THIN® (The Health Improvement Network®)

First published: 01/02/2024

Last updated: 17/10/2024

Data source | Human | Other | Pharmacy dispensing records | Primary care medical records

Administrative details

Administrative details

Data source ID

30876

Data source acronym

THIN®

Data holder

Cegedim Health Data (CHD)

Data source type

Other

Pharmacy dispensing records

Primary care medical records

Data source type, other

Electronic health records,Death, vaccination, EHR, Hospital outpatients records

Main financial support

Funding by own institution

Care setting

Hospital inpatient care

Hospital outpatient care

Primary care – GP, community pharmacist level

Primary care – specialist level (e.g. paediatricians)

Secondary care – specialist level (ambulatory)

Data source qualification

If the data source has successfully undergone a formal qualification process (e.g., from the EMA, ISO or other certifications), this should be described.

No

Data source website

https://www.the-health-improvement-network.com

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Data source regions and languages

Data source countries

Belgium

France

Germany

Italy

Romania

Spain

United Kingdom

Data source languages

English

Data source establishment

Data source established

15/01/1994

Data source time span

First collection: 15/01/1994

The date when data started to be collected or extracted.

Publications

Data source publications

Rassy, E. et al. Association of Adherence to Endocrine Therapy Among Patients With Breast Cancer and Potential Drug-Drug Interactions. JAMA Netw. Open 5, e2244849 (2022)

Structured assessment for prospective identification of safety signals in electronic medical records: evaluation in the health improvement network. Cederholm S1, Hill G, Asiimwe A, Bate A, Bhayat F, Persson Brobert G, Bergvall T, Ansell D, Star K, Norén GN. Drug Saf. 2015 Jan;38(1):87-100. doi: 10.1007/s40264-014-0251-y.

Childhood epilepsy recorded in primary care in the UK. Meeraus WH, Petersen I, Chin RF, Knott F, Gilbert R. Arch Dis Child. 2013 Mar;98(3):195-202. doi: 10.1136/archdischild-2012-302237. Epub 2013 Jan 23.

Antonazzo, I. C. et al. Time trends in the incidence of essential tremor: Evidences from UK and France primary care data. Front. Neurol. 13, (2022).

2,000 publications using THIN data

Studies

List of studies that have been conducted using the data source

Calcium channel blocker treatments and cancer risk. A methodological protocol to compare the results between databases, across designs: Evaluation of the impact of design/database/population differences on the outcome of the studied association

Use of benzodiazepines and risk of hip/femur fracture. A methodological comparison across data sources and epidemiological design.

Use of inhaled long acting beta2 adrenoceptor agonists and the risk for Acute Myocardial Infarction (AMI). A methodological comparison across data sources and epidemiological design

Use of antiepileptics and risk of suicidality. An exploratory study using the UK General Practice Research Database (GPRD) and data from the Danish registries

with an evaluation of available data from further European data sources.

Pattern of use of Human Growth Hormone (Somatropin) in the United Kingdom general practice setting: A Drug Utilization Study in The Health Improvement Network (THIN) database (Somatropin use in routine clinical practice in UK)

EMA study on prescribing of codeine to children and adolescents for cough and cold

Assessment of the safety of LABAs in asthma in routine care by combining healthcare databases and direct patient follow-up (ASTRO-LAB)

Cardiac profile of patients using rosiglitazone-containing anti-diabetes medicines: a study using the THIN database

EMA Self-Controlled Case Study of Fluoroquinolones and Retinal Detachment in The Health Improvement Network database

Retrospective Case-Control Studies of Rare Adverse Events Associated with Intranasal Steroids (201077)

An Observational Post-Authorization Safety Study (PASS) of MOVENTIG® (Naloxegol) Drug Utilization in Selected European Populations

An Observational Post-Authorization Safety Study (PASS) of MOVENTIG® (Naloxegol) Among Patients Aged 18 Years and Older Treated with Opioids Chronically

A cohort study with a nested case control analysis on the association between acid-suppressing drugs and seizures using THIN database in the UK (Acid suppressing Drug Seizure Epidemiology Study)

A cohort study on the association between acid-suppressing drugs in pregnancy and asthma in the offspring (Acid-suppressing Drugs Pregnancy Asthma Offspring)

