NCC MERP Taxonomy of Medication Errors[1]

Preamble

This document provides a standard taxonomy of medication errors to be used in combination with systems analysis in recording and tracking of medication errors. It is not intended to assess blame. The document is not all-inclusive, but can be expanded as new issues arise. The purpose of this taxonomy is to provide a standard language and structure of medication error-related data for use in developing databases analyzing medication error reports.

Guidance is provided to assist in the application of this instrument. Please note that the taxonomy is not designed as a reporting form, but is rather a tool to categorize and analyze reports of medication errors.

It is recommended that health care organizations develop systems and procedures to collect adequate information needed to analyze and report medication errors at the time the error occurs. In most cases, it should not be necessary to conduct retrospective audits to collect the needed information in order to apply this taxonomy.

The effectiveness of the taxonomy, and the resulting analysis of medication error reports, is dependent upon the amount and the quality of the data collected through medication error reports. For optimum application of the taxonomy, include as much information as possible in the instrument. However, if all the information described in the taxonomy is not collected, the information that is available should be categorized as shown in the taxonomy.

Specific Instructions

1. Note that some fields require selection from a defined list of choices and other fields require entry of free text.
2. To use the taxonomy properly, choose the most specific code available. If this level of specificity is not possible, select the code of the parent category.

10 PATIENT INFORMATION

[The purpose of this section is to:

* permit entry of an identification code that allows matching information in the taxonomy with medication error reports
* allow sorting and reporting of medication error reports (e.g., analyze medication error reports by age ranges)

For a report of Category A error (see item #31), this section can be omitted. Otherwise, complete as many of these sections as possible].

10.1 Identification Number or Initials:_____
10.2 Age - Date of Birth
10.3 Gender
10.4 Weight [may be omitted unless directly pertinent to the error (e.g., medication overdose in a pediatric patient)].

20 THE EVENT

21 DATE (mmddyyyy)
[Complete as many items as possible in this section]

21.1 Date of event
21.1.1 Weekend
21.1.2 Holiday
21.2 Date of Initial Report
21.3 Date of Follow-up Report

22 TIME

22.1 Time of Error (24 hour clock)

23 SETTING (of initial error)

[Select either one category or one subcategory, whichever provides the best known information]

23.1 Adult Day Health Care
23.2 Assisted Living/Board and Care
23.3 Correctional Facility
23.4 Emergency Rescue Unit
23.5 Health Food Store
23.6 Hospice
23.7 Hospital
23.7.1 Cardiac Step Down

- 23.7.2 Central Supply
- 23.7.3 Emergency Room
- 23.7.4 Intensive Care Unit (ICU)
  - 23.7.4.1 Cardiac ICU
  - 23.7.4.2 Medical ICU
  - 23.7.4.3 Neonatal ICU/Step Down (Infant Transitional)
  - 23.7.4.4 Pediatric ICU
  - 23.7.4.5 Surgical ICU
- 23.7.5 Labor/Delivery
- 23.7.6 Long Term Acute Care
- 23.7.7 Nursery
- 23.7.8 Nursing Unit
- 23.7.9 Oncology
- 23.7.10 Operating Room
- 23.7.11 Outpatient
- 23.7.12 Pediatrics
- 23.7.13 Pharmacy
  - 23.7.13.1 Inpatient
  - 23.7.13.2 Outpatient
  - 23.7.13.3 Nuclear
- 23.7.14 Psychiatric Unit
- 23.7.15 Radiology
  - 23.7.15.1 Nuclear
  - 23.7.15.2 Special Procedures Area
- 23.7.16 Respiratory Therapy
- 23.7.17 Recovery Room (PACU)
- 23.7.18 Sub-acute Care
- 23.7.19 Other

23.8 Home Health Care

23.9 Mental Health Facility

23.10 Nursing Facility (Free Standing)
- 23.10.1 Skilled
- 23.10.2 Intermediate
- 23.10.3 Pharmacy

23.11 Outpatient Facility
- 23.11.1 Ambulatory Surgery
- 23.11.2 Rehabilitation
- 23.11.3 Urgent Care Clinic

23.12 Patient's Home/Work

23.13 Pharmacy
- 23.13.1 Community
- 23.13.2 Home Health Care
- 23.13.3 Long Term Care
- 23.13.4 Mail Service
- 23.13.5 Managed Care
- 23.13.6 Mental Health

