



Sunbed outlets and area deprivation in the UK



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Contents

List of tables	ii
List of figures.....	ii
Executive summary.....	iii
1 Introduction	1
1.1 The issue	1
1.2 Types of skin cancer	1
1.3 Skin cancer incidence and mortality	1
1.4 Risk factors for skin cancer.....	1
1.5 Risk of skin cancer associated with sunbed use	2
1.6 Government policy	2
1.7 Children and use of sunbeds	3
1.8 Sunbed use and deprivation in the UK	3
1.9 Previous mapping of sunbeds	4
2 Aim of study	5
3 Methods.....	6
3.1 Using online directories to locate sunbeds	6
3.2 Population denominator data.....	6
3.3 Measuring area deprivation	7
3.4 Area type data.....	7
4 Results	9
4.1 Population and area type distributions by deprivation quintile	9
4.2 Sunbed outlets by area deprivation	11
4.3 Sunbed outlets by area type	12
4.4 Sunbed outlet rates per 100,000 total population.....	13
4.5 Sunbed outlet rates per 100,000 'high risk' population.....	15
4.6 Maps of sunbed outlets in the UK.....	17
4.7 Membership of the Sunbed Association	20
5 Discussion	21
5.1 Completeness of coverage	21
5.2 Populations at risk.....	22
5.3 Policy implications.....	22
References	23
Appendix 1:Data collection proforma	25
Appendix 2: Sunbed outlets in the UK.....	26

List of tables

Table 1: Data sources used to locate sunbed outlets.....	6
Table 2: Urban/rural land classifications	8
Table 3: Total population and estimated 'high risk' population by national deprivation quintile for the constituent countries of the UK	9
Table 4: Area type distribution by national deprivation quintile for the total population of the constituent countries of the UK	10
Table 5: Area type distribution by national deprivation quintile for the 'high risk' population of the constituent countries of the UK	11
Table 6: Distribution of sunbed outlets by national deprivation quintile for the constituent countries of the UK.....	12
Table 7: Distribution of sunbed outlets by area type for the constituent countries of the UK	13
Table 8: Sunbed outlet rates per 100,000 total population for the constituent countries of the UK	14
Table 9: Sunbed outlet rates per 100,000 'high risk' population for the constituent countries of the UK	16

List of figures

Figure 1: Sunbed outlets per 100,000 total population by national deprivation quintile for the constituent countries of the UK	15
Figure 2: Sunbed outlets per 100,000 'high risk' population by national deprivation quintile for the constituent countries of the UK	17
Figure 3: Sunbed outlets per 100,000 total population by Local Authority, 2006 ...	18
Figure 4: Sunbed outlets per 100,000 'high risk'* population by Local Authority, 2006	19

Executive summary

Sunbed use in the UK is a public health concern because sunbeds emit ultraviolet radiation that is likely to increase the risk of developing skin cancer, a disease that is almost entirely preventable. There is a belief that sunbed outlets may be more commonly found in deprived areas.

This study aimed to investigate the geographical distribution of sunbed outlets in the UK by level of area deprivation. Sunbed outlets were identified using a desktop UK-focused search of a range of internet directories: 5,350 outlets were found across the UK, the large majority in England. National Index of Multiple Deprivation datasets were used to define area deprivation quintiles, and results were adjusted using national urban/rural classification datasets to reflect differences in rural/urban composition between deprivation quintiles. The main outcome measure was the rate of sunbed outlets per 100,000 population by deprivation quintile for each Local Authority.

The report shows that the distribution of sunbed locations varies by level of area deprivation, with higher rates in more deprived areas. While problems with data quality and completeness may have influenced results, these findings merit further investigation since they suggest a possible source of health inequalities.

Public health policies need to be based on robust empirical evidence. A national register of sunbed locations would facilitate this process. If such a register is introduced, it will be crucial to keep it properly maintained to ensure completeness, accuracy, reliability and timeliness.

1 Introduction

1.1 The issue

Sunbed use in the UK is a public health concern because sunbeds emit ultraviolet radiation that is likely to increase the risk of developing skin cancer, a disease that is almost entirely preventable. Other health effects include an increased risk of cataracts and other eye diseases if protective goggles are not worn, drug-induced photosensitivity disorders, premature ageing of the skin¹ and the immune system can also be suppressed.²

1.2 Types of skin cancer

There are two main types of skin cancer. Non-melanoma skin cancer is the most common and includes basal cell and squamous cell carcinomas, which are rarely fatal. The most serious type, malignant melanoma, accounts for approximately one in ten cases of skin cancer but is responsible for 77% of skin cancer deaths.³

1.3 Skin cancer incidence and mortality

Skin cancer, in terms of incidence, is the most common form of cancer in young adults in the UK.³ There were 92,000 cases of skin cancer recorded in the UK in 2006³ though non-melanoma skin cancer is thought to be under-reported and the actual incidence is likely to be significantly higher.

