Basis of Diagnosis

Contents

Entering into force

The new recommendation is published on the website on the (DD-MM-YYYY). These recommendations must be applied to all tumours with an incidence date on or after the (DD-MM-YYYY).

Aim of the basis of diagnosis

The aim of the basis of diagnosis is to quantify the likeliness of the diagnosis of cancer. This is particularly relevant in the absence pathological confirmation of the cancer. The proportion of clinical diagnoses (basis of diagnosis 1-4) is an indicator for the quality of the data. While a high proportion of clinical diagnoses in a cancer registry may well reflect the situation with regard to clinical and pathological investigations in the registry area, especially in developing countries, it may also indicate an overestimation of the cancer incidence. On the other hand, in registries with a very low proportion of clinical diagnoses there may be an underestimation of the cancer incidence.

Codes

Table 1. Basis of diagnosis codes

Code	Description	Criteria
0	Death certificate only (DCO)	Information provided is from a death certificate.
1	Clinical	Diagnosis made before death, but without any of the following (codes 2-8).
2	Clinical investigation	All diagnostic techniques, including X-ray, endoscopy, imaging, ultrasound, exploratory surgery (such as laparotomy), and autopsy, without a tissue diagnosis.
4	Specific tumour markers	Including biochemical and/or immunologic markers that are specific for a tumour site.
5	Cytology	Examination of cells from a primary or secondary site, including fluids aspirated by endoscopy or needle; also includes the microscopic examination of peripheral blood and bone marrow aspirates.
6	Flow cytometry/liquid biopsy[#1]	Immunophenotyping by flow cytometry or a liquid biopsy in the absence of pathology
7	Histology	Histologic examination of tissue from the tumour (primary or metastatic), however obtained, including all cutting techniques and bone marrow biopsies; also includes autopsy specimens of the tumour.
8	Cytogenetic and/or molecular testing	Detection of tumour-specific genetic abnormalities or genetic changes in the tumour, including techniques such as karyotyping, FISH (fluorescent in situ hybridization), PCR (polymerase chain reaction), DNA sequencing
9	Unknown	

[#] a liquid biopsy is a sample of blood or another body fluid (liquor, etc.) for the detection of cancer cells or DNA-fragments of these tumour cells

Rules and explanations

- Use the highest code from the range 1-8, unless it is a DCO (basis of diagnosis 0) or the basis of diagnosis is unknown (basis of diagnosis 9).
- Use code 0 when trace back from the death certificate is not possible. DCO cases have to be registered with morphology code 8000, unless the morphology code can be derived from the ICD-code. This applies to the following ICD10-codes: C43 (8720/3), C45 (9050/3), C46 (9140/3) and C81-C96/D45-D47 (9590/3-9989/3).
- Codes 1 and 2 may be used when a diagnosis of cancer is at least likely ('probably cancer'). If clinical investigations reveal that a cancer diagnosis is possible, the case should not be registered in the absence of pathological confirmation (basis of diagnosis 5-8).
- Cancers registered with basis of diagnosis 1 or 2 should be registered with morphology code 8000/3 (8000/0 or 8000/1 for benign and borderline malignant tumours of the central nervous system). Exceptions to this rule are listed in table 1. These exceptions only apply to cases for which the diagnosis is at least likely. If a specific diagnosis is only 'possible' or more than one diagnosis is mentioned in the clinical file or report, the case should be registered with morphology code 8000/3 (8000/0 or 8000/1 for benign and borderline malignant tumours of the central nervous system).
- Code 4 (specific tumour markers) is to be used always in combination with a clinical diagnosis of cancer and/or a clinical investigation showing cancer, as many tumour markers, for example prostate-specific antigen (PSA), may also be increased in the absence of cancer.
- The cancers that may be registered with basis of diagnosis 4 are listed in table 2.
- If pathology is available, but the exact code from the range 5-8 is unknown, code 5.
- Flow cytometry is often used for the diagnosis of leukaemia and lymphoma, e.g. chronic lymphocytic leukaemia.
- Many tumours have genetic abnormalities. Only a few are specific for the diagnosis of a certain cancer. Only when the genetic abnormality is specific for that cancer, basis of diagnosis 8 should be used. In most cases the abnormality should be present (e.g. CML, BCR-ABL1+ is 9875/3), but there are also cancer diagnoses which are characterized by the absence of a genetic abnormality (e.g. glioblastoma IDH- is 9445/3). Basis of diagnosis 8 applies to both examples.
- If a genetic abnormality which is specific for cancer is found by means of a 'liquid' biopsy[#] (in the absence of pathological confirmation), basis of diagnosis 6 should be applied

Table 2. Cancers that may be registered with a specific morphology on the basis of clinical information (basis of diagnosis 1) or clinical investigations (basis of diagnosis 2)

