National Cancer Registration and Analysis Service's Cancer Analysis System (CAS)

SOP Counting Skin Cancer

Version: CAS-SOP Counting Skin Cancer 2.0

Date: 11-04-2022

Contents

Version history	3
Guidance for using this SOP	3
Introduction	4
Flow diagram – example codes for skin cancer subtypes	5
Include the standard SOP exclusions	6
Identifying skin cancer by ICD10 site codes	7
Guidance for handling multiple skin tumours	8
First ever (traditional registry rule)	8
First per patient per annum (first PPPA)	9
Impact of First ever or first PPPA methodology	10
Inclusion or exclusion of Extramammary Paget Disease	11
Which counting method to choose:	12
Part 1. How to count skin cancer	14
Sample code 1 – All skin tumour	14
Sample code 2 – All skin cancer	14
Sample code 3 – All non-melanoma skin cancer (NMSC)	15
Sample code 4 – All Melanoma	16
Sample code 5 – All rare skin cancer	16
Sample code 6 – First ever BCC	17
Sample code 7 – First ever cSCC	17
Sample code 8 – First PPPA BCC	18
Sample code 9 – First PPPA cSCC	18
Part 2. How to make AT_TUMOUR_SKIN	20
Identifying BCC and cSCC from morphology codes	21

Version history

CAS-SOP Counting Skin Cancer 2.0: This SOP supersedes a previous SOP (SOP counting C44). Changes are:

- Reframing to counting all skin cancer, not just non-melanoma skin cancer (C44)
- Includes new ICD-10 sites covering lip and genital skin tumours
- Includes ICD-O3 Morphology codes, in addition to ICD-O2 codes
- Creation of AT_TUMOUR_SKIN table

Guidance for using this SOP

This SOP has been written as two parts:

Part 1 covers how to count skin cancer using a pre-made av_tumour_skin table available in CASREF01 and the monthly snapshots (e.g CAS2109). This section contains example codes for counting common skin cancer combinations.

Part 2 of this SOP explains how av_tumour_skin was created and the assumptions that were used to categorise skin tumours in their tumour type groups.

If you have any issues or questions, please contact: birgitta.vanbodegraven@nhs.net

Introduction

Every year the National Cancer Registration and Analysis Service (NCRAS) registers skin cancer cases from English patients. Additional details on the patient, their type of cancer, how advanced it is, and any treatment they received are also registered. This Standard Operating Procedure (SOP) provides the process for counting skin cancer cases and extracting data from the NCRAS Cancer Analysis System (CAS). This SOP was developed as part of the British Association of Dermatologists (BAD) – National Disease Registry Service (NDRS) partnership and outlines two counting methodologies that can be followed to produce standardised and reproducible results. The method chosen will depend on the aim or research questions for which you are counting skin cancer, please find some example guidelines for which method to pick in the Keratinocyte Cancers section.

Skin cancer can be separated into melanoma and non-melanoma skin cancer (NMSC), where NMSC includes basal cell carcinoma (BCC; ~80%), cutaneous squamous cell carcinoma (cSCC; ~20%), and other rare skin cancers (e.g. Merkel cell carcinoma; <1%). BCC and cSCC are known as keratinocyte cancers (KC).

