Nationale Krebsregistrierungsstelle
Organe national d'enregistrement du cancer
Servizio nazionale di registrazione dei tumori
National Agency for Cancer Registration

Indicators for cancer

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Table of contents

Introduction

Indicators based on cancer registry data in Switzerland

The indicators serve as measuring instruments for assessing cancer burden, prevention and care in Switzerland. They fulfil the purposes defined in the Federal Act on the Registration of Cancerous Diseases (CRA), Article 2:

a. to observe the development of diseases according to Article 1;
b. to develop and implement prevention and screening measures and to monitor their effectiveness;
c. to evaluate the quality of care, diagnosis and treatment;
d. to support care planning and research.

Importance of indicators

Firstly, the indicators make it possible to objectively monitor the burden and development of cancer in adults in Switzerland. By analysing and publishing these indicators, patients, healthcare providers and political decision-makers can observe and assess cancer development in Switzerland. This promotes transparency in the healthcare system and creates a basis for well-founded decisions.

Secondly, medical care can be evaluated with a population-based approach and thus provide a basis for evidence-based quality assurance in the area of diagnosis and treatment. The indicators help to identify deviations from established treatment standards. This is particularly important in the field of oncology, where a high quality of treatment is directly linked to patients' chances of survival and quality of life.

Thirdly, indicators contribute to research and further development in oncology. They provide valuable data that can be used for scientific studies and health policy issues, for example. They enable evaluations of prevention and screening measures, evaluations for care planning and research. Progress in cancer diagnosis and cancer treatment as well as preventive measures for cancer are thus promoted.

Definition of indicators

Indicators for specific cancers (e.g. breast cancer) as well as general indicators applicable to various cancer types are defined. The indicators are based on the national cancer data set, which consists of data collected in the cantonal cancer registries for adult cancer cases and data collected in the national childhood cancer registry for children and adolescent cancer cases. The indicators are defined in a step-by-step process. A pre-selection of certain indicators is made through a comprehensive literature review, including national and international guidelines for clinical decisions, such as ESMO (European Society for Medical Oncology) or German S3-Guidelines. Existing indicators from other countries, particularly Germany, and indicators used for certifying tumour centres (e.g. Deutsche Krebsgesellschaft (DKG)) are also reviewed. Furthermore, indicators are shared with the cantonal cancer registries and the childhood cancer registry for comment. Indicators for specific cancers are discussed with experts from the relevant medical societies.

The orientation towards already internationally and nationally established similar indicators offers the possibility of being able to compare the results provided by cancer registration data with data collected in hospitals or of other countries. With the help of a precise comparison of the variables available in

the national cancer data structure and the variables required for calculating the indicators, practicable indicators were identified.

The current selection should not be regarded as definitive, but rather as evolving based on the international treatment guidelines and the needs and development of cancer care and research. The year of incidence of the tumour and the validity of the guidelines must be considered in the evaluations. This document is therefore updated on a regular basis.

Indicators can be grouped in different categories:

1. Indicators to observe the development of cancer
2. Indicators to evaluate prevention and screening measures and to monitor their effectiveness
3. Indicators to evaluate the quality of care
4. Indicators to evaluate the quality of diagnosis
5. Indicators to evaluate the quality of treatment

Use of indicators

Some indicators such as incidence or mortality are already calculated for the annual national cancer statistics. Other indicators have not yet been analysed at national level.
The indicators can be used for various analyses and publications:

- The national cancer monitoring and statistics of the Federal Statistical Office (e.g. stage distribution)
- The Swiss Cancer Report of the Federal Statistical Office
- Detailed standardised national analyses with publication on the NACR website (e.g. several indicators to certain cancer types)
- The triennial health report on cancer with detailed analyses on relevant health policy questions (e.g. evaluation of the treatment quality)
- Research projects (e.g. evaluation of screening programs)
- Comparison of national results with analyses of other data (e.g. cantonal cancer registry data, hospital data or international data).

For further information about analyses and publications of cancer registry data, please see https://nkrs.ch/en/statistics-and-reports.