23.13.7 Nuclear
23.14 Prescriber's Office
23.15 School
23.16 Other
23.17 Unknown

24 SETTING (Where Error Perpetuated)

[Select as many settings as are applicable]

24.1 Adult Day Health Care
24.2 Assisted Living/Board and Care
24.3 Correctional Facility
24.4 Emergency Rescue Unit
24.5 Health Food Store
24.6 Hospice
24.7 Hospital
- 24.7.1 Cardiac Step Down
- 24.7.2 Central Supply
- 24.7.3 Emergency Room
- 24.7.4 Intensive Care Unit (ICU)
  - 24.7.4.1 Cardiac ICU
  - 24.7.4.2 Medical ICU
  - 24.7.4.3 Neonatal ICU/Step Down (Infant Transitional)
  - 24.7.4.4 Pediatric ICU
  - 24.7.4.5 Surgical ICU
- 24.7.5 Labor/Delivery
- 24.7.6 Long Term Acute Care
- 24.7.7 Nursery
- 24.7.8 Nursing Unit
- 24.7.9 Oncology
- 24.7.10 Operating Room
- 24.7.11 Outpatient
- 24.7.12 Pediatrics
- 24.7.13 Pharmacy
  - 24.7.13.1 Inpatient
  - 24.7.13.2 Outpatient
  - 24.7.13.3 Nuclear
- 24.7.14 Psychiatric Unit
- 24.7.15 Radiology
  - 24.7.15.1 Nuclear
  - 24.7.15.2 Special Procedures Area
- 24.7.16 Respiratory Therapy
- 24.7.17 Recovery Room (PACU)
- 24.7.18 Sub-acute Care

24.7.19 Other
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24.11.1 Ambulatory Surgery
24.11.2 Rehabilitation
24.11.3 Urgent Care Clinic
24.12 Patient's Home/Work
24.13 Pharmacy
24.13.1 Community
24.13.2 Home Health Care
24.13.3 Long Term Care
24.13.4 Mail Service
24.13.5 Managed Care
24.13.6 Mental Health
24.13.7 Nuclear
24.14 Prescriber's Office
24.15 School
24.16 Other
24.17 Unknown

25 DESCRIPTION OF EVENT

[This is a free text entry field. The user should provide a narrative description of the event, including how the error was perpetuated and discovered. Other relevant information should be included, such as:

- Laboratory data or tests, including dates
- Other relevant history, including preexisting medical conditions (e.g., allergies)
- Concomitant therapy
- Dates of therapy
- Indication for use (Diagnosis)
- Medical intervention(s) following the error
- Actions taken and recommendation for prevention].

30 PATIENT OUTCOME

[NCC MERP recommends that medication error information be collected and reported as soon as possible, while the information is still fresh. It is recognized that the eventual patient outcome may change from the time when the medication error initially occurs. For example, the patient may initially require hospitalization due to the error, but eventually die as a result of the error after several weeks of treatment and support in the hospital. If the patient outcome or other variables should change, the medication error information can be updated or corrected at a later time.

In selecting the patient outcome category, select the highest level severity that applies during the course of the event. For example, if a patient suffers a severe anaphylactic reaction (Category H) and requires treatment (Category F) but eventually recovers completely, the event should be coded as Category H (33.4).

Select only one of the medication error categories or subcategories, whichever best fits the error that is being reported.

31 NO ERROR

31.1 Category A
Circumstances or events that have the capacity to cause error

32 ERROR, NO HARM

[Note: Harm is defined as temporary or permanent impairment of the physical, emotional, or psychological function or structure of the body and/or pain resulting therefrom requiring intervention.]

32.1 Category B
An error occurred but the error did not reach the patient
(An "error of omission" does reach the patient.)

