INDEX-Workshop
User Manual
03.03.2020
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2. Introduction

This document gives an in-depth view at some of the most frequently used content of the INDEX data. The target audience are business analysts and software developers that implement health IT systems using the INDEX database. It is assumed that the readers already have some basic knowledge of the INDEX environment (e.g. through the INDEX User Manual "BHB_INDEX". The document serves also as the base for the INDEX workshop offered by the HCI Academy.

3. How to start using INDEX data for development purposes

If your software needs high quality, daily updated product and/or partner data for the Swiss Health market, the INDEX database is the product to use. To get an overview of the available offerings, please access www.hcisolutions.ch/index and index.hcisolutions.ch/datadoc; these sites also include information about the structure and content of the database, including example data.

To get initial access to the INDEX data for usage in your solution, please proceed as follows:

1. Contact our hotline to get a (free) license for the INDEX data. Sign the contract and return it to us.
2. Sign up for an initial training with the HCI academy. This will not only give you an understanding about the contents of the data and their business meaning, but also shows you how to access the data and how to handle it properly.
3. Based on the contract, you will also get API credentials to access the selected INDEX product. Using the credentials, you can access the full documentation and the respective SOAP webservices to download the data (as a full dump first, as deltas later on).
4. To get the data into your system, you either write your complete own tool based on your exact needs and environment, or you use our free DownloadTool (for Windows) to get the data as XML files from the webservices. The INDEX user manual BHB_INDEX.pdf has the necessary documentation.

4. Licencing the INDEX data

The licensing models is as follows:

- For the software development company, access to the INDEX data is free of charge to develop your product. However, the usage license limits the usage of the data to development and test purposes.
- For the end user, usually an organization such as a hospital or pharmacy that licenses your product for in-house usage, a separate, individual license is needed:
  - In case of a software for doctors’ practices / medical cabinets, the software company acts as a reseller and is responsible for all customer support. The software company is also responsible to download the INDEX data to their own point of distribution, and to redistribute only the data necessary for their software to their end users.
  - The same technical architecture shall be used for pharmacies and care homes; however, in these cases the INDEX licence is however directly between the end client and HCI Solutions AG
  - In case of a software for all other customer types (hospitals, insurances, wholesalers,), each end user needs an individual license and is allowed to do an individual download. The technical solution mentioned above however remains the preferred way.
  - In case of a cloud-based software that is not installed locally / on premise, the same rules apply.
  - In case of a public website on the internet, the INDEX client must purchase the proper INDEX license and an additional “CONSUMER” (website/shop) license. Please contact our hotline for details.
5. How to use and update INDEX data for your customers

To give your customers access to the INDEX data once they have your solution up and running, two basic steps are necessary:

1. An initial load of all necessary data, to be repeated on INDEX release switches
2. A recurring update of the data with change delta in the desired interval (daily, weekly, bimonthly, monthly or whatever the need is)

Depending on the customer type, you must implement either a direct or an indirect data distribution architecture.

- If you are a major software provider for a rather small number of large customers such as hospitals and insurance companies using hospINDEX and logINDEX, the license contract allows them to directly download and import the data from our central webservice to their promises.
- A much better solution however, and mandatory for all other INDEX licenses, is to operate your own data redistribution infrastructure, based on the exact data needs of your software. This has a number of big advantages:
  - Much better scaling for larger number of customers such as pharmacies, medical practices, care homes etc.
  - Vastly improved performance, as you only redistribute the data that the end customers really needs (and possibly using your own improved distribution mechanism)
  - Optimized availability (the INDEX webservices have no SLA and are offered as best-effort)
  - Better support options for your customers in case of data update failure (you can offer support to end customers, while HCI Solutions AG is unable to provide such a service)

In addition to the technical setup, each customer needs a proper license as mentioned above. As a software company that uses medINDEX for software in doctor practices, you sublicense medINDEX from us to your customers, must keep track of your customer licenses and send us a list of all customers twice per year as the base for the billing process. For all other cases, your end users must have valid INDEX contract directly with us (even if you are redistributing the INDEX data yourself, such as in the cases of careINDEX).

For the initial download, call the DOWNLOAD method for each schema that you need. Provide the parameters INDEX (e.g. "hospindex"), the FILTER ("ALL") and the FROMDATE ("2000-01-01") to make sure that you get a complete dataset. Look at the root attributes of the data, containing three different dates:

- CREATION_DATETIME: This is only of interest for internal tracking; it shows the moment when the dataset delivered for your request was produced on the INDEX webservers.
- PROD_DATE: This is the date of the dataset production. Store this date while doing your import, as it will be needed for future delta downloads, to be used as the new FROMDATE.
- VALID_DATE: The “valid from” date of the delivered data. Mostly similar to the PROD_DATE, but changes to a date a few days in the future towards the middle and the end of the month to allow for ample time while the customers are busy redistributing the data themselves.

For each delta download later on, use the PROD_DATE of your last import as the FROMDATE for the new download request. This will make sure that you only get the data that changed since then. You can choose your update interval freely.

Do not use any other date, things could go wrong. The most current INDEX data is being published daily on workdays, at around 13.00h. We therefore advise:

- not to download between 12.30 and 13.00h
- not to use Todays date or similar to track the delta, but to use the PROD_DATE instead.
- to download not directly at 13.00h, but only do it later in the day or during the night, so as to minimize possible bandwidth issues on our servers that could arise if everyone downloads at the same moment.

After the download, you can then import the data into your software. We strongly suggest implementing this as a process with two independent steps:

1. Import each file into your database and store the PROD_DATE for the next update.
During the import, you can handle the creation, deleting, historization and updating of data according to your needs.

- When creating new records, you must first create the main record in your table, and then add the data from the subnodes to your related subtables.
- Logically deleted records have the element DEL on their root set to true. They will be physically deleted from the INDEX a few months later, not appearing in the downloaded data anymore.
  - If you encounter a logically deleted record in your data during import and want to delete the record on your side, too (because you might not have a need to historize your data), you must not forget to first delete the data of the subnodes such as ARTCOMP, ARTBAR, ARTPRI etc. or you will encounter problems with your database constraints.
- In addition to the VALID_DATE root attribute of each schema, some records contain a special VDAT that defines the validity of the contained data.
- Be aware: We do not provide historization in our data; the content reflects always the actual state of the PROD_DATE-attribute in the root.
- To handle updated data, you can use a number of usual patterns in software development, depending on the exact business needs of your use-case. If you do not need to keep a historized record, as is the case for most schemas, you can simply delete the record and all its children, then re-add the data. However, if you need to track data changes over time, e.g. for prices or insurance codes, you should:
  - Compare each updated node and element with your current record
  - Store the changed data together with the new valid date in your historized data table
- Be aware that an updated record might miss a subnode, because that subnode has become invalid or was deleted due to other reasons. In these cases, you must decide yourself about what to do – simply delete that child element in your child table or historize it according to your business needs

5.1. Optimizing your data storage for INDEX data

The INDEX data contain a large dataset of records, about 270’000 articles and products and 120’000 addresses. We suggest that you import and keep the full INDEX dataset; while your software use-cases will perhaps only use a minor part of some of this data, it will still be worthwhile to at least provide some form of read-only access to all or most of the structured data.

The structure and constraints of the data in the different business domains such as ARTICLE or COMPENDIUM are published in the individual Xml Schema Definitions (XSD) available for each dataset in the DOWNLOAD webservice. To access the XSD, go to Datadoc and select the desired schema. This will show the root element documentation from which you can directly click a link to the respective XSD file. In addition, it would also be possible to access the XSD through the DOWNLOAD webservice main page.

5.1.1. Handling long strings

The INDEX data structures contain many strings. While most of them are only short text elements or strings, where the “typical” length can be estimated while peeking at Datadoc or example data, some of the elements vary greatly in length (e.g. compact information from CODEX or LIMITATIO N texts). To properly handle these differences in your databases, you should prioritize your design according to your business needs and then simply limit/truncate the contents during the import of the INDEX data to ensure data integrity and have a fail-safe mechanism to handle strings that might be larger than your database columns. In this way, your software will be on the safe side and the INDEX itself gains flexibility.

In the past, the INDEX schemas used to contain length limitations. However, these are being phased out as they proved to be more trouble than worth: It made it very complicated to adapt INDEX once longer texts were needed, as the 3rd party software importing the INDEX data trusted the schema definitions and were unable to handle larger data. Doing so also required changes of the schema, which can be done only with a release.

Modern database systems can effortlessly handle large text elements. We therefore suggest that you simply use “memo” types to handle large strings in your database when in doubt.

- For Microsoft SQL Server, these are nvarchar(MAX). Don’t use varchar(MAX), as the INDEX are UTF-8. Do not use(n)text, as it is deprecated.
- For Oracle, this is CLOB.
- For MySQL, these are TINYTEXT, TEXT, MEDIUMTEXT and LONGTEXT
6. Products and Articles

The core object structure of the INDEX schemas are the product and article definitions:

- Each PRODUCT groups all attributes that are identical across a number of different ARTICLEs
- Each ARTICLE contains the attributes that are unique to this package of a product

A simple example would be “Aspirin Cardio Filmtabl 100 mg”, which is a PRODUCT (a solid pill containing 100mg of the substance Acetylsalicylsäure) available as two different ARTICLEs, one the 28 piece pack at a price of CHF 6.60 and the other a 98 piece pack at a price of CHF 15.70

Therefore, the PRODUCT contains mostly scientific medical attributes, while the ARTICLE contains physical and commercial attributes used for logistical purposes. A PRODUCT can have 0-n ARTICLE (having 0 in cases where a product is known to be normally available or officially approved by Swissmedic, but where currently no known article is available on the market).

6.1. PRODUCT

The PRDNO is the primary key for each PRODUCT. The main description in German and French is available in the fields DSCRD and DSCRF. Please consult Datadoc for example data and the full structure explained.

Example Cosanum Vinyl Gants

<PRDNO>1004666</PRDNO>
<DSCRD>COSANUM Handschuhe Vinyl GrXL soft puderfr</DSCRD>
<DSCRF>COSANUM gants vinyl GrXL soft s poudre</DSCRF>

Example Omida Schüssler Number 9:

<PRDNO>20430</PRDNO>
<DSCRD>OMIDA DHU SCHÜSSLER No9 Natr phos Tabl D 12</DSCRD>
<DSCRF>OMIDA DHU SCHÜSSLER no9 natr phos cpr 12 D</DSCRF>

The main descriptions in PRODUCT are also the base for to the ones in ARTICLE. In addition, the elements that make up the complete description are also available as separate elements in the INDEX data.

6.2. ARTICLE

The ARTNO (the so called «pharmacode») is the primary key of each ARTICLE. Due to legacy reasons, the primary key is available in a number of elements:

- (Deprecated) The string element PHAR with a fixed-length of 7 chars and zeros for lead padding. Based on the length-separated files used by the GALDAT between 1990 and 2014.
- (Deprecated) The integer element PHARMACODE containing the same number as PHAR, but without padding. Technically correct representation of this primary key.
- ARTNO: The same as PHARMACODE. With a changed name due to political reasons

In addition, we fully support the usage of the GTIN as primary key or other barcodes to find articles. These codes can be found either in the ARTBAR subnode or in the GTIN element.

The main description in German and French is available in the fields DSCRD and DSCRF. Due to legacy reasons, these fields have a length limitation of 50 chars; in addition, editorial rules ensure that all relevant info can be put inside these description fields to achieve a unique, systematic labeling, using a number of abbreviations.

In addition, all description elements are also available as individual fields, some in PRODUCT, and some in ARTICLE. This allows you to build your own description as suitable for your needs.
6.3. Examples

Using the GET viewer and your INDEX credentials, you can browse through the INDEX database yourself.