General

1 Incidence	
Indicator to observe the development of cancer	
Objective:	Monitoring the incidence of specific tumours
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups) - Malignant neoplasms: Only primary tumours according to ENCR rules for multiple primaries (1) - Non-malignant neoplasms: Only precancerous lesions diagnosed without or before a diagnosis of an invasive cancer
Calculation:	- Number and rate per 100,000 person-years per incidence year/period (crude, age-standardised)
Variables:	- 2.3.1 Date of incidence - 3.3 ICD code
Stratification:	- By sex (1.2 Sex) - By region (1.8 Canton number, 1.9 FSO City/Municipality number) - By nationality (1.11 Nationality) - By age at incidence (2.4 Age at incidence) - By time period (2.3.1 Date of incidence) - By UICC stage (4.17 TNM stage group, 4.3 cT, 4.4 cN, 4.5 cM, 4.7 y-Prefix of pTNM, 4.8 pT, 4.10 pN, 4.13 pM) or by cancer specific staging system (4.18 Ann Arbor staging, 4.21 FIGO staging, 4.24 Lugano staging, 4.26 Rai staging, 4.27 Binet staging, 4.29 ISS staging, 4.30 DSS)
Remarks:	
Literature:	- Incidence is published in the "Swiss Cancer Report" (2), by the NACR (3) and the Federal Statistical Office (FSO) (4)

2 Mortality

Indicator to observe the development of cancer	
Objective:	Monitoring the mortality of specific cancer
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups)
Calculation:	- Number and rate per 100,000 person-years per incidence year/period (crude, age-standardised)
Variables:	- Cause of death statistics from the Federal Statistical Office is used
Stratification:	- By sex - By age at death - By time period - By region - By nationality
Remarks:	
Literature:	- Mortality is published in the "Swiss Cancer Report" (2), by the NACR (3) and the Federal Statistical Office (FSO) (4)

3 Survival

Indicator to observe the development of cancer

Objective:	Monitoring the observed and relative survival
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups) - Malignant neoplasms: Only primary tumours according to ENCR rules for multiple primaries (1)
Calculation:	- Observed and relative 1, 5, 10 and 15-year survival proportions (crude, age-standardised)
Variables:	1.13 Vital status 1.14.1 Date for vital status (age in days "age_fu") 2.3.1 Date of incidence 3.3 ICD code
Stratification:	- By sex (1.2 Sex) - By region (1.8 Canton number, 1.9 FSO City/Municipality number) - By place of birth (1.10 Place of birth) - By nationality (1.11 Nationality) - By age group (2.4 Age at incidence) - By time period (2.3.1 Date of incidence) - By UICC stage (4.17 TNM stage group, 4.3 cT, 4.4 cN, 4.5 cM, 4.7 y-Prefix of pTNM, 4.8 pT, 4.10 pN, 4.13 pM) or by cancer specific staging system (4.18 Ann Arbor staging, 4.21 FIGO staging, 4.24 Lugano staging, 4.26 Rai staging, 4.27 Binet staging, 4.29 ISS staging, 4.30 DSS) - By Charlson Index (10.14 Charlson index (supplementary data for C18-C20, C50, C61))
Remarks:	
Literature:	- Survival is published by the NACR (3) and in the "Swiss Cancer Report" (2) - International comparison with many countries possible, e.g. with the report "Cancer in Germany" of the Society of Epidemiological Cancer Registries (GEKID) and the Center for Cancer Registry Data (ZfKD) at the Robert Koch Institute (5,6), the Cancer System Quality Index 2021 from Ontario/Canada (7)

4 Prevalence

Indicator to observe the development of cancer	
Objective:	Monitoring the prevalence of specific cancer
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups) - Malignant neoplasms: Only primary tumours according to ENCR rules for multiple primaries (1)
Calculation:	- Estimated number of prevalent subjects or estimated proportion of prevalent subjects (number per 100'000 inhabitants) 0-1, 1-2, 2-5, 5-10, 0-2, 0-5, 0-10 years since diagnosis
Variables:	- 2.3.1 Date of incidence - 1.13 Vital status - 1.14.1 Date for vital status (age in days "age_fu") - 3.3 ICD code
Stratification:	- By sex (1.2 Sex) - By region (1.8 Canton number, 1.9 FSO City/Municipality number) - By place of birth (1.10 Place of birth) - By nationality (1.11 Nationality) - By age (2.4 Age at incidence) - By time period (2.3.1 Date of incidence) - By UICC stage (4.17 TNM stage group, 4.3 cT, 4.4 cN, 4.5 cM, 4.7 y-Prefix of pTNM, 4.8 pT, 4.10 pN, 4.13 pM) or by cancer specific staging system (4.18 Ann Arbor staging, 4.21 FIGO staging, 4.24 Lugano staging, 4.26 Rai staging, 4.27 Binet staging, 4.29 ISS staging, 4.30 DSS)
Remarks:	
Literature:	- Prevalence is published in the "Swiss Cancer Report" (2), by the NACR (3) and the Federal Statistical Office (FSO) (4)

