

# Poisoning, Toxicity, Intoxication and Adverse Drug Reactions<sup>1</sup>

(Version: 07/26/10)

**Definition:** A poisoning is an event by which an animal is exposed (internally or externally) to a toxic substance. The effects of the poison may, or may not be manifest.

**Introduction:** The approach taken to coding a case of poisoning depends on the amount of information that is available about the circumstances surrounding the poisoning, the symptoms or diagnosis arising directly from the poisoning, and our desire to capture some or all of these related elements in the coded record.

1. The simplest case is that in which the fact of exposure to a toxic substance is recorded without reference to circumstances or manifestation.
2. The second case involves recording the circumstances surrounding the poisoning, was it deliberate or accidental, did it arise from an overdose of a prescribed drug used correctly or incorrectly.
3. The third and most complex case involves linking a diagnosis which is a manifestation of the poisoning, back to the fact of the exposure and its circumstances. Guidelines for use in each of these cases are detailed below.

## 1. Coding the Simple Fact of Exposure

If the intent is simply to capture the fact of the exposure to the poison, without stating the circumstances or the manifestation then the approach described below should be taken. This approach should be used when the circumstances surrounding the poisoning and the manifestation of the poisoning are not stated or are otherwise unknown.

- SNOMED contains an extensive list of pre-coordinated "poisoning due to" and "toxic effect of" various substances with which to capture the fact of exposure to a toxin. If a pre-coordinated concept exists then one of these may be used. (See Example 1).
- Note that some pre-coordinated concepts do not include the causative agent as part of the formal SNOMED CT definition. In these cases we would ask coders to post coordinate the causative agent to aid later retrieval.
- If a pre-coordinated concept does not exist then the root concept "Poisoning syndrome in animal" (2226003) may be used along with the "Causative agent" (attribute) to specify the substance to which the animal was exposed.

e.g. Macadamia nut poisoning

- Poisoning syndrome in animal (disorder) 2226003
  - o Causative agent (attribute) 246075003
    - Macadamia nut (substance) 227501001

## 2. Coding the Circumstances Surrounding Exposure

If the circumstances surrounding the poisoning are known then coding of the poisoning case may be modified to reflect the specific circumstance in which the exposure occurred. Approaches are defined for the following circumstances:

- a) If the circumstances are unknown or the toxic agent was unintentionally available in the animal's environment or was given to the animal by a person without knowledge of its potentially harmful effects. These are cases defined as "poisoning" or "toxic exposure".
- b) The toxic agent was given with intent to harm the animal. These are defined as "deliberate" or "intentional poisoning".
- c) The toxic agent was a prescribed drug that was administered in too great a dose. These are defined as "overdoses".
- d) The toxic agent was a prescribed drug that was administered correctly. These are defined as "adverse reactions". (*Note: These are undesirable or unintentional effects and are not part of the poisoning hierarchy.*)

The following guidelines are to be used in these circumstances:

- If a pre-coordinated concept is available, one may be used. Pre-coordinated concepts which describe the circumstances of poisonings exist in SNOMED CT as follows:
  - a) "Poisoning by" or "Toxic effect of"
  - b) "Intentional poisoning by ..."
  - c) "... overdose" or "Accidental overdose of ..."
  - d) "Adverse reaction to ..."
- If a pre-coordinated concept does not exist then the circumstances can be captured by selecting the appropriate root concept then adding the "Causative agent" 'attribute' to specify the substance to which the animal was exposed. The appropriate **root concepts** are listed below:
  - a) "Poisoning syndrome in animal" (Disorder) 2226003
  - b) "Homicidal deliberate poisoning" (Disorder) 35942003
  - c) "Drug overdose" (Disorder) 55680006
  - d) "Adverse reaction to drug" (Disorder) 62014003

**Note:** Homicide implies killing of one human being by another, but ) “Homicidal deliberate poisoning” is the only existing SNOMED CT concept that approximates the idea of poisoning another creature with intent to harm it.

### 3. Coding the Manifestations of Poisoning

When a finding or diagnosis is a manifestation of exposure to poison then the following post coordination approach is recommended for coding these cases:

Use the manifestation finding or disorder as the parent concept.

Use the ‘Due to’ attribute to capture the circumstances surrounding the poisoning.

Use the ‘Causative agent’ attribute to capture the substance or plant that the animal was exposed to.

**Example:** Seizures in a dog, toxic effect from eating a bunch of grapes.

- Seizure (Finding) *91175000*
  - Due to (attribute) *42752001*
    - Poisoning syndrome in animal (Disorder) *2226003*
  - Causative agent (attribute) *246075003*
    - Grapes (Substance) *256317002*

#### Notes:

- The value of the ‘Due to’ attribute may be one of the following:
  - a) “Poisoning syndrome in animal” (Disorder) *2226003*
  - b) “Homicidal deliberate poisoning” (Disorder) *35942003*
  - c) “Drug overdose” (Disorder) *55680006*
  - d) “Adverse reaction to drug” (Disorder) *62014003*
- The value of the ‘Causative agent’ attribute may be a substance, product or a organism. In cases where the agent is in SNOMED CT as both a substance and a product, use the following rule:
  - If the poisoning can be attributed to a specific substance or ingredient, then use the concept that represents the substance.
  - If the poisoning was known to be caused by a product, but the specific component or ingredient that caused the reaction is not known, then the concept that represents the product may be used.

- Capturing exposure to the toxin through the causative agent attribute ensures that it will be easy to retrieve poisoning cases by the agent. This would be more difficult if the agent was nested inside the concept used for the 'due to' value. It also ensures that cases of poisoning by unusual agents can be captured using a consistent method across all of the styles described above.

## Examples:

---

### Case 1: Lead toxicity

Toxic effect of lead compound (Disorder) *38342005*

---

### Case 2: Jimsonweed poisoning

Datura stramonium poisoning (Disorder) *47884007*

---

### Case 3: Rimadyl poisoning

Non-steroidal anti-inflammatory poisoning (Disorder) *278023006*

- Causative agent (attribute) *246075003*
    - Carprofen (Substance) *125710006*
- 

### Case 4: Cat ate Irish shamrock plant

Oxalis species poisoning (Disorder) *82722005*

- Causative agent (attribute) *246075003*
    - Oxalis acetosella (Organism) *81465009*
-

**Case 5:** Neighbor fed rat poison laced hamburger to dog

Homicidal deliberate poisoning (Disorder) *35942003*

- Causative agent (attribute) *24607500*
    - Rodenticide (Substance) *14120002*
- 

**Case 6:** Acetaminophen-induced Heinz body anemia in a dog, owner gave two Tylenol tablets rather than the one recommended by the veterinarian

Acquired Heinz body anemia (Disorder) *18662002*

- Due to (attribute) *42752001*
    - Acetaminophen overdose (Disorder) *295124009*
- 

**Case 7:** Acetaminophen-induced Heinz body anemia in a dog, owner gave the correct dose of Tylenol as recommended by the veterinarian.

Acquired Heinz body anemia (Disorder) *18662002*

- Due to (attribute) *42752001*
    - Adverse reaction to acetaminophen (Disorder) *292042007*
- 

[Previous version](#)

<sup>1</sup>Written by the VMDB Taskforce on Development of SNOMED Guidelines. The committee wishes to recognize contributions provided by Dr. Jeff Wilcke and Dr. Penny Livesay.