



# Non-melanoma skin cancer in England, Scotland, Northern Ireland, and Ireland

## NCIN Data Briefing

### Background

Non-melanoma skin cancer (NMSC) is the most common group of cancers, accounting for roughly 20% of all new malignancies and 90% of all skin cancers registered in the UK and Ireland. The two major types of NMSC are basal cell carcinoma and squamous cell carcinoma. Basal cell carcinoma (BCC) affects the basal cells at the bottom of the epidermis (outer section of skin) and represents about 74% of NMSCs. BCCs rarely metastasize and almost never cause death, but can erode local anatomical structures, especially on the head and neck. Squamous cell carcinoma (SCC) represents around 23% of NMSCs. It is a cancer of the cells producing keratin; a waxy substance that helps to form the protective outer layer of the epidermis. SCCs may metastasize and can cause death. The major risk factor for skin cancer is exposure to ultra-violet radiation from the sun or sun-beds, especially for fair-skinned people. A suppressed immune system, through taking immune-suppressive drugs following organ transplant or receiving radiation treatment, also leads to increased risk of skin cancer. NMSCs are rarely fatal, but due to their high incidence represent a significant burden to health services.

#### KEY MESSAGE:

*The registered incidence of non-melanoma skin cancer (NMSC) is higher in men than women, and has increased by over 30% in the last decade.*

*Limited resources mean that not all NMSCs are registered, and the true burden on health services is under-estimated.*

### Registration of non-melanoma skin cancer

With limited resources, many cancer registries do not register all primary NMSCs. The United Kingdom Association of Cancer Registries (UKACR, 2013), European Network of Cancer Registries (ENCR, 2000), and International Agency for Research on Cancer (IARC, 2004) recommend reporting only the *first* BCC or SCC per person to standardise comparisons of incidence trends between regions, whilst allowing multiple tumours of the same type to be recorded locally. Registries in England and Northern Ireland now record the first NMSC of each histological type per person; Scotland registers the first BCC, and all SCCs; Ireland aims to record all NMSCs but only formally registers the first of each type. In this briefing, data from the Welsh Cancer Intelligence & Surveillance Unit have not been included at their request as a lack of resources prevents them from meeting UKACR standards. In addition, some NMSCs are not registered, especially small BCCs that are treated topically without pathological verification, but also those treated in the private sector. Overall, this leads to under-reporting of the true burden of NMSCs on the health system. Previous research in European countries estimates the level of under-reporting to be 30-50% for BCCs (Brewster et al., 2007; de Vries et al., 2012) and around 30% for SCCs (Poirier et al., 2013), although the under-estimation may vary by registry (South West Public Health Observatory, 2010). This data briefing provides recent information on the registered incidence of NMSCs in different cancer registries in the UK and Ireland.

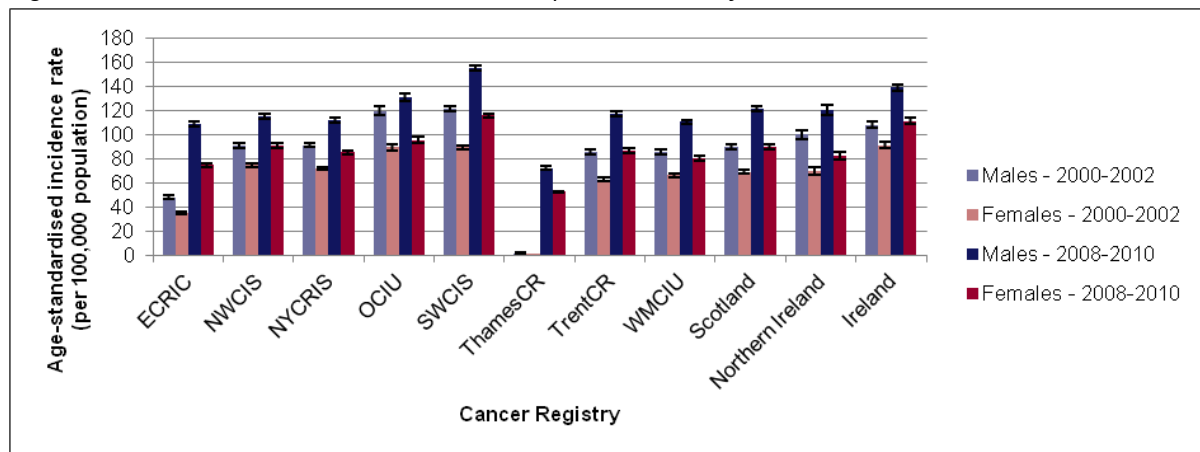
### Data sources and method

Data were extracted from the Celtic National Cancer Data Repository (Celtic-NCDR 2010) for England, Wales, and Northern Ireland; Information Services Division Scotland ([www.isdscotland.org](http://www.isdscotland.org)) and the National Cancer Registry of Ireland ([www.ncri.ie](http://www.ncri.ie)). Cases were selected by ICD-10 code C44 (other malignant neoplasms of skin), with BCC defined as histology 8090/3 to 8098/3, and SCC having histology 8050/3 to 8078/3, plus 8083/3 and 8084/3.

