ROUTE CODE	26643006	26643006	26643006	26643006	
ROUTE CODE SYSTEM	1	1	1	1	
ROUTE CODE SYSTEM VERSION	CORE20060415	CORE20060415	CORE20060415	CORE20060415	
<b>FREQUENCY SEGMENT</b>					
FREQUENCY	every	every	every	every	
FREQUENCY UNITS TEXT					

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Field Name	<b>Prednisone 10 mg</b> <b>Take 4 tablets orally every day for 3 days,</b> <b>then take 3 tablets orally every day for 3 days,</b> <b>then take 2 tablets orally every day for 3 days,</b> <b>then take 1 tablet orally every day for 3 days,</b> <b>then discontinue.</b>				
FREQUENCY UNITS CODE	C443808	C443808	C443808	C443808	
FREQUENCY UNITS CODE SYSTEM	1	1	1	1	
FREQUENCY UNITS CODE SYSTEM VERSION	CORE20060415	CORE20060415	CORE20060415	CORE20060415	
<b>INTERVAL SEGMENT</b>					
INTERVAL VALUE	1	1	1	1	
INTERVAL UNITS TEXT	day	day	day	day	
INTERVAL UNITS CODE	258703001	258703001	258703001	258703001	
INTERVAL UNITS CODE SYSTEM	1	1	1	1	
INTERVAL UNITS CODE SYSTEM VERSION	CORE20060415	CORE20060415	CORE20060415	CORE20060415	
VARIABLE INTERVAL MODIFIER	then	then	then	then	
<b>DURATION SEGMENT</b>					
DURATION TEXT	3	3	3	3	
DURATION UNITS	day	day	day	day	
DURATION UNITS CODE	258703001	258703001	258703001	258703001	
DURATION UNITS CODE SYSTEM	1	1	1	1	
DURATION UNITS CODE SYSTEM VERSION	CORE20060415	CORE20060415	CORE20060415	CORE20060415	
<b>STOP SEGMENT</b>					
STOP INDICATOR					1
STOP TEXT					then discontinue
STOP CODE					C443794
STOP CODE SYSTEM					1
STOP CODE SYSTEM VERSION					CORE20060415
<b>Sig FREE TEXT STRING SEGMENT</b>					

<b>Field Name</b>	<b>Prednisone 10 mg</b> <b>Take 4 tablets orally every day for 3 days,</b> <b>then take 3 tablets orally every day for 3 days,</b> <b>then take 2 tablets orally every day for 3 days,</b> <b>then take 1 tablet orally every day for 3 days,</b> <b>then discontinue.</b>				
Sig FREE TEXT STRING INDICATOR	2	2	2	2	2
FREE TEXT STRING	Take 4 tablets orally every day for 3 days; then take 3 tablets orally every day for 3 days; then take 2 tablets orally every day for 3 days; then take one tablet orally every day for 3 days, then discontinue.				

### 8.3 EXAMPLE 3: ZITHROMAX (Z-PAK)

Field Name	Z Pak: Take 2 tablets orally now, then 1 tablet orally every day	
<b>REPEATING Sig SEGMENT</b>		
Sig SEQUENCE POSITION	1	2
<b>DOSE SEGMENT</b>		
Dose Indicator	1	1
DOSE DELIVERY METHOD TEXT	take	take
DOSE DELIVERY METHOD CODE	419652001	419652001
DOSE DELIVERY METHOD CODE SYSTEM	1	1
DOSE DELIVERY METHOD CODE SYSTEM VERSION	CORE20060415	CORE20060415
DOSE	2	1
DOSE UNITS TEXT	tablets	tablets
DOSE UNITS CODE	385055001	385055001
DOSE UNITS CODE SYSTEM	1	1
DOSE UNITS CODE SYSTEM VERSION	CORE20060415	CORE20060415
<b>ROUTE SEGMENT</b>		
ROUTE TEXT	orally	orally
ROUTE CODE	26643006	26643006
ROUTE CODE SYSTEM	1	1
ROUTE CODE SYSTEM VERSION	CORE20060415	CORE20060415
<b>FREQUENCY SEGMENT</b>		
FREQUENCY		
FREQUENCY UNITS TEXT		every
FREQUENCY UNITS CODE		C443808
FREQUENCY UNITS CODE SYSTEM		1
FREQUENCY UNITS CODE SYSTEM VERSION		CORE20060415
<b>INTERVAL SEGMENT</b>		
INTERVAL VALUE		1
INTERVAL UNITS TEXT		day
INTERVAL UNITS CODE		258703001
INTERVAL UNITS CODE SYSTEM		1
INTERVAL UNITS CODE SYSTEM VERSION		CORE20060415
VARIABLE INTERVAL MODIFIER		
<b>ADMINISTRATION TIMING SEGMENT</b>		