5 Age at diagnosis

Indicator to observe the development of cancer

Objective:	Monitoring the age distribution at time of diagnosis in patients with specific tumours
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups) - Malignant neoplasms: Only primary tumours according to ENCR rules for multiple primaries (1) - Non-malignant neoplasms: Only precancerous lesions diagnosed without or before a diagnosis of an invasive specific cancer
Calculation:	1) Mean and median age at time of diagnosis 2) Distribution of age at diagnosis in age groups (in 5-year age groups; 0-54, 55-64, 65-74, 75+ years; other categories tbd)
Variables:	- 2.3.1 Date of incidence - 2.4 Age at incidence - 3.3 ICD code
Stratification:	- By sex (1.2 Sex) - By region (1.8 Canton number, 1.9 FSO City/Municipality number) - By place of birth (1.10 Place of birth) - By nationality (1.11 Nationality) - By time period (2.3.1 Date of incidence) - By UICC stage (4.17 TNM stage group, 4.3 cT, 4.4 cN, 4.5 cM, 4.7 y-Prefix of pTNM, 4.8 pT, 4.10 pN, 4.13 pM) or by cancer specific staging system (4.18 Ann Arbor staging, 4.21 FIGO staging, 4.24 Lugano staging, 4.26 Rai staging, 4.27 Binet staging, 4.29 ISS staging, 4.30 DSS)
Remarks:	- If there are enough cases, an extension of the age groups to 85-89Y, 90-94Y and ≥95Y to take into account the oldest old may be useful due to increasing life expectancy (8)
Literature:	- Median age of onset and cases per age group are published in the "Swiss Cancer Report" (2) and the Federal Statistical Office (FSO) (4)

6 Age at death

Indicator to observe the development of cancer

Objective:	Monitoring the age distribution at time of death in patients with specific cancer
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups) - Malignant neoplasms: Only primary tumours according to ENCR rules for multiple primaries (1)
Calculation:	1) Mean and median age at time of death 2) Distribution of age at death in age groups (in 5-year age groups; 0-54, 55-64, 65-74, 75+ years; other categories tbd)
Variables:	- Cause of death statistics from the Federal Statistical Office is used
Stratification:	- By sex - By time period - By region - By nationality
Remarks:	- If there are enough cases, an extension of the age groups to 85-89Y, 90-94Y and ≥95Y to take into account the oldest old may be useful due to increasing life expectancy (8)
Literature:	- Median age at death is published in the "Swiss Cancer Report" (2) and the Federal Statistical Office (FSO) (4)

Diagnostics

7 Stage distribution at diagnosis	
Indicator to observe the development of cancer	
Objective:	To show the stage distribution at the time of diagnosis in specific cancer patients and to evaluate changes over time
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups) - Malignant neoplasms: Only primary tumours according to ENCR rules for multiple primaries (1)
Calculation:	- Distribution of UICC stages 0-IV at time of diagnosis or by cancer specific staging system
Variables:	2.3.1 Date of incidence 3.3 ICD code 4.17 TNM stage group 4.3 cT 4.4 cN 4.5 cM 4.7 y-Prefix of pTNM 4.8 pT 4.10 pN 4.13 pM 4.18 Ann Arbor staging 4.21 FIGO staging 4.24 Lugano staging 4.26 Rai staging 4.27 Binet staging 4.29 ISS staging 4.30 DSS
Stratification:	- By sex (1.2 Sex) - By region (1.8 Canton number, 1.9 FSO City/Municipality number) - By nationality (1.11 Nationality) - By age group (2.4 Age at incidence) - By time period (2.3.1 Date of incidence)
Remarks:	- Possibly in addition to the UICC stage, evaluation according to "extent of disease" (local, (locally advanced), regional (pN), metastatic), as this classification is frequently used internationally (9) - Incidence by stage is included in the indicator “incidence”
Literature:	- International comparison with many countries possible, e.g. with the report "Cancer in Germany" of the Society of Epidemiological Cancer Registries (GEKID) and the Centre for Cancer Registry Data (ZfKD) at the Robert Koch Institute (5,6) the Cancer System Quality Index 2021 from Ontario/Canada (7)

