FHIR IG for Intra-Procedural Anesthesia Records

Committee Approval Date:
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Publishing Lead:
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Contributing or Reviewing Work Groups:
Devices

FHIR Development Project Insight ID:

Scope of coverage:
Leverages other IGs and resources but is for a unique application i.e. intra-procedural anesthesia records. Content includes, but may not be limited to:

- Patient details
- Practitioners (including roles)
- Surgical Procedure(s) - planned and performed
- Check lists
- Patient protection
- Anesthesia-related equipment and devices
- Anesthesia technique(s) e.g. inhalational/regional/topical anesthesia, positioning of body and body parts, insertion of intra-vascular lines and airway devices
- Ventilator settings
- Milestone events
- Other events including critical events
- Medication administrations (bolus and continuous infusion)
- Vital signs and physiological parameters collected from patient-connected devices and/or entered manually

Content location:
TBD
Proposed IG Title:
FHIR IG for Intra-Procedural Anesthesia Records

Proposed IG realm and code:
uv

FHIR Core version(s):
4

Maintenance Plan:
Devices WG 3-year plan

Short Description:
A FHIR Implementation Guide for the intra-procedural anesthesia record designed for use by developers, clinicians, researchers and payors,

Long Description:
Problem: Weiser et al. (2016) have estimated that between 2005 and 2012 the annual volume of surgical procedures in the 66 Member States of the World Health Organization was around 150M. The associated anesthesia records are required medico-legal documents and increasingly, anesthesiologists are using electronic anesthesia information management systems (AIMS) to create them. Each record holds detailed time-referenced data from patient-connected devices, events, procedures, medications, and a variety of clinical and procedural observations. In aggregate this represents a huge potential resource for clinical governance, quality improvement and research.

Minimum and desirable, practice standards in anesthesia (particularly for monitoring) have been defined by various national professional bodies and international organizations including AAGBI (UK and Eire), ANZCA (Australia and New Zealand), ASA (US), CAS (Canada), EBA (Europe) and WHO-WFSA (International: Gelb et al, 2018). However, there is no international standard that defines the detailed content of anesthesia records nor how persistent e-records should be rendered.

A separate project, P1153 "HL7 Domain Analysis Model: Intra-Procedure Anesthesia, R1" has aimed to provide a general model for content based on a number of general and specific use cases and a content analysis of around 30 US and international guidelines and anesthesia records. This also provides example bindings to the term set defined by the IOTA group that was originally sponsored by the Anesthesia Patient Safety Foundation (APSF) and that is currently maintained by the SNOMED CT Anaesthesia Clinical Reference Group (CRG).

Scope and purpose: The proposed project is to build on the existing HL7 artefacts HL7_DAM_ANESTH_R1_I1_2020FEB / V3DAM_DCMMEDDEV_R1_I1_2011MAY / V3DAM_DCMMEDDEV_R2_I1_MAY_2018 to create an FHIR R4 implementation guide for the electronic anesthesia record. The implementation guide will fully to reference the ISO/IEEE 11073 family of base standards for Health informatics and medical / health device communication, including the IEEE 11073 Service-oriented Device Connectivity (SDC) standards and the related Gemini SES MDI program’s Service-oriented Device Point-of-care Interoperability (SDPI) profiles that includes an anesthesia workstation specialization, and the related HL7 FHIR Point-of-Care Devices (PoCD) Implementation Guide. This electronic anesthesia record FHIR implementation guide would be intended primarily for use by systems developers and researchers, internationally.

References


The IG provides guidance on how the anesthesia record may be rendered, using FHIR resources, to provide a persistent electronic clinical document

Involved parties:

Expected implementations:
Currently, professional bodies are being contacted. It is expected that the IG will be used by developers of anesthesia information management systems, clinicians, researchers and payors.

**Content sources:**

- ISO 19223:2019 - Lung ventilators and related equipment — Vocabulary and semantics
- ISO 11073 - Medical Device Communications
- HL7 FHIR Point-of-Care Device Implementation Guide
- Content analysis of some 30 US and international guidelines and anesthesia records.
- SNOMED CT Term set defined by the IOTA group that was originally sponsored by the Anesthesia Patient Safety Foundation (APSF) and that is currently maintained by the SNOMED CT Anaesthesia Clinical Reference Group (CRG).

**Example Scenarios:**

Recording of device data (mention recipients)

**IG Relationships:**

HL7 FHIR Point-of-Care Device Implementation Guide

**Timelines:**

Q1: 2023

**FMG Notes**