Draft for review by the Editorial Advisory Group

IHTSDO - 1261_ Hernia repair using X [device] procedures: 3699004 |Direct device (attribute)| or 424226004 |Using device (attribute)|

Links
IHTSDO-1260
GC-1291
GC-1163
GC-1493
GC-1482
GC-1490

Issues

Hernia repair procedures are modeled with a Method -> Repair action RG. A model inconsistency was found in Hernia repair procedures performed using a Device.

Some repair procedures are modeled with the Direct device attribute and others are modeled with the Using device attribute, leading to inconsistency.

The 363702006 |Has focus (attribute)|is used inconsistently within the hierarchy for modeling Repair procedures.

Analysis

Patterns

217 Repair of hernia concepts using a type of Device were identified.

No Hernia repair procedures were identified using 363710007 |Indirect device (attribute)|.

An analysis of modeling patterns for the 217 concepts was conducted:

- **424226004 |Using device (attribute)| within the Repair RG**

  42 Concepts are modeled with 424226004 |Using device (attribute)|, 32 have the value = 27065002 |Surgical suture, device (physical object)|

  10 concepts are modeled with 424226004 |Using device (attribute)|and different values: Patch/Synthetic patch/Graft/Robotic arm

- **363699004 |Direct device|within the Repair RG**

  145 concepts modeled with 363699004 |Direct device| were found including 5 concepts with value 27065002 |Surgical suture, device (physical object)|

- **Hernia repair concepts not modeled with any Device attribute within the Repair RG**

There are 4 ambiguous concepts named "with graft or prosthesis", all referring to bilateral inguinal hernia repair. These concepts are modeled without a Device attribute. e.g. 709000002 |Laparoscopic repair of bilateral direct inguinal hernias with graft or prosthesis (procedure)|, 709001003 |Laparoscopic repair of bilateral, one direct and one indirect, inguinal hernias with graft or prosthesis (procedure)|.

609270007 |Open repair of recurrent paraumbilical hernia with prosthesis (procedure)| is modeled with no Device attribute.

Of these five concepts, 3 are Primitive and 2 are FD.

There is a lack of a sufficient definition due to ambiguity in the descriptions or missing attributes.

- **Modeling with 363702006 |Has focus (attribute)|, including Laparoscopic repair of hernia without a device within the Repair RG.**

   There are 49 Repair of recurrence concepts, which are modeled without 363702006 |Has focus (attribute)| in the original query of 217 concepts.

   Additional 69 concepts were identified as modeled with 363702006 |Has focus (attribute)|. 61 concepts have related "special conditions" like: obstructed, strangulated, direct, indirect, incisional, recurrent and congenital. 8 concepts do not have "special conditions" in this group.

   Although there is a substantial number of concepts with "special conditions", which aren't modeled with 363702006 |Has focus (attribute)|, the pattern points to the use of the attribute when one of those "special conditions" is present.

In repair procedures, devices may play different roles:

- To participate directly in the repair action. This is the case of sutures, mesh, plugs, and prostheses.
- To be used as a mechanism to execute the repair action. Robotic arms.

As per Editorial guidance: **Direct device (attribute)** represents the device on which the method directly acts, and **Using device (attribute)** refers to the instrument or equipment utilized to execute an action. This means that the correct attribute to be used in the Repair RG should be 363699004 |Direct device (attribute)|.

Many concepts are termed Repair of X **using** Y [device], implying that the Using device (attribute) should be used in the definition of those concepts. This assumption is incorrect, and each case must be reviewed.

257911001 |Repair of recurrence (qualifier value)| is used as Method (attribute) value in many Hernia repair procedures, modeling of such concepts is focused on the model for their "Repair of X" parent procedures, but using the value 257911001 |Repair of recurrence (qualifier value)| instead of 257903006 |Repair - action (qualifier value)| for Method (attribute). Although a pattern was identified, almost half of the concepts in the hierarchy don't follow that pattern. This issue is due to some nonexistent types of disorders (recurrent, congenital, incisional, etc…) in the terminology or just by inconsistent modeling. A consistent and unique model is needed.

Additional issues identified

Many concepts termed "Repair of hernia using biological X [device]" are primitive due to the lack of a value for such devices (i.e. Biological hernia surgical mesh). Creation of the concepts to Sufficiently define those concepts is needed.

Proposed solution

1. Using device / Direct device attributes.

Proposal

Modeling of "Hernia repair using X [device] with 363699004 |Direct device (attribute)|within the Repair RG.

Impact: Remodeling of ~ 42 Hernia repair concepts currently modeled with 424226004 |Using device (attribute)|.

2. 363702006 |Has focus (attribute)|

Proposal

Addition of 363702006 |Has focus (attribute)|for modeling of concepts where a "special condition" is identified (e.g. Recurrent, incisional, congenital).

Creation of disorder concepts to be used as values for Has focus (attribute) as needed.

Inactivation of 257911001 |Repair of recurrence (qualifier value)|.

Impact: Creation of ~ 6 disorder concepts. Remodeling and sufficient definition of ~ 50 concepts within the hierarchy.

3. Repair of X hernia using biological mesh.

Proposal

Creation of the Biological device concepts needed as values for Device attributes and remodeling of concepts using the new values.

Impact: Remodeling and sufficient definition of ~120 concepts in the hierarchy.

Testing

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