8 Method of first detection

Indicator to observe the development of cancer	
Objective:	To show the proportion of first detection method
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups) - Malignant neoplasms: Only primary tumours according to ENCR rules for multiple primaries (1) - Non-malignant neoplasms: Only precancerous lesions diagnosed without or before a diagnosis of an invasive specific cancer
Calculation:	Numerator: 1) 2.6 Method of first detection = 1 (Clinical symptoms) 2) 2.6 Method of first detection = 2 (Incidental discovery) 3) 2.6 Method of first detection = 3 (Organised screening program) 4) 2.6 Method of first detection = 4 (Opportunistic screening) 5) 2.6 Method of first detection = 5 (Self-examination) 6) 2.6 Method of first detection = 6 (Death with autopsy) or 7 (Death without autopsy) 7) 2.6 Method of first detection = 8 (Other) 8) 2.6 Method of first detection = 9 (Unknown)
	Denominator: ICD code = XX
Variables:	2.3.1 Date of incidence 2.6 Method of first detection 3.3 ICD code
Stratification:	- By age group (2.4 Age at incidence) - By time period (2.3.1 Date of incidence) - By UICC stage (4.17 TNM stage group, 4.3 cT, 4.4 cN, 4.5 cM, 4.7 y-Prefix of pTNM, 4.8 pT, 4.10 pN, 4.13 pM) or by cancer specific staging system (4.18 Ann Arbor staging, 4.21 FIGO staging, 4.24 Lugano staging, 4.26 Rai staging, 4.27 Binet staging, 4.29 ISS staging, 4.30 DSS) - By nationality (1.11 Nationality)
Remarks:	
Literature:	

9 Histological confirmation of the diagnosis	
Indicator to evaluate the quality of diagnosis	
Objective:	To show the proportion of specific cancer cases with histological confirmation of the diagnosis and to evaluate changes over time
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups) - Malignant neoplasms: Only primary tumours according to ENCR rules for multiple primaries (1)
Calculation:	Numerator: Diagnostic method(s) used = biopsies: 24 (biopsy of the primary tumour), 20 (biopsy unspecified), 21 (biopsy/resection locoregional, without histology of primary tumour), 22 (Biopsy/resection of the metastasis, without histology of the primary tumour), 23 (biopsy/resection locoregional or of the metastasis, without histology of the primary tumour)
	Denominator: ICD code = XX
Variables:	2.3.1 Date of incidence 2.8 Diagnostic method(s) used 3.3 ICD code
Stratification:	- By sex (1.2 Sex) - By age group (2.4 Age at incidence) - By time period (2.3.1 Date of incidence) - By UICC stage (4.17 TNM stage group, 4.3 cT, 4.4 cN, 4.5 cM, 4.7 y-Prefix of pTNM, 4.8 pT, 4.10 pN, 4.13 pM) or by cancer specific staging system (4.18 Ann Arbor staging, 4.21 FIGO staging, 4.24 Lugano staging, 4.26 Rai staging, 4.27 Binet staging, 4.29 ISS staging, 4.30 DSS)
Remarks:	- According to The National Cancer Data Dictionary V1.3 (10) the NACR does not receive a date for neither variable 2.7 Most valid basis of diagnosis nor variable 2.8 Diagnostic method(s) used. Therefore, it is not possible to determine with certainty whether this is a pre-therapeutic histological diagnostic confirmation or a histological examination of the surgical specimen.
Literature:	- Comparison to proportion of cases with histological diagnosis basis of the incidence years 2006-2011 in Switzerland possible (11)

10 Invasive cancer/precancerous lesions by morphology	
Indicator to observe the development of cancer	
Objective:	To show the distribution of morphological types of specific cancer/precancerous lesions and to evaluate changes over time
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups) - Malignant neoplasms: Only primary tumours according to ENCR rules for multiple primaries (1) - Non-malignant neoplasms: Only precancerous lesions diagnosed without or before a diagnosis of an invasive specific cancer
Calculation:	Distribution of different morphological groups for specific cancer/precancerous lesions (ICD-O Morphology)
Variables:	- 3.3 ICD code - (3.4 ICD-O Topography) - 3.5 ICD-O Morphology - 3.6.1 ICD-O Behaviour
Stratification:	- By sex (1.2 Sex) - By age group (2.4 Age at incidence) - By time period (2.3.1 Date of incidence)
Remarks:	
Literature:	

11 Proportion of precancerous lesions	
Indicator to observe the development of cancer	
Objective:	To show the proportion of precancerous lesions among all specific tumours and to evaluate changes over time
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups) - Malignant neoplasms: Only primary tumours according to ENCR rules for multiple primaries (1) - Non-malignant neoplasms: Only precancerous lesions diagnosed without or before a diagnosis of an invasive specific cancer
Calculation:	Numerator: ICD code = DXX
	Denominator: ICD code = CXX, DXX
Variables:	- 2.3.1 Date of incidence - 3.3 ICD code
Stratification:	- By sex (1.2 Sex) - By age group (2.4 Age at incidence) - By time period (2.3.1 Date of incidence)
Remarks:	
Literature:	