Parapharma example: COSANUM Handschuhe Vinyl GrXL soft puderfr 100 Stk

<table>
<thead>
<tr>
<th>Element</th>
<th>Content</th>
<th>Beispiel / Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSCRD</td>
<td>PRODUCT Description German</td>
<td>COSANUM Handschuhe Vinyl GrXL soft puderfr</td>
</tr>
<tr>
<td>DSCRF</td>
<td>PRODUCT Description French</td>
<td>COSANUM gants vinyl GrXL soft s poudre</td>
</tr>
<tr>
<td>BNAMD</td>
<td>Base Name</td>
<td>Cosanum</td>
</tr>
<tr>
<td>ADNAMD</td>
<td>Additional name</td>
<td>Handschuhe Vinyl</td>
</tr>
<tr>
<td>SIZE</td>
<td>Size</td>
<td>GrXL</td>
</tr>
<tr>
<td>QTY</td>
<td>Quantity</td>
<td>100</td>
</tr>
<tr>
<td>QTYUD</td>
<td>Quantity Unit</td>
<td>Stk</td>
</tr>
<tr>
<td>DSCRD</td>
<td>ARTICLE Description German</td>
<td>COSANUM Handschuhe Vinyl GrXL soft puderfr 100 Stk</td>
</tr>
<tr>
<td>DSCRF</td>
<td>ARTICLE Description French</td>
<td>COSANUM gants vinyl GrXL soft s poudre 100 pce</td>
</tr>
</tbody>
</table>

PRODUCT:

<PRDNO>1004666</PRDNO>

<DSCRD>COSANUM Handschuhe Vinyl GrXL soft puderfr</DSCRD>

<DSCRF>COSANUM gants vinyl GrXL soft s poudre</DSCRF>

<BNAMD>Cosanum</BNAMD>

<BNAMF>Cosanum</BNAMF>

<ADNAMD>Handschuhe Vinyl</ADNAMD>

<ADNAMF>gants vinyl</ADNAMF>

<SIZE>GrXL</SIZE>

<ADINFD>soft puderfr</ADINFD>

<ADINFF>soft s poudre</ADINFF>

ARTICLE:

<PHAR>2812311</PHAR>

<PRDNO>1004666</PRDNO>

<DSCRD>COSANUM Handschuhe Vinyl GrXL soft puderfr 100 Stk</DSCRD>

<DSCRF>COSANUM gants vinyl GrXL soft s poudre 100 pce</DSCRF>

<QTY>100</QTY>

<QTYUD>Stk</QTYUD>

<QTYUF>pce</QTYUF>
Pharma examples

PRODUCT:

<PRDNO>20430</PRDNO>
<DSCRD>OMIDA DHU SCHÜSSLER No9 Natr phos Tabl D 12</DSCRD>
<DSCRF>OMIDA DHU SCHÜSSLER no9 natr phos cpr 12 D</DSCRF>
<BNAMD>Omida Schüssler</BNAMD>
<BNAMF>Omida Schüssler</BNAMF>
<ADNAMD>No9 Natr phos</ADNAMD>
<ADNAMF>no9 natr phos</ADNAMF>
<DOSEU>D</DOSEU>
<DOSE>12</DOSE>

ARTICLE:

<PHAR>2854367</PHAR>
<PRDNO>20430</PRDNO>
<DSCRD>OMIDA SCHÜSSLER No9 Natr phos Tabl D 12 100 g</DSCRD>
<DSCRF>OMIDA SCHÜSSLER no9 natr phos cpr 12 D 100 g</DSCRF>
<QTY>100</QTY>
<QTYUD>g</QTYUD>
<QTYUF>g</QTYUF>

PRODUCT:

<PRDNO>6549</PRDNO>
<DSCRD>LOMUDAL Spincap Kaps 20 mg</DSCRD>
<DSCRF>LOMUDAL spincap caps 20 mg</DSCRF>
<BNAMD>Lomudal</BNAMD>
<BNAMF>Lomudal</BNAMF>
<ADNAMD>Spincap</ADNAMD>
<ADNAMF>spincap</ADNAMF>
<DOSE>20</DOSE>
<DOSEU>mg</DOSEU>

ARTICLE:

<PHAR>0146614</PHAR>
<PRDNO>6549</PRDNO>
<DSCRD>LOMUDAL Spincap Kaps 20 mg 30 Stk</DSCRD>
<DSCRF>LOMUDAL spincap caps 20 mg 30 pce</DSCRF>
<QTY>30</QTY>
<QTYUD>Stk</QTYUD>
<QTYUF>pce</QTYUF>
NonPharma example

PRODUCT:
<PRDNO>28157</PRDNO>
<DSCRD>RHENA Elastische Binde 5mx6cm</DSCRD>
<DSCRF>RHENA bande élastique 5mx6cm</DSCRF>
<BNAMD>Rhena</BNAMD>
<BNAMF>Rhena</BNAMF>
<ADNAMD>Elastische Binde</ADNAMD>
<ADNAMF>bande élastique</ADNAMF>
<SIZE>5mx6cm</SIZE>

ARTICLE:
<PHAR>1818122</PHAR>
<PRDNO>28157</PRDNO>
<DSCRD>RHENA Elastische Binde 5mx6cm</DSCRD>
<DSCRF>RHENA bande élastique 5mx6cm</DSCRF>
<QTY>1</QTY>
<QTYUD>Stk</QTYUD>
<QTYUF>pce</QTYUF>
7. Components

In some cases, a pharmaceutical product can contain a number of different components. Two examples

- Anti-flu medication with a day pill and a (quite different) night pill
- Anti-baby pills which different components for each week of the monthly cycle.

To properly model such compositions, the scientific data for each medication is modelled on the PRODUCT record, using a number of subrecord COMPONENTS as needed. While most products keep having a single component (PRODUCT/PRD/CPT) node, some have more than one.

In addition, this influences the PRODUCT_PROPRIETARY_QUANTITY and PRODUCT_SUBSTANCE_ALTERNATIVE_QUANTITY schemas, where CPTLNO elements are included to allow for proper cross referencing.

<table>
<thead>
<tr>
<th>Schema / Node</th>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRODUCT/PRD</td>
<td>CPT</td>
<td>The unique key to reference scientific data combines the product number PRDNO with the component line number CPTLNO.</td>
</tr>
<tr>
<td></td>
<td>CPTCMP</td>
<td>Composition per component (links to SUBSTANCE)</td>
</tr>
<tr>
<td></td>
<td>CPTIX</td>
<td>Interactions per component (links to INTERACTION)</td>
</tr>
<tr>
<td>PRODUCT_PROPRIETARY_QUANTITY/PPQ</td>
<td>CPTLNO</td>
<td>The unique key includes the CPTLNO</td>
</tr>
<tr>
<td>PRODUCT_SUBSTANCE_ALTERNATIVE_QUANTITY/PQA</td>
<td>CPTLNO</td>
<td>The unique key includes the CPTLNO</td>
</tr>
</tbody>
</table>
### 7.1. Example data: Panadol

<table>
<thead>
<tr>
<th>Tag</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRD DT</td>
<td>2017-10-31T00:00:00+01:00</td>
</tr>
<tr>
<td>PRDNO</td>
<td>13225</td>
</tr>
<tr>
<td>DSCRD</td>
<td>PANADOL Filmtabl 500 mg</td>
</tr>
<tr>
<td>DSCRF</td>
<td>PANADOL cpr pell 500 mg</td>
</tr>
<tr>
<td>DSCRLONGD</td>
<td>Panadol Filmtabl 500 mg</td>
</tr>
<tr>
<td>DSCRLONGF</td>
<td>Panadol cpr pell 500 mg</td>
</tr>
<tr>
<td>BNAMD</td>
<td>Panadol</td>
</tr>
<tr>
<td>BNAMF</td>
<td>Panadol</td>
</tr>
<tr>
<td>BNAMLONGD</td>
<td>Panadol</td>
</tr>
<tr>
<td>BNAMLONGF</td>
<td>Panadol</td>
</tr>
<tr>
<td>DSCRSWISSMEDICD</td>
<td>Panadol, Filmtabletten</td>
</tr>
<tr>
<td>DSCRSWISSMEDICF</td>
<td>Panadol, Filmtabletten</td>
</tr>
<tr>
<td>GENGRO</td>
<td>N02BE01SETN000000500FILT</td>
</tr>
<tr>
<td>ATC</td>
<td>N02BE01</td>
</tr>
<tr>
<td>IT</td>
<td>01.01.10</td>
</tr>
<tr>
<td>TRADE</td>
<td>aH</td>
</tr>
<tr>
<td>PRTNO</td>
<td>10661</td>
</tr>
<tr>
<td>MONO</td>
<td>253753</td>
</tr>
<tr>
<td>CDGALD</td>
<td>Y</td>
</tr>
<tr>
<td>CDGALF</td>
<td>Y</td>
</tr>
<tr>
<td>FORMD</td>
<td>Filmtabl</td>
</tr>
<tr>
<td>FORMF</td>
<td>cpr pell</td>
</tr>
<tr>
<td>DOSE</td>
<td>500</td>
</tr>
<tr>
<td>DOSEU</td>
<td>mg</td>
</tr>
<tr>
<td>PRDIXREL</td>
<td>1</td>
</tr>
<tr>
<td>CDS</td>
<td>0</td>
</tr>
<tr>
<td>QAP</td>
<td>1</td>
</tr>
<tr>
<td>SMNR</td>
<td>25144</td>
</tr>
<tr>
<td>SMCAT</td>
<td>B/D</td>
</tr>
<tr>
<td>EXPORTONLY</td>
<td>true</td>
</tr>
<tr>
<td>DEL</td>
<td>false</td>
</tr>
<tr>
<td>CPTLNO</td>
<td>1</td>
</tr>
<tr>
<td>IDXIND</td>
<td>SE</td>
</tr>
<tr>
<td>DDDD</td>
<td>3</td>
</tr>
<tr>
<td>DDDU</td>
<td>g</td>
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<td>DDDA</td>
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<td>1</td>
</tr>
<tr>
<td>GALF</td>
<td>112</td>
</tr>
<tr>
<td>GENGRO</td>
<td>SYNTHETIC</td>
</tr>
<tr>
<td>EXCIP</td>
<td>Excip. pro compr. obduct.</td>
</tr>
<tr>
<td>QTLY</td>
<td>1</td>
</tr>
<tr>
<td>PQTYU</td>
<td>Stk</td>
</tr>
<tr>
<td>SIZEMM</td>
<td>18</td>
</tr>
<tr>
<td>WEIGHT</td>
<td>584</td>
</tr>
<tr>
<td>LOOKD</td>
<td>Filmtablette, länglich, weiss, Prägung: PANADOL</td>
</tr>
<tr>
<td>LOOKF</td>
<td>Comprimé pelliculé, oblong, blanc, empreinte: PANADOL</td>
</tr>
<tr>
<td>IMG2</td>
<td>true</td>
</tr>
<tr>
<td>LINE</td>
<td>0</td>
</tr>
<tr>
<td>SUBNO</td>
<td>200949</td>
</tr>
<tr>
<td>QTY</td>
<td>500</td>
</tr>
<tr>
<td>QTYU</td>
<td>mg</td>
</tr>
<tr>
<td>WHK</td>
<td>W</td>
</tr>
<tr>
<td>CPTCMP</td>
<td></td>
</tr>
<tr>
<td>SUBNO</td>
<td>202657</td>
</tr>
</tbody>
</table>
<QTY />
<QTYU />
<WHK>K</WHK>
</CPTCMP>
<CPTIX>
<IXNO>188</IXNO>
<GRP>2</GRP>
<RLV>4</RLV>
</CPTIX>
<CPTIX>
<IXNO>438</IXNO>
<GRP>1</GRP>
<RLV>4</RLV>
</CPTIX>
<CPTIX>
<IXNO>577</IXNO>
<GRP>1</GRP>
<RLV>3</RLV>
</CPTIX>
<CPTIX>
<IXNO>981</IXNO>
<GRP>2</GRP>
<RLV>1</RLV>
</CPTIX>
<CPTIX>
<IXNO>1500</IXNO>
<GRP>1</GRP>
<RLV>3</RLV>
</CPTIX>
<CPTIX>
<IXNO>1613</IXNO>
<GRP>2</GRP>
<RLV>2</RLV>
</CPTIX>
<CPTIX>
<IXNO>1672</IXNO>
<GRP>1</GRP>
<RLV>5</RLV>
</CPTIX>
<CPTIX>
<IXNO>1709</IXNO>
<GRP>1</GRP>
<RLV>4</RLV>
</CPTIX>
<CPTIX>
<IXNO>1865</IXNO>
<GRP>2</GRP>
<RLV>4</RLV>
</CPTIX>
<CPTIX>
<IXNO>1923</IXNO>
<GRP>1</GRP>
<RLV>4</RLV>
</CPTIX>
</CPT>
</PRD>
8. Article prices

