Biomarkers in Atopic Dermatitis and Psoriasis

BIOMAP glossary

1 Terminology in the document

ATC	The Anatomical Therapeutic Chemical classification system for drug utilisation monitoring and research, as recommended by the WHO.
BIOMAP Glossary	The data model to be used for harmonised BIOMAP cohorts
BIOMAP Categories	List of concepts important to atopic dermatitis and psoriasis, compiled by BIOMAP partners, including clinical phenotypes, disease associations, investigations and treatment outcomes amongst others. During the Glossary development process, cohort data experts were asked to "categorise" each variable in their dataset according to one of these categories.
Cohort(s)	Typically, a cohort is a group of patients/research participants followed up over time. Cohort studies are usually observational in nature, but in the BIOMAP context, 'cohort' is used to refer to any group of patients/research participants whose data will be harmonised or used for analysis. Examples include randomised controlled trials, birth cohorts and disease registries.
Controlled terminology	Set of predefined values/phrases used to express clinical information, standardising how we record data. Using controlled terminologies avoids using free text, which can make analyses difficult.
Data dictionary	Otherwise called a codebook, a data dictionary describes the variables available in a cohort dataset, including labels, detailed descriptions, the data type (numeric, text, date, …) and allowed value ranges etc. No participant-specific or personal identifiable data are included.
Delphi consensus exercise	Recognised method to accomplish a group agreement amongst experts, through a series of iterative meetings/surveys.
Glossary Approval Meeting	A series of meetings with glossary stakeholders to approve the glossary.
Glossary Development Team	A group of BIOMAP researchers with diverse clinical, bioinformatics, biostatistics and laboratory expertise who discussed the content and structure of the harmonised datasets, and drafted a proposal for the BIOMAP Glossary.
Glossary Stakeholders	BIOMAP workpackage leaders, cohort representatives and data analysts who discussed and refined the Glossary, approved v1.0 and will be consulted to approve any major updates/revisions.
Harmonisation	Transformation of data from primary datasets so that they comply with the controlled terminologies as defined in the BIOMAP Glossary. Harmonisation of each cohort's data creates a "harmonised dataset".
HOME	Harmonising Outcome Measures for Eczema; this project provides a list of core outcome measures for eczema trials.
ISAAC	International Study of Asthma and Allergies in Childhood
Metadata catalogue	A large Excel table combining the lists of variables/methods of data collection/formats for BIOMAP cohorts, structured by the BIOMAP categories.
NAN	Not answered
NAP	Not applicable
NAV	Not available
OHDSI	International, multi-stakeholder organisation, maintains the OMOP CDM
OMOP CDM	Observational Medical Outcomes Partnership Common Data Model; a data model maintained by OHDSI
RxNorm	Controlled terminology that contains all medications.
SNOMED	Systematized Nomenclature of Medicine

2 Introduction

This document defines the **BIOMAP Glossary v1.2**. It defines both the contents (the clinical variables) and the data structure (how the data are presented in tables) of the **BIOMAP Glossary**. The Glossary will be used during the **harmonisation process,** to standardise the data from the multiple cohorts in BIOMAP, to allow cross-cohort analyses.

3 Glossary Development and Approval Process

A small group of people from BIOMAP Workpackage 1 (WP1), the Glossary Development Team, have created a proposal for the harmonised dataset content and structure. The Glossary Stakeholder Group, consisting of clinical experts, representatives from cohorts and data analysts, were given the opportunity to **propose alternative variables** or **methods of harmonisation**, or suggest that **certain variables should and/or cannot be harmonised**. The Stakeholders held multiple Approval Meetings in the form of teleconferences. During these conferences, sections with multiple different viewpoints were discussed and, where needed, an anonymous vote was held. Other sections where no queries were raised were simply approved without further discussion.

In contrast to a formal **Delphi consensus exercise** with multiple rounds of voting (such as those performed by the **HOME initiative**), the outcome of voting was accepted with a simple majority.

4 Versioning

Upon completion of the Glossary v1.0 harmonisation of cohorts' datasets commenced. The current document represents the first publicly available version of the BIOMAP glossary, denoted by *v1.2*. It is to be expected that certain modifications to the BIOMAP glossary are necessary, e.g. to clarify ambiguities or to automatically derive new variables from existing glossary variables. Further, new analyses may be planned which may result in the request to add new variables to the glossary.

Minor updates to the glossary that can be handled without consulting the glossary stakeholders **and** without consulting experts of already harmonised cohorts, will be denoted by increasing the second number of the version (denoted by *S* in the version string *vF.S*; as an example, the first minor update to this glossary was denoted with *v1.1*).

Major updates to the glossary (i.e. those that cannot be handled without consulting the glossary stakeholders **or** without consulting experts of already harmonised cohorts) will be denoted by increasing the first number of the version (denoted by *F* in the version string *vF.S*; as an example, the first major update to this glossary will be denoted with *v2.0*).

5 Amendment process

Minor and major updates may be requested by BIOMAP partners, through the BIOMAP project management platform (https://biomap.eurice.eu).

6 Domains and structure of the data tables

The harmonised datasets will hold information from each BIOMAP cohort in a series of six linked tables, which will be made available to the BIOMAP consortium. Each table will deal with a certain clinical domain, such as demographics ("*Person table*") or diagnoses ("*Condition table*"):

6.1 *Person table* structure with example data.

person_id	**sex**	birth_date	ethnicity
BIOMAP_P2N_CAU_0000 0001	**FEMALE**	1967-11-11	NAV

Each participant in each cohort is given a unique *person_id.* For each *person_id*, multiple rows may exist in each of the other tables. This allows us to capture as many events, co-morbidities, drug exposures, etc as are present for participants of each cohort.

6.2 Condition table structure with example data.

person_id	**condition**	condition_ start_date	condition_end _date	ascertainmen t_method	related_to
BIOMAP_P2N_ CAU_00000001	**Psoriasis**	1989-03-01	NAP	self-report by the patient	NAV
BIOMAP_P2N_ CAU_00000001	**Acute stroke**	2020-01-09	NAV	diagnosed by examination by a doctor	NAV

The *Condition table* records the presence of a disease or medical condition stated as a diagnosis, a sign, or a symptom, which is either observed by a physician or reported by the patient.

A *condition_end_date* of *NAP* means that the disease is ongoing, whereas *NAV* means that this information is not available.

Further details regarding the *related_to* column are provided in **Section 6.4 Drug table structure with example data.**

6.3 Measurement table structure with example data.

person_id	**measurement**	measurement _date	value	unit	range _high	range _low
BIOMAP_P2N_CAU_00 000001	**Body height measure**	1989-03-01	1.74	met er	1.50	2.10

The *Measurement table* records numerical or categorical data obtained through systematic and standardised examination or testing of a Person or Person's sample, such as laboratory tests, vital signs, and quantitative findings from pathology reports etc. Repeated measurements are recorded in separate rows.

6.4 Drug table structure with example data.

person_id	exposure_id	drug	drug_exposure_start_date	drug_exposure_end_date	absolute_dose_mg	relative_dose_mg_per_kg	frequency	frequency_unit	stop_reason	route
BIOMAP_P2N_CAU_00000001	40	**azathioprine**	2007-02-02	2008-06-09	50	NAV	2	Frequency per day	Insufficient efficacy	Oral
BIOMAP_P2N_CAU_00000001	41	**cyclosporine**	2019-10-23	2019-10-23	NAV	1.75	2	Frequency per day	Insufficient efficacy	Oral
BIOMAP_P2N_CAU_00000001	42	**cyclosporine**	2019-10-23	NAP	NAV	2.5	2	Frequency per day	NAP	Oral

For drugs, the dose will be either stored as *absolute_dose_mg* in mg active ingredient per administration, or as *relative_dose_mg_per_kg* in mg active ingredient per kg body weight per administration. Variations in dose (e.g. cyclosporine initially 3.5mg/kg but then increased to 5mg/kg after 2 months) will be recorded separately in distinct rows.

To capture any associated side effects, an *exposure_id* column is present. The *exposure_id* is a number that is unique throughout the whole dataset. This numeric identifier can be referenced in the *related_to* column in the *condition* or *observation* table, and thereby link a condition/observation as adverse effect to the drug exposure or procedure.
These columns will only be completed if the data are in the source data, no new relationships will be created during harmonisation.

6.5 Procedure table structure with example data.

person_id	exposure_id	procedure	procedure_start_date	procedure_end_date	frequency	frequency_unit	absolute_dose_mg	relative_dose	dose_unit	stop_reason
BIOMAP_P2N_CAU_00000001	76603	**Broadband ultraviolet B phototherapy**	2013-06-07	2013-08-07	3	Frequency per week	NAV	NAV	NAV	NAV

6.6 *Observation table* structure with example data.

person_id	observation	observation_date	value	unit	ascertainment_method	related_to
BIOMAP_P2N_CAU_00000001	**Date of enrolment**	2010-06-15	NAV	NAV	NAV	NAV

| BIOMAP_P2N_CAU_00000001 | **Never smoked tobacco** | 2010-06-15 | NAV | NAV | self-reported by the patient unspecified_other | NAV |
| BIOMAP_P2N_CAU_00000001 | **Allergy to peanuts** | 2003-03-17 | NAV | NAV | self-administered questionnaire unspecified_other | NAV |

The *Observation* table records clinical facts about a person obtained in the context of examination, questioning or a procedure, such as social and lifestyle factors, and other domains that cannot be recorded elsewhere.

7 How to read the tables (including column headings descriptions)

Each of the 6 tables will deal with a specific domain of data. There are commonalities across the tables, such as recording of dates and how the data were recorded (ascertainment method) in each cohort. This section of the document (Section 7) discusses some of these common columns and in Section 8 we discuss the contents of the specific columns in each table (such as *condition column* in the condition table and *drug column* in the drug table).

7.1 Dates and relative time spans

In the harmonised dataset, all dates will be formatted in standardised way using four-digit year, followed by a hyphen, two-digit month, another hyphen, two-digit day (YYYY-MM-DD). For example, the 11th of April 2019 will be written as 2019-04-11.

If the day or the month is not available, *NN* will be used instead. For example, a date *2019* will be encoded as *2019-NN-NN*.

Some cohorts may have recorded relative dates (number of years/months), rather than absolute dates. For example, "when were you first diagnosed with psoriasis?" could be recorded as "aged 43" rather than using the absolute date of the first diagnosis. The harmonised data model will record absolute dates and this relative date will be transformed during harmonisation using the number of years and the participants' date of birth to an absolute date of diagnosis.

For cohorts that don't have enough information about absolute dates available, a *cohort date* will be set by the cohort owner, and all relative dates will be converted to absolute dates using this date as a reference.

7.2 Ascertainment method

Ascertainment methods (i.e. how the data were generated in that cohort) will be recorded in certain data tables in an extra column, where relevant. For example, how a diagnosis was made – was it self-reported by the patient, or was it diagnosed by a doctor based on an examination. The list of ascertainment methods was generated following review and discussion of how data were recorded in the various cohorts, as reported in the metadata

catalogue. The diagnostic criteria listed for AD were those utilised in the metadata catalogue. Parent implies parent or person(s) with legal guardianship.

- NAV

- self-report unspecified_other

- self-report by the patient

- self-report by a parent

- self-report of a doctors diagnosis unspecified_other

- self-report of a doctors diagnosis reported by the patient

- self-report of a doctors diagnosis reported by a parent

- self-administered questionnaire unspecified_other

- self-administered questionnaire ISAAC questionnaire

- recorded by healthcare worker during an interview

- diagnosed by examination unspecified_other

- diagnosed by examination by a doctor

- diagnosed by examination by a dermatologist

- diagnosed by examination by another specialist

- diagnosed by examination using diagnostic criteria unspecified_other

- diagnosed by examination using American Academy of Dermatology diagnostic criteria

- diagnosed by examination using Hanifin and Rajka diagnostic criteria

- diagnosed by examination using UK Working Party diagnostic criteria

- diagnosed by examination using modified UK Working Party diagnostic criteria

- diagnosed by investigation unspecified_other

- diagnosed by investigation skin biopsy

- diagnosed by investigation skin prick testing

- diagnosed by investigation specific IgE

- diagnosed by investigation patch testing

- diagnosed by investigation food challenge

Longitudinal studies may repeatedly ask questions of the form: "Have you ever been diagnosed with XXXX?". Such data will be translated during the harmonisation process to estimate a *condition_start_date*. As an example, for a question answered with "no" in the

years 1995-2001, and with "yes" afterwards, the value *2002-NN-NN* will be used as the condition start date. There will be only one entry in the harmonised dataset (instead of multiple entries for each repeated question).

To capture the fact that the data was derived with this method, the term *first time asserted* will be added to the *ascertainment_method*. To stay with the example above, the full ascertainment method may be *self-report of a doctors diagnosis unspecified_other first time asserted*. Similarly, a questionnaire may ask whether a mother is breastfeeding. To distinguish between e.g. breastfeeding exactly 8 month and at least 8 months, the ascertainment method may be amended with *last time asserted*. In summary, the *ascertainment_method* may be extended with

- first time asserted

- last time asserted

There are a few special ascertainment methods used for very specific observations/conditions.
To record the criteria used to define *(non-)flexural atopic dermatitis* as described by Hywel C Williams *et al.* in "A practical manual for researchers wishing to define atopic eczema", use following controlled terms for the *ascertainment_method* column
- diagnosed by examination unspecified_other as defined by TREAT Registry Taskforce or HC Williams *et al.*
- diagnosed by examination by a doctor as defined by TREAT Registry Taskforce or HC Williams *et al.*
- diagnosed by examination by a dermatologist as defined by TREAT Registry Taskforce or HC Williams *et al.*
- diagnosed by examination by another specialist as defined by TREAT Registry Taskforce or HC Williams *et al.*

For the mutation status of HLA, the following ascertainment methods are allowed:

- Imputation from array

- Imputation from WES WGS

- Sequence-based HLA typing

- Other

For the mutation status of Filaggrin, the following ascertainment methods are allowed:
- Sequencing
- KASP PCR
- Taqman
- Sequenom MassARRAY
- Imputation
- Other
- NAV

Some quantities can be derived from other data that has been collected, e.g. the BMI from weight and body height, or PASI from the component scores. Whenever this is possible, these values will be derived, and the ascertainment method will be recorded as

- calculated during harmonisation
- calculated in source dataset

7.3 Route of drug administration

From a comprehensive list of drug routes, we have selected the following controlled terminologies for the *route* column in the *drug* table.

- Inhalation (*SNOMED* 18679011000001101)
- Intramuscular (*SNOMED* 78421000)
- Intravenous (*SNOMED* 47625008)
- Nasal (*SNOMED* 46713006)
- Oral (*SNOMED* 26643006)
- Subcutaneous (*SNOMED* 34206005)
- Topical route (*SNOMED* 6064005)
- Other

7.4 Drug frequency

Allowed controlled terms for the *frequency_unit* column are:

- Frequency per hour (*SNOMED* 307432005)
- Frequency per day (*SNOMED* 307438009)
- Frequency per week (*SNOMED* 307444008)
- Frequency per month (*SNOMED* 307449003)
- Frequency per year (*SNOMED* 307454007)

7.5 Deduce *condition_start_date* from questionnaire

Deducing *condition_start_date* from a questionnaire with repeated questions of the form "Have you ever been diagnosed with XXXX?" is explained in **Section 7.2 Ascertainment method**.

7.6 Not available, not applicable, not answered

The following controlled terms can be used to express *n/a*:

- *NAV*: not available

    The information is not known; this is the default if *n/a* value if the other two options don't apply.

- *NAP*: not applicable; a positive statement that the information does not exist, e.g. a *condition_end_date* is not given because the condition is ongoing; number of pregnancies for a male subject.
- *NAN*: not answered

8 Controlled terminology and harmonisation of fields

This section describes which controlled terminologies (the vocabularies used to record the collected data) will be available in the harmonised datasets, if the cohort source data contains the information. The controlled terminology will mainly be based on the vocabulary used in the OMOP CDM, which in turn is based on well-known ontologies such as SNOMED, RxNorm amongst others.

The subsections below define how data from the cohorts relevant to each BIOMAP category will be harmonised. Each subsection contains information about controlled terms that are allowed in the **main column** (*condition, measurement, drug, procedure, observation*) of each table, including the standard from which the terms were derived if available (e.g. SNOMED, the standard terms are for information only and won't be included in the data tables), and potentially the controlled terminologies of the *value* column and the allowed *unit*s.

Established ontologies (e.g. SNOMED) often adopt a hierarchical structure, providing varying levels of granularity when describing a medical condition, investigation, results or procedure. In the BIOMAP Glossary, we have not attempted to recreate a comprehensive catalogue of terms, rather, we have built a pragmatic and pertinent list of terms relevant to the study of atopic dermatitis and psoriasis. When no suitable controlled terminology was available, we have defined custom terms. These are listed in the subsequent sections and do not have an associated vocabulary code (e.g. SNOMED or LOINC code.)

Different analyses in BIOMAP may utilise particular hierarchical levels of the controlled terminology as determined by the specific research hypothesis. During Glossary development we endeavoured to provide general and a selection of more specific terms when this was felt to be appropriate. Clinical judgement may be required to decide which level of granularity is most suitable for a specific analysis. For example, reviewing **Section 8.4.13 Cardiovascular disease**, if an analyst was interested in stroke (cerebrovascular accident) they may decide to analyse all cerebrovascular accidents (*SNOMED* 230690007), or focus their attention on only ischaemic stroke (*SNOMED* 422504002) depending on their research hypothesis. It is possible to browse the catalogues of controlled terminologies used in the OMOP CDM, including the hierarchy of these terms and terms which are not used in the BIOMAP Glossary, through the OHDSI website (https://athena.ohdsi.org/).

8.1 Study participant general information

8.1.1 Demographics

As mentioned in section Dates and relative time spans, the age will be converted to a birthday. Since all entries in the data model are associated with a date (such as the date of first diagnosis), the age corresponding to the entry can be calculated if needed.

Example of a row in the person table containing the value:

person_id	sex	birth_date	ethnicity
BIOMAP_P2N_CAU_00000001	FEMALE	1967-11-11	Black - African

Allowed controlled terms for the *sex* column are:

- FEMALE

- MALE

- OTHER

Allowed controlled terms for the *ethnicity* column are:

- African American

- Afro Caribbean

- Asian-Chinese

- Asian-other - Korea China north of Huai River

- Black - African

- Hispanic or Latino

- Japanese

- South Asian for instance India Pakistan Sri Lanka Nepal Bhutan Bangladesh

- White for instance Europe Russia Middle East North Africa USA Canada Australia

- Mixed

- Other

- Prefer not to say

- NAV

8.1.2 Anthropometric measures

Example rows in the measurement table containing the values:

person_id	measurement	measurement _date	value	unit	range _high	range_low
BIOMAP_P2N_CAU _00000001	Body height measure	1989-03-01	1.74	meter		
BIOMAP_P2N_CAU _00000001	Current body weight	1989-03-01	59	kilogram		
BIOMAP_P2N_CAU _00000001	Waist circumference	1989-03-01	0.736	meter		
BIOMAP_P2N_CAU _00000001	Body mass index	1989-03-01	19.45			

| BIOMAP_P2N_CAU _00000001 | Systolic blood pressure | 1989-03-01 | 118 | mmHg | | |
| BIOMAP_P2N_CAU _00000001 | Diastolic blood pressure | 1989-03-01 | 79 | mmHg | | |

For this BIOMAP category the allowed controlled terms for the *measurement* column are:

• Body height measure (*SNOMED* 50373000)

• Current body weight (*SNOMED* 735395000)

• Waist circumference (*SNOMED* 276361009)

• Body mass index (*SNOMED* 60621009)

• Systolic blood pressure (*SNOMED* 271649006)

• Diastolic blood pressure (*SNOMED* 271650006)

• Hip circumference (*SNOMED* 284472007)

Derived measures are recalculated if possible, e.g. BMI in cases where height and weight are available, with the ascertainment method *calculated during harmonisation*.

8.1.3   Major diagnosis (atopic dermatitis / psoriasis)

The primary conditions under study in BIOMAP are AD and psoriasis. To identify all study participants (or patients) with either AD or psoriasis, without further specification of subtype or phenotype, the following controlled term are entered in the *condition* column:
• Atopic dermatitis (*SNOMED* 24079001)
• Psoriasis (*SNOMED* 9014002)

Example rows in the *condition* table containing the value:

person_id	**condition**	condition_start_date	condition_end_date	ascertainment_method	related_to
BIOMAP_P2N_CAU_00000001	**Psoriasis**	1989-03-01	NAP	diagnosed by examination by a dermatologist	NAV

To identify a control population, BIOMAP analysts will be able to filter/exclude patients diagnosed with these conditions (or any other specific diagnosis of interest.)

8.1.4   Family relationship

Certain studies in BIOMAP record information about people from the same family, for example in mother-child cohorts, or twins. To capture the relationship between persons, the allowed controlled terms for the *observation* column are:

• Older sibling of

• Younger sibling of

• Sibling of

- Monozygotic twin of
- Dizygotic twin of
- Parent of
- Mother of
- Father of
- Child of

The *value* column must contain the *person_id* of the relative.