12 Invasive cancer in patients with previous precancerous lesions	
Indicator to observe the development of cancer	
Objective:	To show the proportion of invasive specific cancer in patients with previous precancerous specific lesions and to evaluate changes over time
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups) - Non-malignant neoplasms: Patients with precancerous specific lesions without or before a diagnosis of an invasive specific cancer - Malignant neoplasms: Only primary tumours according to ENCR rules for multiple primaries (1)
Calculation:	Numerator: Number of Patient Identifier from Denominator AND ICD code = DXX AND age at incidence of CXX > age at incidence of DXX
	Denominator: ICD code = CXX
Variables:	2.3.1 Date of incidence 2.4 Age at incidence 3.3 ICD code (3.4 ICD-O Topography, 3.5 ICD-O Morphology, 3.6.1 ICD-O Behaviour) Patient identifier
Stratification:	- By sex (1.2 Sex) - By age group (2.4 Age at incidence) - By time period (2.3.1 Date of incidence)
Remarks:	
Literature:	

Treatment

13 Treatment decision at a tumour board	
Indicator to evaluate the quality of care	
Objective:	To show the proportion of cases with treatment decision at a tumour board and to evaluate changes over time
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups) - Malignant neoplasms: Only primary tumours according to ENCR rules for multiple primaries (1)
Calculation:	Numerator: Basis of first treatment complex decision = 1 (tumour board)
	Denominator: ICD code = XX
Variables:	2.3.1 Date of incidence 3.3 ICD code 7.1 Basis of first treatment complex decision
Stratification:	- By sex (1.2 Sex) - By age group (2.4 Age at incidence) - By time period (2.3.1 Date of incidence) - By UICC stage (4.17 TNM stage group, 4.3 cT, 4.4 cN, 4.5 cM, 4.7 y-Prefix of pTNM, 4.8 pT, 4.10 pN, 4.13 pM) or by cancer specific staging system (4.18 Ann Arbor staging, 4.21 FIGO staging, 4.24 Lugano staging, 4.26 Rai staging, 4.27 Binet staging, 4.29 ISS staging, 4.30 DSS) - By Nationality (1.11 Nationality)
Remarks:	- In the National Cancer Data Dictionary V1.3 (10) only the first tumour board is recorded: "If the treatment decisions were made in more than one tumour board, the first meeting date of a tumour board is recorded".
Literature:	

14 Surgical treatment	
Indicator to observe the development of cancer	
Objective:	To show the proportion of surgical treatment in specific cancer and to evaluate changes over time
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups) - Malignant neoplasms: Only primary tumours according to ENCR rules for multiple primaries (1)
Calculation:	Numerator: First treatment complex code(s): Surgery (definition of all codes corresponding to a surgical treatment by NACR based on ENCR definitions, codes to be used for calculations are dependent on the specific tumour)
	Denominator: ICD code = XX
Variables:	2.3.1 Date of incidence 3.3 ICD code 7.4 First treatment complex code(s)
Stratification:	- By sex (1.2 Sex) - By age group (2.4 Age at incidence) - By time period (2.3.1 Date of incidence) - By UICC stage (4.17 TNM stage group, 4.3 cT, 4.4 cN, 4.5 cM, 4.7 y-Prefix of pTNM, 4.8 pT, 4.10 pN, 4.13 pM) or by cancer specific staging system (4.18 Ann Arbor staging, 4.21 FIGO staging, 4.24 Lugano staging, 4.26 Rai staging, 4.27 Binet staging, 4.29 ISS staging, 4.30 DSS)
Remarks:	
Literature:	

15 Types of surgical treatment	
Indicator to observe the development of cancer and to evaluate the quality of treatment	
Objective:	To show the distribution of the surgical procedures in specific cancer and to evaluate changes over time
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups) - Malignant neoplasms: Only primary tumours according to ENCR rules for multiple primaries (1) - Only cases with surgery: First treatment complex code(s) = Surgery (definition of all codes corresponding to a surgical treatment by NACR based on ENCR definitions, codes to be used for calculations are dependent on the specific tumour)
Calculation:	Distribution of different types of surgical treatments (depending on specific tumour)
Variables:	2.3.1 Date of incidence 3.3 ICD code 7.4 First treatment complex code(s)
Stratification:	- By sex (1.2 Sex) - By age group (2.4 Age at incidence) - By time period (2.3.1 Date of incidence) - By UICC stage (4.17 TNM stage group, 4.3 cT, 4.4 cN, 4.5 cM, 4.7 y-Prefix of pTNM, 4.8 pT, 4.10 pN, 4.13 pM) or by cancer specific staging system (4.18 Ann Arbor staging, 4.21 FIGO staging, 4.24 Lugano staging, 4.26 Rai staging, 4.27 Binet staging, 4.29 ISS staging, 4.30 DSS)
Remarks:	
Literature:	