A Nested Case-control Post-authorization Safety Study of Etoricoxib and Other Non-steroidal Anti-inflammatory Therapies in a Cohort of Patients with Ankylosing Spondylitis (AS) in the UK, France and Germany (MK-0663-163)

Risk of cardiac valve disorders associated with the use of biphosphonates (Cardiac valve disorders and biphosphonate use)

Patterns and Determinants of Use of Oral Contraceptives in the European Union (Use of OC in the EU)

Arrhythmogenic Potential of Drugs (ARITMO) project

ADVANCE POC I Risk pillar - Testing new approaches to monitoring benefit/risk with pertussis vaccines as test case: Incidence rates of safety outcomes of whole-cell pertussis and acellular pertussis vaccines in pre-school children

ADVANCE POC Study Protocol - Testing new approaches to monitoring benefit/risk with pertussis vaccines as test case. Coverage rates of acellular and whole-cell pertussis-containing vaccines in preschool children (ADVANCE Coverage POC)

Testing new approaches to monitoring benefit/risk with pertussis vaccines as test case: Incidence rates of pertussis and pertussis related outcomes of whole-cell pertussis and acellular pertussis vaccines in pre-school children (benefit study on pertussis vaccination)

Identification of type 2 diabetes cases in a set of databases participating to the EMIF project

European Program of Post-Authorization Safety Studies for Protelos®/Osseor® through EU-ADR Alliance

Post-licensure observational safety study of specific outcomes after Optaflu vaccination among adults in The Health Improvement Network (THIN) database of routine UK primary care records (V58_30OB (FLUPASS1))

An Observational Drug Utilization Study of SYCREST® (asenapine) in the United Kingdom (P08308)

An Observational Post-Authorization Safety Surveillance (PASS) Study of SYCREST® (asenapine) among Patients aged 18 and older Diagnosed with Bipolar Disorder (P08307)

Cilostazol Drug Utilisation Study

Cohort Study of Psychiatric Adverse Events Following Exposure to Levonorgestrel-Containing Intrauterine Devices in UK General Practice

Indications for systemic fluoroquinolone prescribing in Europe: a descriptive population based study

Estimating prevalence and incidence of acute myocardial infarction in a set of heterogeneous sources of observational health data collaborating in the EMIF Platform

Use of antidepressants and risk of hip/femur fracture. A methodological comparison across data sources and epidemiological design

The risk of acute liver injury associated with the use of antibiotics. A methodological comparison across epidemiological data sources

Tramadol prescribing: a drug utilisation study using electronic data from France, Germany and the UK

Risk of peripheral neuropathy with systemic fluoroquinolone exposure: population-based nested case-control study

Risk of tendon rupture with systemic fluoroquinolone exposure: nested case-control study

Drug utilization study of cyproterone/ethinylestradiol (Diane®-35 and generics) in the Netherlands, UK and Italy

Loperamide and the risk of Brugada syndrome

Comparative Assessment of VTE and Other Risks among Patients with Rheumatoid Arthritis treated with Baricitinib versus Tumor Necrosis Factor Inhibitors: A Multi-database Observational Cohort Study

Use of products containing oestrogens alone and oestrogens in combination with progestogens (not contraceptives) between 2000 and 2014 in France, Germany and the UK

The comparative safety of first-line conventional synthetic disease-modifying anti-rheumatic drugs (csDMARDs) used for the treatment of rheumatoid arthritis: protocol for a multi-database real-world cohort study

Utilisation disease-modifying anti-rheumatic drugs (DMARDs) used for the treatment of rheumatoid arthritis: protocol for a multi-database real-world cohort study

Non-interventional study with Binosto 70 mg effervescent tablets once weekly investigating gastro-intestinal events and medication errors (Gastro-PASS)

Can We Rely on Results From IQVIA Medical Research Data UK Converted to the Observational Medical Outcome Partnership Common Data Model?