8.1. Official prices and non-binding price suggestions

8.1.1. In the schema ARTICLE (deprecated)

The schema ARTICLE has a subnode ARTPRI that contains price data:

- The ex-factory (PEXF) and public (PPUB) prices for medication paid by the insurers, as published on www.spezialitätenliste.ch by the BAG/OFSP
- The maximum payback price (Höchstvergütungsbetrag HVB) for articles paid by the insurers, as published on the Mittel- und Gegenstandsliste “MiGel” by the BAG/OFSP. All such prices have a pricetype starting with the letter “M” (e.g. “MSTU”).
- In all other cases, and if available/known, the prices mentioned in ARTPRI are the “unverbindliche Preisempfehlung” (UVP) of the main supplier (“Lieferant”)

All price data elements have a VDAT element that defines the “valid from” date of this price information.

Typical price types are

- **PEXF**: “Price Ex Factory”, the price paid by the wholesaler, “factory-direct”
- **PPHA**: «Price Pharmacist», a possible base price for the pharmacist
- **PPUB**: «Price Public», the suggested retail price when selling to the public

Public prices include VAT, all other prices are without VAT.


```xml
<ARTPRI>
  <VDAT>2004-07-01T00:00:00.0000000+02:00</VDAT>
  <PTYP>PEXF</PTYP>
  <PRICE>6.78</PRICE>
</ARTPRI>

<ARTPRI>
  <VDAT>2004-07-01T00:00:00.0000000+02:00</VDAT>
  <PTYP>PPUB</PTYP>
  <PRICE>12.55</PRICE>
</ARTPRI>
```

8.1.2. In the schema ARTICLE_PRICE (since 2017-05)

The newer schema ARTICLE_PRICE contains the same data as ARTICLE/ART/ARTPRI mentioned above, except the special MiGeL prices. On the plus side, it might include UVP from a number of different suppliers for maximum market transparency. It therefore has an additional field PRTNO that references to the individual supplier that offers this price.

We suggest that you move your code to ARTICLE_PRICE and add logic to handle multiple suppliers depending on your exact business needs.
8.2. Wholesaler prices

The schema ARTICLE_WHOLESALER contains the current article prices from a variety of wholesalers in Switzerland. These prices are the base prices, including temporary or other discounts.

Dependent on the pricing model of your wholesaler, individual “KuKo” (Customer conditions) might apply an additional discount layer. This data however is out of scope of INDEX, must be retrieved individually directly from the wholesaler and be processed in your software.

In addition, the data might contain additional wholesaler information, such as availability or size/weight information. The exact contents depend on each wholesaler, as they are responsible for their data in ARTICLE_WHOLESALER.

8.3. VAT (MwSt. / T.V.A)

Information about VAT can be found in ARTICLE/ART/VAT.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Full taxation (8% until 31.12.2017; 7.7% from 01.01.2018 on)</td>
</tr>
<tr>
<td>2</td>
<td>Reduced taxation (2.5%)</td>
</tr>
<tr>
<td>3</td>
<td>Exempt from taxation (0%)</td>
</tr>
</tbody>
</table>

9. Health insurance

For billing and health insurance processes, it is important to know what the exact pricing/billing rules are. The federal government publishes various lists and documents that our editorial team then transforms and encodes for a structured usage in the INDEX database. Therefore, the schema ARTICLE contains an element NINCD (New Insurance Code) with a code defining the insurance category of this article. Please use the GET viewer to get the most current list (CDTYP 20)

<table>
<thead>
<tr>
<th>Code</th>
<th>DESCRD</th>
<th>DESCRF</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Spezialitätenliste (SL)</td>
<td>Liste des spécialités (LS)</td>
</tr>
<tr>
<td>12</td>
<td>SL70: Homoeopathica/Antroposophica</td>
<td>LS70: Homeopathie/Anthroposophie</td>
</tr>
<tr>
<td>13</td>
<td>Mittel- und Gegenständeliste (MiGeL)</td>
<td>Liste moyens et appareils (LIMA)</td>
</tr>
<tr>
<td>14</td>
<td>Parenterale / enterale Ernährung</td>
<td>Alimentation entérale et parentérale</td>
</tr>
<tr>
<td>15</td>
<td>KLV (Krankenpflege Leistungsverordnung)</td>
<td>OPAS</td>
</tr>
<tr>
<td>16</td>
<td>Arzneimittelliste mit Tarif (ALT)</td>
<td>Médicaments avec tarifs (LMT)</td>
</tr>
<tr>
<td>20</td>
<td>LPPV</td>
<td>LPPA</td>
</tr>
<tr>
<td>30</td>
<td>Hors Liste (Swissmedic zugelassene Arzneimittel)</td>
<td>Hors Liste (médicaments autorisés par Swissmedic)</td>
</tr>
<tr>
<td>31</td>
<td>Medizinprodukte</td>
<td>Dispositif médical</td>
</tr>
<tr>
<td>32</td>
<td>Homoeopathica/Antroposophica(Hors Liste)</td>
<td>Homeopathie/Anthroposophie(Hors Liste)</td>
</tr>
<tr>
<td>33</td>
<td>MiGeL ähnliche Produkte</td>
<td>LiMA produits similaires</td>
</tr>
<tr>
<td>34</td>
<td>nicht Swissmedic zugelassen</td>
<td>Pas autorisé par Swissmedic</td>
</tr>
<tr>
<td>99</td>
<td>nicht definiert</td>
<td>Non defini</td>
</tr>
</tbody>
</table>

Please do not use the old legacy element INCD anymore, it is deprecated!
9.1. Spezialitätenliste (SL) / Liste des spécialités (LS)

The «list of specialties» published by the Federal Office of Public Health (BAG/OFSP) lists which medication is to be paid by the health insurances. It also defines the ex-factory and the public prices of these articles and the percentage of the public price the patient himself must pay. Each listed article has:

- a NewInsuranceCode NINCD of 10 or 12 (ARTICLE/ART/ARTINS/NINCD=10 | 12).
- a public price as defined on the list (ARTICLE/ART/ARTPRI/PRICE, with PTYP="PPUB" or ARTICLE_PRICE/AP with PTYP='PPUB')
- an exfactory price as defined on the list (ARTICLE/ART/ARTPRI/PRICE, with PTYP="PEXF" or ARTICLE_PRICE/AP with PTYP='PEXF')
- The date it was first listed
- The date the listing ended
- The percentage to be paid by the patient himself, 10% or 20%

10. LOA – the pharmacy sales service charge

Based on an agreement between the swiss pharmacists (PharmaSuisse) and the patient insurers (santésuisse), the pharmacies are allowed to price in an additional service tariff on each medication sale, the so called the LOA (Leistungsorientierte Abgeltung).

The tariff only applies to pharmacies that are part of the tariff-contract between the two parties mentioned.

The LOA tariff applies to all medications that are of Swissmedic category A or B (ARTICLE/ART/SMCAT). In detail, all medications qualified for the LOA surcharge have ARTICLE/ART/LOACD set to Y (“Yes”).

11. Code tables

The INDEX database uses dozens of code tables to encode the various datasets. All these tables can be found in the schema CODE. For each table, a certain CDTYPE serves as table type reference, while the associated CDVAL contains the value of the individual code and the fields DESCRD and DESCRF. Examples are:

- Assortment code
- ATC
- Index Therapeuticus
- MiGeL

For the full list of all codes, use the GET viewer on the schema CODE using the CDTYPE 0. This will return the "list of lists". In addition, all codes are referenced from datadoc – you can simply click the "CODETPYE" reference of a datadoc entry – this will hyperlink to the GET viewer listing this particular code table.

You need your INDEX-credentials for listing the content using the GET viewer
12. Lifecycle (ausser Handel / hors commerce)

One of the most basic information is the knowhow about the lifecycle of an article. Therefore, ARTICLE/ART/SALECD (“Sale Code”) denotes the availability of an article for trade. The lifecycle itself goes along the following steps:

<table>
<thead>
<tr>
<th>SALECD</th>
<th>Sale Code Description</th>
<th>DEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A new ARTICLE/ART record appears in the INDEX (with ARTICLE/ART/DEL = true). It has one of the following SALECD (noted in typical order of lifecycle).</td>
<td>false</td>
</tr>
<tr>
<td>P</td>
<td>Provisional, in preparation. Such articles are only available in logINDEX and insureINDEX and are used «to setup the system» along the logistics chain. Data is not complete at all: Do not publish in public or use in other environments, as the data for them is not yet solid enough to work in all processes!</td>
<td>false</td>
</tr>
<tr>
<td>R</td>
<td>Registered. Such articles are already registered and prepared for use in the INDEX database, but not yet sold / available in trade. Users shall not yet be able to order such an article. Data is mostly complete.</td>
<td>false</td>
</tr>
<tr>
<td>N</td>
<td>Normal sale, the article is in trade and widely available (im Handel / en commerce). These are the articles currently being produced and distributed along the logistic chain for usage and consumption by end users / patients / customers. Data is very complete.</td>
<td>false</td>
</tr>
<tr>
<td>H</td>
<td>Historic / Out of trade (ausser Handel / hors commerce). The article is no longer available for order. Stocks are running out. Data remains complete and will remain in the INDEX database for at least 2.5 years</td>
<td>false</td>
</tr>
</tbody>
</table>

Twice per year, in mid-March and mid-September, the INDEX database will cleanup itself:

All articles that aren’t yet deleted, but have been out of trade for at least two years (SALECD “Historic” and DEL=false) will be logically deleted: DEL changes from false to true, SALECD remains H.

| H      | Historic / Out of sale (ausser Handel / hors commerce) for two years or longer The article has not been available for a long time. Stocks ran out long ago. Data remains complete, but will remain in the INDEX database for only 6 months longer. Customer systems using INDEX data must now decide on how to handle historization for such records: keep them in the local database, only change status or disable them, eventually remove them completely – whatever suits the business process of the user | true |

The same cleanup process is also responsible to remove records from the INDEX at the end of the lifecycle:

All articles that have been logically deleted for at least six months are physically deleted from ARTICLE.

A similar lifecycle also applies to the PRODUCT. There is a summarized trade status overview available in PRODUCT/PRD/TRADE. This is being calculated daily based on the status of all articles of that product. Behaviour of logical (PRODUCT/PRD/DEL) and physical deletion (removal from webservice) of PRODUCT records is identical to ARTICLE.
13. Calculating with substances and quantities

For medications, the INDEX data contains various add-on information to support calculations related to either substance quantities or article / product quantities. This helps with two use cases:

- If you need to calculate drug dosages based on substance amounts or different measurement units
  - "The doctor says to give 1000mg today. How many pills are needed?"
  - "The patient takes 6 pills per day. What is his daily dosage?"
  - "How many spoons must be given if the substance amount shall be 500mg?"
  - "The patient gets X ml per day. How does this relate to the defined daily dosage?"

