

Swedish National  
Breast Cancer Study

---

**Karma**

## **Breast cancer variables from the INCA register (2007-) in Karma**

The INCA register (information network for cancer treatment) was founded in 2007, and Karma holds breast cancer records for all Karma study participants who have been diagnosed with breast cancer as a primary diagnosis. The register documents the chain of hospitalized treatments from first time of cancer diagnosis to cases with cancer relapses or decease. The register is restricted to information on the first breast diagnosed with cancer, and is also restricted to invasive cancer and in situ cancer. Women with Phyllodes tumors, sarcoma or lymphoma are not included in the register. And the register does not include information of deceased women where and an autopsy was performed and there was a tumor finding for the first.

The register includes information on pre-surgical diagnostics, as well as occurrences of tumors, kind of surgery performed, and treatment/diagnostic latencies. It also includes information on short/long term complication and relapses in relation to treatments, patient satisfaction, and cosmetics.

For more details, see

<http://www.cancercentrum.se/sv/INCA/kvalitetsregister/Brostcancer/>

Versions in INCA (from date):

v1.0 (2007-05-01)  
v1.0.1 (2008-02-19)  
v1.0.2 (2013-01-01)

Karma holds the following INCA breast cancer variables:

***Variables for first time visit (diagnosis)***

**Nationwide variables available from all oncological centers**

***LNR***

Tumor sequence number.

***DATEOFDEATH***

Date of death, YYYYMMDD

***Region***

Health region oncological center affinity, i.e. one of the six RCC / OC diagnostic sites diagnosing the patient.

***A000Alder***

A000 Age at breast cancer diagnosis, automatic calculation.

**Menstruation status variables (A020)**

***A020MensStat***

A020 Menstrual status at time of breast cancer diagnosis.

1 = pre-menopause (<6 months after the last menstrual period)

2 = 0.5 - 5 years post-menopause

3 = >5 years post-menopause

4 = Uncertain (e.g. hysterectomy)

98 = No information (available from v1.0.2)

## **Diagnostic variables (A030)**

### ***A030ICD03Kod***

A030 ICDO3 classification of breast tumor localization. (if specified location not given, then C509 is stated, as agreed in INCA steering group)

10 = C509 Breast, mammary gland, unspecified

20 = C500 Nipple and areola

30 = C501 central portion

40 = C502 Upper inner quadrant

50 = C503 lower, inner quadrant

60 = C504 The upper, outer quadrant

70 = C505 lower, outer quadrant

80 = C506 Axillar "utskott"

90 = overgrowth C508 to / from neighboring sub localized in chest although unknown origin.

### ***A030ICD03KodTxt***

A030 ICDO3 classification of breast tumor localization (free text). See above.

***A030Sida***

A030 side of body of breast cancer, lateral entry. (in case of bilateral cancer, two separate rows in register is created)

1 = Right

2 = Left

***A030OpLasKod***

A030 Treating clinic / hospital code. Hospital Codes of code list for each region.

***A030OpLasTxt***

A030 Treating clinic / hospital (free text).

***A030BesDat***

A030 Date of first visit at breast clinic for newly discovered breast cancer regardless of patient has confirmed cancer or will be confirmed later. Not relapse which is stated in follow-up part. YYYYMMDD

***A030DiaForBes2***

A030 Malignant diagnosis at first visit. Established by morphology (cytology/histology)

0 = No

1 = Yes

98 = Unknown

***A030Screening***

A030 Breast cancer detected in screening program. Stated when women participates in national screening program.

0 = No

1 = Yes

9 = Unknown

***A030PreOpMorf2***

A030 Malignancy determined preoperatively. In situ and/or invasive as stated by morphology (cytology/histology)

0 = No

1 = Yes

98 = Unknown

***A030DiaDat***

A030 Date of first diagnosis for breast cancer, YYYYMMDD. Earliest known date established by mammography, clinic or morphology.