32.2 Category C
An error occurred that reached the patient, but did not cause patient harm

32.2.1 Medication reaches the patient and is administered

32.2.2 Medication reaches the patient but not administered

32.3 Category D
An error occurred that reached the patient and required monitoring to confirm that it resulted in no harm to the patient and/or required intervention to preclude harm

33 ERROR, HARM

33.1 Category E
An error occurred that may have contributed to or resulted in temporary harm to the patient and required intervention

33.2 Category F
An error occurred that may have contributed to or resulted in temporary harm to the patient and required initial or prolonged hospitalization

33.3 Category G
An error occurred that may have contributed to or resulted in permanent patient harm

33.4 Category H
An error occurred that required intervention necessary to sustain life

34 ERROR, DEATH

34.1 Category I
An error occurred that may have contributed to or resulted in the patient's death.

50 PRODUCT INFORMATION - #1 [PRODUCT THAT WAS ACTUALLY (OR POTENTIALLY) GIVEN]

[Classify each medication involved in a medication error. Include the intended product for use, as well as the actual product used, if these are different. Select numbers 51-54 to code the product actually or potentially administered. Select numbers 55-59 to code the intended product, if different from the product actually administered or intended].

51 GENERAL
[Select and complete as many items as possible in this section].

51.1 Name of Drug (or other products, if applicable)
51.1.1 Proprietary (Trade) Name
51.1.2 Established (Generic) Name
51.1.3 Compounded Ingredients
51.2 Strength
51.3 Dose, Frequency & Route
51.4 Status
51.4.1 Prescription
51.4.2 Over-the-Counter
51.4.3 Investigational
51.5 Name of Manufacturer

51.6 Name of Labeler or Distributor

52 DOSAGE FORM

[Note: This list is not all inclusive; other dosage forms not listed should be captured under "other". Select one item from this section]

- 52.1 Tablet
  - 52.1.1 Extended-release
- 52.2 Capsule
  - 52.2.1 Extended-release
- 52.3 Oral Liquid
  - 52.3.1 Concentrate
- 52.4 Injectable
- 52.5 Cream-Ointment-Gel-Paste
- 52.6 Aerosol (spray and metered)
- 52.7 Other

53 PACKAGING - CONTAINER

[Note that these are some examples of packaging frequently involved in errors. The list does not include all packaging configurations available in the market place. Select one item from this section]

- 53.1 Unit Dose
- 53.2 Multiple Dose Vials (Injectable)
- 53.3 Single Dose Vials/Ampuls (Injectable)
- 53.4 Intravenous Solutions (small and large volume parenterals)
  - 53.4.1 Manufacturer Prepared
  - 53.4.2 Institution Prepared
- 53.5 Syringes
- 53.6 Manufacturer Samples
- 53.7 Other (Please specify)

54 PHARMACOLOGIC - THERAPEUTIC CLASSIFICATION

The council recommends the use of the pharmacologic-therapeutic classification system defined by either the American Society of Health-Systems Pharmacists (i.e., AHFS code) or the Veterans Administration (i.e., VA codes).

55 PRODUCT INFORMATION - #2 (PRODUCT THAT WAS INTENDED TO BE GIVEN)

56 GENERAL
[Select and complete as many items as possible in this section].

- 56.1 Name
  - 56.1.1 Proprietary (Trade) Name
  - 56.1.2 Established (Generic) Name
  - 56.1.3 Compounded Ingredients
- 56.2 Strength
- 56.3 Dose, Frequency & Route
- 56.4 Status
  - 56.4.1 Prescription
  - 56.4.2 Over-the-Counter
  - 56.4.3 Investigational
- 56.5 Name of Manufacturer
- 56.6 Name of Labeler or Distributor

57 DOSAGE FORM
[Note: This list is not all inclusive; other dosage forms not listed should be captured under "other". Select one item from this section]

- 57.1 Tablet
  - 57.1.1 Extended-release
- 57.2 Capsule
  - 57.2.1 Extended-release
- 57.3 Oral Liquid
  - 57.3.1 Concentrate
- 57.4 Injectable
- 57.5 Cream-Ointment-Gel-Paste
- 57.6 Aerosol (spray and metered)
- 57.7 Other

58 PACKAGING - CONTAINER

[Note that these are some examples of packaging frequently involved in errors. The list does not include all packaging configurations available in the market place. Select one item from this section].

