

IHTSDO-1258_Remodeling of 1263452006 |Anesthesia and/or sedation procedure (procedure)| hierarchy

Links

[GC-1437](#)

[GC-1469](#)

[SCTQA-397](#)

[GC-1419](#)

[SCTQA-391](#)

[DRUGS-1039](#)

[EDITPANEL-54](#)

[GC-1469](#)

Purpose

Document type: Consultation note

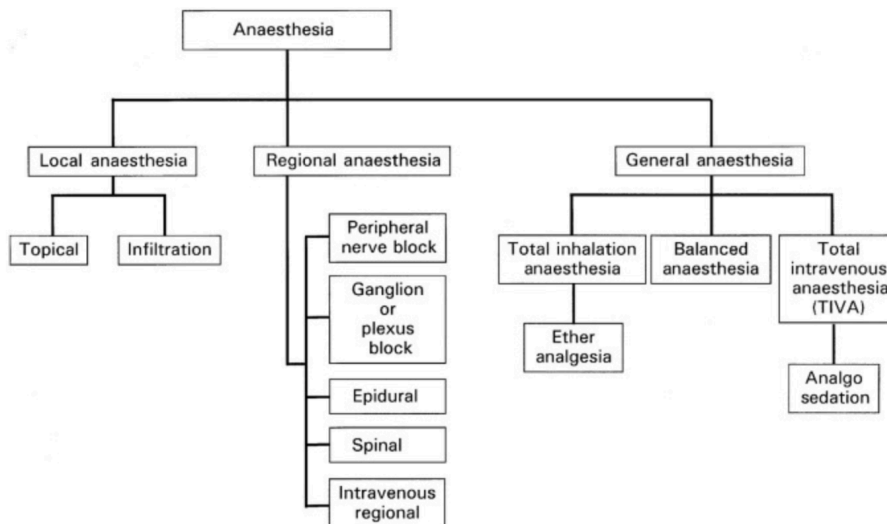
To inform the Community of Practice of the intention to substantially remodel content currently under the top-level concept 1263452006 |Anesthesia and/or sedation procedure (procedure)|. Comments related to the potential impact of the proposed changes are sought.

History

Definitions and classification.

“The modern definition of anaesthesiology provided by the American Board of Anesthesiology states that anaesthesiology is the practice of medicine providing insensibility to pain during surgical, obstetric, therapeutic, and diagnostic procedures. It also emphasizes that anaesthesiology monitors and restores homeostasis during the perioperative period (i.e. it ensures that the patient suffers no harm during the operation).

Insensibility to pain as demanded by the American Board of Anesthesiology does not necessarily imply unconsciousness or total unawareness and lack of sensation. Insensibility to pain may also be provided by local anesthesia, where the anesthetic drug is usually injected into the tissue to numb only the specific location in the body requiring minor surgery, or by regional anesthesia, where an injection is made near a cluster of nerves to numb the area of the body that requires surgery. In these procedures, patients may remain awake, or they may be given a sedative. In general anesthesia, according to the American Society of Anesthesiologists, the patient is unconscious and has no awareness or other sensations while, in addition, the patient is carefully monitored, controlled, and treated by the anaesthesiologist.”



<https://www.bjanaesthesia.org.uk/article/S0007-0912%2817%2937586-4/fulltext>

“The 2002 ASA guidelines classify the level of non-dissociative sedation into 4 categories, taking into account the criteria of responsiveness, airway patency, and ability to maintain spontaneous ventilation and cardiovascular depression. The guidelines emphasize that sedation is a gradual, continuous state of central nervous system depression, from mere anxiolysis to general anesthesia.

The classification does not apply to the dissociative state specific to ketamine, characterized by analgesia, amnesia, and sedation, with the preservation of protective airway reflexes and spontaneous respiration. In ketamine sedation, once the dissociative effect is reached, the patient remains unresponsive to any stimulus, and the cardio-respiratory function is preserved, regardless of supplementary doses.”