Ability of primary care health databases to assess medicinal products discussed by the European Union Pharmacovigilance Risk Assessment Committee (CAPs and NAPs in primary EHDs)

Association between hydrochlorothiazide exposure and skin and lip cancer: a series of populationbased nested case-control studies

Prescribing of paracetamol in patients with chronic renal failure A Drug Utilisation Study (Paracetamol doses in renal failure)

Suicide and suicidality after exposure to finasteride (Suicidality with finasteride)

Pattern of use of Direct Oral Anticoagulants in Non-valvular Atrial Fibrillation patients in UK general practices

Drug Utilisation Study of conjugated oestrogens/bazedoxifene (CE/BZA) in the European Union (EU)

Pharmacological risk factors for COVID-19 infection: a matched prospective cohort study of patients in primary care

Delayed Denosumab Injections and Fractures Risk Among Subjects with Osteoporosis

Hydroxychloroquine safety and potential efficacy as an antiviral prophylaxis in light of potential wide-spread use in COVID-19: a multinational, large-scale network cohort and self-controlled case series study

Psychosis and psychotic disorders” and “Depression and suicide/self-injury” following exposure to Hydroxychloroquine and chloroquine

Multinational database cohort study to assess RMP specified safety outcomes in association with indacaterol/glycopyrronium bromide in Europe

Multinational, multi-database cohort study to assess adverse cardiovascular and cerebrovascular outcomes and mortality in association with inhaled NVA237 in Europe (NVA237 PASS)

Multinational, multi-database drug utilization study of inhaled NVA237 in Europe (NVA237 DUS)

Ranitidine and other histamine H2-receptor antagonists – a drug utilisation study

Multinational, multi-database drug utilization study of indacaterol/glycopyrronium bromide in Europe

Depression following exposure to anastrozole

Incidence rates of adverse events of special interest: Guillain-Barré syndrome and Bell’s palsy

Study of utilisation of combined hormonal contraceptives in Europe

Post-licensure observational safety study after meningococcal B vaccine 4CMenB (Bexsero®) vaccination in routine UK care

Post-authorization safety Electronic Medical Records database retrospective cohort study of new users of inhaled UMEC/VI or new users of inhaled UMEC in the primary care setting

Adverse ReNal OuTcomEs in patients with NoN-Valvular Atrial fibrillation treated with Rivaroxaban or Vitamin K Antagonists (ANTENNA)

Pancreatic Cancer and Thyroid Cancer Risks with Dulaglutide Treatment

Report on PRAC Pilot on Rapid Data Analytics

Rapid Data Analysis – Systemic fluoroquinolones and thrombotic thrombocytopenic purpura (TTP)

Cohort Study of the Relative Incidence of Major Cardiovascular Events Among Patients Initiating Prucalopride Versus a Matched Comparator Cohort

Comparative risk of the incident cancer between histamine-2 receptor antagonists (Risk of cancer between H2RAs)

Post-authorisation Safety Study to Evaluate the Long-term Safety of Dexamfetamine (Amfexa) (PASS for dexamfetamine)

A pharmacoepidemiological study of Rivaroxaban use and potential adverse outcomes in routine clinical pratice in the United Kingdom

Safety and Effectiveness of Rivaroxaban and Apixaban compared to warfarin in non-valvular atrial fibrillation patients in the routine clinical practice in the UK

(SiERRA UK)

Trends in prescriptions of valproate and valpromide for bipolar disorder in IMS France and IMS Germany between 2010 and June 2016 and in UK THIN between 1999 and 2015

Comparative Effectiveness and Safety of Direct Oral Anticoagulants in Patients with Nonvalvular Atrial Fibrillation in the UK

A pharmacoepidemiological study on the risk of bleeding in new users of low-dose aspirin (ASA) in The Health Improvement Network (THIN), UK (EPISAT)

Systemic glucocorticoids in the treatment of COVID-19 and risks of adverse outcomes in COVID-19 patients in the primary and secondary care setting (Corticosteroids in COVID19)

Incidence of Central Retinal Artery Occlusion in the Neovascular Age-related Macular Degeneration Population (RAO in neovascular AMD)

Drug Utilisation Study of Intuniv® (guanfacine extended release) in European Countries, Study protocol I: Database study (Intuniv data base study Europe)

Incidence rates of morphoea, systemic sclerosis and scleroderma

ENSTILAR RWE STUDY, IN FRENCH EMR DATABASE (THIN®)

Incidence rates of vulval ulceration following Comirnaty vaccine

Incidence rates of pemphigus and pemphigoid following COVID-19 vaccines

Population incidence rates of pemphigoid in six European countries

Prevalence of palmoplantar psoriasis and pustular psoriasis in children

Prevalence of Acute Liver Injury

Incidence of phimosis and paraphimosis in patients treated with SGLT2 inhibitors

Evidence in real world for Trixeo® Aerosphere™ Initiation in COPD (ENARXI)