***A030DiaGrund***

A030 Breast cancer diagnosis basis. If established by several methods, most reliable method is stated. Not necessarily method at diagnosis date.

1 = Clinical examination

2 = X-ray, scintigraphy, ultrasound, MRI or equivalent study

3 = PAD diagnosis verified (middle sized needle, large sized needle, provexcision or surgery with histopathologic examination)

5 = Cytological examination

8 = Other laboratory tests

***A030PatTxt***

A030 Treating pathological / cytological department (free text).

***A030PatKod***

A030 Treating pathological / cytological department (code). Pathologist or cytology codes according to the code list for each region.

***A030PrepNr***

A030 Surgical preparation number from PAD or cythology. Ex. T12345

***A030PrepAr***

A030 Year of surgical preparation, e.g. 2006

***A030DiagInv***

A030 Breast cancer diagnosis invasiveness at diagnosis date. (if both invasive and non-invasive, invasive is stated)

1 = invasive cancer

2 = mere non-invasive cancer

9 = Unknown

## **TNM classification variables (A040)**

### ***A040Tklass***

A040 Breast tumor T classification. (primary tumor according to TNM-classification UICC, rev. 7)

0 = T0 Not palpable tumor

05 = Tis tumor in situ

10 = T1 Tumor <20 mm

20 = T2 tumor 21-50 mm

30 = T3 Tumour >50 mm

42 = T4A Fixed at the chest wall

44 = T4b skin ulceration, ipsilateral cutaneous satellite tumor or skin oedema (including peau d'orange)

45 = T4c (both T4a and T4b) from version 1.0.2

46 = T4d Inflammatory cancer

50 = TX The tumor cannot be judged

### ***A040Nklass***

A040 Breast tumor N classification. (according to TNM-classification UICC, rev. 7)

0 = N0 No regional lymph node metastases



10 = N1 Moving lymph node metastases in axilla

20 = N2-fixed lymph node metastases in axilla or intra mammary without axilla metastases

30 = N3 Lymph node metastases in fossa scl/icl ipilateral or intra mammary in combination with axilla metastases

40 = NX Lymph nodes cannot be assessed

### ***A040Mklass***

A040 Breast tumor M classification. (according to TNM-classification UICC, rev. 7) If no known distant metastases, M0 is stated although not special examination was performed to exclude possibility of distant metastases. Distant metastases discovered within 3 months from diagnosis date is noted M. Distant metastases discovered during neo-adjuvant treatment is stated M1. (There shall be no information stated about PAD or post-operative adjuvant treatment for women having distant metastases at diagnosis date)

0 = M0 No known distant metastases

10 = M1 Remote Metastases exists

20 = MX Remote Metastases cannot be assessed (in v1.0 and v1.0.1)

### **Neoadjuvant treatment variable (A070)**

#### ***A070PreBeh***

A070 planned preoperative treatment.

0 = No

1 = Yes

***A070PreStrBeh***

A070 planned radiotherapy.

Check box = True

***A070PreEndoBeh***

A070 planned endocrine therapy.

Check box = True

***A070PreCytBeh***

A070 planned chemotherapy.

Check box = True

**Surgery variables (A080)**

***A080OpDat***

A080 Date of first surgery procedure (removal of tumor), YYYYMMDD

***A080SlutIngrepp***

A080 Final result of breast procedures.

1 = Partial mastectomy

2 = Mastectomy

3 = Not breast surgery (e.g., occult cancer, only axilla surgery)

4 = Subcutaneous mastectomy with preservation of the areola-mamilla

***A080DirRek2***

A080 Direct breast reconstruction performed.

0 = No

1 = Yes

98 = Unknown

***A080DirRek2Txt***

A080 Direct breast reconstruction (free text). See above.

***A080KontrLatIng***

A080 Contralateral procedures for breast symmetry performed.

0 = No

1 = Yes

***A080SenNodUt2***

A080 Procedure/surgerys to identify sentinel-node performed.