- If you need to calculate partial package prices for e.g. hospital usage
  - give the price of 4 pills out of a package of 50 pieces

13.1. Introduction

The most important data for all calculations is the typical minimal usage unit of the product (“Bezugsmenge”), which can be found in PRODUCT/PRD/CPT/PQTY and PQTYU, e.g. “1 ml”.

13.1.1. Composition / substances

On one hand, the INDEX contains in PRODUCT/PRD/CPT/CPTCMP the “declared composition”, as published in the Swissmedic-Journal and as “declared by the manufacturer”. Unfortunately, there are no editorial rules for this data - it is therefore individual, not normalized and unsuitable for IT processing (As an example, a company might base their declared composition on the salts of a substance, while others use the base variant). Therefore, this data is not suitable for calculations and shall not be used for such!

To make the information accessible in IT systems, the INDEX therefore contains a «normed composition» suitable for calculations in the schema, offering for each product and its substances alternative quantities:

- PRODUCT_SUBSTANCE_ALTERNATIVE_QUANTITY for calculations such as “10 ml equals 500 mMol, 10 ml equals 1000 IU”, useful if alternative units of measure need to be known.

  *This is the only data to be used for substance-based calculations!*

13.1.2. Quantities

A similar problem exists for quantities. The “declared” quantities available in an article can be found in QTY/QTYUD/QTYUF. However, they too suffer from missing rules to allow proper calculations. To correct this, the INDEX database makes available two tables of “proprietary” quantities, one on the product level and the other on the article level. The respective schemas are:

- PRODUCT_PROPRIETARY_QUANTITY for calculations such as “1 Teaspoon equals 5 ml”, useful if appliance instructions need to be converted between different units of measurement.

- ARTICLE_PROPRIETARY_QUANTITY for calculations such as “1 Article contains 6 blisters, each blister contains 15 tablets”, useful if drug usage must be calculated in parts of an article (such as in hospital environments).

13.1.3. Summary

To calculate with units and substances, use the PRODUCT/PRD/CPT/PQTY and PQTYU as your base unit. Then look for extended data in the three add-on schemas:

<table>
<thead>
<tr>
<th>Schema/Node</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRODUCT_SUBSTANCE_ALTERNATIVE_QUANTITY/PAQ</td>
<td>alternative mass units per substance e.g. 100 ml equals 500 mMol</td>
</tr>
<tr>
<td>PRODUCT_PROPRIETARY_QUANTITY/PQ</td>
<td>Proprietary units of mass measurement e.g. 1 teaspoon equals 5 ml</td>
</tr>
<tr>
<td>ARTICLE_PROPRIETARY_QUANTITY/APQ</td>
<td>Proprietary amounts e.g. 1 bottle equals 100 ml</td>
</tr>
</tbody>
</table>
13.2. A simple example using “Algifor Junior”

This example will explain how to put together a dosage and cost calculator based on INDEX data.

13.2.1. PRODUCT

#1: Get the base values for PRDNO 1005082...

The allocation base amount, as available in PRODUCT/PRD/CPT/PQTY + PQTYU, is 1 ml

<table>
<thead>
<tr>
<th>PRDNO</th>
<th>LNO</th>
<th>STDQTY</th>
<th>STDQTYU</th>
<th>PRPQTY</th>
<th>PRPQTYU</th>
</tr>
</thead>
<tbody>
<tr>
<td>1005082</td>
<td>1</td>
<td>2.5 ml</td>
<td>1 ml</td>
<td>1</td>
<td>mL</td>
</tr>
<tr>
<td>1005082</td>
<td>2</td>
<td>5 ml</td>
<td>1 gML</td>
<td>1</td>
<td>gML</td>
</tr>
</tbody>
</table>

The normed quantities of the product, from PRODUCT_PROPRIETARY_QUANTITY with PRDNO=1005082:

These units relate proprietary quantities, e.g., 1 small spoon (kML / kleiner Messlöffel) equals 2.5 ml of the product content and 1 large spoon (gML / grosser Messlöffel) equals to 5 ml of the content.

#2: …and calculate the proprietary quantities in relation to the base values

For each product row in PRODUCT_PROPRIETARY_QUANTITY that has a STDQTYU equal to the PRODUCT/PRD/CPT/PQTYU, calculate the unit-specific (“proprietary”) quantities in relation to the base amount from PRODUCT/PRD/CPT/PQTY as X = PRPQTY / STDQTY.

For our example, this results in two records: “1 ml = 0.4 kML” and “1 ml = 0.2 gML”.

Later on, this will also allow you to calculate the relation to the defined daily dose (DDD)

#3: Get the alternate substance quantities...

To get a list of the (normalized) substances of this product in various quantity units, get all records from PRODUCT_SUBSTANCE_ALTERNATIVE_QUANTITY where the PRDNO matches your product.

Once again, these numbers relate to the base amount from PRODUCT/PRD/CPT/PQTY+PQTYU (here: “1 ml”). In there, the SUBNO identifies the substance from the schema SUBSTANCE (e.g., Ibuprofen), while the component-, substance-and quantity unit “line numbers” (CLNO, SBLNO, QULNO) allow proper sorting.

#5. …and calculate the number of DDD in the base amount

The DDD is available from PRODUCT/PRD/CPT/DDDD+DDDU, typically as mg, g or IE.

If the DDDD can be found in the list of alternative substance quantities or if it can be transformed to one of the QTYU, you can put the DDDD in relation to the QTY (QTY/DDDD) to calculate the number of DDDs in the base amount.

13.2.2. ARTICLE

#6: Get the quantities available for a defined article...

Using ARTICLE_PROPRIETARY_QUANTITY, you can calculate the number of corresponding quantities in relation to the original base amount retrieved in #1 (at least as long as the PRODUCT/PRD/CPT/PQTY matches either QTYU1 or QTYU2). In this example, you can calculate that the base amount corresponds to 0.005 bottles (“Fl(aschen”).

#7: …and put it into relation to the price of an article

ARTICLE_PRICE contains the price information for this article, which contains 1 bottle of 200 ml (as seen in #6). Based on this, you can now calculate the price of the base amount (the now well known “1 ml” from PRODUCT/PRD/CPT/PQTY+PQTYU) for each price type.
13.2.3. Putting it all together

Taking all this data and putting it into relation results in a handy calculator for various needs, e.g. to calculate the number of large spoons to get the DDD and the associated costs. Our example shown below is available through the legacy INDEX-Browser:

The top half contains PRODUCT information

- The top left frame shows the purely informative “declared” composition based on the Swissmedic registration (available from PRODUCT/PRD/CPT/CPTCMP), followed by the DDD based on the substance base (as found in PRODUCT/PRD/CPT/DDDD+DDDU)
- The top right frame shows the “normed” composition (ignoring excipients) as available in PRODUCT_SUBSTANCE_ALTERNATIVE_QUANTITY, based on the allocation base amount defined in PRODUCT/PRD/CPT/PQTY + PQTYU. If substances are mentioned as bases and salts, the base will always be listed first (SBLNO=0). This example here only contains the base (Ibuprofen).
- The bottom right frame shows the available normed quantities of the product, found in PRODUCT_PROPRIETARY_QUANTITY
- A dropdown list contains all articles for this product and shows the currently selected article.

The bottom half contains ARTICLE information, based on the selected article

- The top left shows the article prices from ARTICLE_PRICE
- The top right shows the article quantity units from ARTICLE_PROPRIETARY_QUANTITY
- The bottom left is a dropdown list of all units and quantities for the selected article.
- The bottom right shows the calculations results for all units, based on the selection in the left, combining all the data from the different INDEX elements and on-correcting between them on-the-fly:
  - 1 ml = 20mg Ibuprofen = 0.097 mml
  - 1 kML = 2.5 ml (=50 mg)
  - 1 gML = 5 ml (=100 mg)
  - 1 DDD = 1.2 g (= 1200mg = 12 gML)
  - 1 article “100mg/5ml 200 ml” = 1 pack = 1 unit = 200ml (= 4g Ibuprofen = 19.4 mmol = 80 kML = 40 gML = 3.333 DDD) = CHF 9.80 PPUB (=2.943/DDD) = CHF 4.98 PEXF

As said before – do not forget that all calculation values are always in relation to the base allocation unit!
13.3. A complex example using “Tramal Tropfen”

13.3.1. PRODUCT

#1: Get the base values for PRDNO 21830...

The allocation base amount, as available in PRODUCT/PRD/CPT/PQTY + PQTYU, is 1 ml

<table>
<thead>
<tr>
<th>PRDNO</th>
<th>SUBNO</th>
<th>CLNO</th>
<th>SBLNO</th>
<th>QULNO</th>
<th>QTY</th>
<th>QTYU</th>
<th>NSFLAG</th>
</tr>
</thead>
<tbody>
<tr>
<td>21830</td>
<td>201197</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>87.84</td>
<td>mg</td>
<td>0</td>
</tr>
<tr>
<td>21830</td>
<td>201197</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>333510517123548</td>
<td>mg/ml</td>
<td>0</td>
</tr>
<tr>
<td>21830</td>
<td>205540</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>100</td>
<td>mg</td>
<td>1</td>
</tr>
<tr>
<td>21830</td>
<td>205540</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>333511205976521</td>
<td>mg/ml</td>
<td>0</td>
</tr>
</tbody>
</table>

The normed quantities of the product, from in PRODUCT_PROPRIETARY_QUANTITY with PRDNO=21830:

These units relate proprietary quantities, e.g. 1 ml equals 8 hubs of the product content and also 40 drops (gtt / “gouttes”).

#2: …and calculate the proprietary quantities in relation to the base values

For each product row in PRODUCT_PROPRIETARY_QUANTITY that has a STDQTYU equal to the PRODUCT/PRD/CPT/PQTYU, calculate the unit-specific (“proprietary”) quantities in relation to the base amount from PRODUCT/PRD/CPT/PQTY as \( X = \text{PRPQTY} / \text{STDQTY} \).

For our example, this results in two records (without any need to calculate, as both STQTY and STQTYU are equal to PQTY/PQTYU), 1 ml = 8 hubs and 1 ml = 40 gtt.

Later on, this will also allow you to calculate the relation to the defined daily dose (DDD)

#3: Get the alternate substance quantities...

To get a list of the (normalized) substances of this product in various quantity units, get all records from PRODUCT_SUBSTANCE_ALTERNATIVE_QUANTITY where the PRDNO matches your product.

Once again, these numbers relate to the base amount from PRODUCT/PRD/CPT/PQTY+PQTYU (here: "1 ml").

In there, the SUBNO identifies the substance from the schema SUBSTANCE (e.g. Ibuprofen), while the component-, substance-and quantity unit “line numbers” (CLNO, SBLNO, QULNO) allow proper sorting.

In addition, the column NSFLAG (“normal substance”) denotes the substance and quantity normally used and most relevant for this product. We suggest to markup this fact in the UI, e.g. by displaying it in bold or similar. In our example, the normal substance is 100 mg of Tramadolum hydrochlorid (SUBNO 205540).

And don’t forget – this schema only ever contains data about drug substances, but no excipients.

#5. …and calculate the number of DDD in the base amount

The DDD is available from PRODUCT/PRD/CPT/DDDD+DDDU, typically as mg, g or IE.

If the DDDU can be found in the list of alternative substance quantities or if it can be transformed to one of the QTYU, you can put the DDDD in relation to the QTY (QTY/DDDD) to calculate the number of DDDs in the base amount.