The government, through the Department of Health's policy document *The Health of the Nation*, expressed the intention to "...halt the year on year increase in the incidence of skin cancer by 2005."⁴ This target was not achieved and instead the incidence of malignant melanoma continues to rise.⁵

The incidence of malignant melanoma is more common in women than men in the UK (15.4 cases per 100,000 females per year compared with 14.3 cases per 100,000 males per year in 2005). Malignant melanoma is more common with increasing age but still affects the young and is the most common form of cancer in people aged 15–34.³

Malignant melanoma mortality is higher in men than women (78% of men and 91% of women are alive five years after diagnosis per year in the UK in 2006), indicating poorer survival rates for men.³

1.4 Risk factors for skin cancer

Risk factors for skin cancer include light skin type, large number of moles, atypical moles, family history of skin cancer and excessive exposure to sun, particularly in childhood. Intermittent rather than chronic exposure to ultraviolet radiation is thought to cause most melanomas, however melanomas in older people are more closely related to chronic exposure.⁶

1.5 Risk of skin cancer associated with sunbed use

Currently the association between sunbed usage and melanoma is not clear. Most epidemiological analyses have been relatively small, case-control studies (often hospital based), producing a variety of findings. The results of individual studies have often been confounded by failure to adjust for length and frequency of sunbed exposure (many studies simply compare 'ever used' with 'never used') and other risk factors. In addition it has been observed that regular users of sunbeds are more likely to have higher levels of natural ultraviolet exposure, therefore the specific contribution of sunbed use to a risk of developing skin cancer is difficult to identify.

A meta-analysis of 19 studies carried out by the International Agency for Research on Cancer in 2005 found that over-use of sunbeds was positively associated with melanoma (summary relative risk, 1.15; 95% CI, 1.00–1.31), although there was no consistent evidence of a dose-response relationship. First exposure to sunbeds before 35 years of age significantly increased the risk of melanoma, based on seven informative studies (summary relative risk, 1.75; 95% CI, 1.35–2.26).⁷

The British Medical Association estimates that the risk of skin cancer may rise by up to 20% for each decade of sunbed use before the age of 56 years.⁸ There is general consensus among experts, including the International Commission for Non-Ionising Radiation Protection,⁹ the World Health Organization,¹⁰ the British Association of Dermatologists,¹¹ Cancer Research UK¹² and the British Medical Association,⁸ that sunbeds are likely to increase the risk of skin cancer and should be avoided for cosmetic use. Where sunbeds are used they should be closely monitored.

In light of this growing concern, the Committee on the Medical Aspects of Radiation in the Environment set up a working group to provide advice to the government on the needs for additional controls. They published their report on the health effects and risks of artificial tanning devices in June 2009 which concludes that there is evidence to suggest an increased risk of skin cancer among those who use sunbeds before the age of 35.² More recently, the International Agency for Research on Cancer classified sunbeds as carcinogenic to humans.¹³

1.6 Government policy

The UK government does not currently provide a requirement for training or regulation associated with non-therapeutic ultraviolet radiation. However, legislative controls are being introduced in Scotland through the Public Health Act of 2008, making it the only UK Authority to currently regulate sunbed use. This act prohibits the use of sunbeds by under 18s and bans 'unsupervised' outlets. It also requires operators to provide information to users. England, Wales and Northern Ireland do not have specific legislation aimed at controlling the cosmetic use of sunbeds, although the National Assembly for Wales is currently looking at addressing this and has recently heard evidence through its Health, Wellbeing and Local Government Committee.

In the absence of legislation, the responsibility lies with the supplier to provide sufficient information to the user to allow them to make an informed decision about whether to use the sunbed or not. The Health and Safety Executive, together with the Department of Health, produced initial guidance on sunbed use in the 1990s. Since this guidance was first published there have been considerable technological changes in the sunbed industry as well as an expansion of the use of sunbeds, so an updated version of this guidance was published in April 2009¹ which advises that sunbeds should never be used by people who:

- are under 18;
- have fair, sensitive skin that burns easily or tans slowly or poorly (skin types 1 and 2);
- have a history of sunburn, particularly in childhood;
- have a large number of freckles and/or red hair;
- have had skin cancer or a family history of the disease;
- are using medication that could make their skin more sensitive to ultraviolet radiation;
- already have extensive ultraviolet radiation damage.

However, evidence suggests that this advice is frequently ignored. A Scottish survey of 200 sunbed users indicated that 38% had skin types 1 and 2 (and therefore were at higher risk of developing skin cancer from ultraviolet radiation exposure), 17% had more than 100 sunbed sessions per year and 35% rarely or never used the goggles provided.¹⁴

One small UK survey suggests that many salons may be failing to comply adequately with health and safety requirements. These failings include lack of basic cleanliness and provision of protective goggles, poor or non-existent assessments of skin type and exposure times, unsafe use of equipment and a lack of warning notices or staff training.¹⁵ Even more worrying is the growth of unstaffed salons with coin-operated sunbeds that have been described as “the high street equivalent of the launderette”.¹⁶ There is also concern that these salons are particularly popular in low-income areas.⁵