Cancer type	Basis of diagnosis	Topography code	Morphology code
Melanoma			
- Melanoma of the skin	1	C44	8720/3
- Melanoma of the eye	1 or 2	C69.0, C69.3, C69.4	8720/3
Childhood cancers (age <15)			
- Nephroblastoma	2	C64	8960/3
- Hepatoblastoma	2	C22	8970/3
- Retinoblastoma	1 or 2	C69.2	9510/3
Hepatocellular carcinoma	2	C22.0	8170/3
Non-functioning neuroendocrine tumours (NETs)			
- Non-functioning NET of the pancreas	2	C25.4	8150/3
- Non-functioning NET of the small intestine	2	C17	8240/3
Sarcoma			
- Sarcoma, NOS	2	*	8800/3
- Liposarcoma	2	*	8850/3
- Leiomyosarcoma	2	*	8890/3
- Angiosarcoma	1** or 2	*	9120/3
- Kaposi sarcoma of the skin	1	C44	9140/3
- Osteosarcoma	2	C40, C41	9180/3
- Chondrosarcoma	2	C40, C41	9220/3
- Chordoma	2	C41.0	9370/3
CNS tumours			
- Mature teratoma, cystic teratoma	2	C71, C75.1, C75.3	9080/0
- Teratoma, NOS	2	C71, C75.1, C75.3	9080/1
- Immature teratoma, malignant teratoma	2	C71, C75.1, C75.3	9080/3
- Haemangioblastoma	2	C71, C72.0	9161/1
- Craniopharyngioma	2	C75.2	9350/1
- Pinealoma	2	C75.3	9360/1
- Pineocytoma	2	C75.3	9361/1
- Pineoblastoma	2	C75.3	9362/3
- Glioma, NOS	2	C71, C72.0	9380/39
- Low grade glioma	2	C71, C72.0	9380/32
- High grade glioma	2	C71, C72.0	9380/33
- Subependymoma	2	C71.5, C71.7	9383/1
- Subependymal giant cell astrocytoma	2	C71.5, C71.7	9384/1
- Choroid plexus papilloma	2	C71.5, C71.7	9390/0
- Atypical choroid plexus papilloma	2	C71.5, C71.7	9390/1
- Choroid plexus carcinoma	2	C71.5, C71.7	9390/3
- Ependymoma	2	C71.5, C71.7, C72.0	9391/3
- Anaplastic ependymoma	2	C71.5, C71.7, C72.0	9392/3
- Myxopapillary ependymoma	2	C72.0, C72.1	9394/1
- Papillary tumour of the pineal region	2	C75.3	9395/3
- Astrocytoma, NOS	2	C71, C72.0	9400/39
- Low grade astrocytoma	2	C71, C72.0	9400/32
- High grade/anaplastic astrocytoma	2	C71, C72.0	9401/33
- Desmoplastic infantile astrocytoma / desmoplastic infantile ganglioglioma	2	C71	9412/1
- Dysembryoplastic neuroepithelial tumour	2	C71	9413/0

- Pilocytic astrocytoma	2	C71, C72.0	9421/1
- Optic nerve glioma, optic chiasm glioma in children	2	C72.3	9421/1
- Glioblastoma	2	C71, C72.0	9440/3
- Oligodendroglioma, NOS	2	C71	9450/39
- Low grade oligodendroglioma	2	C71	9450/32
- High grade/anaplastic oligodendroglioma	2	C71	9451/33
- Medulloblastoma, NOS	2	C71.6	9470/3
- Embryonal tumour van the CNS, NOS	2	C71, C72.0	9473/3
- Gangliocytoma	2	C71, C72.0, 75.1	9492/0
- Dysplastic gangliocytoma of the cerebellum	2	C71.6	9493/0
- Ganglioglioma	2	C71, C72.0	9505/1
- Neurocytoma	2	C71	9506/1
- Multinodular and vacuolating neuronal tumor	2	C71	9509/0
- Glioneural tumour	2	C71, C72.0	9509/1
- Meningioma, NOS	2	C70	9530/0
- Atypical meningioma	2	C70	9539/1
- Anaplastic (malignant) meningioma	2	C70	9530/3
- Schwannoma	2	C72.4, C72.5	9560/0
Haematological malignancies			
- Primary lymphoma of the central nervous system	2	C71	9590/3
- Langerhans cell histiocytosis	2	C34, C41, C71***	9751/3

* Sarcomas can be localized at any site, but mostly occur in the soft tissues, including the retroperitoneum and the mediastinum
** angiosarcoma of the (skin of the) breast following radiotherapy of the breast
*** other sites are possible

Table 3. Cancers that can be diagnosed on the basis of an elevated tumour marker (in combination with clinical investigations)

Cancer type	Tumour marker	Morphology code
Colorectal cancer	carcinoembryonic antigen (CEA)	8000/3
Hepatocellular carcinoma	alfa-fetoprotein (AFP)	8170/3
Pancreatic cancer, cancer of the gallbladder/bile ducts	cancer antigen 19-9 (CA 19-9)	8000/3
Ovarian cancer	cancer antigen 125 (CA-125)	8000/3
Prostate cancer	prostate-specific antigen (PSA)	8000/3
Choriocarcinoma of the placenta	human chorionic gonadotropin (HCG)	9100/3
Germ cell tumour	HCG	9064/3
	AFP (+/- HCG)	9065/3
Functioning neuroendocrine tumours (excluding pituitary gland tumours)	insulin	8151/3
	glucagon	8152/3
	gastrin	8153/3
	vasoactive intestinal peptide (VIP)	8155/3
	somatostatin	8156/3
	serotonin	8241/3
	adrenocorticotropic hormone (ACTH) and other hormones	8158/3
Neuroblastoma	catecholamine degradation products (homovanilic acid [HVA], vanillylmandelic acid [VMA])	9500/3
Prolactinoma	prolactin	8271/3
Other functioning pituitary gland tumours	growth hormone, follicle-stimulating hormone (FSH), luteinizing hormone (LH), ACTH, thyroid stimulating hormone (TSH)	8272/3
Phaechromocytoma	catecholamines	8700/3
Multiple myeloma	M-protein (IgG, IgM, IgA) >30g/L	9732/3
Waldenström's macroglobulinaemia	IgM	9761/3

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