Additionally, if more than one substance is listed in PSAQ as is the case above, you must make sure to pick the correct substance to properly calculate the DDD: According to the WHO, they always use the base variant of the substance for their DDD values. To match this properly to the PSAQ values in the INDEX data, we therefore make sure that the base substance is always listed first, with SBLNO=0, while any salts use a higher SBLNO.

Therefore, to finalize our calculation of the DDD, we do take the PSAQ entry that has the SBLNO=0 and the QTYU = PQTYU and divide the first by the latter, base amount / DDD = 87.84 / 300 = 0.29280
13.3.2. ARTICLE

**#6: Get the quantities available for a defined article...**

Using `ARTICLE_PROPRIETARY_QUANTITY`, you can calculate the number of corresponding quantities in relation to the original base amount retrieved in #1 (at least as long as the PRODUCT/PRD/CPT/PQTYU matches either QTYU1 or QTYU2). In this example, you can calculate that the base amount corresponds to 0.02 bottles (“Fl(aschen)” based on the data found in the 2nd row/line.

**#7: ...and put it into relation to the price of an article**

`ARTICLE_PRICE` contains the price information for this article, which contains 5 bottles of 50 ml each (as seen in #6). Based on this, you can now calculate the price of the base amount (the wellknown “1 ml” from PRODUCT/PRD/CPT/PQTY+PQTYU) for each price type.

This results in `1 pck = 5 Fl = 250 ml / 1 ml = 0.004 pck = 0.004 * CHF 86.36 = CHF 0.34544 (PEXF)`
13.3.3. Putting it all together

As seen in the earlier example, taking all this data and putting it into relation results in a handy calculator for various needs, e.g. to calculate the amount of drops to get the DDD and the associated costs. Our example shown below is available through the legacy INDEX-Browser:

The top half contains PRODUCT information

- The top left frame shows the purely informative "declared" composition based on the Swissmedic registration (available from PRODUCT/PRD/CPT/CPT_CMP), followed by the DDD based on the substance base (as found in PRODUCT/PRD/CPT/DDDD+DDDU)
- The top right frame shows the "normed" composition (ignoring excipients) as available in PRODUCT_SUBSTANCE_ALTERNATIVE_QUANTITY, based on the allocation base amount defined in PRODUCT/PRD/PQTY/PQTYU.

If substances are mentioned as bases and salts, the base will always be listed first (SBLNO=0). This example here now contains not only the base (Tramadol), but also the salt (Tramadol hydrochlorid).

- The bottom right frame shows the available normed quantities of the product, found in PRODUCT_PROPRIETARY_QUANTITY
- A dropdown list contains all articles for this product and shows the currently selected article.

The bottom half contains ARTICLE information, based on the selected article

- The top left shows the article prices from ARTICLE_PRICE
- The top right shows the article quantity units from ARTICLE_PROPRIETARY_QUANTITY
- The bottom left is a dropdown list of all units and quantities for the selected article.
- The bottom right shows the calculations results for all units, based on the selection in the left, combining all the data from the different INDEX elements and converting between them on-the-fly:
  - 1 ml = 100mg Tramadol hydrochlorid = 87.84mg(=0.334 mmol) Tramadol Ibuprofen
  - 8 hub = 1 ml (=87.84 mg)
  - 1 DDD = 0.3g (= 300mg = 27 hubs)
  - 1 article "100mg/ml 30 ml" = 1 pack = 1 unit = 30ml
    (= 2.635g Tramadol = 10 mmol = 240 hubs =8.78 DDD)
    = CHF 25.50 PPUB (=2.903/DDD) = CHF 11.530 PEXF

The top half is shown in the following image:
14. Chainings

Many articles do not just exist on their own, but are somehow «related» to other articles. These links between articles are modelled as “chainings”, available through ARTICLE/ART/ARTCH. Each chaining is of a certain type and relates to another ARTNO/Pharmacode. Originally created to link from an outdated article to its replacement, the chaining model has been extended by various types of chainings:

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>REP</td>
<td>Ersatzartikel / Article de remplacement</td>
</tr>
<tr>
<td>PAR</td>
<td>Stückliste / Liste des pièces</td>
</tr>
<tr>
<td>ORD</td>
<td>Bestelleinheit / Unité de commande</td>
</tr>
<tr>
<td>PRI</td>
<td>PHAR2 is Price-Code of PHAR</td>
</tr>
<tr>
<td>PIM</td>
<td>Parallelimport / Importation parallèle</td>
</tr>
<tr>
<td>ORG</td>
<td>Original / Originale</td>
</tr>
<tr>
<td>MPR</td>
<td>MiGeL / LiMA</td>
</tr>
<tr>
<td>GRF</td>
<td>Grand Frère</td>
</tr>
<tr>
<td>REF</td>
<td>Biosimilar / Biosimilaire</td>
</tr>
<tr>
<td>COM</td>
<td>Co-Marketing</td>
</tr>
<tr>
<td>SDO</td>
<td>Single Dose</td>
</tr>
<tr>
<td>KS</td>
<td>BWS / PAC</td>
</tr>
<tr>
<td>KS+</td>
<td>BWS mit Innovation / PAC avec innovation</td>
</tr>
</tbody>
</table>

The following examples explain in detail how the chaining works.

14.1. REP - replacement

PHYTOPHARMA EN Weissdorn 200 mg 80 Stk (Pharmacode 2403794) are out of trade. They are being replaced with PHYTOPHARMA Herzdragées 80 Stk (Pharmacode 1694631)

Therefore the new article gets an ARTCH of CHTYPE REP that points to the previous pharmacode.

```xml
<PHAR>1694631</PHAR>
<DSCRD>PHYTOPHARMA Herzdragées 80 Stk</DSCRD>
<DSCRF>PHYTOPHARMA drag coeur 80 pce</DSCRF>
<ARTCH>
  <PHAR2>2403794</PHAR2>
  <CHTYPE>REP</CHTYPE>
</ARTCH>
```
14.2. PAR - parts

The “HAUSCHKA Lippenpflege Display ass 5xTopf 10xStift” (Pharmacode 1688197) is a retail display, containing 5 pots (of the article 1637343) and 10 sticks (of the article 1619960). This grouping using the chaining type PAR allows easy identification of replacement articles to refill the display after some contents of the display have been sold.

<PHAR>1688197</PHAR>
<DSCRD>HAUSCHKA Lippenpflege Display ass 5xTopf 10xStift</DSCRD>
<DSCRF>HAUSCHKA soins des lèvres displ ass 5xpot 10xstick</DSCR>

<ARTCH>

PHAR2>1619960</PHAR2>
CHTYPE>PAR</CHTYPE>
LINENO>1</LINENO>
NOUNITS>10</NOUNITS>
</ARTCH>

PHAR2>1637343</PHAR2>
CHTYPE>PAR</CHTYPE>
LINENO>2</LINENO>
NOUNITS>5</NOUNITS>
</ARTCH>

14.3. ORD – order unit

The wholesale ordering unit for «BIBI Nuggis 6 Mte Ring Love Mama» (1530154) is a set of 6 pieces. While the retailer sells the items individually (using the article with the Pharmacode 2853178), he can only order the article as such a set, but not individual pieces.

<PHAR>1530154</PHAR>
<DSCRD>BIBI Nuggi dent 6 Mte m Ring Love Mama 6 Stk</DSCRD>

<ARTCH>

PHAR2>2853178</PHAR2>
CHTYPE>ORD</CHTYPE>
LINENO>1</LINENO>
NOUNITS>6</NOUNITS>
</ARTCH>
14.4. PRI – pricecode

Chainings of type “price code” are used to link homoeopathic and anthroposophic articles to their pharma groupcode as defined in the chapter 70 of the BAG/OFSP specialty list. In these cases, the element PHAR2 contains the pharmacode that serves as pharmagroupcode. The pharmagroupcode then serves as the identifier for the position itself, the associated officially defined prices, gets printed onto the article itself and is used for all billing purposes with insurers.

In this example, “WELEDA Zinnober Tabl D 20 100 g” (0524499) belongs to the pharmagroupcode 2069740, which stands for the SL position 70.01.10 (Simple drugs) “D/C 10–2961-125 g/ml” at a price of CHF 31.60.

```
<PHAR>0524499</PHAR>
<DSCRD>WELEDA Zinnober Tabl D 20 100 g</DSCRD>
<ARTCH>
  <PHAR2>2069740</PHAR2>
  <CHTYPE>PRI</CHTYPE>
</ARTCH>
```

14.5. PIM – parallel import

Since 2008, some Swissmedic-approved drugs are also available as parallel imports at possibly lower prices. Such articles have the same description as the “original” articles, except that the german description features an added “(PI)” and the French description a “(IP)” tag as part of the full description. In addition, the imported drugs have their own Swissmedic authorization number and their own pharmacode. Finally, the imported article has a chaining of type PIM (parallel import) to the original article.

In this example, “Diane 35 (PI) Drag 3 x 21 Stk” (3413174) is the parallel import of the existing original article “Diane 35 Drag 3 x 21 Stk” (1303903).

```
<PHAR>3413174</PHAR>
<DSCRD>DIANE 35 (PI) Drag 3 x 21 Stk</DSCRD>
<DSCRF>DIANE 35 (IP) drag 3 x 21 pce</DSCRF>
<ARTCH>
  <PHAR2>1303903</PHAR2>
  <CHTYPE>PIM</CHTYPE>
  <LINENO>1</LINENO>
  <NOUNITS>0</NOUNITS>
</ARTCH>
14.6. ORG - original

Chainings with type ORG are published for generic drugs to link them to the original medication. The data source to do this are the original/generic definitions of the BAG/OFSP as published in the list of specialties.

To search for equivalent drugs, you should use the GenericGroupCode (PRODUCT/PRD/GENGRP) instead, as it is more widely applied, allows fine-grained control and more flexibility.

Please see the main chapter “Original & Generics” for an extended discussion.

In this example, “XENALON 50 Lactabs 50 mg 50 Stk” (0943888) is a generic variant of the original drug “ALDACTONE Filmtabl 50 mg 50 Stk” (0809701).

```xml
<PHAR>0943888</PHAR>
<DSCRD>XENALON 50 Lactabs 50 mg 50 Stk</DSCRD>
<ARTCH>
  <PHAR2>0809701</PHAR2>
  <CHTYPE>ORG</CHTYPE>
</ARTCH>
```

14.7. REF – reference drug

Chainings with type REF are published for biosimilar drugs to link them to the reference drug. A biosimilar is a biological drug that has enough similarity with an already approved other biological drug (the reference preparation) to which it claims reference. The data source to do this are the official publications of Swissmedic in the Swissmedic Journal.

In this example, “TEVAGRASTIM 30 Mio E/0.5 ml Fertigspr” (4047837) is a biosimilar variant of the original drug “NEUPOGEN AMGEN 30 Mio E/0.5 ml Fertigspr 5 Stk” (2598728).

```xml
<PHAR>4047837</PHAR>
<DSCRD>TEVAGRASTIM 30 Mio E/0.5 ml Fertigspr</DSCRD>
<DSCRF>TEVAGRASTIM 30 mio U/0.5 ml ser prête</DSCRF>
<ARTCH>
  <PHAR2>2598728</PHAR2>
  <CHTYPE>REF</CHTYPE>
  <LINENO>1</LINENO>
</ARTCH>
14.8. MPR – MiGeL Price

Very similar to the chainings of the type PRI explained above, chainings of the type MPR link physical articles to their virtual list positions as published in the MiGeL (Mittel- und Gegenstandsliste), thereby giving reference to the official prices refunded by the insurers for these articles.