16 Resection status after surgery	
Indicator to evaluate the quality of treatment	
Objective:	To show the proportion of patients without detectable local residual tumour after surgery in specific cancer and to evaluate changes over time
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups) - Malignant neoplasms: Only primary tumours according to ENCR rules for multiple primaries (1) - Only cases with surgery: First treatment complex code(s) = Surgery (definition of all codes corresponding to a surgical treatment by NACR based on ENCR definitions, codes to be used for calculations are dependent on the specific tumour)
Calculation:	Numerator: Resection margin invasive tumour ≠ 0
	Denominator: ICD code = XX AND Resection margin invasive tumour ≠ 98.0, 99.0
Variables:	2.3.1 Date of incidence 3.3 ICD code 6.3 Resection margin invasive tumour 7.4 First treatment complex code(s)
Stratification:	- By sex (1.2 Sex) - By age group (2.4 Age at incidence) - By time period (2.3.1 Date of incidence) - By UICC stage (4.17 TNM stage group, 4.3 cT, 4.4 cN, 4.5 cM, 4.7 y-Prefix of pTNM, 4.8 pT, 4.10 pN, 4.13 pM) or by cancer specific staging system (4.18 Ann Arbor staging, 4.21 FIGO staging, 4.24 Lugano staging, 4.26 Rai staging, 4.27 Binet staging, 4.29 ISS staging, 4.30 DSS)
Remarks:	
Literature:	

17 Radiotherapy	
Indicator to observe the development of cancer	
Objective:	To show the proportion of radiotherapy in specific cancer and to evaluate changes over time
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups) - Malignant neoplasms: Only primary tumours according to ENCR rules for multiple primaries (1)
Calculation:	Numerator: First treatment complex code(s): Radiotherapy (definition of all codes corresponding to a radiotherapy by NACR based on ENCR definitions, codes to be used for calculations are dependent on the specific tumour)
	Denominator: ICD code = XX
Variables:	2.3.1 Date of incidence 3.3 ICD code 7.4 First treatment complex code(s)
Stratification:	- By sex (1.2 Sex) - By age group (2.4 Age at incidence) - By time period (2.3.1 Date of incidence) - By UICC stage (4.17 TNM stage group, 4.3 cT, 4.4 cN, 4.5 cM, 4.7 y-Prefix of pTNM, 4.8 pT, 4.10 pN, 4.13 pM) or by cancer specific staging system (4.18 Ann Arbor staging, 4.21 FIGO staging, 4.24 Lugano staging, 4.26 Rai staging, 4.27 Binet staging, 4.29 ISS staging, 4.30 DSS)
Remarks:	
Literature:	

18 Chemotherapy	
Indicator to observe the development of cancer	
Objective:	To show the proportion of chemotherapy in specific cancer and to evaluate changes over time
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups) - Malignant neoplasms: Only primary tumours according to ENCR rules for multiple primaries (1)
Calculation:	Numerator: First treatment complex code(s): Chemotherapy (definition of all codes corresponding to a chemotherapy by NACR based on ENCR definitions, codes to be used for calculations are dependent on the specific tumour)
	Denominator: ICD code = XX
Variables:	2.3.1 Date of incidence 3.3 ICD code 7.4 First treatment complex code(s)
Stratification:	- By sex (1.2 Sex) - By age group (2.4 Age at incidence) - By time period (2.3.1 Date of incidence) - By UICC stage (4.17 TNM stage group, 4.3 cT, 4.4 cN, 4.5 cM, 4.7 y-Prefix of pTNM, 4.8 pT, 4.10 pN, 4.13 pM) or by cancer specific staging system (4.18 Ann Arbor staging, 4.21 FIGO staging, 4.24 Lugano staging, 4.26 Rai staging, 4.27 Binet staging, 4.29 ISS staging, 4.30 DSS)
Remarks:	
Literature:	

19 Hormone therapy	
Indicator to observe the development of cancer	
Objective:	To show the proportion of hormone therapy in specific cancer and to evaluate changes over time
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups) - Malignant neoplasms: Only primary tumours according to ENCR rules for multiple primaries (1)
Calculation:	Numerator: First treatment complex code(s): Hormone therapy (definition of all codes corresponding to hormone therapy by NACR based on ENCR definitions, codes to be used for calculations are dependent on the specific tumour)
	Denominator: ICD code = XX
Variables:	2.3.1 Date of incidence 3.3 ICD code 7.4 First treatment complex code(s)
Stratification:	- By sex (1.2 Sex) - By age group (2.4 Age at incidence) - By time period (2.3.1 Date of incidence) - By UICC stage (4.17 TNM stage group, 4.3 cT, 4.4 cN, 4.5 cM, 4.7 y-Prefix of pTNM, 4.8 pT, 4.10 pN, 4.13 pM) or by cancer specific staging system (4.18 Ann Arbor staging, 4.21 FIGO staging, 4.24 Lugano staging, 4.26 Rai staging, 4.27 Binet staging, 4.29 ISS staging, 4.30 DSS)
Remarks:	
Literature:	