8.1.5   Date of enrolment, end date of study participation

The date of enrolment in the study cohort is stored in the *observation* table, with the controlled term:
- Enrolment
- End date of study participation
- Death

Date of last update

Example of rows in the observation table containing the values:

person_id	observation	observation_date	value	unit	ascertainment_method	related_to
BIOMAP_P2N_CAU_00000001	Enrolment	1989-03-01	NAP	NAP	NAV	NAV
BIOMAP_P2N_CAU_00000001	End date of study participation	2020-07-01	NAP	NAP	NAV	NAV

8.2   Disease characteristics - Clinical subtypes

8.2.1   Atopic dermatitis - Atopic prurigo (prurigo-like AD)

For this BIOMAP category the allowed controlled term for the *condition* column is:
- Prurigo pattern atopic dermatitis (*SNOMED* 402187005)

8.2.2   Atopic dermatitis - Discoid

For this BIOMAP category the allowed controlled term for the *condition* column is:
- Discoid atopic dermatitis (*SNOMED* 238543002)

8.2.3   Atopic dermatitis - Erythroderma

For this BIOMAP category the allowed controlled term is:
- Erythrodermic atopic dermatitis (*SNOMED* 238544008)

8.2.4   Atopic dermatitis - Follicular

For this BIOMAP category the allowed controlled term is:
- Follicular atopic dermatitis (*SNOMED* 238545009)

8.2.5   Atopic dermatitis - Site delineated - Flexural

For this BIOMAP category the allowed controlled terms for the *condition* column are:

- Flexural atopic dermatitis (*SNOMED* 402183009)

- Flexural atopic dermatitis of the front of the ankles

- Flexural atopic dermatitis of arms

- Flexural atopic dermatitis of legs

- Flexural atopic dermatitis of the front of the neck

- Periocular dermatitis (*SNOMED* 425267003)

To record the criteria used to define flexural as described by Hywel C Williams *et al.* in "A practical manual for researchers wishing to define atopic eczema" (definition of dermatitis: Poorly demarcated erythema (redness) with surface change. "Surface change" can mean fine scaling, vesicles, oozing, crusting or lichenification. Individual patches have to be greater equal 1 cm), use the *ascertainment_method* containing the substring *as defined by TREAT Registry Taskforce or HC Williams et al.* (see **Section 7.2 Ascertainment method**).

In children under 4 years, the following additional controlled terms are allowed for the *condition* column:

- Flexural atopic dermatitis of cheeks
- Flexural atopic dermatitis of legs
- Flexural atopic dermatitis of the forearms

To record the criteria used to define flexural as described by Hywel C Williams *et al.* in "A practical manual for researchers wishing to define atopic eczema" (definition of dermatitis: Poorly demarcated erythema (redness) with surface change. "Surface change" can mean fine scaling, vesicles, oozing, crusting or lichenification. Individual patches have to be greater equal 2 cm and excluding the cheeks must be present on both sides. The legs in this case corresponds to the area from knee to ankle and forearms corresponds to the area from elbow to wrist), use the *ascertainment_method* containing the substring *as defined by TREAT Registry Taskforce or HC Williams et al.* (see **Section 7.2 Ascertainment method**).

8.2.6   Atopic dermatitis - Site delineated - Non flexural

For this BIOMAP category the allowed controlled terms for the *condition* column are:
- Non flexural atopic dermatitis
- Atopic dermatitis of face (*SNOMED* 402192007)
- Hand eczema (*SNOMED* 238539001)
- Podopompholyx (*SNOMED* 201201000)
- Vesicular hand eczema (*SNOMED* 402222007)
- Non flexural atopic dermatitis of arms

- Non flexural atopic dermatitis of extensor of elbows
- Eczema of lower limb (*SNOMED* 788499005)
- Non flexural atopic dermatitis of extensor of knees

To record the criteria used to define non-flexural as described by the TREAT Registry Taskforce (non-flexural defined by the TREAT Registry Taskforce individual patches have to be greater equal 2 cm and excluding face on both sides), use the *ascertainment_method* containing the substring *as defined by TREAT Registry Taskforce or HC Williams et al.* (see **Section 7.2 Ascertainment method**).

8.2.7 Psoriasis - Erythroderma

For this BIOMAP category the allowed controlled term for the *condition* column is:
- Erythrodermic psoriasis (*SNOMED* 200977004)

8.2.8 Psoriasis - Guttate psoriasis

For this BIOMAP category the allowed controlled term for the *condition* column is:
- Guttate psoriasis (*SNOMED* 37042000)

8.2.9 Psoriasis - Nail disease

For this BIOMAP category the allowed controlled term for the *condition* column is:
- Psoriasis of nail (*SNOMED* 238604005)

8.2.10 Psoriasis - Plaque psoriasis

For this BIOMAP category the allowed controlled terms for the *condition* column are:
- Plaque psoriasis (*SNOMED* 200965009)
- Non-pustular psoriasis of hands and feet (*SNOMED* 402324006)
- Plaque psoriasis of trunk
- Plaque psoriasis of elbows
- Plaque psoriasis of knees
- Plaque psoriasis of shins
- Plaque psoriasis of natal cleft
- Flexural psoriasis (*SNOMED* 238600001)
- Psoriasis of anogenital region (*SNOMED* 721538000)
- Psoriasis of penis (*SNOMED* 402315002)
- Psoriasis of vulva (*SNOMED* 402314003)
- Psoriasis of face (*SNOMED* 402320002)
- Scalp psoriasis (*SNOMED* 238608008)

8.2.11 Psoriasis - Pustular psoriasis

For this BIOMAP category the allowed controlled terms for the *condition* column are:
- Pustular psoriasis (*SNOMED* 200973000)
- Generalized pustular psoriasis (*SNOMED* 238612002)
- Localized pustular psoriasis (*SNOMED* 81271001)

- Acrodermatitis continua of Hallopeau (*SNOMED* 83839005)
- Pustular psoriasis of palms and soles (*SNOMED* 27520001)

8.2.12 Psoriasis - Other

For this BIOMAP category the allowed controlled terms for the *condition* column are:
- Hypertrophic palmoplantar psoriasis (*SNOMED* 402323000)
- Seborrheic psoriasis (*SNOMED* 25847004)
- Pityriasis amiantacea (*SNOMED* 238924007)

8.2.13 Fitzpatrick skin type

Fitzpatrick skin phototype is related to ethnicity, but may be recorded separately.
For this BIOMAP category the allowed controlled term for the *measurement* column is:
- Fitzpatrick classification of skin type (*SNOMED* 443635002)

The *value* must be one of
- Type I
- Type II
- Type III
- Type IV
- Type V
- Type VI

8.3 Clinical history including social and environmental factors

8.3.1 Date/age of onset

Date of onset is defined by the field *condition_start_date* of the first record with a condition (or, in the case of an observation, the field *observation_date* of the first record with an observation). Age of onset can be derived based on the *birth_datetime* field and the recorded date. Since any chronic condition may be recorded multiple times, the data analyst has to find the earliest date to determine the age of onset.

person_id	**condition**	condition_start_date	condition_end_date	ascertainment_method	related_to
BIOMAP_P2N_CAU _00000001	**Psoriasis**	2019-10-25	NAV	self-report by the patient	NAV

8.3.2 Family history

For this BIOMAP category the allowed controlled terms for the *observation* column are:
- Family history
- Family history with explicit context pertaining to mother (*SNOMED* 160427003)
- Family history with explicit context pertaining to father (*SNOMED* 160433007)
- Family history with explicit context pertaining to parent
- Family history with explicit context pertaining to sister (*SNOMED* 160439006)
- Family history with explicit context pertaining to brother

- Family history with explicit context pertaining to sibling
- Family history with explicit context pertaining to older sister
- Family history with explicit context pertaining to older brother
- Family history with explicit context pertaining to older sibling
- Family history with explicit context pertaining to son (*SNOMED* 160449009)
- Family history with explicit context pertaining to daughter (*SNOMED* 160454000)
- Family history with explicit context pertaining to child

And the *value* column must contain:
- Psoriasis (*SNOMED* 9014002)
- Atopic dermatitis (*SNOMED* 24079001)
- Asthma (*SNOMED* 195967001)
- Allergic rhinoconjunctivitis hayfever

8.3.3   Education status

The education status is recorded in the *observation* table. The observation *column* is used to capture the subject, using one of the terms:
- Highest level of education
- Highest level of education of mother of subject
- Highest level of education of father of subject

In the *value* column the education is recorded using one of the controlled terms:
- ISCED 0: Early childhood education
- ISCED 1: Primary education
- ISCED 2: Lower secondary education
- ISCED 3: Upper secondary education
- ISCED 4: Post-secondary non-tertiary education
- ISCED 5: Short-cycle tertiary education
- ISCED 6: Bachelors or equivalent level
- ISCED 7: Masters or equivalent level
- ISCED 8: Doctoral or equivalent level

Example rows in the observation table containing the values:

person_id	observation	observation_date	value	unit	ascertainment_method	related_to
BIOMAP_P2N_CAU _00000001	Highest level of education	1989-03-01	ISCED 7: Masters or equivalent level		self-report by the patient	NAV
BIOMAP_P2N_CAU _00000001	Highest level of education	1989-03-01	ISCED 8: Doctoral or		self-report by the patient	NAV

	of mother of subject		equivalent level			

8.3.4 Occupation

For this BIOMAP category the allowed controlled terms for the *observation* column are:
- Employed (*SNOMED* 224363007)
- Self-employed (*SNOMED* 160906004)
- Early retirement (*SNOMED* 105494007)
- Retired (*SNOMED* 105493001)
- Student (*SNOMED* 65853000)
- Unpaid work (*SNOMED* 276061003)
- Unemployed (*SNOMED* 73438004)

8.3.5 Deprivation index

The education status and the occupation are recorded, whereas the deprivation index will not be harmonised.

8.3.6 Place of residence

For this BIOMAP category the allowed controlled term for the *observation* column is:
- Geographical environment (*SNOMED* 288500009)

The allowed controlled terms for the *value* column in the *observation* table are:
- Natural environment (*SNOMED* 224803003)
- Rural environment (*SNOMED* 224804009)
- Urban environment (*SNOMED* 224807002)

8.3.7 Water hardness

For this BIOMAP category the allowed controlled term for the *measurement* column is:
- Hardness Mass/volume of Water by Calculation (*LOINC* 87443-8)

The unit to be used is *mmol/L*.

8.3.8 Environmental pollution

For this BIOMAP category the allowed controlled term for the *observation* column is:
- Exposure to pollution (*SNOMED* 102420004)

The allowed controlled terms for the *value* column in the *observation* table are:
- Exposure to water pollution (*SNOMED* 102427001)
- Exposure to toxic agricultural agents (*SNOMED* 102441005)
- Exposure to polluted soil (*SNOMED* 102432000)
- Exposure to toxic dust (*SNOMED* 102444002)
- Exposure to environmental pollution (*SNOMED* 102421000)

- Exposure to polluted air (*SNOMED* 102424008)
- Exposure to chemical pollution (*SNOMED* 102435003)
- Exposure to toxic waste (*SNOMED* 418357009)

8.3.9   Alcohol - Personal

For this BIOMAP category the allowed controlled terms for the *observation* column are:
- Alcohol intake (*SNOMED* 160573003)
- Alcohol intake range minimum
- Alcohol intake range maximum

The *unit* must be one of:
- gram per 24 hours
- gram per week
- gram per month

8.3.10   Alcohol - Parental

For this BIOMAP category the allowed controlled terms for the *observation* column are:
- Alcohol intake maternal during pregnancy
- Alcohol intake maternal during pregnancy range minimum
- Alcohol intake maternal during pregnancy range maximum
- Alcohol intake maternal during childhood
- Alcohol intake maternal during childhood range minimum
- Alcohol intake maternal during childhood range maximum
- Alcohol intake paternal
- Alcohol intake paternal range minimum
- Alcohol intake paternal range maximum

The *unit* must be one of:
- gram per 24 hours
- gram per week
- gram per month

8.3.11   Smoking - Personal

For this BIOMAP category the allowed controlled terms for the *observation* column are:
- Tobacco smoking behavior - finding (*SNOMED* 365981007)
- Nicotine-filled electronic cigarette use
- Non-nicotine-filled electronic cigarette use

The allowed controlled terms for the *value* column in the *observation* table are:
- Never smoked
- Ex-smoker (*SNOMED* 8517006)

- Moderate smoker (*SNOMED* 56578002)
- Heavy smoker (*SNOMED* 56771006)
- Smokes daily
- Smoker (*SNOMED* 77176002*)*

Moderate smoker means 20 cigarettes or less per day, heavy smoker more.
Alternatively specify *Cigarette pack-years*.

Example:

person_id	observation	observation _date	value	unit	ascertainment_method	relate d_to
BIOMAP_P2N_CAU _00000001	Tobacco smoking behavior - finding	2010-06-15	Never smoked	NAP	self-report by the patient unspecified_other	NAV
BIOMAP_P2N_CAU _00000002	Tobacco smoking behavior - finding	2012-07-01	20	Cigarette pack-years	self-report by the patient unspecified_other	NAV

8.3.12 Smoking - Parental

For an exposure after birth, the allowed controlled term for the *observation* column is:
- Environmental tobacco smoke exposure (*SNOMED* 714151003)

For a prenatal exposure, the allowed controlled term for the *observation* column is:
- Prenatal exposure

And the value column *must* contain:
- Maternal tobacco use in pregnancy (*SNOMED* 100801000119107)

8.3.13 Illicit or recreational drug use

For this BIOMAP category the allowed controlled term for the *observation* column is:
- Drug misuse
- Paternal drug misuse (*SNOMED* 439213009)
- Drug misuse by mother (*SNOMED* 442080007)
- Drug misuse by mother during pregnancy

The allowed controlled terms for the *value* column are:
- Cocaine abuse (*SNOMED* 78267003)
- Amphetamine abuse (*SNOMED* 84758004)
- Nondependent antidepressant type drug abuse continuous (*SNOMED* 191930003)
- Nondependent antidepressant type drug abuse episodic (*SNOMED* 191931004)
- Hallucinogen abuse (*SNOMED* 74851005)
- Opioid abuse (*SNOMED* 5602001)
- Nondependent antidepressant type drug abuse in remission (*SNOMED* 191932006)
- Sedative abuse (*SNOMED* 64386003)

- Methanol abuse (*SNOMED* 304605000)
- Nondependent hypnotic or anxiolytic abuse (*SNOMED* 268647004)
- Nondependent amphetamine or psychostimulant abuse in remission (*SNOMED* 414874007)
- Inhalant abuse (*SNOMED* 70340006)
- Harmful use of amphetamine (*SNOMED* 1094161000000106)
- Harmful use of cannabis (*SNOMED* 1094171000000104)
- Harmful use of khat (*SNOMED* 1094181000000102)
- Harmful use of cocaine (*SNOMED* 1094191000000100)
- Harmful use of hallucinogen (*SNOMED* 1094201000000103)
- Harmful use of inhalant (*SNOMED* 1094211000000101)
- Harmful use of methanol (*SNOMED* 1094221000000107)
- Harmful use of opioid (*SNOMED* 1094231000000109)
- Harmful use of sedative (*SNOMED* 1094241000000100)
- Harmful use of barbiturate (*SNOMED* 1094251000000102)
- Harmful use of stimulant (*SNOMED* 1094261000000104)
- Harmful use of synthetic cannabinoid (*SNOMED* 1094271000000106)
- Harmful use of synthetic cathinone (*SNOMED* 1094281000000108)
- Harmful use of anxiolytic (*SNOMED* 1094291000000105)
- Harmful use of hypnotic (*SNOMED* 1094301000000109)
- Novel psychoactive substance misuse (*SNOMED* 713775002)
- Synthetic cannabinoid abuse (*SNOMED* 737336003)

8.3.14 Sibship size

For this BIOMAP category the allowed controlled terms for the *observation* column are:
- Number of siblings (*SNOMED* 224095004)
- Number of older siblings

8.3.15 Animal exposure

For this BIOMAP category the allowed controlled terms for the *observation* column are:
- Cat (*LOINC* LA14179-8)
- Dog (*LOINC* LA14178-0)
- Small furry animal (*LOINC* LA14180-6)
- Other animal

A *value* is not required. If it is given, the *unit* must be one of:
- day per week
- day per month
- day per year

8.3.16 Antibiotic exposure - Antenatal exposure

For this BIOMAP category the allowed controlled term for the *observation* column is:
• Prenatal exposure
And the *value* column must contain:
• Antibiotics

8.3.17 Mode of delivery

For this BIOMAP category the allowed controlled term for the *observation* column is:
• Finding of pattern of delivery (*SNOMED* 289258004)
The allowed controlled terms for the *value* column in the *observation* table are:
• Vaginal delivery (*SNOMED* 289259007)

• Born after induced labor (*SNOMED* 288266004)

• Cesarean delivery - delivered (*SNOMED* 200146002)

• Forceps delivery - delivered (*SNOMED* 200130005)

• Vacuum extractor delivery - delivered (*SNOMED* 200138003)

• Abnormal delivery (*SNOMED* 274127000)

8.3.18 Gestational and birth-related factors

For this BIOMAP category the allowed controlled terms for the *observation* column are:
• Gestational age (*SNOMED* 226081000000107)

• Birth weight (*SNOMED* 364589006)

• Maternal age (*SNOMED* 13506008)

• Maternal pre-pregnancy body height measure

• Maternal pre-pregnancy body weight

• Maternal pre-pregnancy body mass index

Additionally, the maternal observations are collected with the following term in the *observation* column:
• Maternal observation

And the following allowed values
• Gestational diabetes mellitus (*SNOMED* 11687002)

• Diabetes mellitus (*SNOMED* 73211009)

• Type 1 diabetes mellitus (*SNOMED* 46635009)

• Type 2 diabetes mellitus (*SNOMED* 44054006)

• Pregnancy-induced hypertension (*SNOMED* 48194001)

• Maternal hypertension (*SNOMED* 288250001)

• Pre-eclampsia (*SNOMED* 398254007)

• Systemic corticosteroid exposure during pregnancy

• dexamethasone (*ATC* S02BA06)

• betamethasone (*ATC* S02BA07)

- fluocinolone acetonide (*ATC* S02BA08)
- hydrocortisone (*ATC* S02BA01)
- prednisolone (*ATC* S02BA03)
- Multiparous (*SNOMED* 28079008)

where *Multiparous* means that the mother has delivered more than 1 infant over 24 weeks (alive or still birth).

8.3.19 Feeding history

For this BIOMAP category the allowed controlled term for the *observation* column is:
- Breastfeeding (*SNOMED* 413711008)

The allowed controlled terms for the *unit* column in the *observation* table are:
- week
- month

Example of a row in the observation table containing the value:

person_id	observation	observation_date	value	unit	ascertainment_method	related_to
BIOMAP_P2N_CAU _00000001	Breastfeeding	1967-11-11	8	month	self-report unspecified_other last time asserted	NAV

8.3.20 Feeding history - Breastfeeding - duration, exclusivity

For this BIOMAP category the allowed controlled term for the *observation* column is:
- Exclusively breastfeeding

The allowed controlled terms for the *unit* column in the *observation* table are:
- week
- month

Example of a row in the observation table containing the value:

person_id	observation	observation_date	value	unit	ascertainment_method	related_to
BIOMAP_P2N_CAU _00000001	Exclusively breastfeeding	1967-11-11	6	month	NAV	NAV

8.3.21 Daycare attendance

For this BIOMAP category the allowed controlled term for the *observation* column is:
- Nursery (*SNOMED* 161117005)

Nursery includes country specific names for childcare, including but not limited to
- Early years education
- Child minder
- Daycare
- Kindergarten
- Creche

To record both for how many years a child attended daycare, and the intensity (how many hours per week), use two rows with the same *observation_date* and different units. The *unit* must be one of:
• year
• month
• hour per week
• day per week

Example:

person_id	observation	observation_date	value	Unit	ascertainment_method	related_to
BIOMAP_P2N_CAU_00000001	Nursery	1995-03-01	2	year	self-report by the patient	NAV
BIOMAP_P2N_CAU_00000001	Nursery	1995-03-01	8	hour per week	self-report by the patient	NAV

8.3.22 Basic skin care and hygiene practices

For this BIOMAP category the allowed controlled terms for the *observation* column are:
• Bath/shower frequency
• Use of an emollient
• Use of other skin care product

A *value* is required, the *unit* must be one of:
• Frequency per day (*SNOMED* 307438009)
• Frequency per week (*SNOMED* 307444008)

8.3.23 Major life events (stressors)

Specific stressors are not included in this version of the glossary, but may be added in a later update.

8.4 Disease associations

Disease associations, which include the well-known co-morbidities and potential areas of interest to BIOMAP analysts, will be recorded in the *observation* or *condition* table. Certain associated diseases/conditions were highlighted during the Glossary development as being of particular interest to BIOMAP and further granularity related to these conditions will be captured in the harmonised datasets (where this detail is available in the primary dataset). All controlled terminology used here and in **Section 8.8 Treatment - Adverse events** will be interchangeable, that is that a condition listed as a possible disease association could also be an adverse event, and vice versa. Where the primary dataset provides an association between a condition/observation and a specific treatment, drug or procedure, this association will be recorded in the *related_to* column. No new links/associations will be created during harmonisation.

Where a person experiences an adverse event related to their treatment (for example, headaches) and has a past history of headaches, separate rows in the condition table would be added allowing analysts to distinguish an existing condition (unrelated to treatment) and a new occurrence of this condition (or an exacerbation of an existing condition) which is related to a drug treatment. See **Section 6 Domains and structure of the data tables** for further details of how tables can be linked.