Field Name	Z Pak: Take 2 tablets orally now, then 1 tablet orally every day	
ADMINISTRATION TIMING TEXT	now	
ADMINISTRATION TIMING CODE	C443809	
ADMINISTRATION TIMING CODE SYSTEM	1	
ADMINISTRATION TIMING CODE SYSTEM VERSION	CORE20060415	
<b>INTERVAL SEGMENT</b>		
VARIABLE INTERVAL MODIFIER	then	
<b>Sig FREE TEXT STRING SEGMENT</b>		
Sig FREE TEXT STRING INDICATOR	3	3
FREE TEXT STRING	Take two tablets orally now, then one tablet orally every day.	

**8.4 EXAMPLE 4 : TAKE 1 TABLET ORALLY EVERY MORNING UPON AWAKENING AND EVERY EVENING**

Field Name	Take 1 tablet orally every morning upon awakening and every evening	
<b>REPEATING Sig SEGMENT</b>		
Sig SEQUENCE POSITION	1	2
<b>DOSE SEGMENT</b>		
Dose Indicator	1	1
DOSE DELIVERY METHOD TEXT	take	take
DOSE DELIVERY METHOD CODE	419652001	419652001
DOSE DELIVERY METHOD CODE SYSTEM	1	1
DOSE DELIVERY METHOD CODE SYSTEM VERSION	CORE20060415	CORE20060415
DOSE	1	1
DOSE UNITS TEXT	tablet	tablet
DOSE UNITS CODE	385055001	385055001
DOSE UNITS CODE SYSTEM	1	1
DOSE UNITS CODE SYSTEM VERSION	CORE20060415	CORE20060415
<b>ROUTE SEGMENT</b>		
ROUTE TEXT	orally	orally
ROUTE CODE	26643006	26643006
ROUTE CODE SYSTEM	1	1
ROUTE CODE SYSTEM VERSION	CORE20060415	CORE20060415
<b>FREQUENCY SEGMENT</b>		
FREQUENCY	every	every
FREQUENCY UNITS TEXT		
FREQUENCY UNITS CODE	C443808	C443808
FREQUENCY UNITS CODE SYSTEM	1	1
FREQUENCY UNITS CODE SYSTEM VERSION	CORE20060415	CORE20060415
VARIABLE FREQUENCY MODIFIER	AND	
<b>ADMINISTRATION TIMING SEGMENT</b>		
ADMINISTRATION TIMING TEXT	morning	evening
ADMINISTRATION TIMING CODE	73775008	3157002
ADMINISTRATION TIMING CODE SYSTEM	1	1
ADMINISTRATION TIMING CODE SYSTEM VERSION	CORE20060415	CORE20060415
MULTIPLE ADMINISTRATION MODIFIER	upon awakening	
<b>Sig FREE TEXT STRING SEGMENT</b>		

Field Name	<b>Take 1 tablet orally every morning upon awakening and every evening</b>	
Sig FREE TEXT STRING INDICATOR	3	3
FREE TEXT STRING	Take one tablet orally every morning upon awakening and every evening.	

