Chronic Toxicities Related to Treatment in Patients With Localized Cancer (CANTO)

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Data source | Human | Biobank | Cancer registry

Administrative details

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PURI

https://redirect.ema.europa.eu/resource/1000000364

Data source ID

1000000364

Data source acronym

CANTO

Data holder

Unicancer

Data source type

Biobank

Cancer registry

Main financial support

National, regional, or municipal public funding

Care setting

Hospital inpatient care

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.

Yes

Description of the qualification

ISO certification of Unicancer direction holding the RWD programs.

Data source website

https://www.unicancer.fr/en/programs/canto/

Contact details

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Data source regions and languages

Data source countries

France

Data source languages

English

French

Data source establishment

Data source established

20/02/2012

Data source time span

First collection: 20/02/2012

The date when data started to be collected or extracted.

Publications

Data source publications

Soldato D, Havas J, Crane TE, Presti D, Lapidari P, Rassy N, Pistilli B, Martin E, Del Mastro L, Martin AL, Jacquet A, Coutant C, Cottu P, Merimeche A, Lerebours F, Tredan O, Vanlemmens L, Andre F, Vaz-Luis I, Di Meglio A. Coffee and tea consumption, patient-reported, and clinical outcomes in a longitudinal study of patients with breast cancer. Cancer. 2022 Oct 1;128(19):3552-3563. doi: 10.1002/cncr.34401. Epub 2022 Aug 1

Presti D, Havas J, Soldato D, Lapidari P, Martin E, Pistilli B, Jouannaud C, Emile G, Rigal O, Fournier M, Soulie P, Mouret-Reynier MA, Tarpin C, Campone M, Guillermet S, Martin AL, Everhard S, Di Meglio A. Factors associated with enrolment in clinical trials among women with early-stage breast cancer. ESMO Open. 2022 Jun;7(3):100513. doi: 10.1016/j.esmoop.2022.100513. Epub 2022 Jun 17.

Baker JL, Di Meglio A, Gbenou AS, El Mouhebb M, Iyengar NM, Michiels S, Cottu P, Lerebours F, Coutant C, Lesur A, Tredan O, Vanlemmens L, Jouannaud C,

Hrab I, Everhard S, Martin AL, Arveux P, Fabrice A, Vaz-Luis I, Jones LW. Association between physical activity and neoadjuvant chemotherapy completion and pathologic complete response in primary breast cancer: the CANTO study. Br J Cancer. 2022 Sep;127(5):886-891. doi: 10.1038/s41416-022-01870-y. Epub 2022 Jun 17.

Di Meglio A, Havas J, Soldato D, Presti D, Martin E, Pistilli B, Menvielle G, Dumas A, Charles C, Everhard S, Martin AL, Coutant C, Tarpin C, Vanlemmens L, Levy C, Rigal O, Delaloge S, Lin NU, Ganz PA, Partridge AH, Andre F, Michiels S, Vaz-Luis I. Development and Validation of a Predictive Model of Severe Fatigue After Breast Cancer Diagnosis: Toward a Personalized Framework in Survivorship Care. J Clin Oncol. 2022 Apr 1;40(10):1111-1123. doi: 10.1200/JCO.21.01252. Epub 2022 Jan 21.

Vaz-Luis I, Di Meglio A, Havas J, El-Mouhebb M, Lapidari P, Presti D, Soldato D, Pistilli B, Dumas A, Menvielle G, Charles C, Everhard S, Martin AL, Cottu PH, Lerebours F, Coutant C, Dauchy S, Delaloge S, Lin NU, Ganz PA, Partridge AH, Andre F, Michiels S. Long-Term Longitudinal Patterns of Patient-Reported Fatigue After Breast Cancer: A Group-Based Trajectory Analysis. J Clin Oncol. 2022 Jul 1;40(19):2148-2162. doi: 10.1200/JCO.21.01958. Epub 2022 Mar 15.