	Minimal Sedation (Anxiolysis)	Moderate Sedation/ Analgesia	Deep Sedation/ Analgesia	General Anesthesia
Responsiveness	Normal response to verbal stimulation	Purposeful response to verbal or tactile stimulation	Purposeful response after repeated or painful stimulation	Unresponsive, even with painful stimuli
Airway patency	Unaffected	No intervention needed	May require intervention	Intervention often required
Spontaneous breathing	Unaffected	Adequate	May be inadequate	Frequently inadequate
Cardiovascular function	Unaffected	Usually maintained	Usually maintained	May be impaired

* Reflex withdrawal from a painful stimulus does not represent a purposeful response.

https://www.researchgate.net/figure/ASA-classification-of-sedation-levels-7_tbl1_332880947

Background.

1263452006 |Anesthesia and/or sedation procedure (procedure)| is currently modeled using GCIs and is a direct subtype of 71388002 |Procedure (procedure)|.

The subhierarchy is split into two main groups: 410011004 |Administration of anesthesia AND/OR sedation (procedure)| and 15 additional "anesthesia and/or sedation related" procedures.

It has been suggested that 410011004|Administration of anesthesia AND/OR sedation (procedure)| can be inactivated given the existence of 399097000 |Administration of anesthesia (procedure)| and 72641008 |Administration of sedative (procedure)| with subtypes identified.

This proposal was reviewed by the Anesthesia CRG on a November 2023 call and it was agreed on the need for a review of this area, adding some recommendations:

1. Split 410011004|Administration of anesthesia AND/OR sedation (procedure) into Administration of anesthesia procedure (procedure) and Administration of sedation procedure (procedure)
2. Split Anesthesia procedure (procedure) into General anesthesia procedure, Regional anesthesia procedure and Local anesthesia procedure.
3. Review of 410770002 |Administration of anesthesia for procedure (procedure)| and subtypes, given that those "are bad pre-coordinated terms".

Another issue is the modeling of 30 procedures performed "under" one type of Anesthesia technique, e.g. 48973003 |Removal of sutures under anesthesia (procedure)|, 18188000 |Ophthalmoscopy under general anesthesia (procedure)|. These concepts are subsumed by 53185004 |Physical examination under general anesthesia (procedure)|

More concepts of this type can be found under 399097000 |Administration of anesthesia (procedure)|, referring to procedures performed "Under anesthesia". e.g. 74126006 |Reduction of closed elbow dislocation requiring anesthesia (procedure)|, 15624001 |Anesthesia for spinal fluid shunting procedure (procedure)|.

Additional concepts to review are related to an intent or outcome (e.g. 67716003 |Epidural injection of anesthetic substance, therapeutic, caudal, continuous (procedure)|, 16388003 |Injection of spinal anesthetic agent for analgesia (procedure)|) and those related to technical precoordinated procedures (e.g. 24277005 |Inhalation anesthesia, machine system, closed, circulation of primary agent (procedure)|, 24277005 |Inhalation anesthesia, machine system, closed, circulation of primary agent (procedure)|)

Analysis

Current classification

There are 660 concepts (186 primitive and 306 fully defined) in the **1263452006 |Anesthesia and/or sedation procedure (procedure)|** hierarchy and it is split into 16 direct subtypes:

- 410011004 |Administration of anesthesia AND/OR sedation (procedure)|with 2 children:
 - 399097000 |Administration of anesthesia (procedure)|
 - 72641008 |Administration of sedative (procedure)|
- 15 “Anesthesia-related” concepts. e.g. 241728008 |Induced vasodilatation (procedure)|, 414641005 |Maintenance of spontaneous respiration (procedure)|

399097000 |Administration of anesthesia (procedure)|has 24 children:

- 410770002 |Administration of anesthesia for procedure (procedure)|. 262 concepts
- 50697003 |Administration of general anesthetic (procedure)|. 32 concepts
- 9 “Anesthesia for X procedure” or “X procedure under anesthesia” concepts. e.g. 15624001 |Anesthesia for spinal fluid shunting procedure (procedure)|, 24909002 |Manual reduction of closed dislocation of shoulder joint under anesthesia (procedure)|. Leaf nodes
- 241715001 |Analgesic technique (procedure)|. 2 concepts
- 745638006 |Injection of anesthetic agent (procedure)|. 272 concepts
- 78432000 |Intravenous anesthesia (procedure)|-. 2 concepts
- 386761002 |Local anesthesia (procedure)|. 274 concepts
- 2 block procedures: 1966005 |Central block anesthesia (procedure)| and 416427008 |Popliteal fossa nerve block (procedure)|. 6 concepts
- 398239001 |Monitored anesthesia care sedation (procedure)|. Leaf node
- 118491005 |Non-local anesthesia procedure (procedure)|. Leaf node
- 17195006 |Relaxant, induction and maintenance (procedure)|. Leaf node
- 15548004 |Supplementary measure, anesthetic (procedure)|. 2 concepts

72641008 |Administration of sedative (procedure)| has 13 direct subtypes:

- 10 leaf nodes:
 - 880063008 |Administration of sedative via nasal route (procedure)|
 - 712489002 |Administration of sedative via rectal route (procedure)|
 - 770571009 |Benzodiazepine therapy (procedure)|
 - 314271007 |Induction of conscious sedation (procedure)|
 - 426155000 |Induction of deep sedation (procedure)|
 - 427255001 |Induction of minimal sedation (procedure)|
 - 241704006 |Induction of sedation (procedure)|
 - 241707004 |Intramuscular sedation (procedure)|
 - 48674006 |Premedication for anesthetic procedure (procedure)|
 - 241712003 |Sedation with analgesic adjunct (procedure)|
- 241708009 |Inhalational sedation (procedure)|. 2 concepts
- 241705007 |Intravenous sedation (procedure)|. 2 concepts
- 284010004 |Oral sedation (procedure)|. 2 concepts

27372005 |Regional anesthesia (procedure)|. Is currently subsumed by 386761002 |Local anesthesia (procedure)|. 6 concepts

Current modeling

The two main concepts in the hierarchy: 399097000 |Administration of anesthesia (procedure)| and 72641008 |Administration of sedative (procedure)| are subsumed by two Classification derived components.

Both parents are primitive concepts:

1263452006 |Anesthesia and/or sedation procedure (procedure)| is modeled with:

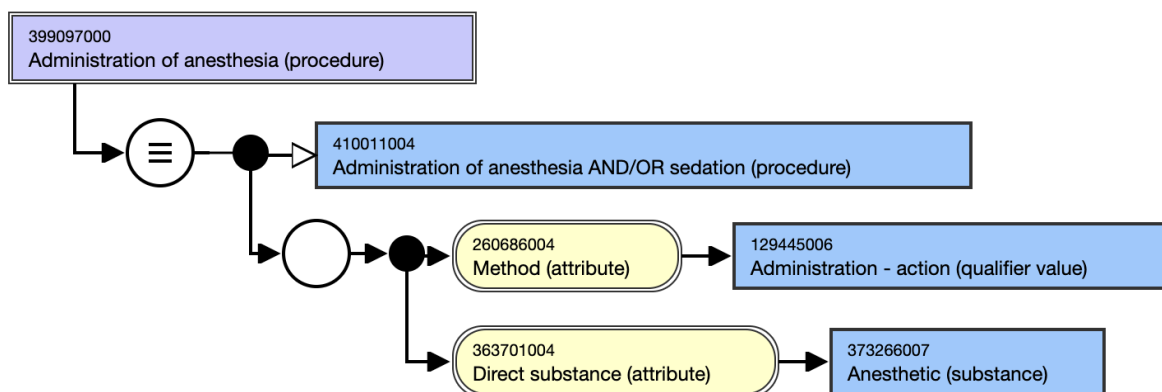
- 363701004 |Direct substance (attribute)| = 410942007 |Drug or medicament (substance)|

410011004 |Administration of anesthesia AND/OR sedation (procedure)|, modeled with:

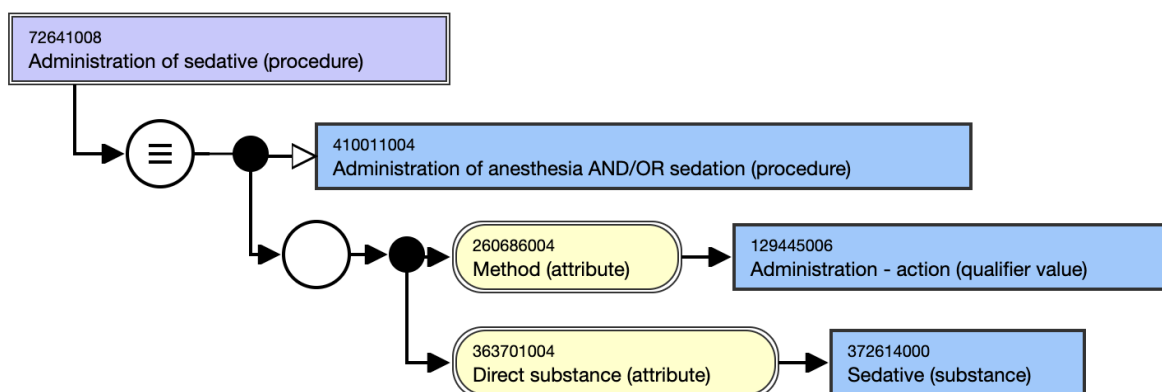
- 260686004 |Method (attribute)| = 129445006 |Administration - action (qualifier value)|
- 363701004 |Direct substance (attribute)| = 410942007 |Drug or medicament (substance)|

Classification derived concepts are planned to be inactivated and the higher hierarchical concepts remaining would be:

399097000 |Administration of anesthesia (procedure)| current modeling



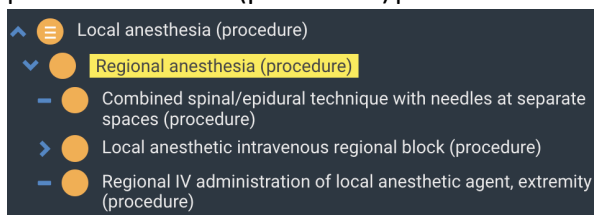
72641008 |Administration of sedative (procedure)| current modeling



Issues

- Higher level concepts in the hierarchy are Classification derived components:

- 1263452006 |Anesthesia and/or sedation procedure (procedure)|
- 410011004 |Administration of anesthesia AND/OR sedation (procedure)|
- The current classification of many concepts in SCT has several issues:
 - 27372005 |Regional anesthesia (procedure)| hierarchy has only 6 concepts and the review revealed 124 potential Regional anesthesia procedures currently subsumed by Local anesthesia (procedure). Example:
 - 231248002 |Local anesthetic intravenous regional block of leg (procedure)|
 - 764913002 |Lumbar sympathetic plexus block using fluoroscopic guidance (procedure)|
 - Concepts under 50697003 |Administration of general anesthetic (procedure)|include "Anesthesia-related" procedures, Procedures performed under/with general anesthesia, Administration of substances, and General anesthesia techniques.
- "Anesthesia-related" primitive concepts which are subsumed without consistency by different groupers need review for consistent classification and modeling.
 - 414641005 |Maintenance of spontaneous respiration (procedure)|
 - 241728008 |Induced vasodilatation (procedure)|
 - 17424007 |Intracarotid amobarbital test (procedure)|
- 27372005 |Regional anesthesia (procedure)|is erroneously subsumed by 386761002 |Local anesthesia (procedure)|.



- 17 concepts that refer to Procedures performed "Under or With anesthesia" in the hierarchy, for example:
 - 24909002 |Manual reduction of closed dislocation of shoulder joint under anesthesia (procedure)|
 - 69534008 |Tympanostomy with general anesthesia (procedure)|
- 262 concepts in the 410770002 |Administration of anesthesia for procedure (procedure)|hierarchy are bad precoordinated concepts with no usage and are contrary to current editorial guidance (i.e. pre-coordinating reason for procedure).
- There are 15 "Injection of anesthetic substance/agent" with an intention stated in the descriptions, example:
 - 58611004 |Epidural injection of anesthetic substance, therapeutic, lumbar, continuous (procedure)|
 - 35597003 |Epidural injection of anesthetic substance, diagnostic, lumbar, continuous (procedure)|
- 8 "Technique related" concepts under 241692007 |Inhalational induction (procedure)|need review, example:
 - 24277005 |Inhalation anesthesia, machine system, closed, circulation of primary agent (procedure)|
 - 24277005 |Inhalation anesthesia, machine system, closed, circulation of primary agent (procedure)|

- 241694008 |Multiple-breath inhalational induction (procedure)|
- The 72641008 |Administration of sedative (procedure)| hierarchy requires a full review based on current definitions and classifications.