1.7 Children and use of sunbeds

There is very little to stop children from using unmanned, coin-operated facilities; indeed there is increasing evidence that this is happening frequently. This is particularly concerning because excessive exposure to ultraviolet radiation in childhood is known to increase the risk of developing skin cancer. In addition there is no evidence to indicate that sunbed emissions pose less of a risk than those from natural sun emissions. A preliminary survey of sunbed use in Lanarkshire suggested that significant numbers of primary school children may be using tanning devices either at home or in commercial settings,¹⁷ while a Merseyside study showed that up to 8% of 11–12 year olds had used sunbeds in the past year, with some children visiting tanning shops regularly after school up to four times a week.¹⁸ This phenomenon has led to the coining of the term “tanorexic” to describe the psychological addiction to sunbed use reported in teenagers and young people.¹⁸

1.8 Sunbed use and deprivation in the UK

Sunbeds are available to the public through commercial outlets including salons and, more unusually, vertical sunbeds (which can fit into small spaces) have been located in nail bars and even cheque exchanges.

Sunbeds in commercial outlets can either be supervised or unstaffed (coin-operated). Currently there is no national information on the location of commercially available sunbeds or who uses them. There is concern that sunbed salons, particularly those with coin-operated sunbeds, are frequently located in the most deprived areas of the UK and are being used most often by people in lower

socioeconomic groups. If this is true, it would contribute to the increasing gap in health inequalities in the UK.

1.9 Previous mapping of sunbeds

The Sunbed Association, representing operators, manufacturers and hirers, which has an operating code based on the Health and Safety Executive recommendations, estimates that there are around 8,000 tanning facilities nationally, only a fifth of which are members of the Sunbed Association.¹⁹

Sunbed operators do not have to gain a specific licence from local Trading Standards Departments, and Local Authorities are not obliged to keep registers of sunbeds. A handful of Local Authorities have conducted one-off surveys of sunbed outlets locally, and some have managed to develop a sunbed outlet register by a combination of foot work, use of telephone directories and direct approach to the suppliers.¹⁵ However it is unclear how up-to-date these registers are.

In the absence of easily accessible information on the location of sunbed outlets, policy makers have to rely on anecdotal evidence, which is often conflicting, to find out whether there is any variation in the number of sunbed outlets by area deprivation.

2 Aim of study

This research was commissioned by Cancer Research UK with the aim of:

- Locating sunbed outlets throughout the UK;
- Investigating the relationship between the density of sunbed outlets and a number of sociogeographic factors:
 - socioeconomic deprivation;
 - ethnicity;
 - area “character” (rural/urban) as defined by the National Statistical Offices for England, Wales, Scotland and Northern Ireland.

3 Methods

3.1 Using online directories to locate sunbeds

Sunbed outlets were identified using a desktop UK-focused search of internet directories as shown in Table 1. The search included a free text search for “sunbeds”, “sunbed”, “tan” and “tanning”. Key search terms were used where available.

Table 1: Data sources used to locate sunbed outlets

Data source
www.yell.com
www.scoot.co.uk
www.192.com
www.thompsonlocal.com
www.touchlocal.com
www.118.com
www.ufindus.com
www.whitepages.com.uk
www.thomweb.com

The online search, undertaken in 2006, sought to identify details of each outlet using a proforma (Appendix 1). This included the name, address and type of outlet, membership of professional body and whether the sunbeds were coin-operated. Initial analysis took place shortly after collection and further analysis was undertaken in 2008.

3.2 Population denominator data

The small area population estimates supplied with each country-specific Index of Multiple Deprivation were used as population denominators. Crude rates of sunbed outlets per 100,000 population were calculated for each Lower Super Output Area in England, Wales and Northern Ireland and for each data zone in Scotland.

A survey conducted by the Irish Cancer Society found that the largest group of sunbed users were those aged 15–34 (10%), followed by those aged 35–64 (5%), and then the over 65s (1%).¹⁹ In addition, people who have darker skins (skin types 5 and 6) may be less likely to use sunbed facilities and are at lower risk of skin cancer.

This report examined the effects of age and ethnicity on sunbed outlet density by defining a ‘high risk’ population, based on an estimate of the number of white persons aged 15–34 within each area. To produce these estimates, 2001 Census small area statistics of numbers of white persons were combined with numbers of persons aged 15–34, and the resulting proportions applied to the population denominators used in the various Indexes of Multiple Deprivation.

3.3 Measuring area deprivation

The Index of Multiple Deprivation was used as the measure of deprivation at small area level. Unfortunately, each country has derived its own particular Index of Multiple Deprivation, based upon varying sets of indicators relating to different time periods. These differences, coupled with the method of calculation of the Index of Multiple Deprivation score for each individual area (scores indicate relative ranks of deprivation, rather than absolute numbers of deprived persons), mean that scores cannot be meaningfully compared across countries.

For each individual country, deprivation quintiles were constructed using the Index of Multiple Deprivation rankings of the relevant small areas. Quintiles were defined based on population numbers, rather than numbers of areas, using the population estimates derived for each Index of Multiple Deprivation dataset.