8.4.1 Allergic rhinoconjunctivitis

Example rows in the condition table containing the values:

person_id	condition	condition_start_date	condition_end_date	ascertainment_method	related_to
BIOMAP_P2N_CAU_00000001	Allergic conjunctivitis	2003-03-17	NAV	diagnosed by examination by a doctor	NAV
BIOMAP_P2N_CAU_00000001	Allergic rhinitis	2003-03-17	NAV	diagnosed by examination by a doctor	NAV
BIOMAP_P2N_CAU_00000001	Allergic rhinoconjunctivitis hayfever	2003-03-17	NAV	diagnosed by examination by a doctor	NAV

For this BIOMAP category **up to three rows** are added to the condition table, with the following controlled terms for the *condition* column:

- Allergic conjunctivitis (*SNOMED* 473460002)

- Allergic rhinitis (*SNOMED* 61582004)

- Allergic rhinoconjunctivitis hayfever

8.4.2 Asthma

Example of a row in the condition table containing the value:

person_id	condition	condition_start_date	condition_end_date	ascertainment_method	related_to
BIOMAP_P2N_CAU_00000001	Asthma	2003-03-17	NAV	diagnosed by examination by a doctor	NAV

For this BIOMAP category the allowed controlled term for the *condition* column is:

- Asthma (*SNOMED* 195967001)

- Exacerbation of asthma (*SNOMED* 281239006)

8.4.3 Food allergies

Example of a row in the observation table containing the value:

person_id	observation	observation_date	value	unit	ascertainment_method	related_to

BIOMAP_P2N_CAU_00000001	Allergy to peanuts	2003-03-17	Positive	NAV	self-administered questionnaire unspecified_other	NAV

For this BIOMAP category the allowed controlled terms for the *observation* column are:

- Allergy to food (*SNOMED* 414285001)

- Allergy to celery (*SNOMED* 712843002)

- Allergy to shellfish (*SNOMED* 300913006)

- Allergy to fish (*SNOMED* 417532002)

- Allergy to edible egg (*SNOMED* 91930004)

- Allergy to dairy foods (*SNOMED* 425525006)

- Allergy to mustard (*SNOMED* 21191000122102)

- Allergy to nut (*SNOMED* 91934008)

- Allergy to peanuts (*SNOMED* 91935009)

- Allergy to legumes (*SNOMED* 409136006)

- Allergy to pea (*SNOMED* 767468001)

- Allergy to bean (*SNOMED* 703925004)

- Allergy to soy protein (*SNOMED* 782594005)

- Allergy to wheat (*SNOMED* 420174000)

- Allergy to barley (*SNOMED* 712841000)

- Allergy to oats (*SNOMED* 419342009)

- Allergy to rye (*SNOMED* 418184004)

- Allergy to sesame seeds

The *value* must be one of:
- Positive
- Negative

8.4.4 Atopic eye disease

For this BIOMAP category **four rows** could be added to the condition table, with the following controlled terms for the *condition* column:
For this BIOMAP category the allowed controlled terms for the *condition* column are:

- Atopic keratoconjunctivitis (*SNOMED* 403434009)

- Keratoconus (*SNOMED* 65636009)

- Atopic cataract (*SNOMED* 2951009)

• Retinal detachment (*SNOMED* 42059000)

8.4.5 Eosinophilic oesophagitis

For this BIOMAP category the allowed controlled term for the *condition* column is:
• Eosinophilic esophagitis (*SNOMED* 235599003)

8.4.6 Other forms of dermatitis – Contact dermatitis

For this BIOMAP category the allowed controlled terms for the *condition* column are:
• Contact dermatitis (*SNOMED* 40275004)
• Allergic contact dermatitis (*SNOMED* 238575004)
• Irritant contact dermatitis (*SNOMED* 110979008)

8.4.7 Other forms of dermatitis

For this BIOMAP category the allowed controlled term for the *condition* column is:
• Photoallergic dermatitis (*SNOMED* 111209006)

8.4.8 Allergy - Other

For this BIOMAP category the allowed controlled terms for the *condition* column are:
• Allergic reaction (*SNOMED* 419076005) or one of its more specific terms
    – Allergic transfusion reaction (*SNOMED* 361098001)
    – Jarisch Herxheimer reaction (*SNOMED* 10803007)
    – Allergic reaction to substance (*SNOMED* 418634005)
    – Tuberculid (*SNOMED* 123583002)
    – Type 1 hypersensitivity response (*SNOMED* 12263007)
    – Angry back syndrome (*SNOMED* 402245001)
    – Atopic reaction (*SNOMED* 55985003)
    – Phacoanaphylaxis (*SNOMED* 14589007)
    – Acute allergic reaction (*SNOMED* 241929008)
    – Injection site reaction (*SNOMED* 95377006)
    – Transfusion reaction due to serum protein reaction (*SNOMED* 72284000)
    – Anaphylactoid reaction (*SNOMED* 35001004)
    – Anaphylaxis (*SNOMED* 39579001)

The following terms can be used in case a specific reaction is not recorded:

• Allergy to plant (*SNOMED* 402594000)

• Allergy to pollen (*SNOMED* 300910009)

• Allergy to grass pollen (*SNOMED* 418689008)

• Allergy to tree pollen (*SNOMED* 419263009)

• Allergy to weed pollen (*SNOMED* 419210001)

- Multiple environmental allergies (*SNOMED* 444026000)

- Allergy to animal dander (*SNOMED* 232347008)

- Allergy to cat dander (*SNOMED* 232346004)

- Allergy to dog dander (*SNOMED* 419271008)

- Allergy to dust mite protein (*SNOMED* 232350006)

8.4.9 Filaggrin-associated conditions - Ichthyosis vulgaris

For this BIOMAP category the allowed controlled term for the *condition* column is:

- Ichthyosis vulgaris (*SNOMED* 254157005) or its more specific term
  - Autosomal dominant ichthyosis vulgaris (*SNOMED* 254158000)

8.4.10 Filaggrin-associated conditions - Keratosis pilaris

For this BIOMAP category the allowed controlled term for the *condition* column is:

- Keratosis pilaris (*SNOMED* 5132005)

8.4.11 Filaggrin-associated conditions - Palmar hyperlinearity

For this BIOMAP category the allowed controlled term for the *condition* column is:
- Palmar hyperlinearity

8.4.12 Psoriatic arthritis

For this BIOMAP category the allowed controlled term for the *condition* column is:

- Psoriatic arthritis (*SNOMED* 156370009)

- Psoriatic arthritis with spine involvement (*SNOMED* 200956002)

- Psoriatic arthritis mutilans (*SNOMED* 10629311000119107)

- Psoriatic arthritis oligoarticular

- Psoriatic arthritis polyarticular

- Psoriatic dactylitis (*SNOMED* 239813000)

- Enthesitis (*SNOMED* 359643005)

8.4.13 Cardiovascular disease

Example of a row in the condition table containing the value:

person_id	condition	condition_start_date	condition_end_date	ascertainment_method	related_to

BIOMAP_P2N_CAU _00000001	Ischemic heart disease	2003-03-17	NAV	diagnosed by investigation unspecified_ other	NAV

For this BIOMAP category the allowed controlled terms for the *condition* column are:

- Ischemic heart disease (*SNOMED* 414545008)
- Myocardial infarction (*SNOMED* 22298006)
- Cardiomyopathy (*SNOMED* 85898001)
- Congestive heart failure (*SNOMED* 42343007)
- Cerebrovascular accident (*SNOMED* 230690007)
- Ischemic stroke (*SNOMED* 422504002)
- Haemorrhagic stroke (*SNOMED* 1078001000000105)
- Acute stroke (*SNOMED* 457551000124104)
- Chronic cerebrovascular accident (*SNOMED* 434141000124103)
- Hypertensive disorder (*SNOMED* 38341003)
- Diastolic hypertension and systolic hypertension (*SNOMED* 762463000)
- Low blood pressure (*SNOMED* 45007003)
- Arterial thrombosis (*SNOMED* 65198009)
- Venous thrombosis (*SNOMED* 111293003)
- Pulmonary embolism (*SNOMED* 59282003)

8.4.14 Diabetes mellitus

Example of a row in the condition table containing the value:

person_id	condition	condition_star t_date	condition_end_ date	ascertainment_metho d	related _to
BIOMAP_P2N_CAU_00 000001	Diabetes mellitus	2003-03-17	NAV	diagnosed by investigation unspecified_other	NAV

For this BIOMAP category the allowed controlled terms for the *condition* column are:

- Diabetes mellitus (*SNOMED* 73211009)
- Type 1 diabetes mellitus (*SNOMED* 46635009)
- Type 2 diabetes mellitus (*SNOMED* 44054006)

8.4.15 Obesity and disorders of lipid metabolism

For this BIOMAP category the allowed controlled terms for the *condition* column are:

- Obesity (*SNOMED* 414916001)
- Dyslipidemia (*SNOMED* 370992007)
- Hypertriglyceridemia (*SNOMED* 302870006)

8.4.16 Metabolic syndrome

For this BIOMAP category the allowed controlled term for the *condition* column is:

- Metabolic syndrome X (*SNOMED* 237602007)

8.4.17 Immune mediated inflammatory disease (IMID) - Coeliac disease

For this BIOMAP category the allowed controlled term for the *condition* column is:

- Coeliac disease (*SNOMED* 396331005)

8.4.18 Immune mediated inflammatory disease (IMID) - Inflammatory bowel disease

Example of a row in the condition table containing the value:

person_id	condition	condition_start_date	condition_end_date	ascertainment_method	related_to
BIOMAP_P2N_CAU_00000001	Crohns disease	2003-03-17	NAV	diagnosed by investigation unspecified_other	NAV

For this BIOMAP category the allowed controlled terms for the *condition* column are:

- Inflammatory bowel disease (*SNOMED* 24526004)
- Crohns disease (*SNOMED* 34000006)
- Ulcerative colitis (*SNOMED* 64766004)

8.4.19 Immune mediated inflammatory disease (IMID) - Multiple sclerosis

For this BIOMAP category the allowed controlled terms for the *condition* column are:

- Multiple sclerosis (*SNOMED* 24700007)
- Optic neuritis (*SNOMED* 66760008)
- Demyelination (*SNOMED* 32693004)

8.4.20 Immune mediated inflammatory disease (IMID) - Rheumatoid arthritis

For this BIOMAP category the allowed controlled term for the *condition* column is:

- Rheumatoid arthritis (*SNOMED* 69896004)

8.4.21 Liver disease

For this BIOMAP category the allowed controlled terms for the *condition* column are:

- Cirrhosis of liver (*SNOMED* 19943007)

- Infectious cirrhosis (*SNOMED* 235896001)

- Biliary cirrhosis (*SNOMED* 1761006)

- Idiopathic copper associated cirrhosis of liver (*SNOMED* 715864007)

- Cirrhosis of liver with primary sclerosing cholangitis (*SNOMED* 735733008)

- Portal cirrhosis (*SNOMED* 419728003)

- Diffuse nodular cirrhosis (*SNOMED* 197293003)

- Drug-induced cirrhosis of liver (*SNOMED* 425413006)

- Decompensated cirrhosis of liver (*SNOMED* 716203000)

- Cirrhosis and chronic liver disease (*SNOMED* 197279005)

- Advanced cirrhosis (*SNOMED* 123717006)

- Cirrhosis - non-alcoholic (*SNOMED* 266468003)

- Cirrhosis of liver due to hepatitis B (*SNOMED* 103611000119102)

- Early cirrhosis (*SNOMED* 371139006)

- Cryptogenic cirrhosis (*SNOMED* 89580002)

- Hepatic fibrosis (*SNOMED* 62484002)

- Non-alcoholic fatty liver (*SNOMED* 197315008)

- Steatosis of liver (*SNOMED* 197321007)

- Drug-induced hepatitis (*SNOMED* 235876009)

- Elevated liver enzymes level (*SNOMED* 707724006)

8.4.22 Alopecia areata

For this BIOMAP category the allowed controlled terms for the *condition* column are:

- Alopecia areata (*SNOMED* 68225006) or one of its more specific terms
    - Alopecia universalis (*SNOMED* 86166000)
    - Diffuse alopecia areata (*SNOMED* 46586006)
    - Ophiasis (*SNOMED* 5860009)
    - Circumscribed alopecia areata of eyelashes/eyebrows (*SNOMED* 403321007)
    - Circumscribed alopecia areata of limbs (*SNOMED* 403323005)

– Circumscribed alopecia areata of trunk (*SNOMED* 403324004)

– Circumscribed alopecia areata of scalp (*SNOMED* 403320008)

– Circumscribed alopecia areata of beard area (*SNOMED* 403322000)

8.4.23 Vitiligo

For this BIOMAP category the allowed controlled terms for the *condition* column are:

- Vitiligo (*SNOMED* 56727007) or one of its more specific terms

    – Generalized vitiligo (*SNOMED* 403269008)

    – Segmental vitiligo (*SNOMED* 403268000)

    – Localized vitiligo (*SNOMED* 403267005)

    – Vitiligo of eyelid (*SNOMED* 87666009)

    – Vitiligo of eyelid and periocular area (*SNOMED* 721539008)

    – Occupational vitiligo (*SNOMED* 238713002)

    – Trichrome vitiligo (*SNOMED* 403270009)

    – Idiopathic vitiligo (*SNOMED* 402621008)

    – Vitiligo due to Koebnerization (*SNOMED* 403271008)

8.4.24 ADHD

For this BIOMAP category the allowed controlled term for the *condition* column is:

- Attention deficit hyperactivity disorder (*SNOMED* 406506008)

8.4.25 Autism

For this BIOMAP category the allowed controlled term for the *condition* column is:
- Autism spectrum disorder (*SNOMED* 35919005)

8.4.26 Anxiety

For this BIOMAP category the allowed controlled term for the *condition* column is:

- Anxiety (*SNOMED* 48694002)

8.4.27 Depression

For this BIOMAP category the allowed controlled term for the *condition* column is:

- Depressive disorder (*SNOMED* 35489007)

8.4.28 Obsessive-compulsive disorder

For this BIOMAP category the allowed controlled term for the *condition* column is:

- Obsessive-compulsive disorder (*SNOMED* 191736004)

8.4.29 Bipolar disorder

For this BIOMAP category the allowed controlled term for the *condition* column is:

- Bipolar disorder (*SNOMED* 13746004)

8.4.30 Schizophrenia

For this BIOMAP category the allowed controlled term for the *condition* column is:

- Schizophrenia (*SNOMED* 58214004)

8.4.31 Other psychoses

For this BIOMAP category the allowed controlled term for the *condition* column is:

- Psychotic disorder (*SNOMED* 69322001)

8.4.32 Suicide

For this BIOMAP category the allowed controlled terms for the *condition* column are:

- Suicide (*SNOMED* 44301001)
- Suicide attempt (*SNOMED* 82313006)
- Suicidal behavior (*SNOMED* 425104003)
- Suicidal thoughts (*SNOMED* 6471006)

8.4.33 Seizures and epilepsy

For this BIOMAP category the allowed controlled terms for the *condition* column are:
- Seizure (*SNOMED* 91175000)
- Epilepsy (*SNOMED* 84757009)

8.4.34 Sleep-disturbance

For this BIOMAP category the allowed controlled term for the *condition* column is:
- Sleep pattern disturbance (*SNOMED* 26677001)

8.4.35 Infections - Herpes simplex

For this BIOMAP category the allowed controlled terms for the *condition* column are:

- Herpes simplex (*SNOMED* 88594005) or one of its more specific terms
    - Herpes simplex type 1 infection (*SNOMED* 407451003)
    - Herpes simplex type 2 infection (*SNOMED* 407450002)
    - Oral herpes simplex infection (*SNOMED* 235055003)
    - Anogenital herpesviral infection (*SNOMED* 186538004)
    - Disseminated herpes simplex (*SNOMED* 13710008)
    - Primary herpes simplex (*SNOMED* 40981003)
    - Chronic herpes simplex (*SNOMED* 240481008)

- Ophthalmic herpes simplex (*SNOMED* 186542001)

- Herpes simplex with complication (*SNOMED* 111854002)

- Herpes simplex without complication (*SNOMED* 111853008)

- Nongenital herpes simplex (*SNOMED* 82121000119104)

8.4.36 Infections - Eczema herpeticum

For this BIOMAP category the allowed controlled term for the *condition* column is:

- Eczema herpeticum (*SNOMED* 186535001)

8.4.37 Infections - Staphylococcal

For this BIOMAP category the allowed controlled terms for the *condition* column is:

- Staphylococcal infectious disease (*SNOMED* 56038003) or one of its more specific terms:

    - Staphylococcal infection of skin (*SNOMED* 402938009)

    - Infection due to Staphylococcus aureus (*SNOMED* 406602003)

    - Staphylococcal non-bullous impetigo (*SNOMED* 238376004)

    - Impetigo bullosa (*SNOMED* 399183005)

    - Staphylococcal fissure of lower lip (*SNOMED* 235138000)

    - Staphylococcal blepharitis (*SNOMED* 278808000)

    - Staphylococcal omphalitis (*SNOMED* 403841009)

    - Staphylococcal eye infection (*SNOMED* 95884007)

    - Staphylococcal toxic shock syndrome (*SNOMED* 240450004)

    - Sepsis due to Staphylococcus (*SNOMED* 447894003)

8.4.38 Infections - Streptococcal

For this BIOMAP category the allowed controlled term for the *condition* column is:
- Streptococcal infectious disease (*SNOMED* 85769006)

8.4.39 Infections - Other

- Septicaemia NOS (*SNOMED* 266089004)

- Sepsis (*SNOMED* 91302008)

- Infection of skin and/or subcutaneous tissue (*SNOMED* 19824006)

- Herpes zoster (*SNOMED* 4740000)

- Candidiasis (*SNOMED* 78048006)

- Pneumonia (*SNOMED* 233604007)

- Disease caused by 2019-nCoV (*SNOMED* 840539006)

- Tuberculosis (*SNOMED* 56717001)

- Reactivation of hepatitis B viral hepatitis (*SNOMED* 446698005)

- Meningitis (*SNOMED* 7180009)

- Progressive multifocal leukoencephalopathy (*SNOMED* 22255007)

- Mycosis (*SNOMED* 3218000)

- Infection caused by Malassezia (*SNOMED* 721794002)

- Other infection requiring systemic antimicrobials

8.4.40 Neoplastic conditions

For this BIOMAP category the allowed controlled terms for the *condition* column are:

- Malignant melanoma (*SNOMED* 2092003)

- Malignant neoplasm of skin (*SNOMED* 372130007)

- Squamous cell carcinoma (*SNOMED* 402815007)

- Squamous cell carcinoma in situ (*SNOMED* 189565007)

- Basal cell carcinoma (*SNOMED* 1338007)

- Merkel cell carcinoma (*SNOMED* 253001006)

- Solid organ tumour/cancer

- Lymphoproliferative disorder (*SNOMED* 414629003)

- Leukemia (*SNOMED* 93143009)

- Malignant lymphoma (*SNOMED* 118600007)

8.4.41 Other conditions

Other conditions or diagnoses which may or may not be associated with AD or psoriasis, or can occur as treatment-emergent adverse events include the following conditions. These conditions are also listed amongst others as adverse events in **Section 8.8 Treatment - Adverse events.** Adverse events which are symptoms and not conditions/diagnoses, have been removed from this section, but are present in Section 8.8

Dermatological

- Stevens-Johnson syndrome (*SNOMED* 73442001)

- Lyell syndrome (*SNOMED* 768962006)

- Erythema multiforme (*SNOMED* 36715001)

- Urticaria (*SNOMED* 126485001)

- Angioedema (*SNOMED* 41291007)

- Alopecia (*SNOMED* 56317004)

- Acne (*SNOMED* 11381005)

- Acute generalized exanthematous pustulosis (*SNOMED* 702617007)

Gastrointestinal

- Gastrointestinal perforation (*SNOMED* 51875005)

- Hypertrophy of gingiva (*SNOMED* 441787004)

Haematologic

- Neutropenia (*SNOMED* 165517008)

- Drug-induced neutrophilia (*SNOMED* 63484008)

- Eosinophil count raised (*SNOMED* 386789004)

- Anemia (*SNOMED* 271737000)

- Lymphocytopenia (*SNOMED* 48813009)

- Lymphocytosis (*SNOMED* 67023009)

- Leukopenia (*SNOMED* 84828003)

- Leukocytosis (*SNOMED* 111583006)

- Thrombocytopenic disorder (*SNOMED* 302215000)

- Thrombocytosis (*SNOMED* 6631009)

- Pancytopenia (*SNOMED* 127034005)

Renal

- Abnormal renal function (*SNOMED* 39539005)

- Chronic renal failure (*SNOMED* 90688005)

- Acute renal failure syndrome (*SNOMED* 14669001)

Respiratory

- Interstitial lung disease (*SNOMED* 233703007)

- Fibrosis of lung (*SNOMED* 51615001)

- Acute exacerbation of chronic obstructive airways disease (*SNOMED* 195951007)

- Sarcoidosis (*SNOMED* 31541009)

Rheumatologic

- Osteopenia (*SNOMED* 312894000)

- Osteoporosis (*SNOMED* 64859006)

- Osteoporotic fracture (*SNOMED* 46675001)

- Arthritis (*SNOMED* 3723001)

- Myositis (*SNOMED* 26889001)

- Isolated asymptomatic elevation of creatine phosphokinase (*SNOMED* 773990006)

- Rhabdomyolysis (*SNOMED* 240131006)

Sensory system

- Glaucoma (*SNOMED* 23986001)

- Cataract (*SNOMED* 193570009)

- Tinnitus (*SNOMED* 60862001)

- Hearing loss (*SNOMED* 15188001)

8.5 Investigations

8.5.1 Allergy testing - Blood

For this BIOMAP category the allowed controlled terms for the *measurement* column are:
- Serum total immunoglobulin E concentration (*SNOMED* 963641000000109)
- Fish mix RAST test (*SNOMED* 391494002)
- Seafood mix RAST test (*SNOMED* 391536000)
- Nut mix RAST test (*SNOMED* 313674003)
- Rodent mix RAST test (*SNOMED* 414370009)
- Cereals food mix RAST test (*SNOMED* 408233003)
- Pediatric food panel mix RAST test (*SNOMED* 408234009)
- Mixed molds RAST test (*SNOMED* 391337008)
- Mold and yeast RAST (*SNOMED* 388460007)
- House dust mite RAST (*SNOMED* 397673004)
- Tree pollen RAST (*SNOMED* 388464003)
- Cat dander RAST (*SNOMED* 392402007)
- Caged bird feathers RAST (*SNOMED* 407688007)
- Animal dander mix RAST test (*SNOMED* 408232008)
- Dog dander RAST (*SNOMED* 392411007)
- Kiwi RAST (*SNOMED* 388485003)
- Hazel nut RAST (*SNOMED* 388590003)
- Egg yolk and white RAST (*SNOMED* 388630007)
- Egg white RAST (*SNOMED* 388631006)
- Milk RAST (*SNOMED* 388690009)
- Mixed fruit RAST test (*SNOMED* 408214008)
- Food mix RAST (*SNOMED* 412616004)
- Fish RAST (*SNOMED* 397639009)
- Almond RAST (*SNOMED* 388491001)
- Cashew nut RAST (*SNOMED* 388493003)

- Egg yolk RAST (*SNOMED* 388632004)
- Soybean RAST (*SNOMED* 388652003)
- Sesame seed RAST (*SNOMED* 388755009)
- Peanut RAST (*SNOMED* 388500008)
- Wheat RAST (*SNOMED* 388790001)
- Brazil nut RAST (*SNOMED* 388512007)
- Grass mix specific IgE antibody measurement (*SNOMED* 897101000000100)
- Weed pollen RAST (*SNOMED* 388466001) or its more specific term
    - Common ragweed RAST (*SNOMED* 392301001)
- Measurement of Ara h 2 immunoglobulin E (*SNOMED* 445354008)

The *value* column must contain the IgE Level in *kU/L*.