In the first step, the MiGeL position 01.01.01.00.1 («Milchpumpe handbetrieben, Kauf, 1Stk») was encoded as a "virtual" article using the pharmacode 3529994.

In a second step, all "real" articles that match the MiGeL position, are chained to the virtual MiGeL article position using a chaining of type MPR. This allows you to easily find all articles that belong to a certain MiGeL position.

This documentation contains a special chapter about MiGeL later on.
14.9. **KS/KS+ - Known Substance**

While the ORG chaining associates original and generic preparations according to the rules and needs of the BAG/OFSP as published in the list of specialties, the separate chaining types KS and KS+ are based on scientific pharmaceutical similarities and rules as defined by Swissmedic for drugs with “already known substances” (Arzneimittel mit bekanntem Wirkstoff).

This applies to all new drugs that contain a substance that has already been approved by Swissmedic for use in other products. For these such drugs, a simplified approval procedure is available as long as complete documentation of a similar, existing reference drug is already available:

> Als BWS gelten Arzneimittel, die einen Wirkstoff enthalten, der bereits in einem anderen von Swissmedic zugelassenen Arzneimittel enthalten ist oder war (Art. 12 Abs. 1 VAZV). Rechtfertigungsgrundlage für die vereinfachte Zulassung von BWS bildet die Möglichkeit eines Rückgriffs auf eine bereits vorliegende, vollständige Dokumentation zu einem Referenzpräparat.

Accordingly, the chainings happen using two types:
- KS (known substance / BWS)
- KS+ (known substance plus / BWS with innovation)

In practice, “most” articles with an ORG chaining will also have an KS chaining once editorial work has been completed.

The chaining of articles with known substances without innovation (KS) and with innovation (KS+) is based on the information from the pharma industry. It links the substitution to article to the reference (similar to the chaining type ORG).

In this example, the article “LIOSANNE 30 Drag 21 Stk” is the copycat of the article “Gynera Drag 21 Stk” (not to be confused with original / generic articles)

```xml
<PHARMACODE>4544636</PHARMACODE>
<DSCRD>LIOSANNE 30 Drag 21 Stk</DSCRD>
<ARTCH>
  <PHAR2>1286079</PHAR2>
  <CHTYPE>KS</CHTYPE>
  <LINENO>1</LINENO>
  <NOUNITS>0</NOUNITS>
</ARTCH>
```
15. Interactions

To look up drug interactions, we offer a number of different possibilities:

1. In the INDEX data, the element PRODUCT/PRD/CPT/CPTIX lists the identifiers for all known interactions of a component as foreign keys. The primary key of these identifiers can then be found in the schema INTERACTION.

2. The INDEX webservice CheckInteractions offers a SOAP/XML based interaction check service.

3. The INDEX webviewer CheckInteractions offers a HTML based interaction viewer.

4. The DOCUMEDIS webservice ClinicalDecisionSupport CDS.CE offers a JSON/REST based clinical decision support check that covers various risks including interactions.

5. The DOCUMEDIS webviewer ClinicalDecisionSupport CDS.CE offers a HTML based CDS risk viewer.

6. Legacy only: direct links to pharmavista (EOL 2018)

Each of these solutions allows you to either list all known interactions of a product and its components or between a number of products.

Easiest to implement are the HTML based viewers, where you simply provide a list of products or articles and then show the resulting UIS in a web component or browser.

Documedis is the upcoming next generation service architecture, complementing the INDEX XML data with various JSON/REST webservice and HTML SPA webviewer modules, some of them as CE-certified medical devices SaaS.

15.1. INDEX data

In the INDEX data, the element PRODUCT/PRD/CPT/CPTIX lists the identifiers for all known interactions of a component as foreign keys. The primary key of these identifiers can then be found in the schema INTERACTION.

Therefore, to display all interactions of a defined product PRD, loop through all its components CPT and make a list of all interactions CPTIX. Then look up the details of each in INTERACTION and display the resulting list.

This is also the base to do a full interaction check: first, get the list of interactions for each product. Then compare all lists to each other to find any matching interaction keys with different values in the GRP-element. List only these.

Examples on how to display interactions can be found in the INDEX webviewer (3.) or in compendium.ch

15.2. INDEX webservice CheckInteractions

Using this INDEX webservice, you can do drug-drug interaction checks over SOAP/XML. Basically, you send the list of products or articles to check and the service returns the list of (matching) interactions of the provided drugs. In addition, the service offers a 2nd method to get the details of an interaction. A detailed description of the input/output schema is available through the WSDL.

The URL for the CheckInteractions webservice is https://apps.hcisolutions.ch/wsv/ws_checkInteraction.asmx (there is currently no special access control, you need however to have the proper license to use the service).

This is a legacy product. When implementing new software, please use the Documedis webservice CDS.
15.3. INDEX webviewer CheckInteractions

Using this INDEX webviewer, you can view drug-drug interaction checks over HTTP/HTML. Basically, you send the list of products or articles to check and the viewer returns a webpage with the list of (matching) interactions of the provided drugs. In addition, the viewer offers a 2nd method to display the details of an interaction; this is also used by the check viewer for the [Details] link.

The URL for the CheckInteractions webviewer is [https://apps.hcisolutions.ch/wsv/wv_checkInteraction.aspx](https://apps.hcisolutions.ch/wsv/wv_checkInteraction.aspx) (there is currently no special access control, you need however to have an advanced or professional INDEX license to use the service).

As the URL alone will not do anything without the necessary query parameters, use these examples as guidelines on how to construct your request:

- To check the interactions between two products:
- To see all interactions of one product:
- To get the detail information about a single interaction:

This is a legacy product. When implementing new software, please use the Documedis webviewer CDS.

15.4. Documedis CDS.CE API (ClinicalDecisionSupport webservice)

Our next generation product, the CDS check provides not only the core drug-drug interaction check, but also various patient-drug interaction checks.

The webservice offers a JSON/REST-based interface accepting medication plans encoded in various formats such as CHMED16A in original or FHIR format.

15.5. Documedis CDS.CE APP (ClinicalDecisionSupport webviewer)

Documedis also includes a powerful HTML viewer to display risk analysis results, as an overview and with extensive details. It accepts +/- the same input parameters as the webservice.

Each Documedis module has an individual documentation. Please contact our hotline for further information.
16. Original – Generics

The INDEX database offers various ways to find equivalent drugs. The correct choice depends on your exact needs:

- Original/Generic chaining type ORG in ARTICLE according to the declaration of the BAG-OFSP
- Known Substance chaining type KS/KS+ in ARTICLE according to the declaration of Swissmedic
- Scientific Generic Group Code GENGRP in PRODUCT according to our editorial team

While the first two variants are ok for administrative needs, only the GENGRP provides the full coverage and precision to really look up similar medications suitable for substitution.

16.1. Chaining types ORG and KS/KS+

As mentioned earlier, the ORG chainings of the type ORG between original and generic drugs available in in ARTICLE/ART/ARTCH are based on the official publications by the BAG-OFSP, the Federal Office of Public Health in Switzerland. These are however limited to drugs that are published on the official list of specialties that defines health insurance coverage.

As an example, the generic XENALON 50 Lactabs 50 mg 50 Stk (Pharmacode 0943888) are similar to the original ALDACTONE Filmtabl 50 mg 50 Stk (Pharmacode 0809701):

```xml
<PHAR>0943888</PHAR>
<DSCRD>XENALON 50 Lactabs 50 mg 50 Stk</DSCRD>
<ARTCH>
  <PHAR2>0809701</PHAR2>
  <CHTYPE>ORG</CHTYPE>
</ARTCH>
```

In a similar way, the KS (known substance) chainings are based on official publications by Swissmedic and depend on self-declarations by the pharmaceutical industries.

16.2. Generic Group

This field allows to lookup similar pharmaceutical products. The generic group code GENGRP in PRODUCT/PRD is a 24 char long hierarchic code (with precision increasing by length in a number of steps) that categorizes a medication according to the:

1. ATC code
2. application index (route of administration)
   + galenic group
   + retardation of release
   + substance subgroup
3. concentration
4. galenic detail

This sequential combination then allows lookup based on different precision levels – the longer the code you use in your lookup, the higher the precision and the smaller the amount of results. Typical searches are by pharmacological subgroup (first 5 chars, similar to simple ATC level 4 lookup)

and substance (first 7 chars, similar to simple ATC level 5 lookup)

and application type (first 12 chars)

and concentration (first 20 chars, referenced as “G20”)
16.2.1. Example
The GENGRP of ZANTIC Tabl 150 mg is “A02BA02SETN000000150_CPRI”
This can be split into the eight parts A02BA_02_SE_T_N_0_0000150_CPRI that make up the complete code.

<table>
<thead>
<tr>
<th>Code part</th>
<th>Example</th>
<th>Ref.</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATC Code level 4</td>
<td>A02BA</td>
<td>G5</td>
<td>ATC Code Level4: therapeutic/pharmacological/chemical subgroup</td>
</tr>
<tr>
<td>ATC code level 5</td>
<td>A02BA02</td>
<td>G7</td>
<td>ATC Code Level5: chemical substance subgroup</td>
</tr>
<tr>
<td>Application index</td>
<td>SE</td>
<td>G9</td>
<td>Route of administration as a hierarchic two char part code:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1. General application type</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• L = local (applied at a defined place)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• S = systemic (distributed in the body)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. Type-specified application detail</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Possible values for local ROA “L”:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• A = Auge - oeil, E = enteral - entéral, H = inhal - inhalation, N = nasal , O = Ohr - oreille, P = parenteral - parentéral, R = rectal - rectale, S = sonstige - divers, T = topisch - topique, V = vaginal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Possible values for systemic ROA “S”:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• S: A = Auge - oeil, E = enteral - entéral, H = inhalation, L = buccal/sublingual, N = nasal, P = parenteral - parentéral, R = rectal - rectale, S = sonstige - divers, T = transdermal - transdermique, V = vaginal</td>
</tr>
<tr>
<td>Galenic group</td>
<td>T</td>
<td>G10</td>
<td>A = andere – autres</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B = buccal - buccal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>E = extern - externe</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>F = flüssig - liquide</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>G = Globuli, Granulate, Pulver – globules, granules, poudres</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>I = Sprays, Aerosole, Inhalativa – sprays, aerosols, inhalatifs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>L = Brause- und lössliche Formen – formes eff. et solubles</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>N = nasal - nasale</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>O = ophthalmisch - ophtalmique</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>P = parenterl - parentéral</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Q = otologisch - otologique</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R = Retardformen – formes retard</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>S = rectal, vaginal – rectal, vaginal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T = Tabletten, Dragées, Kapseln – comprimés, dragées, capsules</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>V = Pflaster, Verbandsmaterialien – emplâtres, pansements</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>X = Extrakte, Tee – extraits, thés</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Y = therapeutische Systeme – systèmes thérapeutiques</td>
</tr>
<tr>
<td>Retard</td>
<td>N</td>
<td>G11</td>
<td>Is a retarded form: N = no, R = retard</td>
</tr>
</tbody>
</table>
If there are products within the same ATC group that contain different combinations of substances (e.g., like amoxicillin and clavulanic acid), the group counter enables to differentiate between different subgroups of substance combinations.

As an example, the ATC level 5 code “C03EA01 Hydrochlorothiazide and potassium-sparing agents” contains different combinations of hydrochlorothiazide and amiloride or triamterene. In cases like this, all products are still grouped with the same G11 code, but adding the G12 code allows us to define subgroups:
- C03EA01SETN0 for hydrochlorothiazide and amiloride and
- C03EA01SETN1 for hydrochlorothiazide and triamterene.

The subgroup counter starts at 0, goes up to 9 and then continues alphabetically from A to Z.

This number represents a standardized concentration measurement suitable for this subgroup. It shall only be used as an identifier – but do not interpret this value as the real concentration of a medicament!