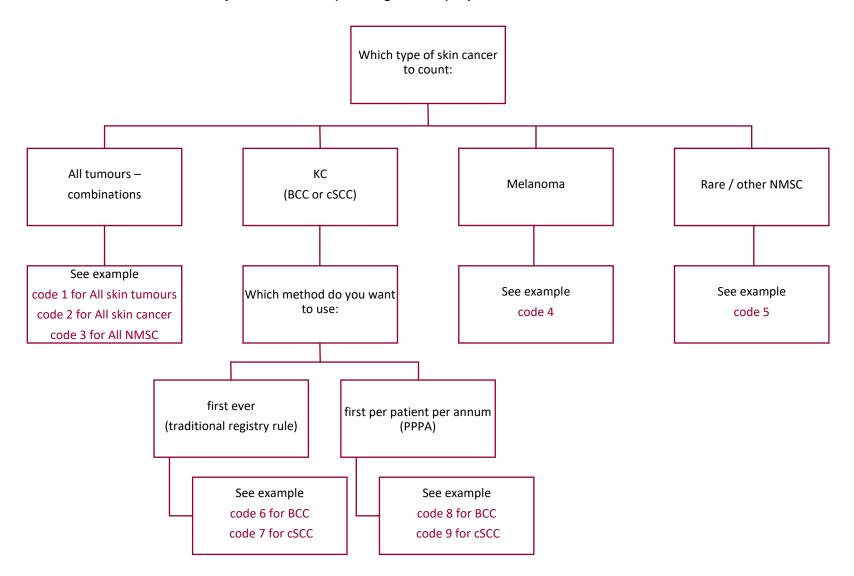
Historically, only the first occurrence of a BCC and cSCC tumour in an individual patient has been guaranteed to be registered in cancer registries ('traditional registry' or 'UKIACR' rule), however sometimes extra tumours in a patient are registered in error. This was the traditional rule due to the complexity in recording multiple tumours and high numbers of new cases resulting in a large workload for the registries.

Only counting the first occurrence of a BCC and cSCC tumour results in the underestimation of the true tumour count, which is estimated to be around 50% higher (see Figure 1). To account for tumour recurrence a new counting method, first occurrence per person per annum (first PPPA), was proposed during work in the BAD-NDRS partnership. See more about this in the Keratinocyte Cancers section.

A flow diagram is included below to guide you to the sample codes.

Flow diagram – example codes for skin cancer subtypes

Note: a combination of the codes may be needed depending on the project



Include the standard SOP exclusions

The exclusions listed below are in alignment with SOP #1 Counting Cancer Cases. Please see SOP #1 for a more extensive explanation of these exclusions.

- 1) **People who are resident outside England**; selecting records with a country code of E or in earlier datasets where the country code does not exist use LSOA codes beginning with 'E'.
- 2) Cancer cases that the registration officers have not finalised; important details about the cancer case may be subsequently added.
- 3) Cases that are considered to be duplicate records; The dedup_flag was developed to flag up records identified as duplicate records. For tumours diagnosed between 1995 and 2011, only those that can be traced in the 2013 ONS data will be counted. Be aware, a small quality issue with the dedup flag occurs when no ONS ID is available and some cases are potentially identified as duplicates in error.
- 4) Cases with suspected incorrect age at diagnosis; it is recommended to include records of patients aged between 0 and 200.
- 5) **Cases with unknown sex**; Cancer cases with an unknown sex are excluded.
- 6) Cases where the tumour site would not exist in cis-gendered patients of the registered gender; There are very small numbers of cases of females with site codes in the range of C60-C63 or males with a site code in the range C51-C58. These may be trans patients or a data quality issue, but they are excluded from routine incidence publications due to sensitivity around these cases and very small numbers leading to potential disclosure.

Currently AT_TUMOUR_SKIN has these exclusions built into it, although future iterations of the table may include Welsh cases, so restricting to English cases will be required.

Identifying skin cancer by ICD10 site codes

Decide if lips and genitals are included - we recommend they are

Most melanomas are site coded C43, and most KC tumours are site code C44. However, the external lips and genitals are also made of skin and may develop skin cancers. After working with clinicians, the recommendation for reporting on the total number of skin cancers is to include external lip and genital site codes. Therefore, the following ICD-10 site codes are included in this SOP:

	ICD-10 code - Melanoma	ICD-10 code – KC or rare
	C43: Melanoma	C44: NMSC
	C510: Labium Majus	C510: Labium Majus
	C511: Labium minus	C511: Labium minus
Ø	C512: Clitoris	C512: Clitoris
Codes	C518: Overlapping lesion of vulva	C518: Overlapping lesion of vulva
ုဒ္ပ	C519: Vulva, Unspecified	C519: Vulva, Unspecified
	C600: Prepuce - Penis	C600: Prepuce - Penis
Genital	C601: Glans Penis	C601: Glans Penis
ē	C602: Body of Penis	C602: Body of Penis
•	C608: Overlapping lesion of Penis	C608: Overlapping lesion of Penis
	C609: Penis, unspecified	C609: Penis, unspecified
	C632: Scrotum – Male Genital Organs	C632: Scrotum – Male Genital Organs
S	C000: External upper lip	C000: External upper lip
codes	C001: External lower lip	C001: External lower lip
္ပ	C002: External Lip, unspecified	C002: External Lip, unspecified
Lip	C006: Commissure of lip	C006: Commissure of lip
	C009: Lip, Unspecified	C009: Lip, Unspecified

An optional restriction has been added to all example codes to allow for counting cases using the traditional narrower site definitions C43 and C44.

This restriction is best used if you want to align with previous published national statistics or other publications.

However, if you want the best estimate of skin tumours use the additional lip and genital codes.

If you are using AT_TUMOUR_SKIN and want to count all these sites, you can just select everyone from the table where TUMOUR_TYPE_1 = 'Skin cancer'. If you want to exclude the lips and genitals, you need to add AND SITE_ICD10RNS_O2_3CHAR IN ('C43','C44')

Guidance for handling multiple skin tumours

Decide which methodology to follow for BCC and cSCC we recommend using the first PPPA method and counting all tumours

For non KC tumours (melanoma and rare skin cancers) all cancers are fully registered, and the incidence of these cancers is straightforward – just count all registered tumours, as you would for other cancers. This is also true for genital KCs

As discussed in the introduction, for non-genital KCs only the first occurrence of a BCC and cSCC tumour in an individual patient has been guaranteed to be registered in cancer registries. This means there is a choice in how to count these – broadly, only count the first one (first ever), or attempt to work out a 'proxy' using pathology reports, and estimate the count of all of them (first per patient per annum).

First ever (traditional registry rule)

This method captures the number of tumours in the National Cancer Registration Dataset which follow the traditional registry rule of recording only the first all-time record of a BCC and cSCC tumour.

The first ever method is as follows:

- 1) For a given patient who has ever had any BCC registered, find the diagnosis date of the first BCC, and count this BCC but no others.
- 2) For a given patient who has ever had any cSCC registered, find the diagnosis date of the first cSCC, and count this cSCC but no others.
- 3) If a patient has both a BCC and a cSCC they should be counted twice once for their first BCC and once for their first SCC.

Note: Although only the first ever BCC or cSCC are meant to be registered by the registry sometimes extra tumours are registered in error. To determine which is the first ever tumour av_tumour_skin has ranked tumours by patient and diagnosis date to identify the first ever.

This methodology is already implemented in AT_TUMOUR_SKIN; to find the first select TUMOUR_TYPE_5 IN ('First BCC', 'First cSCC').

First per patient per annum (first PPPA)

Though automated data processing systems, all pathology reports from BCC and cSCC tumours are collected by NCRAS. This method uses these pathology records and links them to the first recorded tumour record in an individual, to then identify subsequent tumour occurrences in following years.

The first PPPA method is as follows:

- 1) For a given patient who has a BCC registered, identify the earliest registered BCC. Then take all instances of other BCC tumours registered to that patient either full cancer registration records, or pathology reports linked to a cancer registration record with a date later than the earliest registration. The first registration is the first BCC. For every calendar year, if there is an instance of a BCC in that year (a path report or a registration), take the first one in the year as a subsequent BCC.
- 2) For a given patient who has a cSCC registered, identify the earliest registered cSCC. Then take all instances of other cSCC tumours registered to that patient either full cancer registration records, or pathology reports linked to a cancer registration record with a date later than the earliest registration. The first registration is the first cSCC. For every calendar year, if there is an instance of a cSCC in that year (a path report or a registration), take the first one in the year as a subsequent cSCC.
- 3) If a patient has both a BCC and a cSCC they should be counted twice in each year once in each year for their BCC and once in each year for their cSCC.

