

NEMSIS V3 Suggested List – dConfiguration.04 - Medications Permitted by the State

Date

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January 29, 2012 (Updated Medication List Names – FINAL)

March 29, 2013 (Updated one medication: Hydrocortisone, and EMS Use options)

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dConfiguration.04 - Medications Permitted by the State

The code list associated with dConfiguration.04 (Medication Permitted by the State) is represented by a selected group of values found in RxNorm. RxNorm is a standardized nomenclature for clinical drugs and drug delivery devices. The process for gaining access to the RxNorm code values is provided at the end of this document.

RxNorm Code Usage Recommendations

RxNorm provides various codes for medications based on the Term Type (TTY). These include but are not limited to: Ingredient (IN), Precise Ingredient (PIN), Brand Name (BN), Semantic Clinical Drug Form (SCDF), Semantic Clinical Drug Component (SCDC), codes indicating the medication strength or concentration or mixtures (Synonym of Another TTY = SY), and many term type dosing options.

The NEMSIS TAC recommends that medications administered by EMS professionals in the pre-hospital setting be recorded and submitted using the Ingredient (IN) code for the large majority of medication names. This is frequently the generic name of the medication. The NEMSIS Version 3 dataset has elements that allow for the separate documentation of the medication route, dosage, and dosage unit using the following three elements:

1. eMedications.04 - Medication Administered Route
2. eMedications.05 - Medication Dosage
3. eMedications.06 - Medication Dosage Units

To review the RxNorm overview, including an introduction, purpose and examples of RxNorm, and its usage please visit <http://www.nlm.nih.gov/research/umls/rxnorm/overview.html>. To see the explanation of the term types see page ten (10) of this document.

Suggested List for dConfiguration.04 - Medications Permitted by the State

The suggested medication description and RxNorm (RxCUI) Code list is designed for the pre-hospital setting. The medication list was developed based upon collaboration between the NEMSIS TAC and EMS Medical Directors at the agency and state level.

Please note the medications listed in this document are based on the Term Type (TTY) and its corresponding RxNorm description. There are 116 medications and five (5) parenteral solutions included in the lists below.

The U.S. National Library of Medicine updates the medications contained in RxNorm and corresponding medication descriptions available to the NEMSIS TAC through UMLS twice a year. Updates were made the beginning of January 2012. This update had an impact on a number of medications descriptions (e.g. Sodium Chloride 0.45% Injectable Solution is now NaCl 0.0769 MEQ/ML Injectable Solution). How EMS software companies choose to display these codes to their clientele is up to them. The NEMSIS TAC will not update the list of suggested pre-hospital medications with every UMLS update.

The suggested list below has a column called “Explanation of Inclusion” indicating why a medication was included, clarification of the medication (e.g. dextrose 250 MG/ML Injectable Solution = Clarification: D25), another RxNorm name (AKA), or an EMS Use naming option.

The NEMSIS TAC collaborators recommend the use of “Dextrose” for parenteral administration and “Glucose” for oral administration of sugar based medications/solutions.

Licensed “Suggested Lists”

The U.S. National Library of Medicine provides access to the RxNorm code values through the Unified Medical Language System (UMLS). An applicant must accept the terms of the UMLS Metathesaurus License and create a UMLS Terminology Services (UTS) account for access to UMLS datasets and terminology browsers.

More information can be found at: <http://www.nlm.nih.gov/databases/umls.html>. RxNorm codes may also be accessed through <http://rxnav.nlm.nih.gov/>

The NEMSIS TAC may only distribute suggested lists with specific value codes from the UMLS system to entities licensed through the UMLS system. Thus, each software developer must seek licensing and provide proof of licensing before gaining access to all of the pre-defined suggested lists available through the NEMSIS TAC.

Access to “Suggested List” Archive Files

Access to suggested code lists will be provided on a special section of the NEMESIS TAC’s SharePoint site. A licensed user will be able to login to the SharePoint site and download the appropriate archive file (RxNorm, ICD-10, etc).

The UMLS license verification service helps determine if the remote user has a license to use and/or distribute certain code sets. If the user does not have a current license, access to the “suggested lists” archive will be denied.

The “suggested list” files will be zipped archives that are automatically created each time one of the licensed code databases is updated in the NEMESIS master data repository.

Viewing and Using the “Suggested List” Archive Files

The downloaded suggested list appears in a pipe-delimited text format. The proper code to utilize for medications is the “RxNormCode”. Please note that the RxCUI, RxAUI and TTY fields are included for reference purposes. These codes allow one to locate the exact code and description in the UMLS Metathesaurus that was selected for inclusion in the suggested list.