8.5.2   Allergy testing - Patch testing

For this BIOMAP category the allowed controlled terms for the *procedure* column are:
- Open patch testing of skin (*SNOMED* 230341000000101)
- Extended series patch testing of skin (*SNOMED* 230311000000102)
- Standard series patch testing of skin (*SNOMED* 230301000000104)

Results are not stored because there are no analyses with these planned.

8.5.3   Allergy testing – Skin prick testing (SPT)

For this BIOMAP category the allowed controlled terms for the *measurement* column are:
- Weal reaction positive control
- Weal reaction negative control
- Weal reaction fish
- Weal reaction egg
- Weal reaction Milk
- Weal reaction Peanut
- Weal reaction Sesame
- Weal reaction Almond
- Weal reaction Brazil nut
- Weal reaction Hazelnut
- Weal reaction Cashew
- Weal reaction Cat
- Weal reaction Dog
- Weal reaction Grass
- Weal reaction House dust mite including Dermatophagoides farina and Dermatophagoides pteronyssinus
- Weal reaction Soya
- Weal reaction Trees
- Weal reaction Wheat
- Weal reaction Kiwi

A *value* is optional, if it is given the *unit* must be:
- millimeter

corresponding to the diameter of the reaction.

8.5.4   Other blood parameters

For this BIOMAP category the allowed controlled terms for the *measurement* column are:

- Total white blood count (*SNOMED* 391558003)
- Lymphocyte count (*SNOMED* 74765001) or one of its more specific terms
    - T lymphocyte count (*SNOMED* 118136006)
    - B lymphocyte count (*SNOMED* 118135005)
    - Prolymphocyte count blood (*SNOMED* 104101007)
    - Count of cells negative for CD33 antigen and positive for CD34 antigen (*SNOMED* 797791000000108)
    - Total lymphocyte count (*SNOMED* 446325007)
    - Total T lymphocyte count (*SNOMED* 391575009)
    - Lymphocyte percent differential count (*SNOMED* 271036002)
    - Count of cells positive for both CD33 antigen and CD34 antigen (*SNOMED* 797781000000106)
    - Lymphocyte count by cell surface antigen phenotype (*SNOMED* 117620005)
    - Lymphocyte subsets (*SNOMED* 401133001)
    - Reactive lymphocyte count (*SNOMED* 86528005)
    - Natural killer cell level (*SNOMED* 401094008)
- Monocyte count (*SNOMED* 67776007) or one of its more specific terms
    - Monocyte percent differential count (*SNOMED* 271037006)
- Eosinophil count (*SNOMED* 71960002) or one of its more specific terms
    - Eosinophil percent differential count (*SNOMED* 310540006)
- Basophil count (*SNOMED* 42351005) or one of its more specific terms
    - Basophil percent differential count (*SNOMED* 271038001)
- Neutrophil count (*SNOMED* 30630007) or one of its more specific terms
    - Neutrophil band count (*SNOMED* 25340006)
    - Segmented neutrophil count blood (*SNOMED* 104096007)
    - Hypersegmented neutrophil count blood (*SNOMED* 104097003)
    - Neutrophil percent differential count (*SNOMED* 271035003)
- Erythrocyte mean corpuscular volume determination (*SNOMED* 104133003)
- Mean corpuscular hemoglobin concentration determination (*SNOMED* 37254006)
- Mean corpuscular hemoglobin determination (*SNOMED* 54706004)
- Red cell distribution width determination (*SNOMED* 66842004)
- Hematocrit determination (*SNOMED* 28317006) or one of its more specific terms
    - Serial hematocrit determinations (*SNOMED* 409681009)
    - Hematocrit spun microhematocrit method (*SNOMED* 104139004)
- Measurement of total hemoglobin concentration (*SNOMED* 441689006) or one of its more specific terms
    - Copper sulfate screening test (*SNOMED* 252277007)
    - Hemoglobin by copper sulfate method non-automated (*SNOMED* 104140002)
    - Measurement of total hemoglobin concentration and hematocrit (*SNOMED* 68994006)
    - Measurement of total hemoglobin concentration in plasma specimen (*SNOMED* 104142005)

- – Semi-quantitative measurement of total hemoglobin in blood specimen (*SNOMED* 104141003)
- MCV Entitic volume (*LOINC* 30428-7)
- Plasma LDL cholesterol measurement (*SNOMED* 314036004) or one of its more specific terms
  - – Plasma random LDL cholesterol measurement (*SNOMED* 167074000)
  - – Plasma fasting LDL cholesterol measurement (*SNOMED* 167075004)
- Plasma HDL cholesterol measurement (*SNOMED* 314035000) or one of its more specific terms
  - – Plasma random HDL cholesterol measurement (*SNOMED* 167072001)
  - – Plasma fasting HDL cholesterol measurement (*SNOMED* 167073006)
- Triglycerides measurement (*SNOMED* 14740000) or one of its more specific terms
  - – Plasma fasting triglyceride measurement (*SNOMED* 167084004)
  - – Plasma random triglyceride measurement (*SNOMED* 167083005)
- Glucose measurement (*SNOMED* 36048009) or one of its more specific terms
  - – Glucose measurement random (*SNOMED* 73128004)
  - – Glucose measurement fasting (*SNOMED* 52302001)
- HbA1c measurement (*SNOMED* 313835008)
- Platelet count (*SNOMED* 61928009)
- Alanine aminotransferase measurement (*SNOMED* 34608000)
- Aspartate aminotransferase measurement (*SNOMED* 45896001)
- Gamma glutamyl transferase measurement (*SNOMED* 69480007)
- Lactate dehydrogenase measurement (*SNOMED* 11274001)
- Creatine kinase measurement (*SNOMED* 397798009)
- Creatinine measurement (*SNOMED* 70901006)
- Urea measurement (*SNOMED* 105010007)
- Sodium measurement (*SNOMED* 25197003)
- Potassium measurement (*SNOMED* 59573005)
- Estimation of glomerular filtration rate (*SNOMED* 791801000000102)
- Serum C reactive protein level (*SNOMED* 135842001)
- Erythrocyte sedimentation rate measurement (*SNOMED* 416838001)
- Rheumatoid factor measurement (*SNOMED* 54921001) or one of its more specific terms
  - – Rheumatoid factor Units/volume in Synovial fluid (*LOINC* 13634-1)
  - – Rheumatoid factor Titer in Synovial fluid by Sheep Cell Agglutination (*LOINC* 13929-5)
  - – Rheumatoid factor Titer in Serum by Latex agglutination (*LOINC* 5299-3)
  - – Rheumatoid factor Units/volume in Body fluid by Immunoassay (*LOINC* 17534-9)
  - – Rheumatoid factor Units/volume in Cerebral spinal fluid (*LOINC* 14034-3)
  - – Rheumatoid factor Titer in Synovial fluid by Agglutination (*LOINC* 13930-3)
  - – Rheumatoid factor Units/volume in Serum by Immunoassay (*LOINC* 6928-6)
  - – Rheumatoid factor Titer in Body fluid by Sheep Cell Agglutination (*LOINC* 25746-9)
  - – Rheumatoid factor Units/volume in Serum or Plasma (*LOINC* 11572-5)

- Rheumatoid factor Units/volume in Body fluid (*LOINC* 30231-5)
- Rheumatoid factor Titer in Serum by Nephelometry (*LOINC* 15204-1)
- Rheumatoid factor Units/volume in Serum by Nephelometry (*LOINC* 15205-8)
- Rheumatoid factor Units/volume in Synovial fluid by Nephelometry (*LOINC* 15206-6)
- Rheumatoid factor Titer in Serum (*LOINC* 17857-4)
- Rheumatoid factor Units/volume in Body fluid by Nephelometry (*LOINC* 15203-3)
- Rheumatoid factor Titer in Serum by Sheep Cell Agglutination (*LOINC* 5300-9)
- Rheumatoid factor Titer in Synovial fluid by Latex agglutination (*LOINC* 53924-7)
- Rheumatoid factor Units/volume in Pleural fluid (*LOINC* 53562-5)
- Rheumatoid factor Titer in Body fluid (*LOINC* 43932-3)
- Rheumatoid factor quantitative (*SNOMED* 10239008)
- Serum rheumatoid antigen measurement (*SNOMED* 165845007)
- IgM rheumatoid factor assay (*SNOMED* 122431004)
- Rheumatoid factor qualitative (*SNOMED* 30320005)
- IgA rheumatoid factor level (*SNOMED* 414453002)
- Rheumatoid factor IgG level (*SNOMED* 415301001)
- Rheumatoid factor measurement synovial fluid (*SNOMED* 313799007)
- Rheumatoid factor screening test (*SNOMED* 394976001)
- Rheumatoid factor Units/volume in Body fluid by Sheep Cell Agglutination (*LOINC* 63313-1)

8.5.5 HLACW6 status

For this BIOMAP category the allowed controlled terms for the *observation* column are:

- HLA-C 06
- HLA-C 06 02
- HLA allele group encompassing HLA-C 06 02

Note that special characters like "*" and ":" have been removed for easier processing, this does not change the meaning of terms like *HLA-C*06:02*.

The *value* must be one of:

- Wildtype
- Heterozygous
- Homozygous
- Uncalled

The value *Uncalled* is used when the genotype probability is less than 0.9 for all three possible genotypes (if calling based on genotype probabilities) or when the dosage is more than 0.1 away from a whole number (0, 1, 2), if called based on dosage.

The *ascertainment method* must be one of:

- Imputation from array
- Imputation from WES WGS
- Sequence-based HLA typing
- Other

For *imputed* ascertainments, an additional observation should exist, with the allowed controlled terms for the *observation* column:
- HLA-C 06 allele imputation score
- HLA-C 06 02 allele imputation score

The corresponding *value* must be between 0 and 1, the *unit* must be one of
- info
- r2

8.5.6   Filaggrin status

For this BIOMAP category the allowed controlled terms for the *observation* column are:
- Filaggrin mutation R2447X
- Filaggrin mutation 2282del4
- Filaggrin mutation S3247X
- Filaggrin mutation 3673delC
- Filaggrin mutation 3702delG
- Filaggrin mutation R501X
- Other filaggrin mutation

The allowed controlled terms for the *value* column in the *observation* table are:
- wildtype
- heterozygous mutation
- homozygous mutation
- compound heterozygous

The *ascertainment method* must be one of:
- Sequencing
- KASP PCR
- Taqman
- Sequenom MassARRAY
- Imputation
- Other
- NAV

For *imputed* ascertainments, an additional observation should exist, with the allowed controlled term for the *observation* column:
- Filaggrin variant imputation score

The corresponding *value* must be between 0 and 1, the *unit* must be one of
- info
- r2

And the ascertainment method
• Imputation

8.5.7 Skin barrier - TEWL

For this BIOMAP category the allowed controlled term for the *measurement* column is:
• Transepidermal water loss rate (*SNOMED* 26011007)

8.5.8 Skin barrier - skin pH

For this BIOMAP category the allowed controlled term for the *measurement* column is:
• Skin pH (*SNOMED* 415532001)

8.5.9 Additional biomarkers

Additional biomarkers will be measured using omics (RNA-Seq, proteomics, …) technologies. Omics data is handled separately.

8.6 Treatment

8.6.1 Systemic therapy

For this BIOMAP category the allowed controlled terms for the *drug* column are:
• cyclosporine (*RxNorm* 3008)
• dupilumab (*RxNorm* 1876376)
• methotrexate (*RxNorm* 6851)
• azathioprine (*RxNorm* 1256)
• mycophenolate sodium (*RxNorm* 408142)
• mycophenolate mofetil (*RxNorm* 68149)
• ponesimod
• alefacept (*RxNorm* 299635)
• secukinumab (*RxNorm* 1599788)
• ixekizumab (*RxNorm* 1745099)
• risankizumab (*RxNorm* 2166040)
• tofacitinib (*RxNorm* 1357536)
• apremilast (*RxNorm* 1492727)
• brodalumab (*RxNorm* 1872251)
• etanercept (*RxNorm* 214555)
• ustekinumab (*RxNorm* 847083)
• adalimumab (*RxNorm* 327361)
• fumarate (*RxNorm* 70598)
• certolizumab
• infliximab (*RxNorm* 191831)
• guselkumab (*RxNorm* 1928588)
• acitretin (*RxNorm* 16818)
• tildrakizumab (*RxNorm* 2053436)
• itolizumab

- prednisolone (*RxNorm* 8638)
- penicillin G (*RxNorm* 7980)
- penicillin V (*RxNorm* 7984)
- floxacillin (*RxNorm* 4448)
- clarithromycin (*RxNorm* 21212)
- erythromycin (*RxNorm* 4053)
- tetracycline (*RxNorm* 10395)
- tralokinumab
- lebrikizumab
- golimumab
- dexamethasone (*RxNorm* 3264)
- baricitinib oral (*ATC* L04AA37)
- ruxolitinib *(RxNorm* 1193326*)*
- abrocitinib
- tezepelumab
- nemolizumab
- bimekizumab
- mirikizumab

8.6.2   Topical therapy

For this BIOMAP category the allowed controlled terms for the *drug* column are:
- corticosteroid or one of its more specific terms
  - class 1 corticosteroid mild
  - class 2 corticosteroid moderate
  - class 3 corticosteroid potent
  - class 4 corticosteroid very potent
- Pimecrolimus
- Tacrolimus
- Terms of ATC group ANTIPSORIATICS FOR TOPICAL USE (*ATC* D05A)
  - methoxsalen (*RxNorm* 6854)
  - trioxsalen (*RxNorm* 10844)
  - calcipotriene (*RxNorm* 29365)
  - tazarotene (*RxNorm* 83947)
  - anthralin (*RxNorm* 873)
  - tacalcitol (*RxNorm* 291204)
  - calcitriol (*RxNorm* 1894)
  - fumarate (*RxNorm* 70598)
- other topical therapies:
  - topical antibiotic
  - topical antiseptic

8.6.3   Phototherapy

Example of a row in the procedure table containing the value:

person_id	exposure_id	procedure	procedure_start_date	procedure_end_date	frequency	frequency_unit	absolute_dose_mg	relative_dose_mg_per_kg	dose_unit	stop_reason
BIOMAP_P2N_CAU_00000001	76604	Ultraviolet A1 light therapy to skin	2013-06-07	2013-06-07	1	Frequency per day	NAV	NAV	NAV	Cumulative dose

For this BIOMAP category the allowed controlled terms for the *procedure* column are:
- Ultraviolet B light therapy to skin not specified)
- Narrowband ultraviolet B phototherapy (*SNOMED* 450522005)
- Broadband ultraviolet B phototherapy
- Ultraviolet A light therapy to skin (*SNOMED* 425893002)
- Ultraviolet A1 light therapy to skin
- Ultraviolet AB light therapy to skin
- Photochemotherapy with psoralens and ultraviolet A (*SNOMED* 46467001)

8.6.4 Concomitant therapy (s)

For this BIOMAP category the allowed controlled terms for the *drug* column are:
- Terms of ATC group HMG CoA reductase inhibitors (*ATC* C10AA)
    - simvastatin oral (*ATC* C10AA01)
    - lovastatin oral (*ATC* C10AA02)
    - pravastatin oral (*ATC* C10AA03)
    - fluvastatin oral (*ATC* C10AA04)
    - atorvastatin oral (*ATC* C10AA05)
    - cerivastatin oral (*ATC* C10AA06)
    - rosuvastatin oral (*ATC* C10AA07)
    - pitavastatin oral (*ATC* C10AA08)
- Terms of ATC group AMINOGLYCOSIDE ANTIBACTERIALS (*ATC* J01G)
    - plazomicin (*ATC* J01GB14)
    - streptomycin parenteral (*ATC* J01GA01)
    - streptoduocin parenteral (*ATC* J01GA02)
    - tobramycin inhalant parenteral (*ATC* J01GB01)
    - gentamicin parenteral (*ATC* J01GB03)
    - kanamycin parenteral (*ATC* J01GB04)
    - neomycin oral (*ATC* J01GB05)
    - amikacin parenteral (*ATC* J01GB06)
    - netilmicin systemic (*ATC* J01GB07)
    - sisomicin parenteral (*ATC* J01GB08)
    - dibekacin parenteral (*ATC* J01GB09)
    - ribostamycin parenteral (*ATC* J01GB10)
    - isepamicin parenteral (*ATC* J01GB11)
    - arbekacin parenteral (*ATC* J01GB12)

- – bekanamycin parenteral (*ATC* J01GB13)
- Terms of ATC group AMPHENICOLS (*ATC* J01B)
  - – chloramphenicol systemic (*ATC* J01BA01)
  - – thiamphenicol systemic (*ATC* J01BA02)
- Terms of ATC group BETA-LACTAM ANTIBACTERIALS PENICILLINS (*ATC* J01C)
  - – ampicillin systemic rectal (*ATC* J01CA01)
  - – pivampicillin oral (*ATC* J01CA02)
  - – carbenicillin parenteral (*ATC* J01CA03)
  - – amoxicillin systemic (*ATC* J01CA04)
  - – carindacillin oral (*ATC* J01CA05)
  - – bacampicillin oral (*ATC* J01CA06)
  - – epicillin systemic (*ATC* J01CA07)
  - – pivmecillinam oral (*ATC* J01CA08)
  - – azlocillin parenteral (*ATC* J01CA09)
  - – mezlocillin parenteral (*ATC* J01CA10)
  - – mecillinam parenteral (*ATC* J01CA11)
  - – piperacillin parenteral (*ATC* J01CA12)
  - – ticarcillin parenteral (*ATC* J01CA13)
  - – metampicillin systemic (*ATC* J01CA14)
  - – talampicillin oral (*ATC* J01CA15)
  - – sulbenicillin parenteral (*ATC* J01CA16)
  - – temocillin parenteral (*ATC* J01CA17)
  - – hetacillin oral (*ATC* J01CA18)
  - – benzylpenicillin parenteral (*ATC* J01CE01)
  - – phenoxymethylpenicillin oral (*ATC* J01CE02)
  - – propicillin oral (*ATC* J01CE03)
  - – azidocillin oral (*ATC* J01CE04)
  - – pheneticillin oral (*ATC* J01CE05)
  - – penamecillin oral (*ATC* J01CE06)
  - – clometocillin oral (*ATC* J01CE07)
  - – benzathine benzylpenicillin parenteral (*ATC* J01CE08)
  - – procaine benzylpenicillin parenteral (*ATC* J01CE09)
  - – benzathine phenoxymethylpenicillin oral (*ATC* J01CE10)
  - – dicloxacillin systemic (*ATC* J01CF01)
  - – cloxacillin systemic (*ATC* J01CF02)
  - – meticillin parenteral (*ATC* J01CF03)
  - – oxacillin systemic (*ATC* J01CF04)
  - – flucloxacillin systemic (*ATC* J01CF05)
  - – sulbactam parenteral (*ATC* J01CG01)
  - – tazobactam systemic (*ATC* J01CG02)