0 = No

1 = Yes

98 = Unknown

**A080AxillOp2**

A080 Axillary breast surgery performed (e.g. sampling).

0 = No

1 = Yes

98 = Unknown

**A080AxillOpTyp**

A080 Final results of axillary surgery.

1 = Only SN

2 = Sampling (4-5 lymph nodes in level 1)

3 = "utrymning" (extensive removal, level1 and level 2)

9 = No information available

**A080SekOpBro2**

A080 Additional 2nd phase breast surgery was performed, because of tumor data (PAD results), not due to breast reconstruction surgery

0 = No

1 = Yes

98 = Unknown

**A080OrsKomPop**

A080 Reason for additional breast surgery. (variable not available in v1.0.2)

1 = inadequate margins (invasive cancer)

2 = Multifocal invasive cancer

3 = Missed tumor

4 = Widespread CIS

5 = Diagnostic op showed cancer

6 = Other

### ***A080SekOpLgl2***

A080 Additional 2nd axilla surgery was performed, because of tumor data (PAD results)

0 = No

1 = Yes

98 = Unknown

### ***A080OrsKompLgl2***

A080 Reason for additional axilla surgery.

1 = Few lymph nodes

3 = Diagnostic surgery showed cancer

4 = Additional SN after diagnostic breast surgery

5 = Axilla "utrymning" due to pos SN

6 = Axilla "utrymning" after SN because of multi focality

7 = Axilla "utrymning" after SN because of other tumor data

8 = Other

***A080AntIngrepp***

A080 Number of additional breast and axillary surgeries performed, because of tumor data (excluding first surgery occasion).

MinMax value = 0 to 5

***A080PadInfoDat***

A080 Date of PAD information to the patient after surgery (at first planned follow-up visit), YYYYMMDD

**Morphology and surgery report PAD variables (A090)**

***A090VpatKod***

A090 Pathology / cytology department code. Codes according to the code list for each region.

***A090VpatTxt***

A090 Pathology / cytology department (free text).

***A090VprepNr***

A090 Surgical preparation number. E.g. T12345.

### ***A090VprepAr***

A090 Year of surgical preparation. E.g. 2006.

### ***A090InvCa***

A090 Breast cancer invasiveness.

1 = Only invasive cancer

2 = only carcinoma in situ

3 = Both invasive and in situ cancers

4 = Assessment not possible (v1.0.1-)

4 = Morphological assessment is not possible (v1.0)

### ***A090SnomedInv2***

A090 Type of invasive histopathology.

10 = Ductal cancer

20 = Both ductal and lobular carcinoma

30 = Ductal cancer and other types than lobular

40 = Lobular cancer

50 = Medullary cancer

60 = Phyllodes cancer (only in v1.0)

70 = Other invasive cancer

### ***A090SnomedInvKod***

A090 Invasive Snomed code. Code of Snomed as listed.

***A090SnomedInvTxt***

A090 Other invasive histopathology (free text).

***A090SnomedTis***

A090 In situ type histopathology.

10 = DCIS

20 = LCIS

40 = DCIS + LCIS

50 = Other in situ cancers

***A090SnomedTisKod***

A090 In situ Snomed code. Code of Snomed as listed.

***A090SnomedTisTxt***

A090 Other in situ histopathology. Stated in plain language.

***A090AntInva***

A090 Number of invasive tumors in the breast. (including satellite tumors)

0 = 0

1 = 1



2 = 2

3 = 3

4 = >3

9 = Unknown

***A090MultiFok2***

A090 Multi focality, i.e. distant invasive tumors with normal/in situ tissue in between.

0 = No

1 = Yes

98 = Unknown

***A090HistoTumStl***

A090 Histopathological size (mm) of the main invasive cancer.

MinMax value = 000 - 999.

***A090UtbTis***

A090 Histopathological size (mm) of carcinoma in situ.

MinMax value = 000 - 999.

***A090SnFrys2***

A090 SN with frozen sections.