Proposed solution

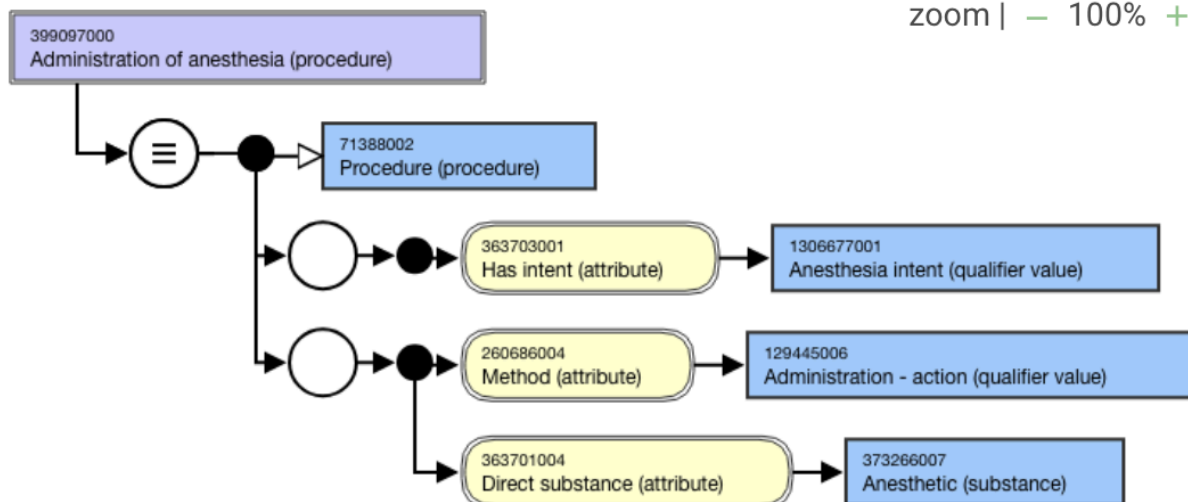
Based on the current definition and classification of Anesthesia and sedation procedures, the Anesthesia CRG recommendations, findings in the terminology, and input from the Content Team, proposed future changes in the terminology are listed below.

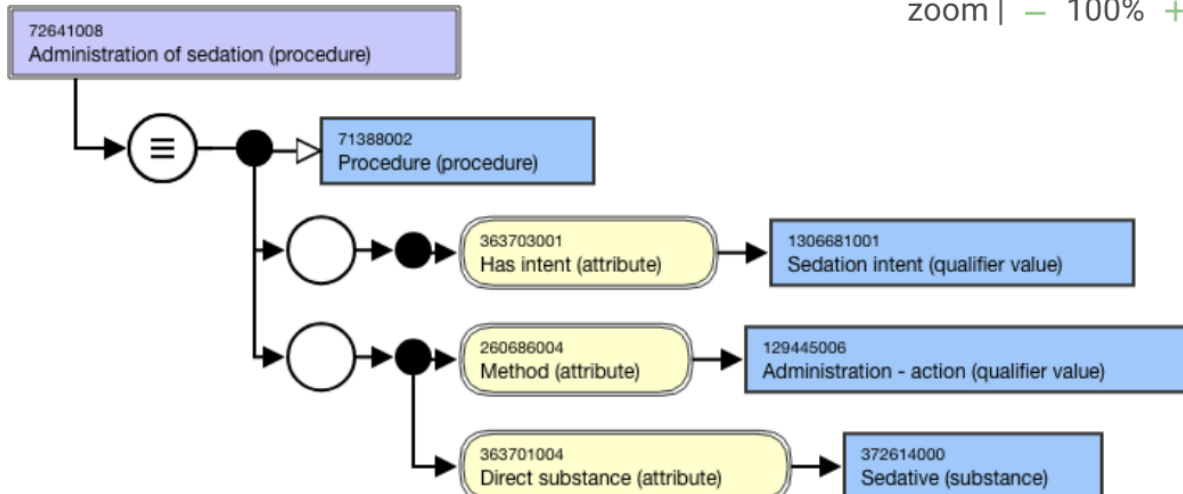
Step 1. Creation of 363703001 |Has intent (attribute)| values under 363675004 |Intents (nature of procedure values) (qualifier value)|