**8.5 EXAMPLE 5: TAKE 1 TO 2 TEASPOONFUL ORALLY EVERY 4 TO 6 HOURS AS NEEDED FOR COUGH.**

Field Name	Take 1 to 2 teaspoonsful orally every 4 to 6 hours as needed for cough	
<b>REPEATING Sig SEGMENT</b>		
Sig SEQUENCE POSITION	1	2
<b>DOSE SEGMENT</b>		
Dose Indicator	1	1
DOSE DELIVERY METHOD TEXT	take	take
DOSE DELIVERY METHOD CODE	419652001	419652001
DOSE DELIVERY METHOD CODE SYSTEM	1	1
DOSE DELIVERY METHOD CODE SYSTEM VERSION	CORE20060415	CORE20060415
DOSE	1	2
DOSE UNITS TEXT	teaspoonful	teaspoonful
DOSE UNITS CODE	415703001	415703001
DOSE UNITS CODE SYSTEM	1	1
DOSE UNITS CODE SYSTEM VERSION	CORE20060415	CORE20060415
DOSE RANGE MODIFIER TEXT	to	
<b>ROUTE SEGMENT</b>		
ROUTE TEXT	orally	orally
ROUTE CODE	26643006	26643006
ROUTE CODE SYSTEM	1	1
ROUTE CODE SYSTEM VERSION	CORE20060415	CORE20060415
<b>FREQUENCY SEGMENT</b>		
FREQUENCY	every	every
FREQUENCY UNITS TEXT		
FREQUENCY UNITS CODE	C443808	C443808
FREQUENCY UNITS CODE SYSTEM	1	1
FREQUENCY UNITS CODE SYSTEM VERSION	CORE20060415	CORE20060415
<b>INTERVAL SEGMENT</b>		
INTERVAL VALUE	4	6
INTERVAL UNITS TEXT	hours	hours
INTERVAL UNITS CODE	258702006	258702006
INTERVAL UNITS CODE SYSTEM	1	1

<b>Field Name</b>	<b>Take 1 to 2 teaspoonsful orally every 4 to 6 hours as needed for cough</b>	
INTERVAL UNITS CODE SYSTEM VERSION	CORE20060415	CORE20060415
VARIABLE INTERVAL MODIFIER	to	
<b>INDICATION SEGMENT</b>		
INDICATION TIMING TEXT	as needed for	
INDICATION TIMING CODE	C443814	
INDICATION TIMING CODE SYSTEM	1	
INDICATION TIMING CODE SYSTEM VERSION	CORE20060415	
INDICATION TEXT	cough	
INDICATION CODE	49727002	
INDICATION CODE SYSTEM	1	
INDICATION CODE SYSTEM VERSION	CORE20060415	
<b>Sig FREE TEXT STRING SEGMENT</b>		
Sig FREE TEXT STRING INDICATOR	2	2
FREE TEXT STRING	Take one to two teaspoonsful orally every 4 to 6 hours as needed for cough	

## **9. FREQUENTLY ASKED QUESTIONS**

### **9.1 HOW ARE MULTIPLE FREE TEXT MESSAGES HANDLED WITHIN THE STRUCTURED AND CODIFIED SIG FORMAT?**

The free text field is 140 characters in length. Messages beyond that length will require that the free text segment repeat.

### **9.2 HOW ARE THE SEQUENTIAL COMPONENTS OF A SIG LINKED TO THE CORRECT FREQUENCY OR INTERVAL?**

The repeating Sig segment includes the Sig Sequence Position field. This field must be populated in order for the sequential components of the Sig to be linked correctly.

### **9.3 SUPPLEMENTAL INFORMATION, SUCH AS ADDITIONAL PATIENT INSTRUCTIONS, OR PHARMACIST FULFILLMENT INSTRUCTIONS ARE OFTEN INCLUDED ON A PRESCRIPTION. HOW ARE THESE ADDRESSED WITHIN THE STRUCTURED AND CODIFIED SIG FORMAT?**

Supplemental information is not part of the Sig and as such is not included in the Structured and Codified Sig Format. Please refer to the electronic prescribing standard for more information on how to include this. The Free Text field can also be used if needed.

### **9.4 HOW DOES THE STRUCTURED AND CODIFIED SIG FORMAT ADDRESS THE USE OF FRACTIONS?**

The Structured and Codified Sig Format follows standard convention for the use of numbers. Fractions should be converted to metric decimals. Please refer to Section 7 for additional information.