The first PPPA method gives a more accurate estimate on yearly keratinocyte cancer numbers and the burden on healthcare resources to treat these tumours.

This method has already been implemented in AT_TUMOUR_SKIN, and rows of AT_TUMOUR_SKIN represent these proxy registrations produced from pathology reports. If the cohort is not restricted to the 1st BCC or cSCC (as described above), counting cases from AT_TUMOUR_SKIN will default to the first PPPA method.

Impact of First ever or first PPPA methodology

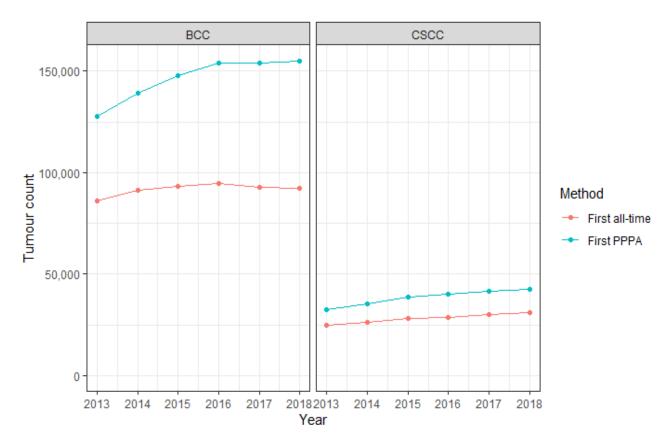


Figure 1. Differences in tumour count when counting first ever tumour compared with first tumour per patient per annum for BCC and cSCC.

The differences in tumour counts identified by the First all-time method and first PPPA method are shown in Figure 1 for the years 2013 till 2018. For both BCC and cSCC the first PPPA method identifies a larger number of tumours.

We believe that the first PPPA methodology better reflects the true incidence of BCC and cSCC tumours.

Inclusion or exclusion of Extramammary Paget Disease

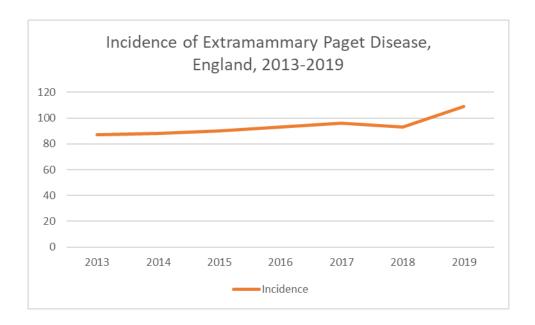
Decide if Paget is included in the total of skin cancer – we recommend it isn't.

Extramammary Paget disease is coded as behaviour 3 in ICD-O-2 and ICD-O-3, and so has historically been coded to C44 and included in counts of 'all skin cancers'.

Working with the British Association of Dermatologists (BAD) it became clear this tumour is viewed as a pre-invasive skin tumour, and so it has been excluded from the main 'Skin cancer' grouping for the Get Data Out data.

Paget disease is easily identified by a single morphology code, 8542, in both O2 and O3.

Although the inclusion or exclusion of extramammary Paget disease is an important decision for consistency, there are approximately 100 of these tumours diagnosed each year in England. In a cohort of over 200,000 skin tumours, the inclusion or exclusion of Paget will not be noticeable in most published statistics such as incidence rates or survival.



Which counting method to choose:

If you want the best estimate of the number of KC skin cancers, use the first PPPA method.

If you want to count 'cancer registrations' that have been fully registered, use the first ever method

If you want to align with published National Statistics for England, use the first ever method, and restrict it to C43 and C44, including Paget.

If you want numbers that are comparable with other publications, check which method they have used, and align as much as possible. Generally, many international publications may use the first ever (traditional site definitions) method, although Scotland count all cSCC which is most comparable to the first PPPA method.

If you want to use other fields that tumours have in your analysis (eg 'route to diagnosis'), the first ever method counts tumours that all have a tumourid in CAS. The first PPPA uses pathology reports as a proxy for tumours NCRAS has not registered and so data quality of these tumours is poorest.