- Anesthesia intent (qualifier value)
 - Local anesthesia intent (qualifier value)
 - Regional anesthesia intent (qualifier value)
 - General anesthesia intent (qualifier value)
- Sedation intent (qualifier value)

Step 2. Remodeling and renaming as needed for << 399097000 |Administration of anesthetic (procedure)| and << 72641008 |Administration of sedative (procedure)|

1. Keep “Administration” attribute value.
2. Keep “Direct substance” attribute value.
3. Add “Has intent” attribute value.





Step 3. Inactivation of high-level Classification derived components: 1263452006 |Anesthesia and/or sedation procedure (procedure)| and 410011004 |Administration of anesthesia AND/OR sedation (procedure)|

Reason for inactivation: Classification derived components.

Partially equivalent to: 399097000 |Administration of anesthesia (procedure)| / 72641008 |Administration of sedative (procedure)|

Step 4. Inactivation of 410770002 |Administration of anesthesia for procedure (procedure)| hierarchy.

- 262 concepts subsumed by 410770002 |Administration of anesthesia for procedure (procedure)|
- 17 “procedure related” concepts

Step 5. Renaming, remodeling and reclassification of groupers:

- 386761002 |Local anesthesia (procedure)| renamed to 386761002 |Administration of local anesthetic (procedure)|
- 27372005 |Regional anesthesia (procedure)| renamed to 27372005 |Administration of regional anesthetic (procedure)|
- 72641008 |Administration of sedative (procedure)|

Step 6. If necessary, reclassification of current Anesthetic and Sedative substances and addition of role groupers.

An in-depth review of current classification, stakeholder participation, and comprehensive use cases is needed.

Additional review of the need for consistent use of 410675002 |Route of administration (attribute)| should be carried out.

Step 7. Bottom-up remodeling and reclassification of ~490 concepts as needed following parent remodeling and proper classification.

- Administration of anesthetic and administration of sedative concepts

- Review of “Anesthesia and sedation related” concepts for proper modeling and classification
- Define concepts related to the administration of a specific drug for consistency in modeling and classification, for example:
 - 51251000112106 |Administration of low dose ketamine (procedure)|
 - 1179726005 |Administration of propofol (procedure)|
- Review of procedures related to an outcome, for example:
 - 67716003 |Epidural injection of anesthetic substance, therapeutic, caudal, continuous (procedure)|
 - 16388003 |Injection of spinal anesthetic agent for analgesia (procedure)|
- Review of concepts related to technical precoordinated procedures, for example:
 - 24277005 |Inhalation anesthesia, machine system, closed, circulation of primary agent (procedure)
 - 24277005 |Inhalation anesthesia, machine system, closed, circulation of primary agent (procedure)|

Stakeholder consultation

2024-01-23 Anesthesia CRG Meeting: The Group agreed with the proposal. They requested to be continuously briefed about changes and will support the author in remodeling of concepts.

Initial review by the EAG, followed by consultation with the MF, CMAG, and finally notification of the Community of practice, due to the large number of changes proposed.

Solution accepted for implementation

Solution accepted for testing.

Construction plan

A project plan will be developed following consultation with advisory groups and the community of practice.

Approval	Date	Name
Chief Terminologist		James T. Case
Head of Content and Mapping		Monica Harry
CSRM representative		Jane Millar