Di Meglio A, Charles C, Martin E, Havas J, Gbenou A, Flaysakier JD, Martin AL, Everhard S, Laas E, Chopin N, Vanlemmens L, Jouannaud C, Levy C, Rigal O, Fournier M, Soulie P, Scotte F, Pistilli B, Dumas A, Menvielle G, Andre F, Michiels S, Dauchy S, Vaz-Luis I. Uptake of Recommendations for Posttreatment Cancer-Related Fatigue Among Breast Cancer Survivors. J Natl Compr Canc Netw. 2022 Feb 7;20(13). doi: 10.6004/jnccn.2021.7051

Di Meglio A, Havas J, Soldato D, Presti D, Martin E, Pistilli B, Menvielle G, Dumas A, Charles C, Everhard S, Martin AL, Coutant C, Tarpin C, Vanlemmens L, Levy C, Rigal O, Delaloge S, Lin NU, Ganz PA, Partridge AH, Andre F, Michiels S, Vaz-Luis I. Development and Validation of a Predictive Model of Severe Fatigue After Breast Cancer Diagnosis: Toward a Personalized Framework in Survivorship

Care. J Clin Oncol. 2022 Apr 1;40(10):1111-1123. doi: 10.1200/JCO.21.01252. Epub 2022 Jan 21.

Caumette E, Vaz-Luis I, Pinto S, Havas J, Bovagnet T, Ruiz de Azua G, Di Meglio A, Martin AL, Everhard S, Cottu P, Vanlemmens L, Jouannaud C, Lerebours F, Dumas A, Menvielle G. The Challenge of Return to Work after Breast Cancer: The Role of Family Situation, CANTO Cohort. Curr Oncol. 2021 Oct 1;28(5):3866-3875. doi: 10.3390/curroncol28050330.

Di Meglio A, Gbenou AS, Martin E, Pistilli B, Ligibel JA, Crane TE, Flaysakier JD, Minvielle E, Vanlemmens L, Guenancia C, Rigal O, Fournier M, Soulie P, Mouret-Reynier MA, Tarpin C, Boiffard F, Guillermet S, Everhard S, Martin AL, Giacchetti S, Petit T, Dalenc F, Rouanet P, Arnaud A, Andre F, Vaz-Luis I. Unhealthy behaviors after breast cancer: Capitalizing on a teachable moment to promote lifestyle improvements. Cancer. 2021 Aug 1;127(15):2774-2787. doi: 10.1002/cncr.33565. Epub 2021 Apr 22.

Di Meglio A, Menvielle G, Dumas A, Gbenou A, Pinto S, Bovagnet T, Martin E, Ferreira AR, Vanlemmens L, Arsene O, Ibrahim M, Wassermann J, Martin AL, Lemonnier J, Del Mastro L, Jones LW, Partridge AH, Ligibel JA, Andre F, Michiels S, Vaz Luis I. Body weight and return to work among survivors of early-stage breast cancer. ESMO Open. 2020 Nov;5(6):e000908. doi: 10.1136/esmoopen-2020-000908.

Pistilli B, Paci A, Ferreira AR, Di Meglio A, Poinsignon V, Bardet A, Menvielle G, Dumas A, Pinto S, Dauchy S, Fasse L, Cottu PH, Lerebours F, Coutant C, Lesur A, Tredan O, Soulie P, Vanlemmens L, Jouannaud C, Levy C, Everhard S, Arveux P, Martin AL, Dima A, Lin NU, Partridge AH, Delaloge S, Michiels S, Andre F, Vaz-Luis I. Serum Detection of Nonadherence to Adjuvant Tamoxifen and Breast Cancer Recurrence Risk. J Clin Oncol. 2020 Aug 20;38(24):2762-2772. doi: 10.1200/JCO.19.01758. Epub 2020 Jun 22.