20 Antibody therapy	
Indicator to observe the development of cancer	
Objective:	To show the proportion of antibody therapy in specific cancer and to evaluate changes over time
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups) - Malignant neoplasms: Only primary tumours according to ENCR rules for multiple primaries (1)
Calculation:	Numerator: First treatment complex code(s): Antibody therapy = (definition of all codes corresponding to antibody therapy by NACR based on ENCR definitions, codes to be used for calculations are dependent on the specific tumour)
	Denominator: ICD code = XX
Variables:	2.3.1 Date of incidence 3.3 ICD code 7.4 First treatment complex code(s)
Stratification:	- By sex (1.2 Sex) - By age group (2.4 Age at incidence) - By time period (2.3.1 Date of incidence) - By UICC stage (4.17 TNM stage group, 4.3 cT, 4.4 cN, 4.5 cM, 4.7 y-Prefix of pTNM, 4.8 pT, 4.10 pN, 4.13 pM) or by cancer specific staging system (4.18 Ann Arbor staging, 4.21 FIGO staging, 4.24 Lugano staging, 4.26 Rai staging, 4.27 Binet staging, 4.29 ISS staging, 4.30 DSS)
Remarks:	
Literature:	

21 Neoadjuvant treatment	
Indicator to observe the development of cancer	
Objective:	To show the proportion of neoadjuvant treatment in specific cancer and to evaluate changes over time
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups) - Malignant neoplasms: Only primary tumours according to ENCR rules for multiple primaries (1)
Calculation:	Numerator: First treatment complex code(s): Antibody therapy, Chemotherapy, Hormone therapy (definition of all codes corresponding therapies by NACR based on ENCR definitions, codes to be used for calculations are dependent on the specific tumour) AND First treatment start complex date(s) (age in days) BEFORE First treatment start complex date(s) (age in days) of First treatment complex code(s): Surgery (definition of all codes corresponding to surgery by NACR based on ENCR definitions, codes to be used for calculations are dependent on the specific tumour)
	Denominator: ICD code = XX
Variables:	2.3.1 Date of incidence 3.3 ICD code (4.7 y-Prefix of pTNM) 7.4 First treatment complex code(s)
Stratification:	- By sex (1.2 Sex) - By age group (2.4 Age at incidence) - By time period (2.3.1 Date of incidence) - By UICC stage (4.17 TNM stage group, 4.3 cT, 4.4 cN, 4.5 cM, 4.7 y-Prefix of pTNM, 4.8 pT, 4.10 pN, 4.13 pM) or by cancer specific staging system (4.18 Ann Arbor staging, 4.21 FIGO staging, 4.24 Lugano staging, 4.26 Rai staging, 4.27 Binet staging, 4.29 ISS staging, 4.30 DSS)
Remarks:	
Literature:	

22 Time between diagnosis and start of treatment	
Indicator to evaluate the quality of care	
Objective:	To show the time between the diagnosis and the start of treatment in specific cancer and to evaluate changes over time
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups) - Malignant neoplasms: Only primary tumours according to ENCR rules for multiple primaries (1) - Non-malignant neoplasms: Only precancerous lesions diagnosed without or before a diagnosis of an invasive specific cancer
Calculation:	- Mean and median time between age at incidence and age at start of the treatment in days
Variables:	2.3.1 Date of incidence 2.4 Age at incidence 3.3 ICD code 7.5.1 Date of start of first treatment (age in days "age_tr1_1")
Stratification:	- By sex (1.2 Sex) - By age group (2.4 Age at incidence) - By time period (2.3.1 Date of incidence) - By UICC stage (4.17 TNM stage group, 4.3 cT, 4.4 cN, 4.5 cM, 4.7 y-Prefix of pTNM, 4.8 pT, 4.10 pN, 4.13 pM) or by cancer specific staging system (4.18 Ann Arbor staging, 4.21 FIGO staging, 4.24 Lugano staging, 4.26 Rai staging, 4.27 Binet staging, 4.29 ISS staging, 4.30 DSS) - By Nationality (1.11 Nationality)
Remarks:	
Literature:	