- – sultamicillin oral (*ATC* J01CR04)
- – aspoxicillin parenteral (*ATC* J01CA19)
- – nafcillin parenteral (*ATC* J01CF06)
- Terms of ATC group MACROLIDES LINCOSAMIDES AND STREPTOGRAMINS (*ATC* J01F)
  - – solithromycin systemic (*ATC* J01FA16)
  - – erythromycin systemic (*ATC* J01FA01)
  - – spiramycin oral (*ATC* J01FA02)
  - – midecamycin parenteral (*ATC* J01FA03)
  - – oleandomycin oral (*ATC* J01FA05)
  - – roxithromycin oral (*ATC* J01FA06)
  - – josamycin oral (*ATC* J01FA07)
  - – troleandomycin oral (*ATC* J01FA08)
  - – clarithromycin systemic (*ATC* J01FA09)
  - – azithromycin systemic (*ATC* J01FA10)
  - – miocamycin oral (*ATC* J01FA11)
  - – rokitamycin oral (*ATC* J01FA12)
  - – dirithromycin oral (*ATC* J01FA13)
  - – flurithromycin oral (*ATC* J01FA14)
  - – telithromycin oral (*ATC* J01FA15)
  - – clindamycin systemic (*ATC* J01FF01)
  - – lincomycin systemic (*ATC* J01FF02)
  - – pristinamycin oral (*ATC* J01FG01)
  - – quinupristin/dalfopristin parenteral (*ATC* J01FG02)
- Terms of ATC group OTHER ANTIBACTERIALS (*ATC* J01X)
  - – lefamulin (*ATC* J01XX12)
  - – tedizolid systemic (*ATC* J01XX11)
  - – vancomycin parenteral (*ATC* J01XA01)
  - – teicoplanin parenteral (*ATC* J01XA02)
  - – telavancin systemic (*ATC* J01XA03)
  - – dalbavancin parenteral (*ATC* J01XA04)
  - – oritavancin systemic (*ATC* J01XA05)
  - – colistin inhalant parenteral (*ATC* J01XB01)
  - – polymyxin B parenteral (*ATC* J01XB02)
  - – fusidic acid systemic (*ATC* J01XC01)
  - – metronidazole parenteral (*ATC* J01XD01)
  - – tinidazole parenteral (*ATC* J01XD02)
  - – ornidazole parenteral (*ATC* J01XD03)
  - – nitrofurantoin oral (*ATC* J01XE01)
  - – nifurtoinol oral (*ATC* J01XE02)
  - – fosfomycin systemic (*ATC* J01XX01)

- – xibornol systemic (*ATC* J01XX02)
- – clofoctol rectal (*ATC* J01XX03)
- – spectinomycin parenteral (*ATC* J01XX04)
- – methenamine oral (*ATC* J01XX05)
- – mandelic acid oral (*ATC* J01XX06)
- – nitroxoline oral (*ATC* J01XX07)
- – linezolid systemic (*ATC* J01XX08)
- – daptomycin parenteral (*ATC* J01XX09)
- – bacitracin systemic (*ATC* J01XX10)
- – furazidin oral (*ATC* J01XE03)
- Terms of ATC group OTHER BETA-LACTAM ANTIBACTERIALS (*ATC* J01D)
  - – cefteram systemic (*ATC* J01DD18)
  - – tebipenem pivoxil systemic (*ATC* J01DH06)
  - – cefalexin oral (*ATC* J01DB01)
  - – cefaloridine parenteral (*ATC* J01DB02)
  - – cefalotin parenteral (*ATC* J01DB03)
  - – cefazolin parenteral (*ATC* J01DB04)
  - – cefadroxil oral (*ATC* J01DB05)
  - – cefazedone parenteral (*ATC* J01DB06)
  - – cefatrizine oral (*ATC* J01DB07)
  - – cefapirin parenteral (*ATC* J01DB08)
  - – cefradine systemic (*ATC* J01DB09)
  - – cefacetrile systemic (*ATC* J01DB10)
  - – cefroxadine systemic (*ATC* J01DB11)
  - – ceftezole parenteral (*ATC* J01DB12)
  - – cefoxitin parenteral (*ATC* J01DC01)
  - – cefuroxime systemic (*ATC* J01DC02)
  - – cefamandole parenteral (*ATC* J01DC03)
  - – cefaclor oral (*ATC* J01DC04)
  - – cefotetan parenteral (*ATC* J01DC05)
  - – cefonicid parenteral (*ATC* J01DC06)
  - – cefotiam systemic (*ATC* J01DC07)
  - – loracarbef oral (*ATC* J01DC08)
  - – cefmetazole parenteral (*ATC* J01DC09)
  - – cefprozil oral (*ATC* J01DC10)
  - – ceforanide parenteral (*ATC* J01DC11)
  - – cefotaxime parenteral (*ATC* J01DD01)
  - – ceftazidime parenteral (*ATC* J01DD02)
  - – cefsulodin parenteral (*ATC* J01DD03)
  - – ceftriaxone parenteral (*ATC* J01DD04)

- cefmenoxime parenteral (*ATC* J01DD05)
- latamoxef parenteral (*ATC* J01DD06)
- ceftizoxime parenteral (*ATC* J01DD07)
- cefixime oral (*ATC* J01DD08)
- cefodizime parenteral (*ATC* J01DD09)
- cefetamet oral (*ATC* J01DD10)
- cefpiramide parenteral (*ATC* J01DD11)
- cefoperazone parenteral (*ATC* J01DD12)
- cefpodoxime oral (*ATC* J01DD13)
- ceftibuten oral (*ATC* J01DD14)
- cefdinir oral (*ATC* J01DD15)
- cefditoren oral (*ATC* J01DD16)
- cefcapene oral (*ATC* J01DD17)
- cefepime parenteral (*ATC* J01DE01)
- cefpirome parenteral (*ATC* J01DE02)
- cefozopran parenteral (*ATC* J01DE03)
- aztreonam inhalant parenteral (*ATC* J01DF01)
- meropenem parenteral (*ATC* J01DH02)
- ertapenem parenteral (*ATC* J01DH03)
- doripenem parenteral (*ATC* J01DH04)
- biapenem parenteral (*ATC* J01DH05)
- ceftobiprole medocaril parenteral (*ATC* J01DI01)
- cefminox parenteral (*ATC* J01DC12)
- cefbuperazone parenteral (*ATC* J01DC13)
- flomoxef parenteral (*ATC* J01DC14)
- carumonam parenteral (*ATC* J01DF02)
- ceftaroline fosamil parenteral (*ATC* J01DI02)
- faropenem systemic (*ATC* J01DI03)
- Terms of ATC group QUINOLONE ANTIBACTERIALS (*ATC* J01M)
  - tosufloxacin systemic (*ATC* J01MA22)
  - delafloxacin systemic (*ATC* J01MA23)
  - nemonoxacin systemic (*ATC* J01MB08)
  - ofloxacin systemic (*ATC* J01MA01)
  - ciprofloxacin systemic (*ATC* J01MA02)
  - pefloxacin systemic (*ATC* J01MA03)
  - enoxacin oral (*ATC* J01MA04)
  - temafloxacin oral (*ATC* J01MA05)
  - norfloxacin oral (*ATC* J01MA06)
  - lomefloxacin systemic (*ATC* J01MA07)
  - fleroxacin systemic (*ATC* J01MA08)

- – sparfloxacin oral (*ATC* J01MA09)
- – rufloxacin oral (*ATC* J01MA10)
- – grepafloxacin oral (*ATC* J01MA11)
- – levofloxacin systemic (*ATC* J01MA12)
- – trovafloxacin systemic (*ATC* J01MA13)
- – moxifloxacin systemic (*ATC* J01MA14)
- – gemifloxacin systemic (*ATC* J01MA15)
- – gatifloxacin systemic (*ATC* J01MA16)
- – prulifloxacin oral (*ATC* J01MA17)
- – pazufloxacin parenteral (*ATC* J01MA18)
- – garenoxacin systemic (*ATC* J01MA19)
- – rosoxacin oral (*ATC* J01MB01)
- – nalidixic acid oral (*ATC* J01MB02)
- – piromidic acid oral (*ATC* J01MB03)
- – pipemidic acid oral (*ATC* J01MB04)
- – oxolinic acid oral (*ATC* J01MB05)
- – cinoxacin oral (*ATC* J01MB06)
- – flumequine oral (*ATC* J01MB07)
- – sitafloxacin oral (*ATC* J01MA21)
- • Terms of ATC group SULFONAMIDES AND TRIMETHOPRIM (*ATC* J01E)
  - – trimethoprim systemic (*ATC* J01EA01)
  - – brodimoprim oral (*ATC* J01EA02)
  - – iclaprim systemic (*ATC* J01EA03)
  - – sulfaisodimidine systemic (*ATC* J01EB01)
  - – sulfamethizole oral (*ATC* J01EB02)
  - – sulfadimidine oral (*ATC* J01EB03)
  - – sulfapyridine oral (*ATC* J01EB04)
  - – sulfafurazole systemic (*ATC* J01EB05)
  - – sulfanilamide systemic (*ATC* J01EB06)
  - – sulfathiazole systemic (*ATC* J01EB07)
  - – sulfathiourea oral (*ATC* J01EB08)
  - – sulfamethoxazole oral (*ATC* J01EC01)
  - – sulfadiazine oral (*ATC* J01EC02)
  - – sulfamoxole systemic (*ATC* J01EC03)
  - – sulfadimethoxine oral (*ATC* J01ED01)
  - – sulfalene oral (*ATC* J01ED02)
  - – sulfametomidine systemic (*ATC* J01ED03)
  - – sulfametoxydiazine oral (*ATC* J01ED04)
  - – sulfamethoxypyridazine oral (*ATC* J01ED05)
  - – sulfaperin oral (*ATC* J01ED06)

- – sulfamerazine oral (*ATC* J01ED07)
- – sulfaphenazole oral (*ATC* J01ED08)
- – sulfamazone oral rectal (*ATC* J01ED09)
- Terms of ATC group TETRACYCLINES (*ATC* J01A)
  - – eravacycline systemic (*ATC* J01AA13)
  - – sarecycline oral (*ATC* J01AA14)
  - – omadacycline oral (*ATC* J01AA15)
  - – demeclocycline oral (*ATC* J01AA01)
  - – doxycycline systemic (*ATC* J01AA02)
  - – chlortetracycline oral (*ATC* J01AA03)
  - – lymecycline systemic (*ATC* J01AA04)
  - – metacycline oral (*ATC* J01AA05)
  - – oxytetracycline systemic (*ATC* J01AA06)
  - – tetracycline systemic (*ATC* J01AA07)
  - – minocycline systemic (*ATC* J01AA08)
  - – rolitetracycline parenteral (*ATC* J01AA09)
  - – penimepicycline systemic (*ATC* J01AA10)
  - – clomocycline oral (*ATC* J01AA11)
  - – tigecycline parenteral (*ATC* J01AA12)
- Terms of ATC group DRUGS FOR TREATMENT OF TUBERCULOSIS (*ATC* J04A)
  - – enviomycin systemic (*ATC* J04AB06)
  - – 4-aminosalicylic acid oral (*ATC* J04AA01)
  - – sodium aminosalicylate systemic (*ATC* J04AA02)
  - – calcium aminosalicylate systemic (*ATC* J04AA03)
  - – cycloserine oral (*ATC* J04AB01)
  - – rifampicin systemic (*ATC* J04AB02)
  - – rifamycin parenteral (*ATC* J04AB03)
  - – rifabutin oral (*ATC* J04AB04)
  - – rifapentine oral (*ATC* J04AB05)
  - – capreomycin parenteral (*ATC* J04AB30)
  - – isoniazid systemic (*ATC* J04AC01)
  - – protionamide oral (*ATC* J04AD01)
  - – tiocarlide oral (*ATC* J04AD02)
  - – ethionamide oral (*ATC* J04AD03)
  - – pyrazinamide oral (*ATC* J04AK01)
  - – ethambutol systemic (*ATC* J04AK02)
  - – terizidone systemic (*ATC* J04AK03)
  - – morinamide systemic (*ATC* J04AK04)
  - – bedaquiline oral (*ATC* J04AK05)
  - – delamanid systemic (*ATC* J04AK06)

- – thioacetazone systemic (*ATC* J04AK07)
- Terms of ATC group aciclovir systemic (*ATC* J05AB01)
  - – aciclovir systemic (*ATC* J05AB01)
- Terms of ATC group valaciclovir oral (*ATC* J05AB11)
  - – valaciclovir oral (*ATC* J05AB11)
- Terms of ATC group valganciclovir oral (*ATC* J05AB14)
  - – valganciclovir oral (*ATC* J05AB14)
- Terms of ATC group famciclovir oral (*ATC* J05AB09)
  - – famciclovir oral (*ATC* J05AB09)
- Terms of ATC group ganciclovir systemic (*ATC* J05AB06)
  - – ganciclovir systemic (*ATC* J05AB06)
- Terms of ATC group ANTIMYCOTICS FOR SYSTEMIC USE (*ATC* J02)
  - – isavuconazole systemic (*ATC* J02AC05)
  - – amphotericin B parenteral (*ATC* J02AA01)
  - – hachimycin systemic (*ATC* J02AA02)
  - – miconazole parenteral (*ATC* J02AB01)
  - – ketoconazole oral (*ATC* J02AB02)
  - – fluconazole systemic (*ATC* J02AC01)
  - – itraconazole systemic (*ATC* J02AC02)
  - – voriconazole systemic (*ATC* J02AC03)
  - – posaconazole systemic (*ATC* J02AC04)
  - – flucytosine systemic (*ATC* J02AX01)
  - – caspofungin parenteral (*ATC* J02AX04)
  - – micafungin parenteral (*ATC* J02AX05)
  - – anidulafungin parenteral (*ATC* J02AX06)
- Terms of ATC group montelukast oral (*ATC* R03DC03)
  - – montelukast oral (*ATC* R03DC03)
- Terms of ATC group ANTIHISTAMINES FOR SYSTEMIC USE (*ATC* R06A)
  - – bromazine systemic (*ATC* R06AA01)
  - – diphenhydramine oral rectal (*ATC* R06AA02)
  - – clemastine systemic (*ATC* R06AA04)
  - – chlorphenoxamine systemic (*ATC* R06AA06)
  - – diphenylpyraline oral (*ATC* R06AA07)
  - – carbinoxamine oral (*ATC* R06AA08)
  - – doxylamine oral (*ATC* R06AA09)
  - – brompheniramine oral (*ATC* R06AB01)
  - – dexchlorpheniramine systemic (*ATC* R06AB02)
  - – dimetindene oral (*ATC* R06AB03)
  - – chlorphenamine systemic (*ATC* R06AB04)
  - – pheniramine oral (*ATC* R06AB05)

- dexbrompheniramine systemic (*ATC* R06AB06)
- talastine systemic (*ATC* R06AB07)
- mepyramine systemic (*ATC* R06AC01)
- histapyrrodine oral (*ATC* R06AC02)
- chloropyramine systemic (*ATC* R06AC03)
- tripelennamine oral (*ATC* R06AC04)
- methapyrilene systemic (*ATC* R06AC05)
- thonzylamine systemic (*ATC* R06AC06)
- alimemazine systemic (*ATC* R06AD01)
- promethazine systemic rectal (*ATC* R06AD02)
- thiethylperazine systemic rectal (*ATC* R06AD03)
- methdilazine oral (*ATC* R06AD04)
- hydroxyethylpromethazine oral (*ATC* R06AD05)
- thiazinam oral rectal (*ATC* R06AD06)
- mequitazine oral (*ATC* R06AD07)
- oxomemazine oral (*ATC* R06AD08)
- isothipendyl systemic (*ATC* R06AD09)
- buclizine oral (*ATC* R06AE01)
- cyclizine systemic rectal (*ATC* R06AE03)
- chlorcyclizine oral (*ATC* R06AE04)
- meclozine oral rectal (*ATC* R06AE05)
- oxatomide oral (*ATC* R06AE06)
- cetirizine oral (*ATC* R06AE07)
- levocetirizine oral (*ATC* R06AE09)
- bamipine oral (*ATC* R06AX01)
- cyproheptadine oral (*ATC* R06AX02)
- thenalidine systemic (*ATC* R06AX03)
- phenindamine systemic (*ATC* R06AX04)
- antazoline systemic (*ATC* R06AX05)
- triprolidine oral (*ATC* R06AX07)
- pyrrobutamine systemic (*ATC* R06AX08)
- azatadine oral (*ATC* R06AX09)
- astemizole oral (*ATC* R06AX11)
- terfenadine oral (*ATC* R06AX12)
- loratadine oral (*ATC* R06AX13)
- mebhydrolin oral (*ATC* R06AX15)
- deptropine oral (*ATC* R06AX16)
- ketotifen oral (*ATC* R06AX17)
- acrivastine oral (*ATC* R06AX18)
- azelastine oral (*ATC* R06AX19)

- – tritoqualine systemic (*ATC* R06AX21)
- – ebastine oral (*ATC* R06AX22)
- – pimethixene systemic (*ATC* R06AX23)
- – epinastine systemic (*ATC* R06AX24)
- – mizolastine oral (*ATC* R06AX25)
- – fexofenadine oral (*ATC* R06AX26)
- – desloratadine oral (*ATC* R06AX27)
- – rupatadine oral (*ATC* R06AX28)
- – bilastine oral (*ATC* R06AX29)
- – quifenadine systemic (*ATC* R06AX31)
- – sequifenadine systemic (*ATC* R06AX32)
- – trimethobenzamide systemic (*ATC* R06AA10)
- Terms of ATC group ADRENERGICS FOR SYSTEMIC USE (*ATC* R03C)
  - – ephedrine oral (*ATC* R03CA02)
  - – isoprenaline oral (*ATC* R03CB01)
  - – methoxyphenamine oral (*ATC* R03CB02)
  - – orciprenaline systemic (*ATC* R03CB03)
  - – salbutamol systemic (*ATC* R03CC02)
  - – terbutaline systemic (*ATC* R03CC03)
  - – fenoterol oral rectal (*ATC* R03CC04)
  - – hexoprenaline systemic (*ATC* R03CC05)
  - – isoetarine oral (*ATC* R03CC06)
  - – pirbuterol oral (*ATC* R03CC07)
  - – procaterol oral (*ATC* R03CC08)
  - – tretoquinol systemic (*ATC* R03CC09)
  - – carbuterol oral (*ATC* R03CC10)
  - – tulobuterol oral (*ATC* R03CC11)
  - – bambuterol oral (*ATC* R03CC12)
  - – clenbuterol oral (*ATC* R03CC13)
  - – reproterol systemic (*ATC* R03CC14)
- Terms of ATC group ADRENERGICS FOR SYSTEMIC USE (*ATC* R03C)
  - – ephedrine oral (*ATC* R03CA02)
  - – isoprenaline oral (*ATC* R03CB01)
  - – methoxyphenamine oral (*ATC* R03CB02)
  - – orciprenaline systemic (*ATC* R03CB03)
  - – salbutamol systemic (*ATC* R03CC02)
  - – terbutaline systemic (*ATC* R03CC03)
  - – fenoterol oral rectal (*ATC* R03CC04)
  - – hexoprenaline systemic (*ATC* R03CC05)
  - – isoetarine oral (*ATC* R03CC06)

- – pirbuterol oral (*ATC* R03CC07)
- – procaterol oral (*ATC* R03CC08)
- – tretoquinol systemic (*ATC* R03CC09)
- – carbuterol oral (*ATC* R03CC10)
- – tulobuterol oral (*ATC* R03CC11)
- – bambuterol oral (*ATC* R03CC12)
- – clenbuterol oral (*ATC* R03CC13)
- – reproterol systemic (*ATC* R03CC14)
- Terms of ATC group alitretinoin oral (*ATC* D11AH04)
  - – alitretinoin oral (*ATC* D11AH04)
- Terms of ATC group abatacept parenteral (*ATC* L04AA24)
  - – abatacept parenteral (*ATC* L04AA24)
- Terms of ATC group alefacept (*ATC* L04AA15)
  - – alefacept (*ATC* L04AA15)
- Terms of ATC group alemtuzumab parenteral (*ATC* L04AA34)
  - – alemtuzumab parenteral (*ATC* L04AA34)
- Terms of ATC group apremilast oral (*ATC* L04AA32)
  - – apremilast oral (*ATC* L04AA32)
- Terms of ATC group baricitinib oral (*ATC* L04AA37)
  - – baricitinib oral (*ATC* L04AA37)
- Terms of ATC group belimumab parenteral (*ATC* L04AA26)
  - – belimumab parenteral (*ATC* L04AA26)
- Terms of ATC group efalizumab parenteral (*ATC* L04AA21)
  - – efalizumab parenteral (*ATC* L04AA21)
- Terms of ATC group fingolimod oral (*ATC* L04AA27)
  - – fingolimod oral (*ATC* L04AA27)
- Terms of ATC group leflunomide oral (*ATC* L04AA13)
  - – leflunomide oral (*ATC* L04AA13)
- Terms of ATC group mycophenolic acid systemic (*ATC* L04AA06)
  - – mycophenolic acid systemic (*ATC* L04AA06)
- Terms of ATC group natalizumab parenteral (*ATC* L04AA23)
  - – natalizumab parenteral (*ATC* L04AA23)
- Terms of ATC group ocrelizumab systemic (*ATC* L04AA36)
  - – ocrelizumab systemic (*ATC* L04AA36)
- Terms of ATC group ozanimod (*ATC* L04AA38)
  - – ozanimod (*ATC* L04AA38)
- Terms of ATC group ravulizumab (*ATC* L04AA43)
  - – ravulizumab (*ATC* L04AA43)
- Terms of ATC group siponimod (*ATC* L04AA42)
  - – siponimod (*ATC* L04AA42)