### **9.5 WHY WOULD THERE BE MULTIPLE OCCURRENCES/LOOPS?**

Variation within a Sig requires that fields and/or segments repeat. Variation could occur within a single dosing event, such as take 1 to 2 tablets every 4 hours; or the variation could occur across multiple events, such as take 3 tablets for 3 days, then take 2 tablets for 3 days. Another example is that of a sliding scale, such as insulin, which may depend on a result (finger stick blood sugar) to determine the dose.

## **9.6 WHY DOES ALL OF THE INFORMATION REPEAT FROM SEQUENCE 1 TO SEQUENCE 2 ALTHOUGH NOT ALL OF THE DATA CHANGES?**

To support patient safety efforts, all logical fields are repeated from the prior sequence. Modifiers may vary from sequence to sequence, so the field will be populated, but it may not be repeated. When a stop is specified, only the dose indicator and the stop segment fields will be populated in the last sequence.

## **9.7 THE EXAMPLES THAT ARE PROVIDED DO NOT SEEM TO MAKE SENSE WHEN READ - WHY IS THIS?**

The examples that have been provided are meant to demonstrate for programming purposes how the *Structured and Codified Sig Format* will be coded.

## **9.8 HOW ARE SINGULAR/PLURAL CONCEPTS HANDLED WITHIN THE FORMAT?**

In the subset of codes that SNOMED is creating and maintaining to support the *Structured and Codified Sig Format*, synonyms will be available to allow for singular and plural concepts.

## **9.9 WHAT IF SNOMED DOESN'T HAVE A CODE THAT IS NEEDED?**

Requests for additional codes should be submitted to NCPDP, who will then work with SNOMED. SNOMED releases updates two times per year.

## **9.10 HOW DOES THE STRUCTURED AND CODIFIED SIG FORMAT HANDLE A SIG WITH A STOP AND A START, SUCH AS TAKE FOR DAYS 1-21, STOP FOR 7 DAYS, THEN REPEAT?**

The *Structured and Codified Sig Format* will support the intent of such a Sig through use of the Administration Timing, Stop and Free Text Segments. Days 1-21 would be entered in the Administration Timing Segment and the Stop would be in the Stop Segment. Free text would then be used to indicate that the cycles will repeat. The current format does not support the intentional suspension of a Sig.

## **9.11 WHY ARE ALL OF THE EXAMPLES SHOWN IN TEXT AS OPPOSED TO THE ABBREVIATIONS WE SEE TODAY?**

In collaboration with ISMP (Institute for Safe Medication Practices), it was determined that abbreviations should not be used in the *Structured and Codified Sig Format Implementation Guide*. While abbreviations are still widely used today, and may continue to appear as an option for the prescriber in an electronic prescribing system, this effort was developed with patient safety in mind. Therefore, no abbreviations were included.

## **9.12 WHY IS "ORALLY" USED INSTEAD OF "BY MOUTH"?**

There are often multiple ways of expressing an idea, such as "orally" or "by mouth", or "day" and "daily". Prescribers may write "orally" and the pharmacy may change it to "by mouth" when dispensing. The SNOMED codes include the various options. For purposes of the *Structured and Codified Sig Format Implementation Guide*, orally was chosen to express the directions that the medication is to be administered via that route.

## **10. UPDATES AND CORRECTIONS TO STANDARDS**

The Data Element Request Form (DERF) provides the mechanism for changing NCPDP standards and using or requesting new data elements and new code set values in business functions. To request a change in NCPDP standards, complete an NCPDP Data Element Request Form, available at [www.ncpdp.org](http://www.ncpdp.org). Appropriate NCPDP Work Groups and Committees consider information submitted on the DERF. The Data Element Request Form process makes it possible for NCPDP working committees to adequately address these concerns before accepting or approving new information requests into a standard. The final acceptance of new requests into the standard is made by NCPDP at the suggestion or recommendation of the Work Group or Committee, and must be approved by consensus or consensus ballot of the membership.

## **11. APPENDIX A. HISTORY OF IMPLEMENTATION GUIDE CHANGES**