0 = No

1 = Yes

98 = Unknown

***A090SnMet2***

A090 Metastasis in SN (macro, micro, sub micro).

0 = No

1 = Yes

98 = Unknown

***A090SnMakroMet***

A090 Number of SN with macro metastases (> 2 mm).

MinMax value = 0-9

***A090SnSubMikroMet***

A090 Number of SN micro metastases (> 0.2 and <= 2mm).

MinMax value = 0-9

***A090SnSubMikroMet***

A090 Number of SN sub micro metastases (<0.2 mm).

MinMax value = 0-9

***A090AntUsLgl***

A090 Total number of lymph nodes of all axilla surgeries (axilla “utrymning”, sampling, SN).

MinMax value = 0-99

### ***A090AntLglMet***

A090 Total lymph nodes with metastases (> 0.2 mm) from all axilla surgeries (axilla “utrymning”, sampling, SN)

MinMax value = 0-99

### ***A090KarInv2***

A090 The presence of vessel ingrowth.

0 = No

1 = Yes

98 = Unknown

## **Tumour biology variables (A100)**

Variables from surgery PAD, but for women who never got surgery information is collected from biopsy prior to treatment for women who only get neo-adjuvant treatment, or from biopsy for women who have distant metastasis at diagnosis date.

### ***A100NHG***

A100 NHG (invasive) or nuclear grade (in situ). (Nottingham Histologic Grade for invasive cancer and Nuclear grade for cancer in situ) Malignancy grade (highest grade) for invasive cancer and insitu according to PAD. If both invasive and in situ, then grade stated for invasive tumor.

1 = Grade 1

2 = Grade 2

3 = Grade 3

4 = not performed (v1.0.2)

9 = Unknown

***A100ERProc***

A100 ER status, percent.

MinMax value = 000-100

***A100ER***

A100 ER status immunohistochemistry (according to local laboratory).

1 = Positive

2 = Negative

3 = Not done

4 = Not assessments offense

***A100PRProc***

A100 PR status, percent.

MinMax value = 000-100

***A100PR***

A100 PR status, immunohistochemistry (according to local laboratory).

1 = Positive

2 = Negative

3 = Not done

4 = Not assessments offense

### ***A100HER2***

A100 HER-2.

1 = Amplified (3 + or FISH analysis performed)

2 = Negative

3 = Not done

## **Post-surgery adjuvant treatment variables (A120)**

### ***A120PostOpBeh2***

A120 postoperative treatment.

0 = No

1 = Yes

98 = Unknown

### ***A120PostOpRt2***

A120 planned radiotherapy.

0 = No

1 = Yes

98 = Unknown

If yes, specify type

***A120RtBrost***

A120 planned radiation of breast or chest wall.

Check box = True

***A120RtLokreg***

A120 planned loco regional "lymph node stations".

Check box = True

***A120PostOpEndo2***

A120 planned endocrine therapy.

0 = No

1 = Yes

98 = Unknown

If yes, specify type

***A120PostAntiOst***

A120 antiestrogen treatment.

Check box = True

***A120PostAromat***

A120 aromatase treatment.

Check box = True

***A120PostOpCyt2***

A120 planned chemotherapy.

0 = No

1 = Yes

98 = Unknown

If yes, specify type

***A120PostCytAntra***

A120 Anthra cycline based treatment.

Check box = True

***A120PostCytCMF***

A120 Chemotherapy (CMF regime).

Check box = True

***A120PostCytTax***

A120 Chemotherapy in combination of taxanes.

Check box = True

***A120PostCytOvr***

A120 Other chemotherapy.

Check box = True

***A120PostKast2***

A120 Castration.

0 = No

1 = Yes

98 = Unknown

***A120PostImm2***

A120 Immunotherapy.

0 = No

1 = Yes

98 = Unknown

***A120PostImmTrast***

A120 Trastuzumab therapy.

Check box = True



***A120PostImmOvr***

A120 Other immunotherapy.