For monopreparations (drugs containing a single substance), the number 00000150 could stand for 150 mcg, 150 mg or 150 g. However, within the same G12 group, the same concentration unit is used for all the products (the unit itself is not published, to disable wrong interpretations errors).

A very detailed subcode of the galenic form, e.g. FILT, CPRI

Based on this code, you can now do lookups for similar drugs using different levels of precision:
- Comparing the first 12 characters finds equivalent drugs of the same ATC group.
- Comparing the first 20 characters finds equivalent drugs with the same concentration. These are suitable for a substitution.

As an example, for the product «ZANTIC Tabl 150 mg» the INDEX database has a number of product entries with the same G20 (however, because G20 does not include the detailed galenic form, normal tablets and film tablets are not differentiated).

**Products with the generic group code A02BA02SETN000000150**

- RANIMED Tabl 150 mg
- RANITIDIN Helvempharm Filmtabl 150 mg
- RANITIDIN MEPHA Lactabs 150 mg
- ULCIDIN Tabl 150 mg
- ZANTIC Tabl 150 mg

In addition, a number of products with the same G12, but different concentrations, are also available.

**Products with the generic group code A02BA02SETN000000075**

- RANIMED 75 ANTACID Tabl 75 mg
- ZANTIC ACID REDUCER Filmtabl 75 mg

**Products with the generic group code A02BA02SETN0000000300**

- RANIMED Tabletten 300 mg
- RANITIDIN Helvempharm Filmtabletten 300 mg
- RANITIDIN Mepha Lactabs 300 mg
- ULCIDIN Tabletten 300 mg
- ZANTIC Tabl 300 mg
17. The official list of means and items (MiGeL / LIMA)

Paying for the cost of necessary means and items is one of the mandatory services of the Swiss health insurance system. The federal administration regulates this through the publishing of the so-called "Mittel- und Gegenstandsliste (MiGeL)" by the BAG/OFSP. This is a list of "virtual" items, generalized product descriptions, like they are typically needed in the health market for the diagnosis and therapy of illnesses. The list has a tree-like structure, organized in product groups. For each item, the list includes the maximum price to be paid by the insurers, including limiting rules. It does however NOT list the corresponding "real instances" of these items (the individual articles from the different suppliers) but leaves this to the market to resolve.

Further information about the MiGeL can be found on the website of the BAG/OFSP in the domain "health insurance". Most valuable is the publication itself, the "Kommentierte Gesamtliste".

A practical solution for the market requirements can be found using the ARTICLE schema of the INDEX database. There, you can find either the "virtual" item (as an ART of ARTTYPE=3) or the physical items themselves (as normal, "real" articles with an ARTTYPE=0). These two types of items are then related through each other through an ARTCH of type MPR, as described in chapter Error! Reference source not found. Error! Reference source not found..

Based on this information, an IT system can generate a handy list for the practical usage of the MiGeL, combining the virtual catalog position item with the real articles associated to this item:

Using the INDEX data for the MiGeL, you can:

- Find out if an article belongs to a MiGeL position
- Find all articles belonging to a certain MiGeL position
- Create a MiGeL browser that combines virtual and real articles.
- Verify if an article price is below the MiGeL price (otherwise the customer would need to pay the difference himself)

The price data for the individual articles comes from ARTICLE/ART/ARTPRI and/or ARTICLE_PRICE. Typical price types are:

- PPHA: The price that the pharmacist pays to the wholesaler (base price, individual conditions might apply that lower the price considerably).
- PPUB: Public price / Suggested retail price

In addition, one can use a combination of price and quantity data to calculate a "reference price" (such as the "PZR" in the example above) for items that are larger or smaller than the size of the virtual MiGeL article.
17.1. The data

MiGel-relevant data can be found in the schema ARTICLE.

- There are article entries for the real physical packages
- There are “virtual” article entries for each MiGeL “position” as defined in the published official list

The difference is visible in the element ARTTYP, where normal articles have an ARTTYP=0 and the virtual MiGeL catalog positions are of ARTTYP=3.

In addition, the articles are marked with an ART/ARTINS/NINCD (New Insurance Code)=13

The virtual position articles always come with a defined special MiGeL-pricetype in ART/ARTMIG: the pricetype begins with “M...something”, e.g. MSTU. MiGeL-Price per unit (STU = “Stück”). This is the maximum price that the insurance company will pay back to the client who bought this article.

The same price is also available in the ART/ARTMIG element of the physical article.

However, the real price of the real article might be (sometimes vastly) different from the MiGel price. It can be higher or lower and might not correspond to the amount of units / quantity / size of the virtual position. Your software might therefore need to re-calculate the proper price based on the quantity information such as ARTICLE/ART/QTY and QTYUD.

DO also take note that not all articles have an ARTICLE/ART/ARTPRI or ARTICLE_PRICE information (some companies don’t or won’t publish such data). In such cases, you might be able to find a price quote in the ARTICLE_WHOLESALER data of your favorite wholesaler, as available through the INDEX data.

17.2. Linking (chaining) from the virtual position article to the real articles

If a virtual position has real articles that fit (as defined by the INDEX editorial team), the INDEX data includes these as references in the ARTICLE/ART/ARTCH element of the virtual position using the chaining type CHTYPE=MPR. This means that the PHARMACODE of this article is the “MiGeL-Price” for the article referenced in PHAR2. As an example

The MiGeL position code «01.01.01.00.1 (Milchpumpe handbetrieben, Kauf, 1 Stk)» has the pharmacode 352999. In ARTCH, it contains a list to all real, physical articles, using their pharmacode as identifier in the field PHAR2. In this way, it is easily possible to list all articles for a defined code.

```xml
<PHAR>3529994</PHAR>
<DSCRD>MIGEL 01.01.00.01 Milchpumpe handbetrieben Kauf 1Stk</DSCRD>
<ARTCH>
    <PHAR2>1624501</PHAR2>
    <CHTYPE>MPR</CHTYPE>
    <LINENO>1</LINENO>
</ARTCH>
<ARTCH>
    <PHAR2>1930445</PHAR2>
    <CHTYPE>MPR</CHTYPE>
    <LINENO>2</LINENO>
</ARTCH>
<ARTCH>
    <PHAR2>1982956</PHAR2>
    <CHTYPE>MPR</CHTYPE>
    <LINENO>3</LINENO>
</ARTCH>
```
17.3. Finding the maximum MiGeL price of an individual article

If you have a certain real article paid by the insurances under MiGeL rules, the ARTICLE/ART will provide the following attributes to help you evaluate it as a MiGeL article and find the MiGeL price of it.

- A "new insurance code" with a value of 13 (ARTICLE/ART/ARTINS/NINCD=13)
- A subnode ARTICLE/ART/ARTMIG that
  - points to the virtual MiGeL position article (MIGCD)
  - names the relevant MiGeL price type (e.g. PTYPE=MSTU)
  - names the maximum MiGeL price (MIGPRI)

This article has a price of 45 CHF, but the maximum MiGeL price is only 0.3 CHF. But why? The explanation is simple: The MiGeL price is for one unit (MSTU), the article however has 100 units. Therefore, the maximum MiGeL price for this article will be 100* 0.3 CHF = 30 CHF (in this case, this is still less than what the article really costs, so the client will have to pay 15 CHF, himself, as this isn't covered by the insurance.).
To handle such cases, you have to use the data from the virtual MiGeL position article named in the MIGCD element of the original physical article, to get access to all relevant information for your calculations:

- Make sure that you arrived at the right place: ARTTYPE=3 for virtual position articles
- There must be an ARTCH element
  - with a PHAR2 equal to the original physical article where you came from
  - and the MiGeL pricetype MPR for that kind of article, e.g. "MSTU" for one unit.
  - it also might contain an element NOUNITS ("number of units") of this article – but only if the pricetype allows multipliers. If NOUNITS is missing, the price type might be a direct maximum price or an all-included price (e.g. per Day, per Month, per Year)

```xml
<ART DT="2011-01-01T00:00:00+01:00">
  <PHAR>3591289</PHAR>
  <GRPCD>P1</GRPCD>
  <CDSO1>19.03.37.04</CDSO1>
  <PRDNO>1073348</PRDNO>
  <HOSPCD>N</HOSPCD>
  <CLINCD>N</CLINCD>
  <ARTTYP>3</ARTTYP>
  <VAT>1</VAT>
  <SALECDC>N</SALECDC>
  <INSLIM>N</INSLIM>
  <LIMPTS>0</LIMPTS>
  <GRDFR>0</GRDFR>
  <EXP>0</EXP>
  <QTY>1</QTY>
  <DSCRD>MIGEL 03.05.03.01.1 Injektionsnadel zu Pen 1Stk</DSCRD>
  <DSCRF>LIMA 03.05.03.01.1 aiguil à inject pour stylo 1pce</DSCRF>
  <QTYUD>Stk</QTYUD>
  <QTYUF>pce</QTYUF>
  <MULT>1</MULT>
  <NOPCS>1</NOPCS>
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  <LOACD>N</LOACD>
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  <GGL>N</GGL>
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  </ARTMIG>
  <ARTINS>
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    <NINCD>13</NINCD>
  </ARTINS>
</ART>
```
18. Article Images
The INDEX data includes various image sources for a number of different applications. The INDEX database itself only contains meta information about the available pictures, but not the binary image data itself.

a. Article photos for illustration purpose, e.g. in online shops (if licensed accordingly).
   - ARTICLE/ART/IMG2 indicates if one or more images are available for this article.
   - Details about the available images can be found in the schema ARTICLE_IMAGE. Users with the CONSUMER option (in addition to the normal INDEX subscription) can access this schema which contains the list of all available images for each article, the various picture types and the last update date. This is the data to be used if you e.g. link or cache images.

b. Component/Pill photos for scientific identification purpose
   - PRODUCT/PRD/CTP/IMG2 indicates if content images are available for this product component. No need for additional options, included with all INDEX subscription

Based on the information in the INDEX data and the documentation below, you can construct URLs to access

- either the HTML-based Viewer that delivers a standalone webpage to display the various images
- or the JPEG-based filehandler that directly delivers the individual image files for your re-use.

18.1. The HTML viewer
Based on the information in ARTICLE/ART/IMG2, you know if the viewer can deliver at least one image. If this is the case, you can simply construct the URL to the viewer, using the Pharmacode of this article:

- \url{https://index.hcisolutions.ch/files/pics/viewer?lang=de&query=pharmacode=4461382}

**ASPIRIN CARDIO Filmtabl 100 mg**

| Packung (DE / FR) | Primärverpackung | Darreichungsform |

Masse (B x H x T) 69 mm x 39 mm x 21 mm
Gewicht 12 g

Pharmacode: 4461382  GTIN: 7680517950680
© HCI Solutions AG

In addition, the viewer also supports lookup by GTIN and ProductNr:

- \url{https://index.hcisolutions.ch/files/pics/viewer?lang=de&query=gtin=7680517950680}
- \url{https://index.hcisolutions.ch/files/pics/viewer?lang=de&query=productnr=32511}
18.2. The JPEG handler

The main use case: article images (packages)

With the CONSUMER option enabled, the system can access ARTICLE_IMAGE. Based on the data in ARTICLE_IMAGE/AI, the system knows what article images are available for the defined article. Using this data, you can construct the URL to the picture handler that will deliver the desired JPEG image:

As the identifier, you can use either the ARTNO/Pharmacode or GTIN of the article. In addition, you add the image type as described in ARTICLE_IMAGE/AI/ITYPE (CODETYPE 41), the base size to be used for the resizing (T=Thumbnail, M=Medium, F=Full) and the desired image scaling, either in percent (e.g. "pc=50" relative to the base size) or pixels ("px=128"). Some examples:

- https://index.hcisolutions.ch/files/pics/4666813_PICFRONT3DPLUS_F.jpg?key=pharmacode

Error handling

If the handler can return no image because data is missing, the URL is invalid or no image is available, it will simply generate a minimal JPEG, a single white pixel 1x1.