The key features of each country-specific Index of Multiple Deprivation are listed below:

- The Scottish Index of Multiple Deprivation (SIMD 2006) has 36 indicators across seven domains. It is based, where possible, on 2005 data and provides information for 6,505 data zones (each containing an average of 780 people) across Scotland.
- The Northern Ireland Index of Multiple Deprivation Measure 2005 (NIMDM 2005) contains 43 indicators in seven domains and is based largely on 2003 data. It covers 890 Lower Super Output Areas across Northern Ireland, each containing an average of 1,800 people.
- The Wales Index of Multiple Deprivation 2005 (WIMD 2005) contains 32 indicators in seven domains. Where possible, data relates to 2005. It provides information on 1,896 Lower Super Output Areas across Wales, containing an average of 1,500 people.
- The England Index of Multiple Deprivation 2007 (IMD 2007) contains 38 indicators in seven domains and where possible data relates to 2005. It provides information on 32,482 Lower Super Output Areas, containing an average of 1,500 people.

3.4 Area type data

It is anticipated that sunbed facilities will be predominantly located in urban rather than rural areas. As the urban/rural distribution is likely to vary by level of deprivation it is appropriate to include this in the analysis.

Urban/rural land classifications were obtained for each country from the appropriate government information offices. Generally there were two or more alternative classifications — in each case the simplest classification with the fewest categories was used. Table 2 provides details on the classifications used for each country within the UK.

Table 2: Urban/rural land classifications

Country	Year	Classification categories	Sources
England and Wales	2004	Urban >10,000	Office for National Statistics (2004)
		Town and fringe	
		Village, hamlet and isolated dwellings	
Scotland	2003–04	Urban	General Register Office for Scotland (2003/4)
		Rural	
Northern Ireland	2005	Urban	Northern Ireland Statistics and Research Agency (2005)
		Rural	

4 Results

4.1 Population and area type distributions by deprivation quintile

Table 3 shows the total population by deprivation quintile for each country, together with the percentage of the total population aged 15–34 and the percentage of the total population classified as white. It also shows the estimated numbers and percentages of total populations defined as 'high risk'.

Table 3: Total population and estimated 'high risk' population by national deprivation quintile for the constituent countries of the UK

Total Population	DQ1 (Affluent)	DQ2	DQ3	DQ4	DQ5 (deprived)
Numbers					
England	10,086,024	10,083,927	10,086,000	10,085,643	10,086,165
Scotland	1,015,392	1,015,664	1,015,970	1,015,337	1,016,037
Wales	584,975	583,456	584,975	585,325	583,707
Northern Ireland	340,025	341,100	340,530	340,305	340,095
% White					
England	96.3	95.7	93.2	88.5	81.1
Scotland	97.1	98.1	98.5	98.0	98.2
Wales	97.6	98.3	98.5	98.2	96.6
Northern Ireland	98.9	99.2	99.3	99.4	99.4
% Aged 15 to 34					
England	23.0	24.2	26.5	29.1	29.8
Scotland	25.8	24.6	25.6	27.3	28.0
Wales	23.7	24.0	24.4	25.7	26.0
Northern Ireland	26.4	28.2	30.4	28.1	29.4
'High Risk' Population (White, aged 15 to 34)	DQ1 (Affluent)	DQ2	DQ3	DQ4	DQ5 (deprived)
Numbers					
England	2,236,623	2,328,498	2,465,420	2,550,615	2,350,378
Scotland	254,463	244,371	254,657	271,266	278,707
Wales	135,004	136,959	139,845	147,062	146,194
Northern Ireland	89,282	95,408	102,317	95,293	99,549
% of Total Population					
England	22.2	23.1	24.4	25.3	23.3
Scotland	25.1	24.1	25.1	26.7	27.4
Wales	23.1	23.5	23.9	25.1	25.0
Northern Ireland	26.3	28.0	30.0	28.0	29.3

Source: 2001 Census; IMD deprivation quintiles and populations based on national datasets for England (2007), Wales (2005), Scotland (2006) and Northern Ireland (2005).

For England the percentage of non-white persons increases steadily across deprivation quintiles; in the most affluent quintile under 4% of the population are of non-white ethnicity, while in the most deprived quintile the figure is almost 19%. Similar consistent trends were not observed for Scotland, Wales and Northern Ireland, which all have considerably smaller ethnic minority populations than England.

The percentage of persons aged 15–34 also rises steadily with increasing levels of deprivation in England (the most deprived quintile has almost 30% more 15–34 year olds than the most affluent quintile), reflecting the generally younger populations living in more deprived urban areas. Similar trends are also apparent for Scotland, Wales and Northern Ireland, though the differences are not as great.

The combined effect of ethnicity and age structure indicates that 'high risk' populations comprise slightly higher percentages of the total populations in the high deprivation quintiles compared to the more affluent quintiles.