The process for classifying the appropriate medication description was determined with the assistance of a U.S. National Library of Medicine (NLM) UMLS RxNorm Physician Medical Officer. Per their direction the NEMESIS TAC used three categories (or attribute names) to identify the medication description provided in the suggested list:

- 1) Medication Concept Unique Identifier (RxCUI),
- 2) Medication Term Type (TTY), and
- 3) String (STR) for which the shortest name for the medication is selected.

According to the NLM the RxCUI code should always be used as the primary identifier as it is the concept unique identifier for the medication. Each RxCUI code may have multiple descriptions of the medication judged to have the same meaning.

As previously indicated, the NEMESIS TAC collaborators identified that the medication term type (TTY) should be limited to Ingredient (IN) where possible. The selected TTY decreases the number of descriptions for the RxCUI medication.

The “shortest name” is being used for the medication description as typically it is the preferred name and the “friendliest name” most readily associated with the medication.

The list provides additional fields indicating when a record became active in the NEMESIS TAC’s master data repository as well as the version of the source used for a particular code and description in a suggested list.

Conclusions

By maintaining a single source of these data and making it available internally as well as to our customers, we improve our data quality and consistency. This will reduce reporting errors in data submissions provided it is used as part of our own and our customer's data management best practices.

RxNorm Suggested List for dConfiguration.04 - Medications Permitted by the State: Medications for EMS in the pre-hospital environment

The Medication Given by EMS should use the RxNorm Description where possible. This is based on the recommendation provided above with regard to use of the Ingredient Name (IN) as the primary and preferred medication description. Brand Name (BN) use is recommended only when the Ingredient (IN), Precise Ingredient (PIN), Semantic Clinical Drug Form (SCDF), or Semantic Clinical Drug Component (SCDC) medication name descriptions do not meet the needs of the EMS community in the pre-hospital environment.

The June 6, 2013 update provides the columns to the right in a light red background to identify examples EMS friendly vocabulary and options for training purposes. The "Example EMS Descriptor" column includes terminology that may be used by the EMS community in place of the official health care data standard description. Please note neither the official code nor description has been changed. The backend code and description remain that of the health care data standard for the element. This is true at the NEMSIS TAC and for EMS software development companies and their products. The EMS terminology is derived from the health care data standard and has not changed the meaning of the description. Where possible a data standard synonym is used. This information may be used for EMS training purposes or implemented in the EMS software used by EMS.

RxNorm Suggested List for dConfiguration.04 - Medications Permitted by the State: Medications for EMS in the pre-hospital environment

| | RxNorm Description | TTY Code | NEMSIS Version 3 - Medication Given (by EMS) Explanation of Inclusion or Clarification Clar: A clarification for code inclusion and/or intended use. | NEMSIS Version 3 - Medication Given (by EMS) Example EMS Descriptor |
|----|----------------------------------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| 1 | Abciximab | IN | | |
| 2 | Acetaminophen | IN | | |
| 3 | Activated Charcoal | IN | | |
| 4 | Adenosine | IN | | |
| 5 | Albumin Human, USP | IN | Clar: To cover one aspect of blood products. | |
| 6 | Albuterol | IN | | |
| 7 | Alteplase | IN | | |
| 8 | Amiodarone | IN | | |
| 9 | Aspirin | IN | | |
| 10 | Atropine | IN | | |
| 11 | Benzocaine | IN | | |
| 12 | Bumetanide | IN | | |
| 13 | Butorphanol | IN | | |
| 14 | Calcium Chloride | IN | | |
| 15 | Calcium Gluconate | IN | | |
| 16 | Captopril | IN | | |
| 17 | Chitosan | IN | Clar: Topical Hemostatic Agent - Chitosan based. | |
| 18 | Clonidine | IN | | |
| 19 | Clopidogrel | IN | | |
| 20 | Dexamethasone | IN | | |
| 21 | dextrose 10 % Injectable Solution | SY | Clar: D10 | D10 |
| 22 | dextrose 250 MG/ML Injectable Solution | SY | Clar: D25 | D25 |
| 23 | dextrose 50 % Injectable Solution | SY | Clar: D50 | D50 |
| 24 | Diazepam | IN | | |
| 25 | Diltiazem | IN | | |