- Terms of ATC group teriflunomide oral (*ATC* L04AA31)
    - teriflunomide oral (*ATC* L04AA31)
- Terms of ATC group tofacitinib oral (*ATC* L04AA29)
    - tofacitinib oral (*ATC* L04AA29)
- Terms of ATC group upadacitinib (*ATC* L04AA44)
    - upadacitinib (*ATC* L04AA44)
- Terms of ATC group vedolizumab parenteral (*ATC* L04AA33)
    - vedolizumab parenteral (*ATC* L04AA33)
- Terms of ATC group LIPID MODIFYING AGENTS (*ATC* C10)
    - bempedoic acid (*ATC* C10AX15)
    - alirocumab parenteral (*ATC* C10AX14)
    - simvastatin oral (*ATC* C10AA01)
    - lovastatin oral (*ATC* C10AA02)
    - pravastatin oral (*ATC* C10AA03)
    - fluvastatin oral (*ATC* C10AA04)
    - atorvastatin oral (*ATC* C10AA05)
    - cerivastatin oral (*ATC* C10AA06)
    - rosuvastatin oral (*ATC* C10AA07)
    - pitavastatin oral (*ATC* C10AA08)
    - clofibrate oral (*ATC* C10AB01)
    - bezafibrate oral (*ATC* C10AB02)
    - aluminium clofibrate (*ATC* C10AB03)
    - gemfibrozil oral (*ATC* C10AB04)
    - fenofibrate oral (*ATC* C10AB05)
    - simfibrate (*ATC* C10AB06)
    - ronifibrate (*ATC* C10AB07)
    - ciprofibrate oral (*ATC* C10AB08)
    - etofibrate (*ATC* C10AB09)
    - clofibride (*ATC* C10AB10)
    - colestyramine oral (*ATC* C10AC01)
    - colestipol oral (*ATC* C10AC02)
    - colextran (*ATC* C10AC03)
    - colesevelam oral (*ATC* C10AC04)
    - niceritrol oral (*ATC* C10AD01)
    - nicotinic acid oral (*ATC* C10AD02)
    - nicofuranose (*ATC* C10AD03)
    - aluminium nicotinate (*ATC* C10AD04)
    - nicotinyl alcohol pyridylcarbinol oral (*ATC* C10AD05)
    - acipimox oral (*ATC* C10AD06)
    - dextrothyroxine oral (*ATC* C10AX01)

- probucol (*ATC* C10AX02)
- tiadenol (*ATC* C10AX03)
- meglutol (*ATC* C10AX05)
- magnesium pyridoxal 5-phosphate glutamate (*ATC* C10AX07)
- policosanol (*ATC* C10AX08)
- ezetimibe oral (*ATC* C10AX09)
- alipogene tiparvovec (*ATC* C10AX10)
- choline fenofibrate oral (*ATC* C10AB11)
- mipomersen (*ATC* C10AX11)
- lomitapide oral (*ATC* C10AX12)
- evolocumab parenteral (*ATC* C10AX13)

- Terms of ATC group ANTIPSYCHOTICS (*ATC* N05A)
    - pimavanserin (*ATC* N05AX17)
    - brexpiprazole oral (*ATC* N05AX16)
    - chlorpromazine systemic rectal (*ATC* N05AA01)
    - levomepromazine systemic (*ATC* N05AA02)
    - promazine systemic (*ATC* N05AA03)
    - acepromazine systemic (*ATC* N05AA04)
    - triflupromazine systemic (*ATC* N05AA05)
    - cyamemazine (*ATC* N05AA06)
    - chlorproethazine oral (*ATC* N05AA07)
    - dixyrazine systemic (*ATC* N05AB01)
    - fluphenazine systemic (*ATC* N05AB02)
    - perphenazine systemic rectal (*ATC* N05AB03)
    - prochlorperazine systemic rectal (*ATC* N05AB04)
    - thiopropazate oral (*ATC* N05AB05)
    - trifluoperazine systemic rectal (*ATC* N05AB06)
    - acetophenazine oral (*ATC* N05AB07)
    - thioproperazine systemic (*ATC* N05AB08)
    - butaperazine oral (*ATC* N05AB09)
    - perazine systemic (*ATC* N05AB10)
    - periciazine systemic (*ATC* N05AC01)
    - thioridazine oral (*ATC* N05AC02)
    - mesoridazine systemic (*ATC* N05AC03)
    - pipotiazine systemic (*ATC* N05AC04)
    - haloperidol systemic (*ATC* N05AD01)
    - trifluperidol oral (*ATC* N05AD02)
    - melperone systemic (*ATC* N05AD03)
    - moperone systemic (*ATC* N05AD04)
    - pipamperone oral (*ATC* N05AD05)

- – bromperidol systemic (*ATC* N05AD06)
- – benperidol oral (*ATC* N05AD07)
- – droperidol parenteral (*ATC* N05AD08)
- – fluanisone (*ATC* N05AD09)
- – oxypertine oral (*ATC* N05AE01)
- – molindone oral (*ATC* N05AE02)
- – sertindole oral (*ATC* N05AE03)
- – ziprasidone systemic (*ATC* N05AE04)
- – flupentixol systemic (*ATC* N05AF01)
- – clopenthixol systemic (*ATC* N05AF02)
- – chlorprothixene systemic (*ATC* N05AF03)
- – tiotixene oral (*ATC* N05AF04)
- – zuclopenthixol systemic (*ATC* N05AF05)
- – fluspirilene parenteral (*ATC* N05AG01)
- – pimozide oral (*ATC* N05AG02)
- – penfluridol oral (*ATC* N05AG03)
- – loxapine inhalant oral (*ATC* N05AH01)
- – clozapine systemic (*ATC* N05AH02)
- – olanzapine systemic (*ATC* N05AH03)
- – quetiapine oral (*ATC* N05AH04)
- – asenapine oral (*ATC* N05AH05)
- – clotiapine systemic (*ATC* N05AH06)
- – sulpiride systemic (*ATC* N05AL01)
- – sultopride oral (*ATC* N05AL02)
- – tiapride systemic (*ATC* N05AL03)
- – remoxipride systemic (*ATC* N05AL04)
- – amisulpride oral (*ATC* N05AL05)
- – veralipride (*ATC* N05AL06)
- – levosulpiride oral (*ATC* N05AL07)
- – lithium oral (*ATC* N05AN01)
- – prothipendyl systemic (*ATC* N05AX07)
- – risperidone systemic (*ATC* N05AX08)
- – mosapramine (*ATC* N05AX10)
- – zotepine oral (*ATC* N05AX11)
- – aripiprazole systemic (*ATC* N05AX12)
- – paliperidone systemic (*ATC* N05AX13)
- – iloperidone oral (*ATC* N05AX14)
- – lurasidone oral (*ATC* N05AE05)
- – cariprazine oral (*ATC* N05AX15)
- • Terms of ATC group ANXIOLYTICS (*ATC* N05B)

- – bentazepam oral (*ATC* N05BA24)
- – Lavandulae aetheroleum (*ATC* N05BX05)
- – diazepam systemic rectal (*ATC* N05BA01)
- – chlordiazepoxide systemic (*ATC* N05BA02)
- – medazepam oral (*ATC* N05BA03)
- – oxazepam oral (*ATC* N05BA04)
- – potassium clorazepate oral (*ATC* N05BA05)
- – lorazepam systemic sublingual (*ATC* N05BA06)
- – adinazolam oral (*ATC* N05BA07)
- – bromazepam oral (*ATC* N05BA08)
- – clobazam oral (*ATC* N05BA09)
- – ketazolam (*ATC* N05BA10)
- – prazepam oral (*ATC* N05BA11)
- – alprazolam oral (*ATC* N05BA12)
- – halazepam oral (*ATC* N05BA13)
- – pinazepam systemic (*ATC* N05BA14)
- – camazepam oral (*ATC* N05BA15)
- – nordazepam oral (*ATC* N05BA16)
- – fludiazepam oral (*ATC* N05BA17)
- – ethyl loflazepate oral (*ATC* N05BA18)
- – etizolam (*ATC* N05BA19)
- – clotiazepam (*ATC* N05BA21)
- – cloxazolam (*ATC* N05BA22)
- – tofisopam (*ATC* N05BA23)
- – hydroxyzine systemic (*ATC* N05BB01)
- – captodiame oral (*ATC* N05BB02)
- – meprobamate oral (*ATC* N05BC01)
- – emylcamate oral (*ATC* N05BC03)
- – mebutamate (*ATC* N05BC04)
- – benzoctamine systemic (*ATC* N05BD01)
- – buspirone oral (*ATC* N05BE01)
- – mephenoxalone oral (*ATC* N05BX01)
- – gedocarnil (*ATC* N05BX02)
- – etifoxine (*ATC* N05BX03)
- – fabomotizole oral (*ATC* N05BX04)
- Terms of ATC group HYPNOTICS AND SEDATIVES (*ATC* N05C)
  - – remimazolam (*ATC* N05CD14)
  - – suvorexant (*ATC* N05CM19)
  - – tasimelteon (*ATC* N05CH03)
  - – pentobarbital systemic rectal (*ATC* N05CA01)

– amobarbital systemic (*ATC* N05CA02)

– butobarbital oral (*ATC* N05CA03)

– barbital oral (*ATC* N05CA04)

– aprobarbital systemic (*ATC* N05CA05)

– secobarbital oral (*ATC* N05CA06)

– talbutal oral (*ATC* N05CA07)

– vinylbital oral (*ATC* N05CA08)

– vinbarbital oral (*ATC* N05CA09)

– cyclobarbital oral (*ATC* N05CA10)

– heptabarbital oral (*ATC* N05CA11)

– reposal oral (*ATC* N05CA12)

– methohexital (*ATC* N05CA15)

– hexobarbital oral (*ATC* N05CA16)

– thiopental (*ATC* N05CA19)

– etallobarbital (*ATC* N05CA20)

– allobarbital (*ATC* N05CA21)

– proxibarbal (*ATC* N05CA22)

– chloral hydrate oral rectal (*ATC* N05CC01)

– chloralodol oral (*ATC* N05CC02)

– acetylglycinamide chloral hydrate oral (*ATC* N05CC03)

– dichloralphenazone oral (*ATC* N05CC04)

– paraldehyde systemic rectal (*ATC* N05CC05)

– flurazepam oral (*ATC* N05CD01)

– nitrazepam oral (*ATC* N05CD02)

– flunitrazepam systemic (*ATC* N05CD03)

– estazolam oral (*ATC* N05CD04)

– triazolam oral sublingual (*ATC* N05CD05)

– lormetazepam oral (*ATC* N05CD06)

– temazepam oral (*ATC* N05CD07)

– midazolam systemic (*ATC* N05CD08)

– brotizolam oral (*ATC* N05CD09)

– quazepam oral (*ATC* N05CD10)

– loprazolam oral (*ATC* N05CD11)

– doxefazepam (*ATC* N05CD12)

– cinolazepam (*ATC* N05CD13)

– glutethimide oral (*ATC* N05CE01)

– methyprylon oral (*ATC* N05CE02)

– pyrithyldione oral (*ATC* N05CE03)

– zopiclone oral (*ATC* N05CF01)

– zolpidem oral (*ATC* N05CF02)

- zaleplon oral (*ATC* N05CF03)
- eszopiclone (*ATC* N05CF04)
- melatonin oral (*ATC* N05CH01)
- ramelteon systemic (*ATC* N05CH02)
- methaqualone oral (*ATC* N05CM01)
- clomethiazole systemic (*ATC* N05CM02)
- bromisoval oral (*ATC* N05CM03)
- carbromal oral (*ATC* N05CM04)
- scopolamine systemic (*ATC* N05CM05)
- propiomazine oral (*ATC* N05CM06)
- triclofos oral (*ATC* N05CM07)
- ethchlorvynol oral (*ATC* N05CM08)
- Valerianae radix (*ATC* N05CM09)
- hexapropymate oral (*ATC* N05CM10)
- bromides (*ATC* N05CM11)
- apronal oral (*ATC* N05CM12)
- valnoctamide oral (*ATC* N05CM13)
- methylpentynol (*ATC* N05CM15)
- niaprazine (*ATC* N05CM16)
- dexmedetomidine parenteral (*ATC* N05CM18)

- Terms of ATC group PSYCHOSTIMULANTS AGENTS USED FOR ADHD AND NOOTROPICS (*ATC* N06B)
  - solriamfetol oral (*ATC* N06BA14)
  - armodafinil oral (*ATC* N06BA13)
  - amfetamine systemic (*ATC* N06BA01)
  - dexamfetamine oral (*ATC* N06BA02)
  - metamfetamine oral (*ATC* N06BA03)
  - methylphenidate oral (*ATC* N06BA04)
  - pemoline oral (*ATC* N06BA05)
  - fencamfamin (*ATC* N06BA06)
  - modafinil oral (*ATC* N06BA07)
  - fenozolone (*ATC* N06BA08)
  - atomoxetine oral (*ATC* N06BA09)
  - fenetylline (*ATC* N06BA10)
  - dexmethylphenidate oral (*ATC* N06BA11)
  - caffeine systemic (*ATC* N06BC01)
  - propentofylline (*ATC* N06BC02)
  - meclofenoxate (*ATC* N06BX01)
  - pyritinol oral (*ATC* N06BX02)
  - piracetam systemic (*ATC* N06BX03)

- deanol (*ATC* N06BX04)
- fipexide (*ATC* N06BX05)
- citicoline (*ATC* N06BX06)
- oxiracetam (*ATC* N06BX07)
- pirisudanol (*ATC* N06BX08)
- linopirdine (*ATC* N06BX09)
- nizofenone (*ATC* N06BX10)
- aniracetam (*ATC* N06BX11)
- acetylcarnitine (*ATC* N06BX12)
- idebenone oral (*ATC* N06BX13)
- prolintane (*ATC* N06BX14)
- pipradrol oral (*ATC* N06BX15)
- pramiracetam (*ATC* N06BX16)
- adrafinil (*ATC* N06BX17)
- vinpocetine oral (*ATC* N06BX18)
- lisdexamfetamine oral (*ATC* N06BA12)
- tetramethylglycoluril (*ATC* N06BX21)
- phenibut (*ATC* N06BX22)
- Terms of ATC group ANTIDEPRESSANTS (*ATC* N06A)
  - esketamine (*ATC* N06AX27)
  - desipramine oral (*ATC* N06AA01)
  - imipramine systemic (*ATC* N06AA02)
  - imipramine oxide oral (*ATC* N06AA03)
  - clomipramine systemic (*ATC* N06AA04)
  - opipramol oral (*ATC* N06AA05)
  - trimipramine systemic (*ATC* N06AA06)
  - lofepramine oral (*ATC* N06AA07)
  - dibenzepin oral (*ATC* N06AA08)
  - amitriptyline systemic (*ATC* N06AA09)
  - nortriptyline systemic (*ATC* N06AA10)
  - protriptyline oral (*ATC* N06AA11)
  - doxepin systemic (*ATC* N06AA12)
  - iprindole oral (*ATC* N06AA13)
  - melitracen systemic (*ATC* N06AA14)
  - butriptyline oral (*ATC* N06AA15)
  - dosulepin oral (*ATC* N06AA16)
  - amoxapine oral (*ATC* N06AA17)
  - dimetacrine oral (*ATC* N06AA18)
  - amineptine (*ATC* N06AA19)
  - maprotiline systemic (*ATC* N06AA21)

- quinupramine (*ATC* N06AA23)
- zimeldine oral (*ATC* N06AB02)
- fluoxetine oral (*ATC* N06AB03)
- citalopram systemic (*ATC* N06AB04)
- paroxetine oral (*ATC* N06AB05)
- sertraline oral (*ATC* N06AB06)
- alaproclate (*ATC* N06AB07)
- fluvoxamine oral (*ATC* N06AB08)
- etoperidone (*ATC* N06AB09)
- escitalopram oral (*ATC* N06AB10)
- isocarboxazid oral (*ATC* N06AF01)
- nialamide oral (*ATC* N06AF02)
- phenelzine oral (*ATC* N06AF03)
- tranylcypromine oral (*ATC* N06AF04)
- iproniazide (*ATC* N06AF05)
- iproclozide (*ATC* N06AF06)
- moclobemide oral (*ATC* N06AG02)
- toloxatone (*ATC* N06AG03)
- oxitriptan (*ATC* N06AX01)
- tryptophan (*ATC* N06AX02)
- mianserin oral (*ATC* N06AX03)
- nomifensine oral (*ATC* N06AX04)
- trazodone oral (*ATC* N06AX05)
- nefazodone oral (*ATC* N06AX06)
- minaprine oral (*ATC* N06AX07)
- bifemelane (*ATC* N06AX08)
- viloxazine oral (*ATC* N06AX09)
- oxaflozane (*ATC* N06AX10)
- mirtazapine oral (*ATC* N06AX11)
- bupropion oral (*ATC* N06AX12)
- medifoxamine (*ATC* N06AX13)
- tianeptine oral (*ATC* N06AX14)
- pivagabine (*ATC* N06AX15)
- venlafaxine oral (*ATC* N06AX16)
- milnacipran oral (*ATC* N06AX17)
- reboxetine oral (*ATC* N06AX18)
- gepirone (*ATC* N06AX19)
- duloxetine oral (*ATC* N06AX21)
- agomelatine oral (*ATC* N06AX22)
- desvenlafaxine oral (*ATC* N06AX23)

- – vilazodone (*ATC* N06AX24)
- – Hyperici herba (*ATC* N06AX25)
- – vortioxetine oral (*ATC* N06AX26)
- Terms of ATC group BETA BLOCKING AGENTS (*ATC* C07A)
  - – landiolol (*ATC* C07AB14)
  - – alprenolol systemic (*ATC* C07AA01)
  - – oxprenolol systemic (*ATC* C07AA02)
  - – pindolol systemic (*ATC* C07AA03)
  - – propranolol systemic (*ATC* C07AA05)
  - – timolol systemic (*ATC* C07AA06)
  - – sotalol systemic (*ATC* C07AA07)
  - – nadolol oral (*ATC* C07AA12)
  - – mepindolol oral (*ATC* C07AA14)
  - – carteolol oral (*ATC* C07AA15)
  - – tertatolol oral (*ATC* C07AA16)
  - – bopindolol (*ATC* C07AA17)
  - – bupranolol (*ATC* C07AA19)
  - – penbutolol oral (*ATC* C07AA23)
  - – cloranolol (*ATC* C07AA27)
  - – practolol systemic (*ATC* C07AB01)
  - – metoprolol systemic (*ATC* C07AB02)
  - – atenolol systemic (*ATC* C07AB03)
  - – acebutolol systemic (*ATC* C07AB04)
  - – betaxolol oral (*ATC* C07AB05)
  - – bevantolol oral (*ATC* C07AB06)
  - – bisoprolol oral (*ATC* C07AB07)
  - – celiprolol oral (*ATC* C07AB08)
  - – esmolol parenteral (*ATC* C07AB09)
  - – epanolol oral (*ATC* C07AB10)
  - – s-atenolol oral (*ATC* C07AB11)
  - – nebivolol oral (*ATC* C07AB12)
  - – talinolol oral (*ATC* C07AB13)
  - – labetalol systemic (*ATC* C07AG01)
  - – carvedilol oral (*ATC* C07AG02)
- Terms of ATC group ANTIHYPERTENSIVES (*ATC* C02)
  - – rescinnamine (*ATC* C02AA01)
  - – reserpine systemic (*ATC* C02AA02)
  - – rauwolfia alkaloids whole root (*ATC* C02AA04)
  - – deserpidine (*ATC* C02AA05)
  - – methoserpidine (*ATC* C02AA06)

- – bietaserpine oral (*ATC* C02AA07)
- – methyldopa levorotatory systemic (*ATC* C02AB01)
- – methyldopa racemic oral (*ATC* C02AB02)
- – clonidine systemic (*ATC* C02AC01)
- – guanfacine oral (*ATC* C02AC02)
- – tolonidine oral (*ATC* C02AC04)
- – moxonidine oral (*ATC* C02AC05)
- – rilmenidine (*ATC* C02AC06)
- – trimetaphan parenteral (*ATC* C02BA01)
- – mecamylamine (*ATC* C02BB01)
- – prazosin oral (*ATC* C02CA01)
- – indoramin (*ATC* C02CA02)
- – trimazosin oral (*ATC* C02CA03)
- – doxazosin oral (*ATC* C02CA04)
- – urapidil systemic (*ATC* C02CA06)
- – betanidine oral (*ATC* C02CC01)
- – guanethidine oral (*ATC* C02CC02)
- – guanoxan oral (*ATC* C02CC03)
- – debrisoquine oral (*ATC* C02CC04)
- – guanoclor (*ATC* C02CC05)
- – guanazodine (*ATC* C02CC06)
- – guanoxabenz oral (*ATC* C02CC07)
- – diazoxide parenteral (*ATC* C02DA01)
- – dihydralazine systemic (*ATC* C02DB01)
- – hydralazine oral (*ATC* C02DB02)
- – endralazine oral (*ATC* C02DB03)
- – cadralazine oral (*ATC* C02DB04)
- – minoxidil oral (*ATC* C02DC01)
- – nitroprusside parenteral (*ATC* C02DD01)
- – pinacidil oral (*ATC* C02DG01)
- – veratrum (*ATC* C02KA01)
- – metirosine (*ATC* C02KB01)
- – pargyline (*ATC* C02KC01)
- – ketanserin systemic (*ATC* C02KD01)
- – bosentan oral (*ATC* C02KX01)
- – ambrisentan oral (*ATC* C02KX02)
- – sitaxentan oral (*ATC* C02KX03)
- – macitentan oral (*ATC* C02KX04)
- – riociguat oral (*ATC* C02KX05)
- • Terms of ATC group VASODILATORS USED IN CARDIAC DISEASES (*ATC* C01D)