If you are doing a new publication in a long time series, the first ever (traditional site definitions, including Paget) method will be closest to the numbers produced by counting AV_TUMOUR, with a slight reduction.

If you want a very long time series, the electronic pathology report data is unreliable before 2013, so the first ever method is the only one you can use.

In general, we would recommend you consider the reasons above and make the decision most appropriate to your publication, but **we recommend** that including all skin sites, excluding Paget, and using the first PPPA method best aligns with the clinical understanding of 'all skin cancers, and aligns with the 'skin cancer' figures published by Get Data Out.

Note: Counting skin cancers prior to 2013 is not recommended without careful consideration on the reliability of the data, and coding systems used.

Difference in tumour counts between the first ever method and first PPPA method and restricting to C43/C44 and expanded skin sites.

The below tables serve to indicate the differences in tumours count that choosing the different method and restricting skin sites have on the tumour counts for 2019 (based on av2019).

The green cells are the best estimate of the annual tumour burden in England. The blue cells are the best estimate for international comparisons. Extramammary Paget disease is included for Rare tumours in the blue counts but excluded in the green counts.

BCC

Site

Method	ICDO C44 only	GDO skin sites
First ever	92,308	92,397
First PPPA	158,843	158,934

cSCC

Site

Method	ICDO C44 only	GDO skin sites
First ever	32,484	34,130
First PPPA	46,313	47,977

Melanoma

Site

Method	ICDO C43 only	GDO skin sites
All registered	15,261	15,332

Rare

Site

Method	ICDO C44 only	GDO skin sites
All registered	1,753	1,849

"Skin cancer"

Site

Method	ICDO C44 only	GDO skin sites
Traditional-Style: All registered		
(w/ first ever BCC/cSCC)	141,806	143,708
GDO-Style: All registered w/		
first PPPA	222,170	224,092

Part 1. How to count skin cancer

Sample code 1 – All skin tumour

This code counts all registrable skin tumours (C and D codes) using a combination of all registered tumours in CAS and subsequent keratinocyte cancers identified from pathology records.

This is the best estimate of skin tumours diagnosed in England each year and aligns with GDO skin outputs.

SELECT DIAGNOSISYEAR, count(SKINID) as Incidence FROM AT_TUMOUR_SKIN
GROUP BY DIAGNOSISYEAR
ORDER BY DIAGNOSISYEAR;

Sample code 2 – All skin cancer

This code counts all skin cancers (C codes) using a combination of registered tumours in CAS and subsequent keratinocyte cancers identified from pathology records.

An optional restriction is available here to limit counting skin cancer to the traditional skin site definitions of C43 (melanoma) and C44 (NMSC), and to include or exclude Paget tumours.

This traditional style code counts all registered tumours (melanoma, rare, genital or lip KCs) and first ever KCs.

```
SELECT DIAGNOSISYEAR, count(SKINID) as Incidence
FROM AT_TUMOUR_SKIN
WHERE (
TUMOUR_TYPE_2 = 'Rare'
OR TUMOUR_TYPE_2 = 'Melanoma'
OR TUMOUR_TYPE_4 = 'Genital BCC'
OR TUMOUR_TYPE_5 = 'First BCC'
OR TUMOUR_TYPE_4 = 'Genital cSCC'
OR TUMOUR_TYPE_5 = 'First cSCC'
--OPTIONAL RESTRICTION – INCLUDE PAGET IF DESIRED
```

```
OR TUMOUR_TYPE_1 = 'Extramammary paget disease'
)
--OPTIONAL RESTRICTION - LIMIT TO TRADITIONAL SITE DEFINITIONS
--AND SITE_ICD10RNS_O2_3CHAR IN ('C43','C44')
GROUP BY DIAGNOSISYEAR
ORDER BY DIAGNOSISYEAR:
```

This GDO-Style code counts all registered tumours (melanoma, rare, genital or lip KCs) and first PPPA KCs.