| | RxNorm Description | TTY Code | NEMSIS Version 3 - Medication Given (by EMS) Explanation of Inclusion or Clarification Clar: A clarification for code inclusion and/or intended use. | NEMSIS Version 3 - Medication Given (by EMS) Example EMS Descriptor |
|----|------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 26 | Diphenhydramine | IN | | |
| 27 | Dobutamine | IN | | |
| 28 | Dopamine | IN | | |
| 29 | Droperidol | IN | | |
| 30 | Enalapril | IN | | |
| 31 | Epinephrine 0.1mg/ml | SCDC | Clar: Epi 1:10,000 | Epi 1:10,000 |
| 32 | Epinephrine 1 mg/ml | SCDC | Clar: Epi 1:1,000 | Epi 1:1,000 |
| 33 | Epinephrine, Racemic Hydrochloride | PIN | | |
| 34 | Eptifibatide | IN | | |
| 35 | Esmolol | IN | | |
| 36 | Etomidate | IN | | |
| 37 | Factor IX | IN | | |
| 38 | Factor VIIa | IN | | |
| 39 | Famotidine | IN | | |
| 40 | Fentanyl | IN | | |
| 41 | Flumazenil | IN | | |
| 42 | Fosphenytoin | IN | | |
| 43 | Furosemide | IN | | |
| 44 | Glucagon | IN | | |
| 45 | Glucose | IN | Clar: Sugar based solution given in any oral form or by mouth. | |
| 46 | Haloperidol | IN | | |
| 47 | Heparin | IN | | |
| 48 | Hetastarch | IN | | |
| 49 | Hydralazine | IN | | |
| 50 | Hydrocortisone | IN | | |
| 51 | Hydromorphone | IN | | |

| | RxNorm Description | TTY Code | NEMSIS Version 3 - Medication Given (by EMS) Explanation of Inclusion or Clarification Clar: A clarification for code inclusion and/or intended use. | NEMSIS Version 3 - Medication Given (by EMS) Example EMS Descriptor |
|----|---------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 52 | Hydroxocobalamin | IN | | |
| 53 | Hydroxyzine | IN | | |
| 54 | Ibuprofen | IN | | |
| 55 | Insulin | IN | | |
| 56 | Ipecac | IN | | |
| 57 | Ipratropium | IN | | |
| 58 | Isoproterenol | IN | | |
| 59 | Ketamine | IN | | |
| 60 | Ketorolac | IN | | |
| 61 | Labetalol | IN | | |
| 62 | Levalbuterol | IN | | |
| 63 | Lidocaine | IN | Clar: To be used for parenteral administration. | |
| 64 | Lidocaine <i>Topical</i> | SCDF | Clar: To specify topical use vs parenteral. | |
| 65 | Lorazepam | IN | | |
| 66 | Magnesium Sulfate | IN | | |
| 67 | Mannitol | IN | | |
| 68 | Meperidine | IN | | |
| 69 | Metaclopramide | IN | | |
| 70 | Methylprednisolone | IN | | |
| 71 | Metoprolol | IN | | |
| 72 | Midazolam | IN | | |
| 73 | Morphine | IN | | |
| 74 | Nalbuphine | IN | | |
| 75 | Naloxone | IN | | |
| 76 | Nicardipine | IN | | |
| 77 | Nitroglycerin | IN | | |
| 78 | Nitroprusside | IN | | |

| | RxNorm Description | TTY Code | NEMSIS Version 3 - Medication Given (by EMS) Explanation of Inclusion or Clarification Clar: A clarification for code inclusion and/or intended use. | NEMSIS Version 3 - Medication Given (by EMS) Example EMS Descriptor |
|-----|----------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 79 | Nitrous Oxide | IN | | |
| 80 | Norepinephrine | IN | | |
| 81 | Normal Saline | IN | Clar: To be used for irrigation: burns, eyes, etc. | |
| 82 | Ondansetron | IN | | |
| 83 | Oxygen | IN | | |
| 84 | Oxymetazoline | IN | | |
| 85 | Oxytocin | IN | | |
| 86 | Pancuronium | IN | | |
| 87 | Phenobarbital | IN | | |
| 88 | Phenylephrine | IN | | |
| 89 | Phenytoin | IN | | |
| 90 | Plasma Protein Fraction | IN | | |
| 91 | Potassium Chloride | IN | | |
| 92 | Potassium Iodide | IN | | |
| 93 | Pralidoxime | IN | | |
| 94 | Prednisone | IN | | |
| 95 | Procainamide | IN | | |
| 96 | Prochlorperazine | IN | | |
| 97 | Promethazine | IN | | |
| 98 | Proparacaine hydrochloride | IN | | |
| 99 | Propofol | IN | | |
| 100 | Propranolol | IN | | |
| 101 | Quinidine | IN | | |
| 102 | Ranitidine | IN | | |
| 103 | Reteplase | IN | | |
| 104 | Rocuronium | IN | | |
| 105 | Sodium Bicarbonate | IN | | |

| | RxNorm Description | TTY Code | NEMSIS Version 3 - Medication Given (by EMS) Explanation of Inclusion or Clarification Clar: A clarification for code inclusion and/or intended use. | NEMSIS Version 3 - Medication Given (by EMS) Example EMS Descriptor |
|-----|---------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 106 | Sterile Water | PIN | Clar: Included for irrigation. | |
| 107 | Succinylcholine | IN | | |
| 108 | Tenecteplase | IN | | |
| 109 | Terbutaline | IN | | |
| 110 | Tetracaine | IN | | |
| 111 | Thiamine | IN | | |
| 112 | Tirofiban | IN | | |
| 113 | Vasopressin | IN | | |
| 114 | Vecuronium | IN | | |
| 115 | Verapamil | IN | | |
| 116 | Ziprasidone | IN | | |