- 58.1 Unit Dose
- 58.2 Multiple Dose Vials (Injectable)
- 58.3 Single Dose Vials/Ampuls (Injectable)
- 58.4 Intravenous Solutions (small and large volume parenterals)
  - 58.4.1 Manufacturer Prepared
  - 58.4.2 Institution Prepared

58.5 Syringes
58.6 Manufacturer Samples
58.7 Other (Please specify)

59 PHARMACOLOGIC - THERAPEUTIC CLASSIFICATION

The council recommends the use of the pharmacologic-therapeutic classification system defined by either the American Society of Health-Systems Pharmacists (i.e., AHFS code) or the Veterans Administration (i.e., VA codes).

60 PERSONNEL INVOLVED

61 Initial Error Made by
[Select one item]
61.1 Physician
61.1.1 Intern
61.1.2 Resident
61.1.3 Practicing Physician
61.1.4 Other
61.2 Pharmacist
61.3 Nurse
61.3.1 Nurse Practitioner/ Advanced Practice
61.3.2 Registered Nurse
61.3.3 Licensed Practical Nurse
61.3.4 Other_____
61.4 Physician Assistant
61.5 Dentist
61.6 Veterinarian
61.7 Optometrist
61.8 Support Personnel
61.8.1 Pharmacy Technician
61.8.2 Nurses Aide
61.8.3 Medication Aide
61.8.4 Clerical
61.9 Health Professions Student
61.9.1 Medicine
61.9.2 Pharmacy
61.9.3 Nursing
61.9.4 Other
61.10 Patient/Caregiver
61.11 Other
61.12 Unknown

62 Error Perpetuated by
[Select all that apply]
62.1 Physician
62.1.1 Intern
62.1.2 Resident
62.1.3 Practicing Physician
62.1.4 Other
62.2 Pharmacist
62.3 Nurse
62.3.1 Nurse Practitioner/ Advanced Practice
62.3.2 Registered Nurse
62.3.3 Licensed Practical Nurse
62.3.4 Other_____
62.4 Physician Assistant
62.5 Dentist
62.6 Veterinarian
62.7 Optometrist
62.8 Support Personnel
62.8.1 Pharmacy Technician
62.8.2 Nurses Aide
62.8.4 Medication Aide
62.8.5 Clerical
62.9 Health Professions Student
62.9.1 Medicine
62.9.2 Pharmacy
62.9.3 Nursing
62.9.4 Other
62.10 Patient/Caregiver
62.11 Other
62.12 None

63 Error Discovered by
[Select one item]
63.1 Physician
63.1.1 Intern
63.1.2 Resident
63.1.3 Practicing Physician
63.1.4 Other
63.2 Pharmacist
63.3 Nurse
63.3.1 Nurse Practitioner/Advanced Practice
63.3.2 Registered Nurse
63.3.3 Licensed Practical Nurse
63.3.4 Other_____
63.4 Physician Assistant
63.5 Dentist
63.6 Veterinarian
63.7 Optometrist
63.8 Support Personnel
63.8.1 Pharmacy Technician
63.8.2 Nurses Aide
63.8.3 Medication Aide
63.8.4 Clerical
63.9 Health Professions Student
63.9.1 Medicine
63.9.2 Pharmacy
63.9.3 Nursing
63.9.4 Other
63.10 Patient/Caregiver
63.11 Other
63.12 Unknown

70 TYPE

[Select as many items as are applicable from this section. Note: Category A errors (where only the capacity for error exists) should not be classified by Type].

70.1 Dose Omission
[The failure to administer an ordered dose to a patient before the next scheduled dose, if any. This excludes patients who refuse to take a medication or a decision not to administer.]