Table 4 shows the area type distribution by deprivation quintile for the total population of each country.

Table 4: Area type distribution by national deprivation quintile for the total population of the constituent countries of the UK

Total Population; % Distribution	DQ1 (Affluent)	DQ2	DQ3	DQ4	DQ5 (deprived)
England					
Urban >10K	71.9	68.2	76.4	90.5	97.8
Town and Fringe	17.7	13.1	9.6	5.6	1.9
Village, Hamlet and Isolated Dwellings	10.4	18.7	14.0	3.9	0.3
Total	100.0	100.0	100.0	100.0	100.0
Wales					
Urban >10K	68.3	46.9	55.1	71.2	83.3
Town and Fringe	16.1	19.7	19.4	18.7	15.4
Village, Hamlet and Isolated Dwellings	15.6	33.4	25.5	10.1	1.3
Total	100.0	100.0	100.0	100.0	100.0
Scotland					
Urban	90.1	64.0	68.7	89.2	96.6
Rural	9.9	36.0	31.3	10.8	3.4
Total	100.0	100.0	100.0	100.0	100.0
Northern Ireland					
Urban	78.6	56.9	44.6	58.8	90.7
Rural	21.4	43.1	55.4	41.2	9.3
Total	100.0	100.0	100.0	100.0	100.0

Note: Definitions for area type are as specified by the relevant government agencies in each constituent country of the UK.

Source: IMD deprivation quintiles and populations based on national datasets for England (2007), Wales (2005), Scotland (2006) and Northern Ireland (2005); urban/rural classifications based on national datasets for England and Wales (2004), Scotland (2003/4) and Northern Ireland (2005).

In England, the proportion of the total population living in urban areas generally rises with increasing quintile of deprivation, while the proportions living in suburban (town and fringe) and rural (village, hamlet and isolated dwellings) areas become smaller. This pattern is generally replicated across the other three countries, although the overall levels of urbanisation are slightly lower in Wales and Northern Ireland. The main exception to the overall trend observed in each country is that the proportion of people living in rural areas is smaller in the most affluent deprivation quintile compared to adjacent quintiles.

Table 5 shows the area type distribution by deprivation quintile for the 'high risk' population (white, aged 15–34) of each country.

Table 5: Area type distribution by national deprivation quintile for the 'high risk' population of the constituent countries of the UK

'High Risk' Population; % Distribution	DQ1 (Affluent)	DQ2	DQ3	DQ4	DQ5 (deprived)
England					
Urban >10K	73.5	72.1	80.4	91.8	97.8
Town and Fringe	17.0	12.2	8.6	5.1	1.9
Village, Hamlet and Isolated Dwellings	9.4	15.7	11.0	3.0	0.3
Total	100.0	100.0	100.0	100.0	100.0
Wales					
Urban >10K	71.3	54.2	59.4	73.1	83.2
Town and Fringe	15.4	18.5	19.0	18.1	15.5
Village, Hamlet and Isolated Dwellings	13.3	27.2	21.6	8.7	1.3
Total	100.0	100.0	100.0	100.0	100.0
Scotland					
Urban	90.9	69.4	74.1	90.8	96.9
Rural	9.1	30.6	25.9	9.2	3.1
Total	100.0	100.0	100.0	100.0	100.0
Northern Ireland					
Urban	78.9	58.1	47.3	58.2	90.5
Rural	21.1	41.9	52.7	41.8	9.5
Total	100.0	100.0	100.0	100.0	100.0

Note: Definitions for area type are as specified by the relevant government agencies in each constituent country of the UK

Source: 2001 Census; IMD deprivation quintiles and populations based on national datasets for England (2007), Wales (2005), Scotland (2006) and Northern Ireland (2005); urban/rural classifications based on national datasets for England and Wales (2004), Scotland (2003/4) and Northern Ireland (2005).

The general pattern of distribution of area type by deprivation quintile for the 'high risk' population is very similar to that of the total population. Slightly higher proportions of 'high risk' populations live in urban areas across all deprivation quintiles compared with the total population.

4.2 Sunbed outlets by area deprivation

The sunbed search strategy identified a total of 5,350 sunbed outlets across England, Scotland, Wales and Northern Ireland. This corresponds to approximately two-thirds of the 8,000 sunbed outlets estimated by the Sunbed Association to be operating across the UK.

Of the 5,350 sunbed outlets located, 4,492 were in England, 171 were in Northern Ireland, 484 were in Scotland and 203 were in Wales. The distribution of sunbed outlets in each country by deprivation quintile is shown in Table 6.

Table 6: Distribution of sunbed outlets by national deprivation quintile for the constituent countries of the UK

		DQ1 (Affluent)	DQ2	DQ3	DQ4	DQ5 (Deprived)	Total
England	Number	517	744	875	1140	1216	4492
	Percent	11.5	16.6	19.5	25.4	27.1	100.0
Scotland	Number	52	55	92	165	120	484
	Percent	10.7	11.4	19.0	34.1	24.8	100.0
Wales	Number	22	30	37	57	57	203
	Percent	10.8	14.8	18.2	28.1	28.1	100.0
Northern Ireland	Number	27	27	26	41	50	171
	Percent	15.8	15.8	15.2	24.0	29.2	100.0

Source: South West Public Health Observatory (2006); IMD deprivation quintiles and populations based on national datasets for England (2007), Wales (2005), Scotland (2006) and Northern Ireland (2005).