This is the best estimate of skin cancer diagnosed in England each year and aligns with GDO skin outputs.

```
SELECT DIAGNOSISYEAR, count(SKINID) as Incidence
FROM AT_TUMOUR_SKIN
WHERE TUMOUR_TYPE_1 = 'Skin cancer'
--OPTIONAL RESTRICTION - LIMIT TO TRADITIONAL SITE DEFINITIONS
--AND SITE_ICD10RNS_O2_3CHAR IN ('C43', 'C44')
GROUP BY DIAGNOSISYEAR
ORDER BY DIAGNOSISYEAR;
```

Sample code 3 – All non-melanoma skin cancer (NMSC)

This code counts all keratinocyte and rare skin cancers (C codes) using a combination of registered tumours in CAS and subsequent keratinocyte cancers identified from pathology records.

This is the best estimate of NMSC in England annually.

An optional restriction is available here to limit counting skin cancer to the traditional skin site definitions of C44 (NMSC) and to include or exclude Paget

```
SELECT DIAGNOSISYEAR, count(SKINID) as Incidence
FROM AT_TUMOUR_SKIN
WHERE (TUMOUR_TYPE_2 = 'Keratinocyte cancer'
--OPTIONAL RESTRICTION – INCLUDE PAGET IF DESIRED
```

```
CAS-SOP: Counting Skin Cancer
```

```
OR TUMOUR_TYPE_1 = 'Extramammary paget disease'

OR TUMOUR_TYPE_2 = 'Rare')

--OPTIONAL RESTRICTION - LIMIT TO TRADITIONAL SITE DEFINITIONS

--AND SITE_ICD10RNS_O2_3CHAR = 'C44'

GROUP BY DIAGNOSISYEAR

ORDER BY DIAGNOSISYEAR;
```

Sample code 4 – All Melanoma

This code counts all melanoma cases registered in the CAS.

An optional restriction is available here to limit counting skin cancer to the traditional skin site definitions of C43 (Melanoma).

```
SELECT DIAGNOSISYEAR, count(SKINID) as Incidence
FROM AT_TUMOUR_SKIN
WHERE TUMOUR_TYPE_2 = 'Melanoma'
--OPTIONAL RESTRICTION - LIMIT TO TRADITIONAL SITE DEFINITIONS
--AND SITE_ICD10RNS_O2_3CHAR = 'C43'
GROUP BY DIAGNOSISYEAR
ORDER BY DIAGNOSISYEAR;
```

Sample code 5 - All rare skin cancer

This code counts all rare skin cancers, which are registered manually in England. The optional restriction is available to limit counting to the traditional site definition of C44, and to include or exclude Paget

```
SELECT DIAGNOSISYEAR, count(SKINID) as Incidence
FROM AT_TUMOUR_SKIN
WHERE (TUMOUR_TYPE_2 = 'Rare'
--OPTIONAL RESTRICTION – INCLUDE PAGET IF DESIRED
or TUMOUR_TYPE_1 = 'Extramammery paget disease'
)
```

- --OPTIONAL RESTRICTION LIMIT TO TRADITIONAL SITE DEFINITIONS
- --AND SITE_ICD10RNS_O2_3CHAR = 'C44'

GROUP BY DIAGNOSISYEAR

ORDER BY DIAGNOSISYEAR;

Sample code 6 – First ever BCC

This code counts all first ever BCC tumours, which include all genital and lip tumours and ranks all C44 patients to identify their first ever tumour.

The optional restriction is available to limit counting to the traditional site definition of C44, which does not include genital tumours.

SELECT DIAGNOSISYEAR, count(SKINID) as Incidence

FROM AT_TUMOUR_SKIN

WHERE (TUMOUR_TYPE_4 = 'Genital BCC'

OR TUMOUR_TYPE_5 = 'First BCC')

- -- OPTIONAL RESTRICTION LIMIT TO TRADITIONAL SITE DEFINITIONS
- --AND SITE_ICD10RNS_O2_3CHAR = 'C44'

GROUP BY DIAGNOSISYEAR

ORDER BY DIAGNOSISYEAR;

Sample code 7 – First ever cSCC

This code counts all first ever cSCC tumours, which include all genital and lip tumours and ranks all C44 patients to identify their first ever tumour.