70.2 Improper Dose
- 70.2.1 Resulting in Overdosage
- 70.2.2 Resulting in Under dosage
- 70.2.3 Extra Dose

70.3 Wrong Strength/Concentration

70.4 Wrong Drug

70.5 Wrong Dosage Form

70.6 Wrong Technique (includes inappropriate crushing of tablets)

70.7 Wrong Route of Administration

	Route Given	Route Intended
70.7.1	IV	Gastric
70.7.2	Intrathecal	IV
70.7.3	IV	Oral
70.7.4	IV	IM
70.7.5	IM	IV
70.7.6	Other	

70.8 Wrong Rate
- 70.8.1 Too fast
- 70.8.2 Too slow

70.9 Wrong Duration

70.10 Wrong Time
[Administration outside a predefined time interval from its scheduled administration time, as defined by each health care facility]

70.11 Wrong Patient

70.12 Monitoring Error (includes Contraindicated Drugs)
- 70.12.1 Drug-Drug Interaction
- 70.12.2 Drug-Food/Nutrient Interaction
- 70.12.3 Documented Allergy
- 70.12.4 Drug-Disease Interaction

70.12.5 Clinical (e.g., blood glucose, prothrombin, blood pressure,)
70.13 Deteriorated Drug Error (Dispensing drug which has expired)
70.14 Other
[Any medication error that does not fall into one of the above]

80 CAUSES

[Indicate the reported causes of the medication error, as stated by the perspective of the reporter of the incident. Select as many causes as are applicable from each section]

81 COMMUNICATION

- 81.1 Verbal miscommunication
- 81.2 Written miscommunication
  - 81.2.1 Illegible handwriting
  - 81.2.2 Abbreviations
  - 81.2.3 Non-metric units of measurement (e.g., apothecary)
  - 81.2.4 Trailing Zero
  - 81.2.5 Leading Zero
  - 81.2.6 Decimal Point
  - 81.2.7 Misread or Didn't Read
- 81.3 Misinterpretation of the order

83 NAME CONFUSION

- 83.1 Proprietary (Trade) Name Confusion
  - 83.1.1 Suffix confusion
  - 83.1.2 Prefix confusion
  - 83.1.3 Sound-alike to another trade name
  - 83.1.4 Sound-alike to an established (generic) name
  - 83.1.5 Look-alike to another trade name
  - 83.1.6 Look-alike to an established name
  - 83.1.7 Appears to be misleading
  - 83.1.8 Confusion with Over-the-Counter "Family Trade Names"
- 83.2 Established (Generic) Name Confusion
  - 83.2.1 Sound-alike to another established name
  - 83.2.2 Sound-alike to a trade name
  - 83.2.3 Look-alike to another established name
  - 83.2.4 Look-alike to a trade name

85 LABELING

85.1 Immediate Container Labels of Product - Manufacturer, Distributor or Repackager

85.1.1 Looks too similar to another manufacturer
85.1.2 Looks too similar within the same company's product line.
85.1.3 Appears to be inaccurate or incomplete
85.1.4 Appears to be misleading or confusing
85.1.5 Distracting Symbols or Logo

85.2 Labels of Dispensed Product - Practitioner

85.2.1 Wrong Directions
85.2.2 Incomplete Directions (including lack of ancillary labels)
85.2.3 Wrong Drug Name
85.2.4 Wrong Drug Strength
85.2.5 Wrong Patient
85.2.6 Other

85.3 Carton Labeling of Product - Manufacturer, Distributor or Repackager

85.3.1 Looks too similar to another manufacturer
85.3.2 Looks too similar within the same company's product line.
85.3.3 Appears to be inaccurate
85.3.4 Appears to be misleading
85.3.5 Distracting Symbols or Logo