23 Time between diagnosis and surgery

Indicator to evaluate the quality of care

Objective:	To show the time between the diagnosis and the surgery in specific cancer and to evaluate changes over time
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups) - Malignant neoplasms: Only primary tumours according to ENCR rules for multiple primaries (1) - Non-malignant neoplasms: Only precancerous lesions diagnosed without or before a diagnosis of an invasive specific cancer - No neoadjuvant (preoperative) pre-treated patients, only curative treatment goal
Calculation:	- Mean and median time between age at incidence and age at the date of the surgical treatment in days - Definition surgery: First treatment complex code(s): Surgery (definition of all codes corresponding to a radiotherapy by NACR based on ENCR definitions, codes to be used for calculations are dependent on the specific tumour)
Variables:	2.3.1 Date of incidence 2.4 Age at incidence 3.3 ICD code 4.17 TNM stage group 4.3 cT 4.4 cN 4.5 cM 4.7 y-Prefix of pTNM 4.8 pT 4.10 pN 4.13 pM 7.3 First treatment complex goal(s) 7.4 First treatment complex code(s) 7.5.1 First treatment complex start date(s) (age in days "age_tr1_1")
Stratification:	- By sex (1.2 Sex) - By age group (2.4 Age at incidence) - By time period (2.3.1 Date of incidence) - By UICC stage (4.17 TNM stage group, 4.3 cT, 4.4 cN, 4.5 cM, 4.7 y-Prefix of pTNM, 4.8 pT, 4.10 pN, 4.13 pM) or by cancer specific staging system (4.18 Ann Arbor staging, 4.21 FIGO staging, 4.24 Lugano staging, 4.26 Rai staging, 4.27 Binet staging, 4.29 ISS staging, 4.30 DSS) - By nationality (1.11 Nationality)
Remarks:	
Literature:	

Course of the disease

24 New event during the course of the disease	
Indicator to observe the development of cancer	
Objective:	To show the proportion of specific cancer cases with a new event during the course of the disease (recurrence, progression, metachronous metastasis) and to evaluate changes over time
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups) - Malignant neoplasms: Only primary tumours according to ENCR rules for multiple primaries (1) - Non-malignant neoplasms: Only the first event is considered
Calculation:	Numerator: 1) Type of recurrence(s)/transformation(s) = 1 (progression), 3 (metastasis), 4 (recurrence), 9 (Unknown whether progression or recurrence) 2) 8.1 Type of recurrence(s)/transformation(s) = 1 (progression) 3) 8.1 Type of recurrence(s)/transformation(s) = 3 (metastasis) 4) 8.1 Type of recurrence(s)/transformation(s) = 4 (recurrence) 5) 8.1 Type of recurrence(s)/transformation(s) = 9 (Unknown whether progression or recurrence)
	Denominator: ICD code = XX
Variables:	2.3.1 Date of incidence 3.3 ICD code 4.5 cM 4.13 pM 8.1 Type of recurrence(s)/transformation(s)
Stratification:	- By sex (1.2 Sex) - By age group (2.4 Age at incidence) - By time period (2.3.1 Date of incidence) - By UICC stage (4.17 TNM stage group, 4.3 cT, 4.4 cN, 4.5 cM, 4.7 y-Prefix of pTNM, 4.8 pT, 4.10 pN, 4.13 pM) or by cancer specific staging system (4.18 Ann Arbor staging, 4.21 FIGO staging, 4.24 Lugano staging, 4.26 Rai staging, 4.27 Binet staging, 4.29 ISS staging, 4.30 DSS)
Remarks:	
Literature:	

25 Event-free survival

Indicator to observe the development of cancer

Objective:	To show the event-free survival in patients with specific cancer and to evaluate changes over time
Inclusion criteria:	- ICD code = XX (ICD codes separately or reporting groups) - Malignant neoplasms: Only primary tumours according to ENCR rules for multiple primaries (1)
Calculation	1) Mean and median event-free survival time in days between the age at incidence and age at time of the first event during the course of the disease (recurrence, progression, metastasis) 2) Observed 1, 5, 10 and 15-year event-free survival proportion
Variables:	2.3.1 Date of incidence 2.4 Age at incidence 3.3 ICD code 8.1 Type of recurrence(s)/transformation(s) 8.2.1 Date of recurrence(s)/transformation(s) (age in days "dacc_course")
Stratification:	- By sex (1.2 Sex) - By age group (2.4 Age at incidence) - By time period (2.3.1 Date of incidence) - By UICC stage (4.17 TNM stage group, 4.3 cT, 4.4 cN, 4.5 cM, 4.7 y-Prefix of pTNM, 4.8 pT, 4.10 pN, 4.13 pM) or by cancer specific staging system (4.18 Ann Arbor staging, 4.21 FIGO staging, 4.24 Lugano staging, 4.26 Rai staging, 4.27 Binet staging, 4.29 ISS staging, 4.30 DSS)
Remarks:	
Literature:	

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