- glyceryl trinitrate oral oral aerosol sublingual transdermal (*ATC* C01DA02)
- methylpropylpropanediol dinitrate (*ATC* C01DA04)
- pentaerithrityl tetranitrate oral (*ATC* C01DA05)
- propatylnitrate oral (*ATC* C01DA07)
- isosorbide dinitrate oral oral aerosol sublingual transdermal (*ATC* C01DA08)
- trolnitrate oral (*ATC* C01DA09)
- eritrityl tetranitrate oral (*ATC* C01DA13)
- isosorbide mononitrate oral (*ATC* C01DA14)
- tenitramine (*ATC* C01DA38)
- flosequinan (*ATC* C01DB01)
- itramin tosilate (*ATC* C01DX01)
- prenylamine oral (*ATC* C01DX02)
- oxyfedrine systemic (*ATC* C01DX03)
- benziodarone oral (*ATC* C01DX04)
- carbocromen (*ATC* C01DX05)
- hexobendine (*ATC* C01DX06)
- etafenone oral (*ATC* C01DX07)
- heptaminol systemic (*ATC* C01DX08)
- imolamine oral (*ATC* C01DX09)
- dilazep oral (*ATC* C01DX10)
- trapidil (*ATC* C01DX11)
- molsidomine (*ATC* C01DX12)
- efloxate oral (*ATC* C01DX13)
- cinepazet oral (*ATC* C01DX14)
- cloridarol (*ATC* C01DX15)
- nicorandil oral (*ATC* C01DX16)
- linsidomine (*ATC* C01DX18)
- nesiritide parenteral (*ATC* C01DX19)
- serelaxin (*ATC* C01DX21)
- Terms of ATC group CALCIUM CHANNEL BLOCKERS (*ATC* C08)
  - amlodipine oral (*ATC* C08CA01)
  - felodipine oral (*ATC* C08CA02)
  - isradipine systemic (*ATC* C08CA03)
  - nicardipine systemic (*ATC* C08CA04)
  - nifedipine systemic (*ATC* C08CA05)
  - nimodipine systemic (*ATC* C08CA06)
  - nisoldipine oral (*ATC* C08CA07)
  - nitrendipine oral (*ATC* C08CA08)
  - lacidipine oral (*ATC* C08CA09)
  - nilvadipine oral (*ATC* C08CA10)

- – manidipine oral (*ATC* C08CA11)
- – barnidipine oral (*ATC* C08CA12)
- – lercanidipine oral (*ATC* C08CA13)
- – cilnidipine oral (*ATC* C08CA14)
- – benidipine (*ATC* C08CA15)
- – mibefradil oral (*ATC* C08CX01)
- – verapamil systemic (*ATC* C08DA01)
- – gallopamil (*ATC* C08DA02)
- – diltiazem oral (*ATC* C08DB01)
- – fendiline (*ATC* C08EA01)
- – bepridil oral (*ATC* C08EA02)
- – lidoflazine oral (*ATC* C08EX01)
- – perhexiline (*ATC* C08EX02)
- – clevidipine (*ATC* C08CA16)
- Terms of ATC group DIURETICS (*ATC* C03)
  - – bendroflumethiazide oral (*ATC* C03AA01)
  - – hydroflumethiazide oral (*ATC* C03AA02)
  - – hydrochlorothiazide oral (*ATC* C03AA03)
  - – chlorothiazide oral (*ATC* C03AA04)
  - – polythiazide oral (*ATC* C03AA05)
  - – trichlormethiazide oral (*ATC* C03AA06)
  - – cyclopenthiazide oral (*ATC* C03AA07)
  - – methyclothiazide oral (*ATC* C03AA08)
  - – cyclothiazide oral (*ATC* C03AA09)
  - – mebutizide (*ATC* C03AA13)
  - – quinethazone oral (*ATC* C03BA02)
  - – clopamide oral (*ATC* C03BA03)
  - – chlortalidone oral (*ATC* C03BA04)
  - – mefruside oral (*ATC* C03BA05)
  - – clofenamide oral (*ATC* C03BA07)
  - – metolazone oral (*ATC* C03BA08)
  - – meticrane (*ATC* C03BA09)
  - – xipamide oral (*ATC* C03BA10)
  - – indapamide oral (*ATC* C03BA11)
  - – clorexolone (*ATC* C03BA12)
  - – fenquizone (*ATC* C03BA13)
  - – mersalyl (*ATC* C03BC01)
  - – theobromine oral (*ATC* C03BD01)
  - – cicletanine (*ATC* C03BX03)
  - – furosemide systemic (*ATC* C03CA01)

- – bumetanide systemic (*ATC* C03CA02)
- – piretanide (*ATC* C03CA03)
- – torasemide systemic (*ATC* C03CA04)
- – etacrynic acid systemic (*ATC* C03CC01)
- – tienilic acid (*ATC* C03CC02)
- – muzolimine oral (*ATC* C03CD01)
- – etozolin (*ATC* C03CX01)
- – spironolactone oral (*ATC* C03DA01)
- – potassium canrenoate parenteral (*ATC* C03DA02)
- – canrenone (*ATC* C03DA03)
- – eplerenone oral (*ATC* C03DA04)
- – amiloride oral (*ATC* C03DB01)
- – triamterene oral (*ATC* C03DB02)
- – tolvaptan oral (*ATC* C03XA01)
- – conivaptan (*ATC* C03XA02)
- Terms of ATC group AGENTS ACTING ON THE RENIN-ANGIOTENSIN SYSTEM (*ATC* C09)
  - – captopril oral (*ATC* C09AA01)
  - – enalapril systemic (*ATC* C09AA02)
  - – lisinopril oral (*ATC* C09AA03)
  - – perindopril oral (*ATC* C09AA04)
  - – ramipril oral (*ATC* C09AA05)
  - – quinapril systemic (*ATC* C09AA06)
  - – benazepril oral (*ATC* C09AA07)
  - – cilazapril oral (*ATC* C09AA08)
  - – fosinopril oral (*ATC* C09AA09)
  - – trandolapril oral (*ATC* C09AA10)
  - – spirapril oral (*ATC* C09AA11)
  - – delapril oral (*ATC* C09AA12)
  - – moexipril oral (*ATC* C09AA13)
  - – temocapril oral (*ATC* C09AA14)
  - – zofenopril oral (*ATC* C09AA15)
  - – imidapril oral (*ATC* C09AA16)
  - – losartan oral (*ATC* C09CA01)
  - – eprosartan oral (*ATC* C09CA02)
  - – valsartan oral (*ATC* C09CA03)
  - – irbesartan oral (*ATC* C09CA04)
  - – tasosartan (*ATC* C09CA05)
  - – candesartan oral (*ATC* C09CA06)
  - – telmisartan oral (*ATC* C09CA07)
  - – olmesartan medoxomil oral (*ATC* C09CA08)

- – remikiren (*ATC* C09XA01)
- – aliskiren oral (*ATC* C09XA02)
- – azilsartan medoxomil oral (*ATC* C09CA09)
- – fimasartan oral (*ATC* C09CA10)
- Terms of ATC group acetylsalicylic acid oral (*ATC* B01AC06)
  - – acetylsalicylic acid oral (*ATC* B01AC06)
- Terms of ATC group cangrelor parenteral (*ATC* B01AC25)
  - – cangrelor parenteral (*ATC* B01AC25)
- Terms of ATC group clopidogrel oral (*ATC* B01AC04)
  - – clopidogrel oral (*ATC* B01AC04)
- Terms of ATC group dipyridamole systemic (*ATC* B01AC07)
  - – dipyridamole systemic (*ATC* B01AC07)
- Terms of ATC group prasugrel oral (*ATC* B01AC22)
  - – prasugrel oral (*ATC* B01AC22)
- Terms of ATC group ticagrelor oral (*ATC* B01AC24)
  - – ticagrelor oral (*ATC* B01AC24)
- Terms of ATC group apixaban oral (*ATC* B01AF02)
  - – apixaban oral (*ATC* B01AF02)
- Terms of ATC group betrixaban (*ATC* B01AF04)
  - – betrixaban (*ATC* B01AF04)
- Terms of ATC group edoxaban oral (*ATC* B01AF03)
  - – edoxaban oral (*ATC* B01AF03)
- Terms of ATC group rivaroxaban oral (*ATC* B01AF01)
  - – rivaroxaban oral (*ATC* B01AF01)
- Terms of ATC group dabigatran etexilate oral (*ATC* B01AE07)
  - – dabigatran etexilate oral (*ATC* B01AE07)
- Terms of ATC group warfarin systemic (*ATC* B01AA03)
  - – warfarin systemic (*ATC* B01AA03)
- Terms of ATC group DRUGS USED IN DIABETES (*ATC* A10)
  - – ipragliflozin (*ATC* A10BK05)
  - – sotagliflozin (*ATC* A10BK06)
  - – ertugliflozin oral (*ATC* A10BK04)
  - – lixisenatide parenteral (*ATC* A10BJ03)
  - – dulaglutide parenteral (*ATC* A10BJ05)
  - – liraglutide parenteral (*ATC* A10BJ02)
  - – exenatide parenteral (*ATC* A10BJ01)
  - – canagliflozin oral (*ATC* A10BK02)
  - – albiglutide parenteral (*ATC* A10BJ04)
  - – empagliflozin oral (*ATC* A10BK03)
  - – dapagliflozin oral (*ATC* A10BK01)

- semaglutide systemic (*ATC* A10BJ06)
- evogliptin oral (*ATC* A10BH07)
- insulin human parenteral (*ATC* A10AB01)
- insulin beef parenteral (*ATC* A10AB02)
- insulin pork parenteral (*ATC* A10AB03)
- insulin lispro parenteral (*ATC* A10AB04)
- insulin aspart parenteral (*ATC* A10AB05)
- insulin glulisine parenteral (*ATC* A10AB06)
- insulin human parenteral (*ATC* A10AC01)
- insulin beef parenteral (*ATC* A10AC02)
- insulin pork parenteral (*ATC* A10AC03)
- insulin lispro parenteral (*ATC* A10AC04)
- insulin human parenteral (*ATC* A10AD01)
- insulin beef parenteral (*ATC* A10AD02)
- insulin pork parenteral (*ATC* A10AD03)
- insulin lispro parenteral (*ATC* A10AD04)
- insulin aspart parenteral (*ATC* A10AD05)
- insulin human parenteral (*ATC* A10AE01)
- insulin beef parenteral (*ATC* A10AE02)
- insulin pork parenteral (*ATC* A10AE03)
- insulin glargine parenteral (*ATC* A10AE04)
- insulin detemir parenteral (*ATC* A10AE05)
- insulin human inhalant (*ATC* A10AF01)
- phenformin oral (*ATC* A10BA01)
- metformin oral (*ATC* A10BA02)
- buformin oral (*ATC* A10BA03)
- glibenclamide oral (*ATC* A10BB01)
- chlorpropamide oral (*ATC* A10BB02)
- tolbutamide oral (*ATC* A10BB03)
- glibornuride oral (*ATC* A10BB04)
- tolazamide oral (*ATC* A10BB05)
- carbutamide oral (*ATC* A10BB06)
- glipizide oral (*ATC* A10BB07)
- gliquidone oral (*ATC* A10BB08)
- gliclazide oral (*ATC* A10BB09)
- metahexamide (*ATC* A10BB10)
- glisoxepide (*ATC* A10BB11)
- glimepiride oral (*ATC* A10BB12)
- acetohexamide oral (*ATC* A10BB31)
- glymidine oral (*ATC* A10BC01)

- acarbose oral (*ATC* A10BF01)
- miglitol oral (*ATC* A10BF02)
- voglibose oral (*ATC* A10BF03)
- troglitazone oral (*ATC* A10BG01)
- rosiglitazone oral (*ATC* A10BG02)
- pioglitazone oral (*ATC* A10BG03)
- sitagliptin oral (*ATC* A10BH01)
- vildagliptin oral (*ATC* A10BH02)
- saxagliptin oral (*ATC* A10BH03)
- alogliptin oral (*ATC* A10BH04)
- guar gum (*ATC* A10BX01)
- repaglinide oral (*ATC* A10BX02)
- nateglinide oral (*ATC* A10BX03)
- pramlintide (*ATC* A10BX05)
- benfluorex oral (*ATC* A10BX06)
- mitiglinide oral (*ATC* A10BX08)
- tolrestat (*ATC* A10XA01)
- linagliptin oral (*ATC* A10BH05)
- insulin degludec parenteral (*ATC* A10AE06)
- gemigliptin oral (*ATC* A10BH06)

- Terms of ATC group Alpha glucosidase inhibitors (*ATC* A10BF)
  - acarbose oral (*ATC* A10BF01)
  - miglitol oral (*ATC* A10BF02)
  - voglibose oral (*ATC* A10BF03)
- Terms of ATC group Biguanides (*ATC* A10BA)
  - phenformin oral (*ATC* A10BA01)
  - metformin oral (*ATC* A10BA02)
  - buformin oral (*ATC* A10BA03)
- Terms of ATC group Dipeptidyl peptidase 4 DPP-4 inhibitors (*ATC* A10BH)
  - evogliptin oral (*ATC* A10BH07)
  - sitagliptin oral (*ATC* A10BH01)
  - vildagliptin oral (*ATC* A10BH02)
  - saxagliptin oral (*ATC* A10BH03)
  - alogliptin oral (*ATC* A10BH04)
  - linagliptin oral (*ATC* A10BH05)
  - gemigliptin oral (*ATC* A10BH06)
- Terms of ATC group Glucagon-like peptide-1 GLP-1 analogues (*ATC* A10BJ)
  - lixisenatide parenteral (*ATC* A10BJ03)
  - dulaglutide parenteral (*ATC* A10BJ05)
  - liraglutide parenteral (*ATC* A10BJ02)

- – exenatide parenteral (*ATC* A10BJ01)
- – albiglutide parenteral (*ATC* A10BJ04)
- – semaglutide systemic (*ATC* A10BJ06)
- Terms of ATC group Other blood glucose lowering drugs excl. insulins (*ATC* A10BX)
  - – guar gum (*ATC* A10BX01)
  - – repaglinide oral (*ATC* A10BX02)
  - – nateglinide oral (*ATC* A10BX03)
  - – pramlintide (*ATC* A10BX05)
  - – benfluorex oral (*ATC* A10BX06)
  - – mitiglinide oral (*ATC* A10BX08)
- Terms of ATC group Sodium-glucose co-transporter 2 SGLT2 inhibitors (*ATC* A10BK)
  - – ipragliflozin (*ATC* A10BK05)
  - – sotagliflozin (*ATC* A10BK06)
  - – ertugliflozin oral (*ATC* A10BK04)
  - – canagliflozin oral (*ATC* A10BK02)
  - – empagliflozin oral (*ATC* A10BK03)
  - – dapagliflozin oral (*ATC* A10BK01)
- Terms of ATC group Sulfonamides heterocyclic (*ATC* A10BC)
  - – glymidine oral (*ATC* A10BC01)
- Terms of ATC group Sulfonylureas (*ATC* A10BB)
  - – glibenclamide oral (*ATC* A10BB01)
  - – chlorpropamide oral (*ATC* A10BB02)
  - – tolbutamide oral (*ATC* A10BB03)
  - – glibornuride oral (*ATC* A10BB04)
  - – tolazamide oral (*ATC* A10BB05)
  - – carbutamide oral (*ATC* A10BB06)
  - – glipizide oral (*ATC* A10BB07)
  - – gliquidone oral (*ATC* A10BB08)
  - – gliclazide oral (*ATC* A10BB09)
  - – metahexamide (*ATC* A10BB10)
  - – glisoxepide (*ATC* A10BB11)
  - – glimepiride oral (*ATC* A10BB12)
  - – acetohexamide oral (*ATC* A10BB31)
- Terms of ATC group Thiazolidinediones (*ATC* A10BG)
  - – troglitazone oral (*ATC* A10BG01)
  - – rosiglitazone oral (*ATC* A10BG02)
  - – pioglitazone oral (*ATC* A10BG03)
- Terms of ATC group OPIOIDS (*ATC* N02A)
  - – morphine systemic rectal (*ATC* N02AA01)
  - – opium (*ATC* N02AA02)

- – hydromorphone systemic rectal (*ATC* N02AA03)
- – nicomorphine systemic rectal (*ATC* N02AA04)
- – oxycodone systemic (*ATC* N02AA05)
- – dihydrocodeine oral (*ATC* N02AA08)
- – papaveretum (*ATC* N02AA10)
- – ketobemidone systemic (*ATC* N02AB01)
- – pethidine systemic rectal (*ATC* N02AB02)
- – fentanyl nasal sublingual transdermal (*ATC* N02AB03)
- – dextromoramide systemic rectal (*ATC* N02AC01)
- – piritramide parenteral (*ATC* N02AC03)
- – dextropropoxyphene oral (*ATC* N02AC04)
- – bezitramide oral (*ATC* N02AC05)
- – pentazocine systemic (*ATC* N02AD01)
- – phenazocine parenteral (*ATC* N02AD02)
- – buprenorphine parenteral sublingual transdermal (*ATC* N02AE01)
- – butorphanol parenteral (*ATC* N02AF01)
- – nalbuphine parenteral (*ATC* N02AF02)
- – tilidine systemic (*ATC* N02AX01)
- – tramadol systemic rectal (*ATC* N02AX02)
- – dezocine (*ATC* N02AX03)
- – meptazinol systemic (*ATC* N02AX05)
- – tapentadol oral (*ATC* N02AX06)
- Terms of ATC group OTHER ANALGESICS AND ANTIPYRETICS (*ATC* N02B)
  - – acetylsalicylic acid systemic rectal (*ATC* N02BA01)
  - – aloxiprin oral (*ATC* N02BA02)
  - – choline salicylate oral (*ATC* N02BA03)
  - – sodium salicylate oral (*ATC* N02BA04)
  - – salicylamide oral (*ATC* N02BA05)
  - – salsalate oral (*ATC* N02BA06)
  - – ethenzamide oral (*ATC* N02BA07)
  - – morpholine salicylate (*ATC* N02BA08)
  - – dipyrocetyl oral (*ATC* N02BA09)
  - – benorilate oral (*ATC* N02BA10)
  - – diflunisal oral (*ATC* N02BA11)
  - – potassium salicylate oral (*ATC* N02BA12)
  - – guacetisal systemic (*ATC* N02BA14)
  - – carbasalate calcium oral (*ATC* N02BA15)
  - – imidazole salicylate (*ATC* N02BA16)
  - – phenazone oral (*ATC* N02BB01)
  - – metamizole sodium systemic rectal (*ATC* N02BB02)

- aminophenazone rectal (*ATC* N02BB03)
- propyphenazone rectal (*ATC* N02BB04)
- nifenazone (*ATC* N02BB05)
- paracetamol systemic rectal (*ATC* N02BE01)
- phenacetin oral (*ATC* N02BE03)
- bucetin (*ATC* N02BE04)
- propacetamol parenteral (*ATC* N02BE05)
- rimazolium oral (*ATC* N02BG02)
- glafenine oral (*ATC* N02BG03)
- floctafenine oral (*ATC* N02BG04)
- viminol (*ATC* N02BG05)
- nefopam (*ATC* N02BG06)
- flupirtine oral (*ATC* N02BG07)
- ziconotide parenteral (*ATC* N02BG08)
- methoxyflurane (*ATC* N02BG09)
- cannabinoids (*ATC* N02BG10)

- Terms of ATC group ANTIINFLAMMATORY AND ANTIRHEUMATIC PRODUCTS (*ATC* M01)
    - polmacoxib (*ATC* M01AH07)
    - phenylbutazone systemic rectal (*ATC* M01AA01)
    - mofebutazone systemic (*ATC* M01AA02)
    - oxyphenbutazone oral rectal (*ATC* M01AA03)
    - clofezone oral rectal (*ATC* M01AA05)
    - kebuzone (*ATC* M01AA06)
    - indometacin systemic rectal (*ATC* M01AB01)
    - sulindac systemic rectal (*ATC* M01AB02)
    - tolmetin oral rectal (*ATC* M01AB03)
    - zomepirac oral (*ATC* M01AB04)
    - diclofenac systemic rectal (*ATC* M01AB05)
    - alclofenac oral rectal (*ATC* M01AB06)
    - bumadizone oral (*ATC* M01AB07)
    - etodolac oral (*ATC* M01AB08)
    - lonazolac oral (*ATC* M01AB09)
    - fentiazac (*ATC* M01AB10)
    - acemetacin oral (*ATC* M01AB11)
    - difenpiramide (*ATC* M01AB12)
    - oxametacin (*ATC* M01AB13)
    - proglumetacin (*ATC* M01AB14)
    - ketorolac systemic (*ATC* M01AB15)
    - aceclofenac oral (*ATC* M01AB16)
    - bufexamac (*ATC* M01AB17)

- piroxicam systemic rectal (*ATC* M01AC01)
- tenoxicam systemic rectal (*ATC* M01AC02)
- droxicam (*ATC* M01AC04)
- lornoxicam systemic rectal (*ATC* M01AC05)
- meloxicam systemic rectal (*ATC* M01AC06)
- ibuprofen systemic rectal (*ATC* M01AE01)
- naproxen oral rectal (*ATC* M01AE02)
- ketoprofen systemic rectal (*ATC* M01AE03)
- fenoprofen oral (*ATC* M01AE04)
- fenbufen oral (*ATC* M01AE05)
- benoxaprofen (*ATC* M01AE06)
- suprofen oral (*ATC* M01AE07)
- pirprofen oral (*ATC* M01AE08)
- flurbiprofen oral rectal (*ATC* M01AE09)
- indoprofen (*ATC* M01AE10)
- tiaprofenic acid oral rectal (*ATC* M01AE11)
- oxaprozin oral (*ATC* M01AE12)
- ibuproxam (*ATC* M01AE13)
- dexibuprofen oral (*ATC* M01AE14)
- flunoxaprofen (*ATC* M01AE15)
- alminoprofen (*ATC* M01AE16)
- dexketoprofen systemic (*ATC* M01AE17)
- mefenamic acid oral (*ATC* M01AG01)
- tolfenamic acid oral rectal (*ATC* M01AG02)
- flufenamic acid oral (*ATC* M01AG03)
- meclofenamic acid (*ATC* M01AG04)
- celecoxib oral (*ATC* M01AH01)
- rofecoxib oral (*ATC* M01AH02)
- valdecoxib oral (*ATC* M01AH03)
- parecoxib parenteral (*ATC* M01AH04)
- etoricoxib oral (*ATC* M01AH05)
- lumiracoxib oral (*ATC* M01AH06)
- nabumetone oral (*ATC* M01AX01)
- niflumic acid oral (*ATC* M01AX02)
- azapropazone oral (*ATC* M01AX04)
- glucosamine oral (*ATC* M01AX05)
- benzydamine oral rectal (*ATC* M01AX07)
- glucosaminoglycan polysulfate parenteral (*ATC* M01AX12)
- proquazone oral rectal (*ATC* M01AX13)
- orgotein (*ATC* M01AX14)