## Incidence of basal cell carcinoma

There has been a large increase in the incidence of BCCs recorded between 2000-2002 and 2008-2010 (Fig. 1); a 36% increase on average in males, and a 32% increase on average in females (excluding Thames Cancer Registry, as they only recently started recording BCCs). Some of this increase may be attributable to improved registration. The incidence rate is higher in males than females. There is broad variation in incidence rates between registries which is partly, but not entirely, due to different registration policies (see above).

Figure 1: Age-standardised incidence rate (per 100,000 population) of basal cell carcinoma in different cancer registries, 2000-2002 and 2008-2010; error bars represent 95% confidence intervals.

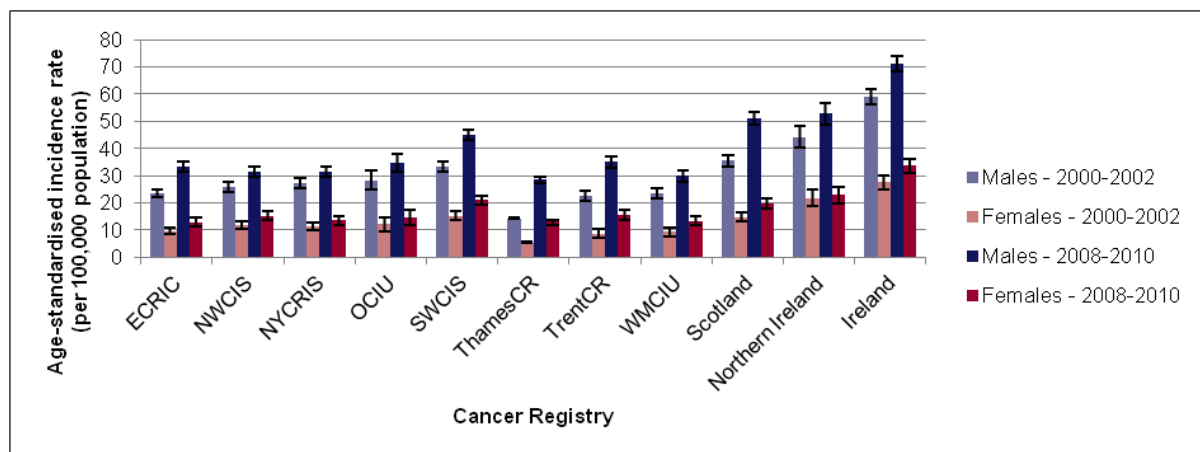


Source: Celtic-NCDR 2010; ISD Scotland; NCR Ireland; \* Thames CR did not register BCCs in 2000-2002

## Incidence of squamous cell carcinoma

The increase in incidence of SCCs from 2000-2002 to 2008-2010 (Fig. 2) is similar to BCCs: 34% in males and 39% in females. The incidence rate is higher in males than females, and this gender difference is wider than for BCCs. Scotland, Northern Ireland and Ireland have noticeably higher rates of SCCs relative to the English cancer registries than was the case for BCCs. This may reflect the higher proportion of fair-skinned people in Celtic countries, although it seems unusual this would not also affect the incidence of BCCs. The higher incidence in Celtic countries may also be due to more complete recording of SCCs, and for Scotland their policy of recording *all* SCCs per person.

Figure 2: Age-standardised incidence rate (per 100,000 population) of squamous cell carcinoma in different cancer registries, 2000-2002 and 2008-2010; error bars represent 95% confidence intervals.



Source: Celtic-NCDR 2010; ISD Scotland; NCR Ireland

## Conclusions

The incidence of NMSCs appears to be increasing fairly rapidly and is higher in males than females. For BCCs, it is difficult to separate out the effects of improved registration from true increased incidence. However, given that SCC incidence has increased by a similar magnitude and was previously better recorded than BCCs (Goodwin et al., 2004), it is likely that there is a significant true increase in numbers of BCCs. This parallels increases in melanoma, and suggests increasing prevalence of historical exposure to UV radiation. There is clear variation in the incidence of NMSCs between cancer registries, and it is unlikely that this can be entirely accounted for by different registration methods. Differences in sun exposure and ethnic make-up of registry populations may be important contributing variables that require further exploration. Under-registration of NMSCs limits our ability to determine the true human and health service costs of management. It is increasingly apparent that a significant proportion of NMSC patients require extensive surgery, which because of their predominance on the head and neck can have significant consequences for their appearance, self-esteem, and well-being. Whilst current health promotion tends to focus on melanoma due to its higher mortality rate, these data support the important role for prevention and early detection of NMSCs.

## References

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### FIND OUT MORE:

Public Health England Knowledge and Intelligence Team (South West) is the lead on cancer intelligence for skin cancer <http://www.gov.uk/phe>

### Other useful resources within the NCIN partnership:

Cancer Research UK CancerStats – Key facts and detailed statistics for health professionals <http://info.cancerresearchuk.org/cancerstats/>

The National Cancer Intelligence Network (NCIN) is a UK-wide partnership operated by Public Health England. The NCIN coordinates and develops analysis and intelligence to drive improvements in prevention, standards of cancer care and clinical outcomes for cancer patients.