The optional restriction is available to limit counting to the traditional site definition of C44, which does not include genital tumours.

SELECT DIAGNOSISYEAR, count(SKINID) as Incidence

FROM AT_TUMOUR_SKIN

WHERE (TUMOUR_TYPE_4 = 'Genital cSCC'

OR TUMOUR_TYPE_5 = 'First cSCC')

- -- OPTIONAL RESTRICTION LIMIT TO TRADITIONAL SITE DEFINITIONS
- --AND SITE ICD10RNS O2 3CHAR = 'C44'

GROUP BY DIAGNOSISYEAR

ORDER BY DIAGNOSISYEAR;

Sample code 8 – First PPPA BCC

This code counts all BCC tumours, including genital and lip tumours and ranks C44 tumours identified from CAS and pathology records to identify the first tumour in each year.

A patient may contribute 1 C44 BCC tumour each year, either their first ever BCC or a subsequent BCC.

The optional restriction is available to limit counting to the traditional site definition of C44 and does not include the lip and genital tumours.

This is the best estimate of BCC tumours in England annually.

SELECT DIAGNOSISYEAR, count(SKINID) as Incidence

FROM AT_TUMOUR_SKIN

WHERE TUMOUR_TYPE_3 = 'BCC'

--OPTIONAL RESTRICTION - LIMIT TO TRADITIONAL SITE DEFINITIONS

--AND SITE_ICD10RNS_O2_3CHAR = 'C44'

GROUP BY DIAGNOSISYEAR

ORDER BY DIAGNOSISYEAR;

Sample code 9 - First PPPA cSCC

This code counts all cSCC tumours, including genital and lip tumours and ranks C44 tumours identified from CAS and pathology records to identify the first tumour in each year.

A patient may contribute 1 C44 cSCC tumour each year, either their first ever cSCC or a subsequent cSCC.

The optional restriction is available to limit counting to the traditional site definition of C44 and does not include the lip and genital tumours.

This is the best estimate of cSCC tumours in England annually.

SELECT DIAGNOSISYEAR, count(SKINID) as Incidence

FROM AT_TUMOUR_SKIN

WHERE TUMOUR_TYPE_3 = 'cSCC'

--OPTIONAL RESTRICTION - LIMIT TO TRADITIONAL SITE DEFINITIONS

--AND SITE_ICD10RNS_O2_3CHAR = 'C44'

GROUP BY DIAGNOSISYEAR

ORDER BY DIAGNOSISYEAR;

Part 2. How to make AT_TUMOUR_SKIN

The SQL code used to create AT_TUMOUR_SKIN can be found in the file embedded below:



The tumours included in this table have been defined by ICD 10 site, and ICD 0-2 or ICD O-3rev1 morphology and behaviour codes. Tumours included are restricted to cutaneous skin, with the exception of mucosal skin of the external genitals.

Three lookup tables are used to define the cohort:

- Skin site
- O-2 morphology and behaviour
- O-3 morphology and behaviour

The steps to create AT_TUMOUR_SKIN briefly explained are as follows:

- 1. Start with all skin tumour in at_tumour_england.
- 2. Non-keratinocyte tumours are simplest, take these from at_tumour and they're a clean cohort from 2013 onwards.
- 3. Non C44 keratinocyte (KC) tumours, and Genital KC tumours are registered properly and not through the automatic processor, they are included separately and don't count towards first ever tumours.
- 4. Non-genital KC tumours are separated into first and subsequent tumours. All KC tumours in av_tumour are linked to pathology records to identify all pathology reports for any KC from 1995 to now.
 - a. For tumours with a non-informative site (C448, C449), we give the tumour the first informative site recorded from the pathology reports where possible.
 - b. Where first-ever tumours are identified from pathology reports that are dated before the av_tumour record, these are removed in favour of the av_tumour record.