- nimesulide oral (*ATC* M01AX17)
- feprazone (*ATC* M01AX18)
- diacerein (*ATC* M01AX21)
- morniflumate (*ATC* M01AX22)
- tenidap (*ATC* M01AX23)
- oxaceprol (*ATC* M01AX24)
- chondroitin sulfate (*ATC* M01AX25)
- oxycinchophen oral (*ATC* M01CA03)
- sodium aurothiomalate parenteral (*ATC* M01CB01)
- sodium aurotiosulfate parenteral (*ATC* M01CB02)
- auranofin oral (*ATC* M01CB03)
- aurothioglucose parenteral (*ATC* M01CB04)
- aurotioprol (*ATC* M01CB05)
- penicillamine oral (*ATC* M01CC01)
- bucillamine (*ATC* M01CC02)
- naproxcinod (*ATC* M01AE18)

- Terms of ATC group INTESTINAL ANTIINFLAMMATORY AGENTS (*ATC* A07E)
  - prednisolone rectal (*ATC* A07EA01)
  - hydrocortisone rectal (*ATC* A07EA02)
  - prednisone rectal (*ATC* A07EA03)
  - betamethasone rectal (*ATC* A07EA04)
  - tixocortol rectal (*ATC* A07EA05)
  - budesonide oral (*ATC* A07EA06)
  - beclometasone rectal (*ATC* A07EA07)
  - cromoglicic acid oral (*ATC* A07EB01)
  - sulfasalazine oral rectal (*ATC* A07EC01)
  - mesalazine oral rectal (*ATC* A07EC02)
  - olsalazine oral (*ATC* A07EC03)
  - balsalazide oral (*ATC* A07EC04)

8.6.5   Hormonal therapy

For this BIOMAP category the allowed controlled terms for the *drug* column are:
- SEX HORMONES AND MODULATORS OF THE GENITAL SYSTEM (ATC G03) or one of its more specific terms
  - ANDROGENS (*ATC* G03B)
  - ANDROGENS AND FEMALE SEX HORMONES IN COMBINATION (*ATC* G03E)
  - ANTIANDROGENS (*ATC* G03H)
  - ESTROGENS (*ATC* G03C)
  - GONADOTROPINS AND OTHER OVULATION STIMULANTS (*ATC* G03G)
  - HORMONAL CONTRACEPTIVES FOR SYSTEMIC USE (*ATC* G03A)

- OTHER SEX HORMONES AND MODULATORS OF THE GENITAL SYSTEM (*ATC* G03X)
  - PROGESTOGENS (*ATC* G03D)
  - PROGESTOGENS AND ESTROGENS IN COMBINATION (*ATC* G03F)
- CONTRACEPTIVES FOR TOPICAL USE (*ATC* G02) or one of its more specific terms
  - Intrauterine contraceptives (*ATC* G02BA)
  - Intravaginal contraceptives (*ATC* G02BB)

Alternatively, if the exact drug is unknown, the following controlled terms are allowed for the *procedure* column are:
- Hormone therapy (*SNOMED* 169413002) or one of its more specific terms
  - Hormone replacement therapy (*SNOMED* 266717002)
  - Hormone manipulation (*SNOMED* 309448001)
  - Ovulation induction (*SNOMED* 61285001)
  - Leuprorelin therapy (*SNOMED* 724075000)
  - Testosterone cypionate therapy (*SNOMED* 724162002)
  - Androgen deprivation therapy (*SNOMED* 707266006)

8.7   Treatment - Stop reason

Where recorded in primary datasets, the stop reason(s) for any treatment discontinuation is recorded using one of the following controlled terms in the *stop_reason* column (from TREAT recommendation):
- Insufficient response
- Loss of response
- Cumulative dose
- Disease remission
- Pregnant (*SNOMED* 77386006)
- Death (*SNOMED* 419620001)
- Adverse reaction (*SNOMED* 281647001)

Side effects are recorded using the *exposure_id* and *related_to* columns, see section about *Drug table* structure above.

person_id	exposure_id	**drug**	drug_exposure_start_date	drug_exposure_end_date	absolute_dose_mg	relative_dose_mg_per_kg	frequency	frequency_unit	stop_reason	route
BIOMAP_P2N_CAU_00000001	42	**cyclosporin**	2019-10-23	2019-10-30	NAP	2	2	Frequency per day	Adverse reaction	Oral

person_id	condition	condition_start_date	condition_end_date	ascertainment_ method	related_ to
BIOMAP_P2N_CAU _00000001	**headache**	2019-10-25	2019-10-31	self-report by the patient	42

The allowed terms for adverse events are discussed in the next section.

8.8   Treatment - Adverse events

We are very well aware that cohorts record adverse events in relation to Psoriasis and AD using MedDRA. During harmonisation, we will map these items to the list below, to stay close to the OMOP CDM. These controlled terms can additionally be recorded in the *condition* table to record associated diseases (not associated to adverse events).

For this BIOMAP category the allowed controlled terms are:
Cardiovascular
•   Low blood pressure (*SNOMED* 45007003)
•   Hypertensive disorder (*SNOMED* 38341003)
•   Cardiomyopathy (*SNOMED* 85898001)
•   Myocardial infarction (*SNOMED* 22298006)
•   Congestive heart failure (*SNOMED* 42343007)
•   Cerebrovascular accident (*SNOMED* 230690007)
•   Arterial thrombosis (*SNOMED* 65198009)
•   Venous thrombosis (*SNOMED* 111293003)
•   Pulmonary embolism (*SNOMED* 59282003)
•   Dizziness (*SNOMED* 404640003)

Dermatological
•   Stevens-Johnson syndrome (*SNOMED* 73442001)
•   Lyell syndrome (*SNOMED* 768962006)
•   Erythema multiforme (*SNOMED* 36715001)
•   Urticaria (*SNOMED* 126485001)
•   Angioedema (*SNOMED* 41291007)
•   Alopecia (*SNOMED* 56317004)
•   Acne (*SNOMED* 11381005)
•   Acute generalized exanthematous pustulosis (*SNOMED* 702617007)
•   Itching of skin (*SNOMED* 418363000)
•   Eruption (*SNOMED* 271807003)

Gastrointestinal
•   Hepatic fibrosis (*SNOMED* 62484002)
•   Cirrhosis of liver (*SNOMED* 19943007)
•   Drug-induced hepatitis (*SNOMED* 235876009)
•   Elevated liver enzymes level (*SNOMED* 707724006)
•   Non-alcoholic fatty liver (*SNOMED* 197315008)
•   Steatosis of liver (*SNOMED* 197321007)

- Nausea (*SNOMED* 422587007)
- Vomiting (*SNOMED* 422400008)
- Gastrointestinal perforation (*SNOMED* 51875005)
- Diarrhea (*SNOMED* 62315008)
- Constipation (*SNOMED* 14760008)
- Abdominal pain (*SNOMED* 21522001)
- Hypertrophy of gingiva (*SNOMED* 441787004)

Haematologic
- Neutropenia (*SNOMED* 165517008)
- Drug-induced neutrophilia (*SNOMED* 63484008)
- Eosinophil count raised (*SNOMED* 386789004)
- Anemia (*SNOMED* 271737000)
- Lymphocytopenia (*SNOMED* 48813009)
- Lymphocytosis (*SNOMED* 67023009)
- Leukopenia (*SNOMED* 84828003)
- Leukocytosis (*SNOMED* 111583006)
- Thrombocytopenic disorder (*SNOMED* 302215000)
- Thrombocytosis (*SNOMED* 6631009)
- Pancytopenia (*SNOMED* 127034005)

Immunological
- Injection site reaction (*SNOMED* 95377006)
- Transfusion reaction due to serum protein reaction (*SNOMED* 72284000)
- Anaphylactoid reaction (*SNOMED* 35001004)
- Anaphylaxis (*SNOMED* 39579001)
- Drug-induced lupus erythematosus (*SNOMED* 80258006)
- development of anti-drug antibodies

Infectious
- Septicaemia NOS (*SNOMED* 266089004)
- Sepsis (*SNOMED* 91302008)
- Infection of skin and/or subcutaneous tissue (*SNOMED* 19824006)
- Herpes simplex (*SNOMED* 88594005)
- Herpes zoster (*SNOMED* 4740000)
- Candidiasis (*SNOMED* 78048006)
- Pneumonia (*SNOMED* 233604007)
- Disease caused by 2019-nCoV (*SNOMED* 840539006)
- Tuberculosis (*SNOMED* 56717001)
- Reactivation of hepatitis B viral hepatitis (*SNOMED* 446698005)
- Meningitis (*SNOMED* 7180009)
- Progressive multifocal leukoencephalopathy (*SNOMED* 22255007)
- Mycosis (*SNOMED* 3218000)
- Infection caused by Malassezia (*SNOMED* 721794002)
- other infection requiring systemic antimicrobials

Neoplastic
- Malignant melanoma (*SNOMED* 2092003)
- Malignant neoplasm of skin (*SNOMED* 372130007)
- Squamous cell carcinoma (*SNOMED* 402815007)
- Squamous cell carcinoma in situ (*SNOMED* 189565007)
- Basal cell carcinoma (*SNOMED* 1338007)
- Merkel cell carcinoma (*SNOMED* 253001006)
- Solid organ tumour/cancer
- Lymphoproliferative disorder (*SNOMED* 414629003)
- Leukemia (*SNOMED* 93143009)
- Malignant lymphoma (*SNOMED* 118600007)

Neurological
- Optic neuritis (*SNOMED* 66760008)
- Demyelination (*SNOMED* 32693004)
- Headache (*SNOMED* 25064002)
- Paresthesia (*SNOMED* 91019004)
- Muscle weakness (*SNOMED* 26544005)
- Seizure (*SNOMED* 91175000)

Psychiatric
- Depressive disorder (*SNOMED* 35489007)
- Anxiety (*SNOMED* 48694002)
- Psychotic disorder (*SNOMED* 69322001)
- Suicide (*SNOMED* 44301001)
- Suicide attempt (*SNOMED* 82313006)
- Suicidal behavior (*SNOMED* 425104003)
- Suicidal thoughts (*SNOMED* 6471006)

Renal
- Abnormal renal function (*SNOMED* 39539005)
- Chronic renal failure (*SNOMED* 90688005)
- Acute renal failure syndrome (*SNOMED* 14669001)

Respiratory
- Interstitial lung disease (*SNOMED* 233703007)
- Fibrosis of lung (*SNOMED* 51615001)
- Wheezing (*SNOMED* 56018004)
- Bronchospasm (*SNOMED* 4386001)
- Cough (*SNOMED* 49727002)
- Exacerbation of asthma (*SNOMED* 281239006)
- Acute exacerbation of chronic obstructive airways disease (*SNOMED* 195951007)
- Sarcoidosis (*SNOMED* 31541009)

Rheumatologic
- Osteopenia (*SNOMED* 312894000)

- Osteoporosis (*SNOMED* 64859006)
- Osteoporotic fracture (*SNOMED* 46675001)
- Joint pain (*SNOMED* 57676002)
- Arthritis (*SNOMED* 3723001)
- Enthesitis (*SNOMED* 359643005)
- Muscle pain (*SNOMED* 68962001)
- Myositis (*SNOMED* 26889001)
- Rhabdomyolysis (*SNOMED* 240131006)
- Isolated asymptomatic elevation of creatine phosphokinase (*SNOMED* 773990006)

Sensory system
- Keratoconjunctivitis (*SNOMED* 88151007)
- Blepharitis (*SNOMED* 41446000)
- Blepharoconjunctivitis (*SNOMED* 68659002)
- Allergic conjunctivitis (*SNOMED* 473460002)
- Disorder of eye (*SNOMED* 371405004)
- Glaucoma (*SNOMED* 23986001)
- Cataract (*SNOMED* 193570009)
- Tinnitus (*SNOMED* 60862001)
- Hearing loss (*SNOMED* 15188001)

Other
- Other adverse event
- Hypertriglyceridemia (*SNOMED* 302870006)
- Hyperlipidemia (*SNOMED* 55822004)

8.9   Disease outcomes

8.9.1   Atopic dermatitis severity - Physician reported

For this BIOMAP category the allowed controlled terms for the *observation* column are:
- Eczema area and severity index EASI
  or one of its component scores (values between 0 and 3)
  - EASI Head and Neck Oedema Papulation
  - EASI Head and Neck Erythema
  - EASI Head and Neck Excoriation
  - EASI Head and Neck Lichenification
  - EASI Trunk Oedema Papulation
  - EASI Trunk Erythema
  - EASI Trunk Excoriation
  - EASI Trunk Lichenification
  - EASI Upper Extremities Oedema Papulation
  - EASI Upper Extremities Erythema
  - EASI Upper Extremities Excoriation
  - EASI Upper Extremities Lichenification
  - EASI Lower Extremities Oedema Papulation
  - EASI Lower Extremities Erythema

     –   EASI Lower Extremities Excoriation

     –   EASI Lower Extremities Lichenification

or one of its component scores (values between 0 and 6)

     –   EASI Head and Neck Area

     –   EASI Trunk Area

     –   EASI Upper Extremities Area

     –   EASI Lower Extremities Area

- Scoring of Atopic Dermatitis SCORAD Total
  which is the sum of objective and subjective SCORAD, or
  Scoring of Atopic Dermatitis SCORAD Objective
  or one of its objective component scores (values between 0 and 100)
  - SCORAD Body surface area
  or one of its objective component scores (values between 0 and 3)
  - SCORAD Redness
  - SCORAD Swelling
  - SCORAD Oozing crusting
  - SCORAD Scratch marks excoriation
  - SCORAD Skin thickening lichenification
  - SCORAD Dryness
  or one of its subjective component scores (values between 0 and 10)
  - SCORAD subjective symptom itch
  - SCORAD subjective symptom sleep disturbance

Additionally, admission to a hospital or secondary/tertiary care may be used as a proxy to measure disease severity. Therefore, visits will be recorded with the following allowed controlled terms for in the *observation* column:
- Inpatient Visit
- Outpatient Visit
- Emergency Room Visit
- Intensive Care
- Tertiary level subspecialist care

Tertiary care is a subspecialist service/clinic (like a dermatologist who provides specialised care for people with psoriasis in a specific psoriasis clinic and takes referrals from secondary care – other dermatologists).

8.9.2   Atopic dermatitis severity - Patient reported

For this BIOMAP category the allowed controlled terms for the *observation* column are:
- Itch Numeric Rating Scale
- Recap of Atopic Dermatitis RECAP
- Atopic Dermatitis Control test ADCT
- POEM - Patient-Oriented Eczema Measure (*SNOMED* 719128001)
- Sleep pattern disturbance (*SNOMED* 26677001)
- Number of weeks atopic dermatitis has been well controlled in the last 12 weeks

8.9.3　Chronic plaque psoriasis severity - Physician reported

For this BIOMAP category the allowed controlled terms for the *observation* column are:
- PASI - psoriasis area and severity index (*SNOMED* 866311000000102)
  Or one of its components (values between 0 and 4)
  - PASI Head and Neck Erythema
  - PASI Head and Neck Induration
  - PASI Head and Neck Desquamation
  - PASI Trunk Erythema
  - PASI Trunk Induration
  - PASI Trunk Desquamation
  - PASI Upper Extremities Erythema
  - PASI Upper Extremities Induration
  - PASI Upper Extremities Desquamation
  - PASI Lower Extremities Erythema
  - PASI Lower Extremities Induration
  - PASI Lower Extremities Desquamation
  Or one of its components (values between 0 and 6)
  - PASI Head and Neck Area
  - PASI Trunk Area
  - PASI Upper Extremities Area
  - PASI Lower Extremities Area

8.9.4　Pustular psoriasis severity - Physician reported

For this BIOMAP category the allowed controlled terms for the *observation* column are:
- PPPASI - Palmo-plantar Pustular Psoriasis Area Severity Index
- Palmo-plantar Pustular Psoriasis Pustule count

8.9.5　Generic disease severity - Physician reported – BSA

For this BIOMAP category the allowed controlled term for the *observation* column is:
- Body surface area (*SNOMED* 301898006)

8.9.6　Generic - Disease severity - Physician reported - Global assessment

Global assessments scores exist for Psoriasis and Atopic dermatitis, and may be reported by the patient, an investigator or by a physician. The terms available in glossary in version 1.0 are shown below, currently there is no harmonised version of these scores available. Since the assessment score is deemed important for BIOMAP, newly identified scoring systems from cohorts will be included in a minor update (see **Section 4 Versioning** and **Section 5 Amendment process**) to the glossary if they follow a terminology from *Clear* to *Severe/Very severe*. A *global assessment/EQ5D analysis group* will be formed and suggest a method for harmonisation once more information about the different coding systems in BIOMAP cohorts is available. The harmonised terminology will be included in a minor update of the glossary.

Currently, the following controlled terms of global assessment terms for the *observation* column are:

- *Psoriasis global assessment BSTOP*
  the value column being one of
    - 1 Severe
    - 2 Moderate Severe
    - 3 Moderate
    - 4 Mild
    - 5 Almost Clear
    - 6 Clear
- *Psoriasis global assessment P2N-Cluster*
  the *value* column must contain a number between 0 and 7.
- *IGA* Investigators Global Assessment
  the value column being one of
    - 0 Clear
    - 1 Almost clear
    - 2 Mild
    - 3 Moderate
    - 4 Severe
    - 5 Very severe
- *Validated Investigator Global Assessment scale for Atopic Dermatitis vIGA-AD*
  the value column being one of
    - 0 Clear
    - 1 Almost clear
    - 2 Mild
    - 3 Moderate
    - 4 Severe
- Patient global assessment of disease severity
  The *value* must be numeric and in the range 0 to 4.

8.9.7 Chronic plaque psoriasis - Quality of life - Psoriasis disability questionnaire

For this BIOMAP category the allowed controlled term for the *observation* column is:
- Psoriasis disability index

8.9.8 Generic quality of life assessments - DLQI/cDLQI/iDLQI

For this BIOMAP category the allowed controlled term for the *observation* column is:
- DLQI Dermatology Life Quality Index score (*SNOMED* 763185005)

8.9.9 Generic quality of life assessments - EQ5D

The EQ5D is a multiattribute utility-based instrument (MAUI) introduced by the EuroQol Group. It evaluates 5 dimensions (mobility, self-care, usual activities, pain/discomfort, and anxiety/depression), each of which comprises 3 levels (EQ5D-3L, PMID: 10109801)

- no problems (level 1),
- some problems (level 2),
- extreme problems (level 3)

or 5 levels (EQ5D-5L, PMID: 21479777)

- no problems (level 1)
- slight problems (level 2)
- moderate problems (level 3)
- severe problems (level 4)
- extreme problems (level 5)

Unique EQ-5D health states are typically referred to by vectors of levels, e.g. 11111, 11112, ..., 33333 (3-level version, allowing 243 health states) or 11111, 11112, ..., 55555 (5-level version, allowing 3125 health states), respectively. Usually, the questionnaire is complemented by a visual analogue scale (EQ-VAS, ranging from 0 to 100), recording the respondent's self-rated health status.

For each of the health states so-called health utility weights (from 0=dead to 1=health) have to be defined, e.g. to assess quality-of-life benefits associated with health-care interventions. Valuation of the health states (mapping of health states to health state values) is typically derived from population-based valuation studies and involves methods such as standard gamble (SG), time tradeoff (TTO) or visual analogue scale (VAS). As of January 13, 2020 as much as 21 standard value sets have been proposed (see https://euroqol.org/eq-5d-instruments/eq-5d-5l-about/valuation-standard-value-sets/).

BIOMAP glossary version 1.0 will include the terms shown below, currently there is no harmonised version of these scores available. Since EQ5D is deemed important for BIOMAP, newly identified scoring systems from cohorts will be included in a minor update (see **Section 4 Versioning** and **Section 5 Amendment process**) to the glossary. A *global assessment/EQ5D analysis group* will be formed and suggest a harmonisation once more information about the different coding systems in BIOMAP cohorts is available. The harmonised terminology will be included in a minor update of the glossary.

Currently, the following controlled terms for EQ5D are allowed:

For the *EuroQol five dimension five level index value*, the following terms, with the allowed values *1*, *2* and *3*, are stored in the *observation* column:

- EQ-5D-3L mobility
- EQ-5D-3L self-care
- EQ-5D-3L usual activities
- EQ-5D-3L pain discomfort
- EQ-5D-3L anxiety depression

For the *EuroQol three dimension five level index value*, the following terms, with the allowed values *1*, *2*, *3*, *4* and *5*, are stored in the *observation* column:

- EQ-5D-5L mobility
- EQ-5D-5L self-care
- EQ-5D-5L usual activities
- EQ-5D-5L pain discomfort
- EQ-5D-5L anxiety depression

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