A rarer secondary use case: component images (pills etc.)

Based on the data in PRODUCT/PRD/CPT/IMG2, the system can know what component images are available for a defined product. Using this data, you can then construct the URL to the picture handler that will deliver the desired JPEG image:

As the identifier, you can use either the product number (PRDNO) or an article identifier such as ARTNO/Pharmacode or GTIN. In addition, you add the image type PIF (PillFront) or PIB (PillBack), the base size to be used for the resizing (T=Thumbnail, M=Medium, F=Full) and the desired image scaling, either in percent (e.g. "pc=50", relative to the base size) or pixels ("px=128"). Some examples:


For products with multiple components, by default the handler shows the image of the first component. However, if needed, you can supply a combined PRDNO-CPTLNO identifier (e.g. "2525-1").

As this component image data is not part of Article Image, you cannot know about updated data etc. We therefore suggest to be careful when caching such pictures.

If you want to output the pill images to scale, in their real-world size, e.g. when printing or on a monitor, do this:

1. Calculate the needed size in pixels of the pill picture. To do this, you need to know or estimate the appropriate or desired output DPI of your target medium (e.g. a 96 dpi monitor or a 300 dpi print). You also need to know the size of the pill, as found in PRODUCT/PRD/CPT/SIZEMM. With these two values, use the formula DPI / 25.4 * SIZEMM to calculate the target size in pixels.
   E.g. for a 12mm Aspirin on a computer screen, this would be 96 / 25.4 * 12 = 45 pixel.
2. Call the handler with the appropriate parameter to get the pill picture in this size
   E.g. https://apps.hcisolutions.ch/MyProducts/Picture/1277731_PIF_M.jpg?px=45&key=productnr

18.3. Special case: The 360° image viewer

Article images of the type VIEWER360 do not consist of individual images, but of a completely separate HTML viewer. This is due to the functionality of this image type, as the viewer allows the user to rotate and zoom these images in their browser. To access this viewer, construct a URL in the following format, using the Pharmacode as ID parameter: https://index.hcisolutions.ch/files/articleimages360/(pharmacode)/

An example link is https://index.hcisolutions.ch/files/articleimages360/7751096/
19. Package dimensions

The subnode SIZE of ARTICLE/ART contains the package dimensions:

- The **WIDTH** of the article in mm
- The **HEIGHT** of the article in mm
- The **DEPTH** of the article in mm

Depending on the source of an image, this data might come from either our photo studio or from the product owner. See ARTICLE_IMAGE/AI/ISRC for details.

In addition, you can find package dimension information in the ARTICLE_WHOLESALER schemas. However, as different wholesalers measure differently according to their needs, data might not be identical.
20. Safety Data Sheets (SDS)

The continuous availability of up-to-date safety data sheets is a major need along the medical logistics chain. With a combination of INDEX data and a free public online platform to download the SDS in PDF format, we provide all necessary data to help with this effort.

In close collaboration with the pharma wholesalers Amedis-UE AG, Galexis AG, PharmaFocus AG, Unione Farmaceutica Distribuzione SA and Voigt AG, we are publishing all available SDS on a specialized website: Use [http://apps.hcisolutions.ch/sds](http://apps.hcisolutions.ch/sds) to access the SDS-Web.

20.1. Searching on the website

The online platform allows users to search along the 200’000 products and articles available in INDEX, using the name, pharmacode or GTIN. The search results then show if a SDS is needed and in what languages it is available (an in what version, as defined by the publishing date). This is handy for users without INDEX data or for manual lookups. Search keyword examples are:

- "cementit" (description)
- "138649" (pharmacode)
- "0138649" (Old style pharmacode using leading zeros for padding)
- "7610239011208" (GTIN)

20.2. Direct links using INDEX data

Additionally, INDEX customers can publish and use direct links to individual SDS files. Based on the information about SDS availability in [ARTICLE/ART/SDS](#), you can construct the URL to the PDF document. These links must be in one of the following format variants:

- **Pharmacode**: [http://apps.hcisolutions.ch/sds/phc/{pharmacode}/{sprache}](http://apps.hcisolutions.ch/sds/phc/{pharmacode}/{sprache})
  
  Example: [http://apps.hcisolutions.ch/sds/phc/138649/de](http://apps.hcisolutions.ch/sds/phc/138649/de)

- **GTIN**: [http://apps.hcisolutions.ch/sds/gtin/{gtin}/{sprache}](http://apps.hcisolutions.ch/sds/gtin/{gtin}/{sprache})
  
  Example: [http://apps.hcisolutions.ch/sds/gtin/7610239011208/de](http://apps.hcisolutions.ch/sds/gtin/7610239011208/de)

- **ProduktNummer**: [http://apps.hcisolutions.ch/sds/pnr/{prdno}/{sprache}](http://apps.hcisolutions.ch/sds/pnr/{prdno}/{sprache})
  
  Example: [http://apps.hcisolutions.ch/sds/pnr/14509/de](http://apps.hcisolutions.ch/sds/pnr/14509/de)

If an invalid URL is used, the server will respond with an error 404 (not found).

20.3. Linked (direct/automatic) search

It is also possible to directly launch a search/lookup by adding the (URL-encoded) search term at the end of the website URL, e.g. [http://apps.hcisolutions.ch/sds/cementit](http://apps.hcisolutions.ch/sds/cementit) (search by description)

There are a number of use cases for this mode of operation:

- Users enter their search keyword on your website, and then you post to SDS web to run the query.
- If you didn’t yet integrate INDEX, you don’t know in what languages SDS are available

20.4. logINDEX: Styling SDS web to include it in your own website

For logINDEX customers, we provide a simple styling functionality to include SDS web in your website using an iFrame and styling it according to your needs. This eliminates our styling and allows you to define a primary color. Please contact us for technical details.
21. Consumer information

In addition to logistical and scientific information, the CONSUMER schemas provide marketing-oriented data about the available articles and products, suitable for webshops or POS displays as visible on vitaVISTA.ch. The INDEX license option “CONSUMER” enables access to such consumer-specific information.

Consumer data is edited directly by the suppliers’ marketing department, through our myPRODUCTS product information manager (PIM). Therefore, we offer no guarantees in terms of completeness and quality. Please contact the supplier directly and ask him to provide or update consumer information through myPRODUCTS. The Consumer data also offers many more languages than just the INDEX-typical German and French variants.

The data model for the consumer data is simple; the data is distributed across three schemas.

- ConsumerCode: various value lists, including attributes, consumer categories and product groupings.
- ConsumerFolder: the same consumer information can apply to one or many similar products. The data is therefore contained in a grouping container called “folder”. It contains descriptions and links to additional information in various languages.
- ConsumerProducts: this maps the 1-n relationship between a ConsumerFolder and each related product. In addition, it maps to product-specific attributes such as “gluten free” and consumer categories (both available from ConsumerCode)

Therefore, the data model not only allows displaying additional product information that is relevant to consumers, but it also enables to find a “product group” context through various means:

- either as being mapped to the same folder as other products
- or through the ConsumerCode type Product_GroupCode (which might contain a separate mapping from our editorial team)
- or by looking up products with similar attributes (e.g. all CPRODUCTs with a CCODE of CDTYP “ProductAttribute” and the CDVAL “LactoseFree”) etc.
22. FAQ (Frequently Asked Questions)

Which articles are currently traded / out of trade?
- Not yet in trade, upcoming: ARTICLE/ART/SALECD='R'
- In trade: ARTICLE/ART/SALECD='N'
- Out of trade / EOL: ARTICLE/ART/SALECD='H'

Which articles are drugs/medications?
All articles with group code M1 or M9: ARTICLE/ART/GRPCD='M1' or 'M9'

Which articles need a receipt? ("verschreibungspflichtig")
All articles with a Swissmedic category A or B: ARTICLE/ART/SMCAT='A' or 'B'

Which articles are paid by the mandatory base health insurance? ("Grundversicherung")
- All medications with an Insurance Code 10 or 12: ARTICLE/ART/ARTINS/NINCD=10 or 12
- All MiGeL articles with an Insurance Code 13: ARTICLE/ART/ARTINS/NINCD=13
- All articles with an insurance Code 14 (special nutrition enteral and parenteral), 15 (care treatment, nursing, no articles present for this code) or 16 (individual preparations ALT = Arzneimittelliste mit Tarif) with a valid date of that date <= today: ARTICLE/ART/ARTINS/VDAT <= today()

What are the suggested historization concepts?
The most important elements to be historized are prices, VAT and insurance codes. However, the INDEX includes but few element-specific validity/date information. Reason for this is the fact that each INDEX client has different historization needs, due to vastly different business cases. Therefore, if the desired INDEX element does not include a valid date, you must track it on your own. Methods might be using your import date. The DT-attribute on every entry/record and / or the valid dates from the schema root element, storing hash values of nodes to look for changes, processing DEL=true to keep up with logically deleted records and track disappeared records (those that were logically deleted for at least 6 months).

How are Compendium texts available in the INDEX database?
The texts are available in the schema COMPENDIUM, using the data in PRODUCT_KOMPENDIUM to link them and their text type to the PRODUCT. The Schema COMPENDIUM includes a CSS to properly render them from XML to HTML.

Where can ATC code descriptions or other codes be found?
The schema CODE contains all these value lists. Each CDTYPE represents a different code list. CDTYPE = 0 is the «list of lists». The CDVAL itself is the single individual value, each one with a description in German and French. Hierarchical lists (trees) also contain a PARENT element that points to the element above itself.

Do the different INDEX products all contain the same data?
While the data structure is identical across all INDEX variants, the number of articles included depends on the exact product and is adapted to each market segment needs. The INDEX manual contains an overview table that shows which assortments are included in which INDEX.

Are demo data dumps or subsets available for testing?
No, because software companies get free access to the full data immediately after signing the usage contract. This way, you can ensure that you can properly handle the full data amount in your software.

Single demo records for each schema are available through Datadoc for illustration / example purpose.

**Are the INDEX products also available as XML files or only by using the webservice?**

«Both»: Using our DownloadTool, you can simply enter your credentials, the needed INDEX, the desired schemas and a suitable FROMDATE. The tool will then download the XML files according to your needs and permissions.

Once in production, you should only download delta updates based on proper FROMDATE handling.

**How shall the INDEX data be redistributed?**

There are two different models, depending on how many end users / client installations your software has and what kind of INDEX product they use:

- **Few, but large customers, using most of the INDEX data in their software (such as insureINDEX, logINDEX and hospINDEX):**
  The customers have their own INDEX contract and are allowed to directly download the INDEX data from the HCI webservises. However, delta updating must be in place. A full sync shall only happen once or twice a year or upon release change.

- **Many, but smaller customers, using only some bits of the INDEX data in their software (such as careINDEX, drogINDEX, medINDEX and pharmINDEX):**
  You must provide a redistribution point and mechanism for your client installation. We suggest that you download the INDEX deltas from our webservises and import the necessary data into your own central data store. Your clients then connect to your redistribution point in the desired intervals and the client installation updates the local data store with your current data. but be aware, the customers often have signed up for the whole INDEX-product and should have access to all information contained, so it’s a good thing to provide to your customers a possibility to look at the whole broad content.

**How are upcoming changes communicated?**

An INDEX release letter is published about three months before each release. The document is available on our website (in the INDEX news section and the RSS feed) and sent by e-mail to all our INDEX customers. Just contact our hotline@hcisolutions.ch to be added to the mailing list.
# 23. Document History

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