Within each country a strong trend can be observed between the number of sunbed outlets and level of area deprivation, with an approximate doubling in the number of sunbed outlets between the most affluent and most deprived quintiles.

4.3 Sunbed outlets by area type

Table 7 shows the distribution of sunbed outlets by area type. In each country sunbed outlets are predominantly located in urban areas, with relatively few outlets sited in rural locations. Sunbed salons are most commonly found in secondary retail areas, where the combination of rental affordability and potential customer access is most advantageous for this type of enterprise.

Table 7: Distribution of sunbed outlets by area type for the constituent countries of the UK

	Sunbeds		Population Distribution (%)	
	Number	Percent	Total Population	High Risk Population
England				
Urban >10K	4,057	90.3	81.0	83.4
Town and Fringe	316	7.0	9.6	8.8
Village, Hamlet and Isolated Dwellings	119	2.6	9.5	7.8
Total	4,492	100.0	100.0	100.0
Wales				
Urban >10K	155	76.4	64.9	68.5
Town and Fringe	36	17.7	17.9	17.3
Village, Hamlet and Isolated Dwellings	12	5.9	17.2	14.2
Total	203	100.0	100.0	100.0
Scotland				
Urban	469	96.9	81.7	84.9
Rural	15	3.1	18.3	15.1
Total	484	100.0	100.0	100.0
Northern Ireland				
Urban	149	87.1	65.9	66.4
Rural	22	12.9	34.1	33.6
Total	171	100.0	100.0	100.0

Note: Definitions for area type are as specified by the relevant government agencies in each constituent country of the UK.

Source: 2001 Census; South West Public Health Observatory (2006); urban/rural classifications based on national datasets for England and Wales (2004), Scotland (2003/4) and Northern Ireland (2005).

4.4 Sunbed outlet rates per 100,000 total population

Table 8 shows sunbed outlet rates per 100,000 total population by deprivation quintile and area type for each country. It also contains total rates (across all deprivation quintiles) for each area type, and crude and area type standardised rates* for each deprivation quintile (across all area types).

The following observations are consistent across all countries in the UK:

- Urban areas have much higher total outlet rates than rural areas;
- Total outlet rates generally increase with rising levels of area deprivation;
- The largest increase in total outlet rates occurs between deprivation quintile 3 (average) and deprivation quintile 4 (second most deprived);
- Area type standardisation slightly reduces the strength of the gradient of sunbed outlet rates with increasing level of area deprivation, but does not remove it.

* Area type standardised rates adjust for differences in urban/rural distributions for each deprivation quintile, adjusted separately for each individual country.

Table 8: Sunbed outlet rates per 100,000 total population for the constituent countries of the UK

Total Population	DQ1 (Affluent)	DQ2	DQ3	DQ4	DQ5 (deprived)	Total
England						
Urban >10K	5.8	8.9	9.9	11.7	12.1	9.9
Town and Fringe	4.0	6.3	7.7	11.3	11.7	6.5
Village, Hamlet and Isolated Dwellings	2.4	2.7	2.5	1.8	3.3	2.5
Total; Crude Rate	5.1	7.4	8.7	11.3	12.1	8.9
Area Type Standardised Rate	5.3	8.0	9.0	10.7	11.2	8.9
Wales						
Urban >10K	3.5	6.6	6.8	12.0	10.5	8.2
Town and Fringe	4.2	7.0	10.6	5.5	6.7	6.9
Village, Hamlet and Isolated Dwellings	4.4	2.1	2.0	1.7	0.0	2.4
Total; Crude Rate	3.8	5.1	6.3	9.7	9.8	6.9
Area Type Standardised Rate	3.8	5.9	6.7	9.1	8.0	6.9
Scotland						
Urban	5.1	7.2	13.0	18.1	12.2	11.3
Rural	5.0	2.2	0.3	0.9	0.0	1.6
Total; Crude Rate	5.1	5.4	9.1	16.3	11.8	9.5
Area Type Standardised Rate	5.1	6.3	10.7	15.0	10.0	9.5
Northern Ireland						
Urban	7.1	12.4	12.5	19.5	15.6	13.3
Rural	11.0	2.0	3.7	1.4	6.3	3.8
Total; Crude Rate	7.9	7.9	7.6	12.0	14.7	10.0
Area Type Standardised Rate	8.4	8.8	9.5	13.3	12.4	10.0

Notes: Definitions for area type are as specified by the relevant government agencies in each constituent country of the UK.

Source: South West Public Health Observatory (2006); IMD deprivation quintiles and populations based on national datasets for England (2007), Wales (2005), Scotland (2006) and Northern Ireland (2005); urban/rural classifications based on national datasets for England and Wales (2004), Scotland (2003/4) and Northern Ireland (2005).