RxNorm Parenteral Solutions for EMS in the pre-hospital environment

| | RxNorm Description | TTY Code | NEMSIS Version 3 - Medication Given (by EMS) Explanation of Inclusion or Clarification Clar: A clarification for code inclusion and/or intended use. SYN: The RxNorm synonym for the description. | NEMSIS Version 3 - Medication Given (by EMS) Example EMS Descriptor |
|---|----------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 1 | Lactated Ringer's Solution | IN | Clar: For use for burns, dehydration, fluid replacement | |
| 2 | NaCl 0.0769 MEQ/ML Injectable Solution | SY | Clar: NS 0.45%; AKA: Sodium Chloride 0.45% Injectable Solution | NS 0.45% Infusion Solution (1); 1/2 Normal Saline Infusion Solution (2) |
| 3 | NaCl 0.154 MEQ/ML Injectable Solution | SY | Clar: NS 0.9%; AKA: Sodium Chloride 0.9% Injectable Solution | NS 0.9% Infusion Solution |
| 4 | NaCl 0.513 MEQ/ML Injectable Solution | SY | Clar: NS 0.3% (1); Included for changing resuscitation guidelines and research (2). AKA: Sodium Chloride 3% Injectable Solution | NaCl 3% Injectable Solution |

RxNorm Medication Term Types (TTY)

From the National Library of Medicine website: <http://www.nlm.nih.gov/research/umls/rxnorm/overview.html> .

| TTY | Name | Definition | Example(s) |
|-------|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IN | Ingredient | A compound or moiety that gives the drug its distinctive clinical properties. The preferred name is usually the USAN name. | Fluoxetine, Insulin, Isophane, Human Gentamicin Sulfate (USP) |
| PIN | Precise Ingredient | A specified form of the ingredient that may or may not be clinically active. Most precise ingredients are salt or isomer forms. | Fluoxetine Hydrochloride |
| MIN | Multiple Ingredients | Two or more ingredients created from SCDF. In rare cases when IN/PIN or PIN/PIN combinations of the same base ingredient exist, created from SCD. | Fluoxetine / Olanzapine |
| DF | Dose Form | A complete list of Dose Forms can be found in Appendix 2 of the RxNorm Documentation. | Topical Solution, Oral Tablet |
| SCDC | Semantic Clinical Drug Component | Ingredient plus strength—see section on Rules and Conventions, below, for units of measurement and for rules pertaining to the calculation of strengths. | Fluoxetine 4 MG/ML |
| SCDF | Semantic Clinical Drug Form | Ingredient plus dose form. | Fluoxetine Oral Solution |
| SCD | Semantic Clinical Drug | Ingredient plus strength and dose form. | Fluoxetine 4 MG/ML Oral Solution |
| BN | Brand Name | A proprietary name for a family of products containing a specific active ingredient. | Prozac |
| SBDC | Semantic Branded Drug Component | Branded ingredient plus strength. | Fluoxetine 4 MG/ML [Prozac] |
| SBDF | Semantic Branded Drug Form | Branded ingredient plus dose form. | Fluoxetine Oral Solution [Prozac] |
| SBD | Semantic Branded Drug | Ingredient, strength, and dose form plus brand name. | Fluoxetine 4 MG/ML Oral Solution [Prozac] |
| SY | Synonym of another TTY | Given for clarity. | Prozac 4 MG/ML Oral Solution |
| TMSY | Tall Man Lettering synonym of another TTY | Given to distinguish between commonly confused drugs. | FLUoxetine 10 MG Oral Capsule [PROzac] |
| BPCCK | Brand Name Pack | Branded Drug Delivery Device. | {12 (Ethinyl Estradiol 0.035 MG / Norethindrone 0.5 MG Oral Tablet) / 9 (Ethinyl Estradiol 0.035 MG / Norethindrone 1 MG Oral Tablet) / 7 (Inert Ingredients 1 MG Oral Tablet) } Pack [Leena 28 Day] |
| GPCK | Generic Pack | Generic Drug Delivery Device. | {11 (varenicline 0.5 MG Oral Tablet) / 42 (varenicline 1 MG Oral Tablet) } Pack |