An Active Surveillance Study to Monitor the Real-World Long-term Safety of Somatrogon Among Paediatric Patients in Europe

Association between use of direct oral anticoagulants (DOACs) and increased risk of interstitial lung disease

REACH study: Real-World Evidence study of OM-85 in Adults and Children in China, Italy, and Belgium

Data elements collected

The data source contains the following information

Disease information

Does the data source collect information with a focus on a specific disease? This might be a patient registry or other similar initiatives.

No

Rare diseases

Are rare diseases captured? In the European Union a rare disease is one that affects no more than 5 people in 10,000.

Yes

Pregnancy and/or neonates

Does the data source collect information on pregnant women and/or neonatal subpopulation (under 28 days of age)?

Yes

Hospital admission and/or discharge

No

ICU admission

Is information on intensive care unit admission available?

No

Cause of death

Not Captured

Prescriptions of medicines

Captured

Prescriptions vocabulary

ATC

other

Prescriptions vocabulary, other

internal codification

Dispensing of medicines

Captured

Dispensing vocabulary

ATC

other

Dispensing vocabulary, other

Internal codification

Advanced therapy medicinal products (ATMP)

Is information on advanced therapy medicinal products included? A medicinal product for human use that is either a gene therapy medicinal product, a somatic cell therapy product or a tissue engineered products as defined in Regulation (EC) No 1394/2007 [Reg (EC) No 1394/2007 Art 1(1)].

No

Contraception

Is information on the use of any type of contraception (oral, injectable, devices etc.) available?

Yes

Indication for use

Does the data source capture information on the therapeutic indication for the use of medicinal products?

Captured

Indication vocabulary

ICD-10

ICD-9

Other

Indication vocabulary, other

Read code and internal codification

Medical devices

Is information on medicinal devices (e.g., pens, syringes, inhalers) available?

Yes

Administration of vaccines

Yes

Procedures

Does the data source capture information on procedures (e.g., diagnostic tests, therapeutic, surgical interventions)?

Captured

Procedures vocabulary

Other

Procedures vocabulary, other

Internal codification

Healthcare provider

Is information on the person providing healthcare (e.g., physician, pharmacist, specialist) available? The healthcare provider refers to individual health professionals or a health facility organisation licensed to provide health care diagnosis and treatment services including medication, surgery and medical devices.

Yes

Clinical measurements

Is information on clinical measurements (e.g., BMI, blood pressure, height) available?

Yes

Genetic data

Are data related to genotyping, genome sequencing available?

Not Captured

Biomarker data

Does the data source capture biomarker information? The term “biomarker” refers to a broad subcategory of medical signs (objective indications of medical state observed from outside the

patient), which can be measured accurately and reproducibly. For example, haematological assays, infectious disease markers or metabolomic biomarkers.

Not Captured

Patient-reported outcomes

Is information on patient-reported outcomes (e.g., quality of life) available?

No

Patient-generated data

Is patient-generated information (e.g., from wearable devices) available?

No

Units of healthcare utilisation

Are units of healthcare utilisation (e.g., number of visits to GP per year, number of hospital days) available or can they be derived? Units of healthcare utilisation refer to the quantification of the use of services for the purpose of preventing or curing health problems.

Yes

Unique identifier for persons

Are patients uniquely identified in the data source?

Yes

Diagnostic codes

Captured

Diagnosis / medical event vocabulary

ICD-10

ICD-9

Other

Diagnosis / medical event vocabulary, other

Read code and internal codification

Medicinal product information

Captured

Medicinal product information collected

Active ingredient(s)

Brand name

Dose

Medicinal product vocabulary

ATC

Quality of life measurements

Not Captured

Lifestyle factors

Captured

Lifestyle factors

Alcohol use

Tobacco use

Sociodemographic information

Captured

Sociodemographic information collected

Age

Ethnicity

Gender

Pharmaceutical copayment

Quantitative descriptors

Population Qualitative Data

Population age groups

Paediatric Population (< 18 years)

Preterm newborn infants (0 – 27 days)

Term newborn infants (0 – 27 days)

Infants and toddlers (28 days – 23 months)

Children (2 to < 12 years)

Adolescents (12 to < 18 years)

Adults (18 to < 46 years)

Adults (46 to < 65 years)

Elderly (≥ 65 years)

Adults (65 to < 75 years)

Adults (75 to < 85 years)

Adults (85 years and over)

Estimated percentage of the population covered by the data source in the catchment area

7%

Description of the population covered by the data source in the catchment area whose data are not collected (e.g., people who are

registered only for private care)

In-patient data is not captured (all countries).