Country-specific observations are:

England

- Strong, consistent trends of increasing outlet rates with increasing levels of area deprivation for both urban and town and fringe areas;
- No discernable trend for rural areas.

Wales

- Generally increasing outlet rates with increasing deprivation for urban areas. The highest outlet rate was observed in the second most deprived quintile (quintile 4);
- No discernable trend for town and fringe areas;
- Increasing rates with increasing levels of affluence for rural areas, though the total number of outlets for this area type was small (n = 12).

Scotland

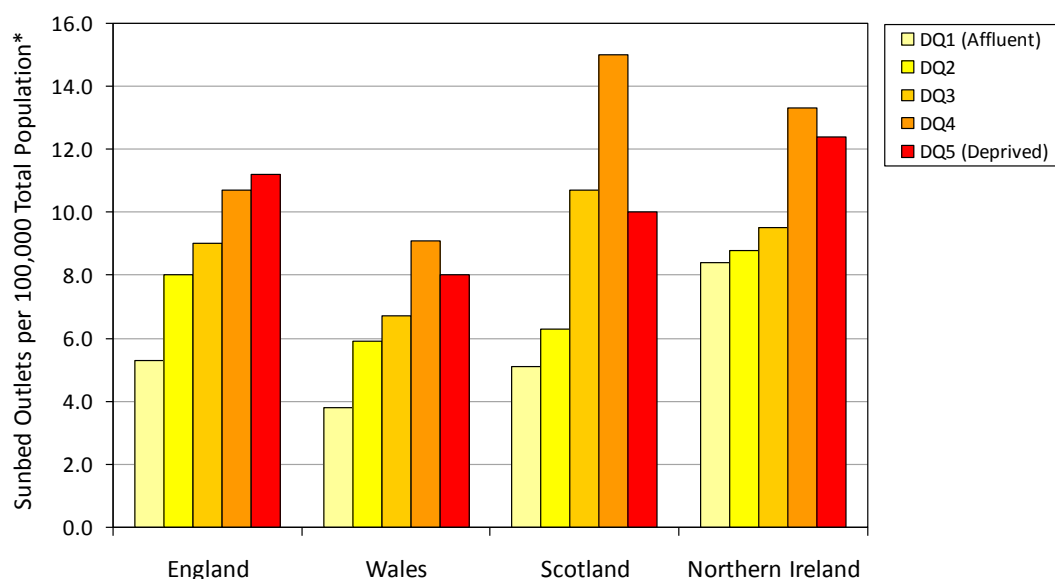
- Generally increasing outlet rates with increasing deprivation for urban areas. The highest outlet rate was observed in the second most deprived quintile;
- Increasing rates with increasing levels of affluence for rural areas, though the total number of outlets for this area type was small (n = 15).

Northern Ireland

- Generally increasing outlet rates with increasing deprivation for urban areas. The highest outlet rate was observed in the second most deprived quintile;
- Generally increasing rates with increasing levels of affluence for rural areas. However, the most deprived quintile (quintile 5) has the second highest rate. The total number of outlets for this area type was again small (n = 22).

Figure 1 shows the distribution of sunbed outlets, standardised by area type per 100,000 total population, by national deprivation quintile for each of the UK countries. The trends of increasing outlet rates with increasing national quintiles of deprivation can clearly be seen for each country, with the highest rates being observed (except England) in the second most deprived quintiles.

Figure 1: Sunbed outlets per 100,000 total population by national deprivation quintile for the constituent countries of the UK



* Standardised for area type

Source: South West Public Health Observatory (2006); IMD deprivation quintiles and populations based on national datasets for England (2007), Wales (2005), Scotland (2006) and Northern Ireland (2005);

4.5 Sunbed outlet rates per 100,000 'high risk' population

Table 9 shows sunbed outlet rates per 100,000 estimated 'high risk' population by deprivation quintile and area type for each country. It also contains total rates (across all deprivation quintiles) for each area type, and crude and area type standardised rates for each deprivation quintile (across all area types).

Table 9: Sunbed outlet rates per 100,000 'high risk' population for the constituent countries of the UK