- c. About 20 ancient tumours have melanoma site codes (C43.x) but KC morphology codes. We replace their melanoma site code with an appropriate (C44.x) code.
- 5. To identify the first ever tumour records are ranked by patient id and KC type, BCC or SCC. The first record identified is carried forward as the 'first-ever' tumour.
- 6. To identify subsequent tumour records are ranked by patient id, KC type, and diagnosis year. The first record in each year is caried forward as the 'subsequent' tumour.
 - a. If the first record in a year does not have an informative site, we look to see if an informative site can be found from
- 7. All of this is then combined into the final table, which is a table with a clean cohort of non-keratinocyte cancers, sorts and cleanly identifies the first ever KC tumour, and makes subsequent tumours available through AT_TUMOUR_SKIN for all analysts.

Identifying BCC and cSCC from morphology codes

This SOP uses the 3rd revision of the ICD oncology codes (ICD-O3) to identify relevant cases where possible but may refer back to ICD-O2 for diagnoses prior to 2013. It must be noted that ICD-O2 and ICD-O3 may not select the exact same cohort of tumours cases, due to tumours without a classification mapping ID. For all tumours with a classification mapping ID the definitions of cSCC and BCC agree in both coding systems.

Below are included morphology codes, ICD-O2 and ICD-O3, for cSCC and BCC:

ICD-O2: 2nd revision of the ICD oncology codes:

cSCC		BCC	
Code	Name	Code	Name
8051	Verrucous Carcinoma NOS	8090	Basal Cell Carcinoma NOS
8052	Papillary Squamous Cell Carcinoma	8091	Basal Cell Carcinoma Multicentric
8070	Squamous Carcinoma NOS	8092	Basal Cell Carcinoma Morphea Type
8071	Squamous Carcinoma Keratinising NOS	8093	Basal Cell Carcinoma Fibroepithelial
8072	Squamous Carcinoma Nonkeratinising NOS	8094	Basosquamous Carcinoma
8073	Squamous Carcinoma Small Cell Non Nonkeratinising	8095	Metatypical Carcinoma
8074	Squamous Carcinoma Spindle Cell Type	8097	Basal call carcinoma, nodular

8075	Adenoid Squamous Cell Carcinoma	8098	Adenoid basal carcinoma
8076	Squamous Carcinoma Microinvasive		
8077	Squamous Intraepithelial Neoplasia, High Grade		
8078	Squamous Cell Carcinoma With Horn Formation		
8080	Queyrat's Erthroplasia Malignant		
8083	Basaloid Squamous Cell Carcinoma		
8084	Squamous Cell Carcinoma, Clear Cell Type		

ICD-O3: 3rd revision of the ICD oncology codes:

cSCC		BCC	
Code	Name	Code	Name
8051	Verrucous Carcinoma NOS	8090	Basal Cell Carcinoma NOS
8052	Papillary Squamous Cell Carcinoma	8091	Basal Cell Carcinoma Multicentric
8070	Squamous Carcinoma NOS	8092	Basal Cell Carcinoma Morphea Type
8071	Squamous Carcinoma Keratinising NOS	8093	Basal Cell Carcinoma Fibroepithelial
8072	Squamous Carcinoma Nonkeratinising NOS	8094	Basosquamous Carcinoma
8073	Squamous Carcinoma Small Cell Non Nonkeratinising	8095	Metatypical Carcinoma
8074	Squamous Carcinoma Spindle Cell Type	8097	Basal call carcinoma, nodular
8075	Adenoid Squamous Cell Carcinoma	8098	Adenoid basal carcinoma
8076	Squamous Carcinoma Microinvasive		
8077	Squamous Intraepithelial Neoplasia, High Grade		
8078	Squamous Cell Carcinoma With Horn Formation		
8 0 80	Queyrat's Erthroplasia Malignant		
8083	Basaloid Squamous Cell Carcinoma		
8084	Squamous Cell Carcinoma, Clear Cell Type		