Private data is not captured in Spain.

Family linkage

Family linkage available in the data source permanently or can be created on an ad hoc basis

Ad hoc

Population

Population size

67700000

Active population size

10785000

Population by age group

Age group	Population size	Active population size
Paediatric Population (< 18 years)	11924828	1572750
Term newborn infants (0 – 27 days)	184260	7502
Infants and toddlers (28 days – 23 months)	1815174	179099
Children (2 to < 12 years)	6535729	866628

Age group	Population size	Active population size
Adolescents (12 to < 18 years)	3389665	519521
Adults (18 to < 46 years)	26392887	3024393
Adults (46 to < 65 years)	14524579	2580146
Elderly (≥ 65 years)	13084509	2358239
Adults (65 to < 75 years)	6048418	1225128
Adults (75 to < 85 years)	4890618	796376
Adults (85 years and over)	2145473	336735

Median observation time

Median time (years) between first and last available records for unique individuals captured in the data source

5.20

Median time (years) between first and last available records for unique active individuals (alive and currently registered) capt

7.90

Data flows and management

Access and validation

Governance details

Documents or webpages that describe the overall governance of the data source and processes and procedures for data capture and management, data quality check and validation results (governing data access or utilisation for research purposes).

Appendix_THIN

English (25.74 KB - XLS)

View document

Biospecimen access

Are biospecimens available in the data source (e.g., tissue samples)?

No

Access to subject details

Can individual patients/practitioners/practices included in the data source be contacted?

No

Description of data collection

Data are collected at physicians' level, in EHRs. All patients having at least one contact with a participating physician (GPs and specialists) are included in the database regardless of their pathology and the reasons of consultation. THIN® is anonymised at source, data are considered as non personal data. Each database follows a very strict anonymisation process: several steps from the anonymised data transmission by physicians until the database consolidation, including periodic assessment performed by several qualified third-party companies and monitoring by local authority of data protection (Garante per la Protezione dei Dati Personali’ in Italy).
In all countries, in the contract signed with physicians, Cegedim reminds to the physicians their legal obligations as data controller of their patient data.
Patients are informed by the physicians about the collection and anonymisation

of the data collected and can object to it. Whenever a patient requests his physician to stop the collection of his information, the physician can mark it in software and no data are therefore transmitted to THIN® database.

Event triggering registration

Event triggering registration of a person in the data source

Disease diagnosis

Other

Practice registration

Event triggering registration of a person in the data source, other

No patient objection for data collection.

Event triggering de-registration of a person in the data source

Loss to follow up

Other

Practice deregistration

Event triggering de-registration of a person in the data source, other

Patient’s requests to his physician to stop the collection of his information. The physician can mark it in software and no data are therefore transmitted to THIN® database.

Event triggering creation of a record in the data source

Any GP encounter, specialist encounter, pharmacy dispensation, nurse encounter (in some countries), request of analytics, request of referral, ... (the specific situations depend on the country)

Data source linkage

Linkage

Is the data source described created by the linkage of other data sources (prelinked data source) and/or can the data source be linked to other data source on an ad-hoc basis?

No

Data management specifications that apply for the data source

Data source refresh

Monthly

Informed consent for use of data for research

Not Required

Possibility of data validation

Can validity of the data in the data source be verified (e.g., access to original medical charts)?

Yes

Data source preservation

Are records preserved in the data source indefinitely?

Yes

Approval for publication

Is an approval needed for publishing the results of a study using the data source?

Yes

Data source last refresh

31/03/2023

Common Data Model (CDM) mapping

CDM mapping

Has the data source been converted (ETL-ed) to a common data model?

Yes

CDM Mappings

CDM name

OMOP

CDM website

https://www.ohdsi.org/Data-standardization/

Data source ETL status

Completed