Kabore EG, Guenancia C, Vaz-Luis I, Di Meglio A, Pistilli B, Coutant C, Cottu P, Lesur A, Petit T, Dalenc F, Rouanet P, Arnaud A, Arsene O, Ibrahim M, Wassermann J, Boileau-Jolimoy G, Martin AL, Lemonnier J, Andre F, Arveux P. Association of body mass index and cardiotoxicity related to anthracyclines and trastuzumab in early breast cancer: French CANTO cohort study. PLoS Med. 2019 Dec 23;16(12):e1002989. doi: 10.1371/journal.pmed.1002989. eCollection 2019 Dec.

Ferreira AR, Di Meglio A, Pistilli B, Gbenou AS, El-Mouhebb M, Dauchy S, Charles C, Joly F, Everhard S, Lambertini M, Coutant C, Cottu P, Lerebours F, Petit T, Dalenc F, Rouanet P, Arnaud A, Martin A, Berille J, Ganz PA, Partridge AH, Delaloge S, Michiels S, Andre F, Vaz-Luis I. Differential impact of endocrine therapy and chemotherapy on quality of life of breast cancer survivors: a prospective patient-reported outcomes analysis. Ann Oncol. 2019 Nov 1;30(11):1784-1795. doi: 10.1093/annonc/mdz298.

Adjuvant endocrine therapy uptake, toxicity, and quality of life: development of a predictive model of discontinuation using the CANTO cohort, 2023

Baseline quality of life and chemotherapy toxicities in early breast cancer patients, 2023

CANTO-RT: the largest prospective multicenter cohort of early breast cancer patients treated with radiotherapy including full DICOM RT data, 2023

Chemotherapy-related amenorrhea and long-term quality of life among premenopausal women with early breast cancer, 2023

Cognitive change in breast cancer patients up to 2 years after diagnosis, 2023

Radiation-induced lung injury after breast cancer treatment: incidence in the CANTO-RT cohort and associated clinical and dosimetric risk factors, 2023

Sustainable return to work among breast cancer survivors, 2023

Dose / Exposure – Response of Exercise on Distant Recurrence in Primary Breast Cancer, 2024

Inflammation at diagnosis and cognitive impairment two years later in breast cancer patients from the Canto-Cog study, 2024

Magnitude and temporal variations of socioeconomic inequalities in the quality of life after early breast cancer: results from the multicentric French CANTO cohort, 2024

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.

Yes

Disease details

Breast cancer

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.

No

Pregnancy and/or neonates

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

No

Hospital admission and/or discharge

Yes

ICU admission

Is information on intensive care unit admission available?

Yes

Cause of death

Captured

Prescriptions of medicines

Captured

Prescriptions vocabulary

other

Prescriptions vocabulary, other

WHO Drug

Dispensing of medicines

Not Captured

Dispensing vocabulary, other

international nonproprietary name (INN) for anti-cancer drugs only

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

Other

Indication vocabulary, other

Oncology systemic drugs

Medical devices

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

No

Administration of vaccines

No

Procedures

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

Captured

Procedures vocabulary

Other

Procedures vocabulary, other

(not coded) Free text

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.

No

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?

Captured

Genetic data vocabulary

Other

Genetic data vocabulary, other

COSMIC

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.

Captured

Biomarker data vocabulary

Other

Biomarker vocabulary, other

oncogenic drivers (EGFR / KRAS / ALK/ etc.) coded with COSMIC catalog

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Patient-reported outcomes

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

Yes

Patient-generated data

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

Yes

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

Not coded (Free text)

Medicinal product information

Captured

Medicinal product information collected

Active ingredient(s)

Brand name

Dosage regime

Dose

Route of administration

Medicinal product vocabulary

Other

If 'other,' what vocabulary is used?

international nonproprietary name (INN)

Quality of life measurements

Captured

Quality of life measurements vocabulary

EQ5D

SF-36

Lifestyle factors

Captured

Lifestyle factors

Alcohol use

Diet

Frequency of exercise

Tobacco use

Sociodemographic information

Captured

Sociodemographic information collected

Age

Gender

Sex

Socioeconomic status

Quantitative descriptors

Population Qualitative Data

Population age groups

Adult and elderly population (≥18 years)

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

1356 breast cancer patients

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)

The aims of the cohort will be to quantify impact of cancer treatments toxicities, and to generate predictors of chronic toxicity in patients with non-metastatic cancer. Study of the original cohort will be focused on localized breast cancer patients, other localisation in non-metastatic setting will also be explored, frist of all in lung cancer.