85.4 Package Insert

85.4.1 Appears to be inaccurate
85.4.2 Appears to be misleading
85.4.3 Other

85.5 Electronic Reference Material

85.5.1 Inaccurate
85.5.2 Unclear or inconsistent
85.5.3 Omission of data
85.5.4 Outdated
85.5.5 Unavailable

85.6 Printed Reference Material

85.6.1 Inaccurate

85.6.2 Unclear or inconsistent
85.6.3 Omission of data
85.6.4 Unavailable

85.7 Advertising

85.7.1 Error or error potential associated with the commercial advertising of a product.

87 HUMAN FACTORS

87.1 Knowledge Deficit
87.2 Performance Deficit
87.3 Miscalculation of Dosage or Infusion Rate
87.4 Computer Error
87.4.1 Incorrect selection from a list by computer operator
87.4.2 Incorrect programming into the database.
87.4.3 Inadequate screening for allergies, interactions, etc.
87.5 Error in Stocking/Restocking/Cart Filling
87.6 Drug Preparation Error
87.6.1 Failure to activate delivery system
87.6.2 Wrong Diluent
87.6.3 Wrong Amount of Diluent
87.6.4 Wrong amount of active ingredient added to the final product
87.6.5 Wrong drug added
87.7 Transcription Error
87.7.1 Original to Paper/Carbon paper
87.7.2 Original to Computer
87.7.3 Original to Facsimile
87.7.4 Recopying MAR
87.8 Stress (high volume workload, etc.)
87.9 Fatigue/Lack of Sleep
87.10 Confrontational or intimidating behavior

89 PACKAGING/DESIGN
- 89.1 Inappropriate Packaging or Design
- 89.2 Dosage Form (Tablet/Capsule) Confusion :
  - 89.2.1 Confusion due to similarity in color, shape, and/or size to another product.
  - 89.2.2 Confusion due to similarity in color, shape, and/or size of the same product but different strength.
- 89.3 Devices
  - 89.3.1 Malfunction
  - 89.3.2 Wrong Device Selected (e.g., TB syringe used instead of Insulin syringe)
  - 89.3.3 Adapters (e.g., Parenteral vs Enteral)
  - 89.3.4 Automated Distribution/Vending Systems
  - 89.3.5 Automated Counting Machines
  - 89.3.6 Automated Compounders
  - 89.3.7 Oral Measuring Devices (e.g., syringes, cups, spoons)
  - 89.3.8 Infusion (PCA, Infusion pumps)

90 CONTRIBUTING FACTORS (SYSTEMS RELATED)

[Select as many items as are applicable from this section].

- 90.1 Lighting
- 90.2 Noise Level
- 90.3 Frequent Interruptions and distractions
- 90.4 Training
- 90.5 Staffing
- 90.6 Lack of availability of health care professional
  - 90.6.1 Medical
  - 90.6.2 Other Allied Health Care Professional
  - 90.6.3 Pharmacy
  - 90.6.4 Nursing
  - 90.6.5 Other
- 90.7 Assignment or placement of a health care provider or inexperienced personnel
- 90.8 System for Covering Patient Care (e.g., floating personnel, agency coverage)
  - 90.8.1 Medical
  - 90.8.2 Other Allied Health Care Professional
  - 90.8.3 Pharmacy
  - 90.8.4 Nursing
  - 90.8.5 Other
- 90.9 Policies and procedures
- 90.10 Communication systems between health care practitioners

90.11 Patient counseling
90.12 Floor Stock
90.13 Pre-printed medication orders
90.14 Other

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Questionnaire
NCC MERP Taxonomy of Medication Errors

Please return to: Secretariat, NCC MERP c/o USP, 12601 Twinbrook Parkway, Rockville, MD 20852

1. Do you have a medication error reporting system?

- ❑ *Yes (answer 1a and 1b below)*
- ❑ No

1a. Does the NCC MERP taxonomy include the fields and data elements applicable to this system?

- ❑ Yes
- ❑ No → *What is missing?*

_____

_____

1b. Will you consider using or adapting the taxonomy for application within your system?

- ❑ Yes
- ❑ No → *Why not?*

_____

_____

2. Do you have a medication error database?

- ❑ *Yes (answer 2a and 2b below)*
- ❑ No

2a. Does the NCC MERP taxonomy include the fields and data elements applicable to this database?

- ❑ Yes
- ❑ No → *What is missing?*

_____

_____

2b. Will you consider using or adapting the taxonomy for application within your database?

- ❑ Yes
- ❑ No → *Why not?*

_____

_____

3. *If you answered "No" to Question 1 or 2 above:* Will you consider using the taxonomy to develop your own reporting system and/or database?

- ❑ Yes
- ❑ No → *Why not?*

_____

_____

4. If you are considering using the taxonomy, may we contact you in the future?

- ❑ No
- ❑ Yes → *Please fill in your contact information below.*

Your Name and Title: _____

Facility Name: _____

Address: _____

Email: _____

Fax Number: _____ -- _____ -- _____

Thank you for supporting the NCC MERP and its work in medication error reporting and prevention.