Check box = True

***A120PostImmOvrTxt***

A120 Other immunotherapy (free text).

## **Region specific variables available in specific Swedish oncological centers**

Variables prefixed by XR are regional, i.e.

XR02 is only registered at RCC Uppsala / Örebro

XR03 is only registered at RCC Linköping

XR04 is only registered at RCC Lund

XR06 is only registered at RCC Umeå

### **XR02Dist**

XR02 Distribution, diffuse.

0 = No

1 = Yes

9 = Unknown

### **XR02ExtentDim1**

XR02 Extent (propagation in mm).

MinMax value = 000 - 999.

### **XR02ExtentDim2**

XR02 Extent (propagation in mm).

MinMax value = 000 - 999.

**XR02KIStat**

XR02 CI-status.

1 = Low (less than 10 percent)

2 = Medelhög (10-20 percent)

3 = High (greater 20 percent)

**XR02KI67**

XR02 Ki67 in percent. Enter the percentage of hot spots.

**XR03ForstBes**

XR03 Date of first visit, YYYYMMDD

**XR03Mammo**

XR03 Mammography.

1 = No

2 = Yes

9 = Unknown

**XR03MammoStl**

XR03 Mammography-size.

Min value = 1 mm

Maximum value = 150 mm

**XR03MammoGrad**

XR03 Mammography grading.

1 = I

2 = II

3 = III

4 = IV

5 = V

**XR04RemissAnk**

XR04 Date of referral arrival or when patient phoned breast clinic, YYYYMMDD

**XR06Serom**

XR06 The complication, seroma.

Check box = True

**XR06SenNodej**

XR06 Sentinel node was not found.

Check box = True

# Variables for follow-up visit

## **U040IpsiBrostKvar**

U040 Local recidiv at the operated side in the remaining breast or chest wall.

Marked check box = True

## **U040RecBrostDat**

U040 Date of 1st local recidiv in operated side in the remaining breast or chest wall.

YYYYMMDD

## **U040AxillRegRec**

U040 Regional recidiv in axillens lymph nodes on the operated side.

Marked check box = True

## **U040RecAxillDat**

U040 Date of 1st regional recidiv on axill operated side.

YYYYMMDD

## **U040RegRecFscI**

U040 Newly discovered regional recidiv in the operated side in the lymph nodes "parasternalt" or "fossa supraclavikulärt" or "infraclavikulärt".

Marked check box = True

## **U040RecParSternDat**

U040 Date of the first regional recidiv on the operated side in the lymph nodes "parasternalt" or "fossa supraclavikulärt" or "infraclavikulärt".

YYYYMMDD

## **U050FjerrMetFirstDat**

U050 Date of patient 1st distant distant metastasis.

YYYYMMDD

**U050HjarnaMet**

U050 Brain metastasis, if it is the 1st "fjärrmetastasen".  
Marked check box = True

**U050LeverMet**

U050 Liver metastasis, if it is the 1st "fjärrmetastasen".  
Marked check box = True

**U050LungaMet**

U050 Lung metastasis, if it is the 1st "fjärrmetastasen".  
Marked check box = True

**U050LungSackMet**

U050 Pleural metastasis, if it is the 1st "fjärrmetastasen".  
Marked check box = True

**U050SkelettMet**

U050 Skeleton metastasis, if it is the 1st "fjärrmetastasen".  
Marked check box = True

**U050OvrLokMet**

U050 Check box for another metastasis, if it is the 1st "fjärrmetastasen".  
Marked check box = True

## **System variables**

### **round\_inca\_breastcancer**

Round of INCA breast cancer registration, i.e. the order number of times the study participant were registered in the register. Used for stratifying order of registration events.

### **year\_inca\_breastcancer**

Year of INCA cancer diagnose registration. Used for stratifying time series data.

### **month\_inca\_breastcancer**

Month of INCA cancer diagnose registration. Used for stratifying time series data.

### **source\_inca\_breastcancer**

Available INCA breast cancer register data.