The project will include four specific aims :

1. To develop a database of chronic treatment-related toxicity in a cohort of 14750 women with stage I-III breast cancer (= non metastatic), whatever the treatment (surgery; radiation therapy; chemotherapy ...)
2. To describe incidence, clinical presentation, and outcome of chronic toxicities.
3. To describe the psychological, the social and the economic impacts of chronic toxicities.
4. To generate predictors for chronic toxicities in order to prevent them, based upon biological criteria.

The expected impact of these toxicities, when identified, will be to improve quality of life and to decrease health cost, by the early identification of patients at high risk of toxicity. Such early identification could lead to prevent toxic effect by: a. developing prevention strategies, b. substituting toxic treatment by a non (less) toxic one.

Also, such cohort will offer a quantification of the impact of treatment toxicity, that could be further used to quantify medical usefulness of strategies that aim at decreasing treatment toxicities (implementation of predictive biomarker for resistance, cytotoxic-free regimen etc...)

Population

Population size

13356

Median observation time

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

6.00

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).

CANTO_Governance_EN_2025.pdf

English (204.17 KB - PDF)

View document

Biospecimen access

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

Yes

Biospecimen access conditions

Serum Plasma: 23 000 samples

Primary tumor / Tumor slide: 1200 patients

Genomic analysis: 10 000 profiles

Proteomic analysis: 1000 profiles

Metabolomic analysis: 1000 profiles

Clonal hematopoiesis: 1000 profiles

Inflammation markers: 1400 profiles

Access to subject details

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

No

Description of data collection

SPECIFIC AIM I: TO DEVELOP A TOXICITY DATABASE ON A COHORT OF 20,000 WOMEN WITH STAGE I-III (NON METASTATIC) BREAST CANCER

Selection criteria The cohort will include female patients with non-metastatic breast cancer (stage I-III) without any selection based on their characteristics (except stage) or treatment. They may be included in other concomitant clinical studies.

Patients will have to sign informed consent and will have to benefit from social security.

The lack of selection criteria is related to the fact that the cohort aims at investigating toxicity in the whole population of breast cancer from a public health perspective.

Sample size: The cohort plans to include 14750 women in 13 years. A cohort of 14750 patients will allow to detect a two fold increased in the risk of a specific

toxicity in a homogenous subgroup.

As illustrated, the study has a 90% power to detect whether a variable (age as example) observed in 50% of patients is associated with an increased risk of toxicity (heart toxicity) in a specific subgroup (Her2+++).

Development of the cohort: The 14750 patients will be recruited in 26 cancer centers, maximum in France. These patients will be followed for at least 5 years in the context of the cohort. After 5 years, additional specific data will then be captured each year.

Event triggering registration

Event triggering registration of a person in the data source

Disease diagnosis

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?

Yes

Linkage description, pre-linked

Linkage to the French National Healthcare Data System (SNDS) database

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Linkage description, possible linkage

SNDS : Système National des données de santé (France) / will be available from the second semester of 2025.

Data management specifications that apply for the data source

Data source refresh

Yearly

Possibility of data validation

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

No

Data source preservation

Are records preserved in the data source indefinitely?

No

Data source preservation length (years)

20 years years

Approval for publication

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

Yes

Data source last refresh

07/04/2025

Common Data Model (CDM) mapping

CDM mapping

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

No