High Risk' Population	DQ1 (Affluent)	DQ2	DQ3	DQ4	DQ5 (deprived)	Total
England						
Urban >10K	25.5	36.3	38.6	45.6	51.9	40.8
Town and Fringe	18.9	29.1	35.3	49.0	48.0	30.0
Village, Hamlet and Isolated Dwellings	11.9	14.0	12.9	9.0	14.3	12.8
Total; Crude Rate	23.1	32.0	35.5	44.7	51.7	37.6
Area Type Standardised Rate	23.9	34.0	36.3	43.1	48.6	37.6
Wales						
Urban >10K	14.5	24.2	26.5	46.5	41.9	32.1
Town and Fringe	19.2	31.5	45.1	22.5	26.5	29.5
Village, Hamlet and Isolated Dwellings	22.3	10.7	9.9	7.8	0.0	12.0
Total; Crude Rate	16.3	21.9	26.5	38.8	39.0	28.8
Area Type Standardised Rate	16.5	23.6	27.4	36.8	33.3	28.8
Scotland						
Urban	20.3	27.7	48.2	66.6	44.4	42.4
Rural	21.6	10.7	1.5	4.0	0.0	7.6
Total; Crude Rate	20.4	22.5	36.1	60.8	43.1	37.1
Area Type Standardised Rate	20.5	25.1	41.2	57.1	37.7	37.1
Northern Ireland						
Urban	27.0	43.3	39.2	70.3	53.3	46.6
Rural	42.5	7.5	13.0	5.0	21.1	13.6
Total; Crude Rate	30.2	28.3	25.4	43.0	50.2	35.5
Area Type Standardised Rate	32.2	31.2	30.4	48.4	42.5	35.5

Note: Definitions for "area type" are as specified by the relevant Government agencies in each constituent country of the UK.

Source: 2001 Census; South West Public Health Observatory (2006); IMD deprivation quintiles and populations based on national datasets for England (2007), Wales (2005), Scotland (2006) and Northern Ireland (2005); urban/rural classifications based on national datasets for England and Wales (2004), Scotland (2003/4) and Northern Ireland (2005).

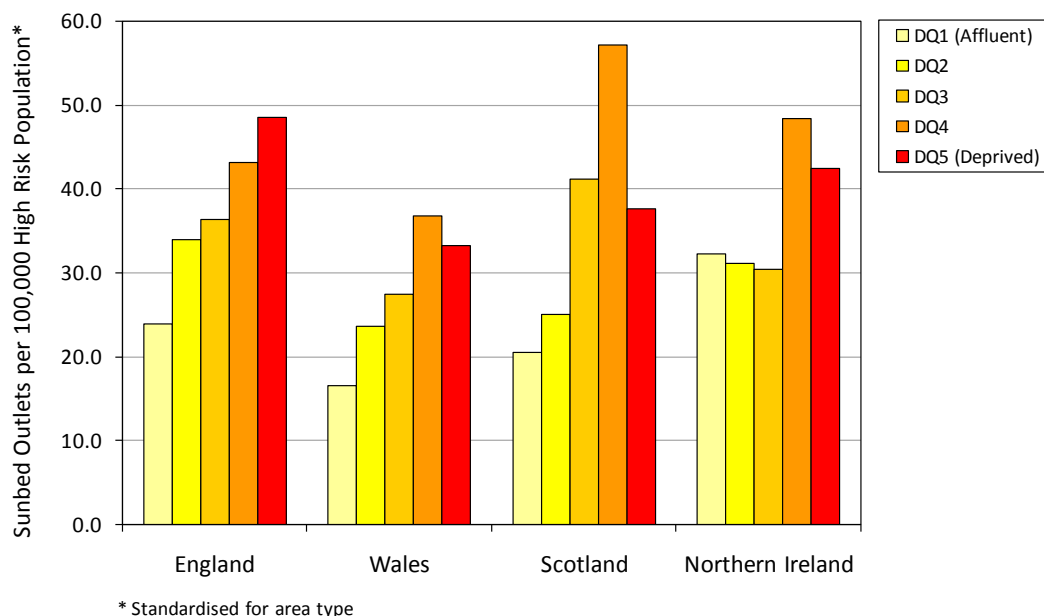
Although the sunbed outlet rates per 100,000 'high risk' population are approximately four times those for the total population, the relative distributions of rates by area type and deprivation quintile for each country are almost identical to those observed for the whole population (Table 8). This is due to the fact that the estimated 'high risk' population (white persons aged 15–34) as a proportion of the total population does not vary to a large degree across either national deprivation quintiles (Table 3) or national area types (Tables 4 and 5).

As for the total population, urban outlet rates are much higher than rural rates. There is a general increase in outlet rates with increasing levels of deprivation (although the highest rates are found in the second most deprived quintile for Wales, Scotland and Northern Ireland), and area type standardisation slightly reduces the outlet-deprivation gradient but does not remove it.

At individual country level, the only change in trend is for Northern Ireland, where the increasing outlet rates observed across the most affluent, second most affluent and average quintiles for the total population have been replaced by slightly decreasing rates across these quintiles for the estimated 'high risk' population.

Figure 2 shows the distribution of sunbed outlets, standardised by area type, per 100,000 estimated 'high risk' population and by national deprivation quintile for each of the UK countries.

Figure 2: Sunbed outlets per 100,000 'high risk' population by national deprivation quintile for the constituent countries of the UK



Source: 2001 Census; South West Public Health Observatory (2006); IMD deprivation quintiles and populations based on national datasets for England (2007), Wales (2005), Scotland (2006) and Northern Ireland (2005); urban/rural classifications based on national datasets for England and Wales (2004), Scotland (2003/4) and Northern Ireland (2005).

4.6 Maps of sunbed outlets in the UK

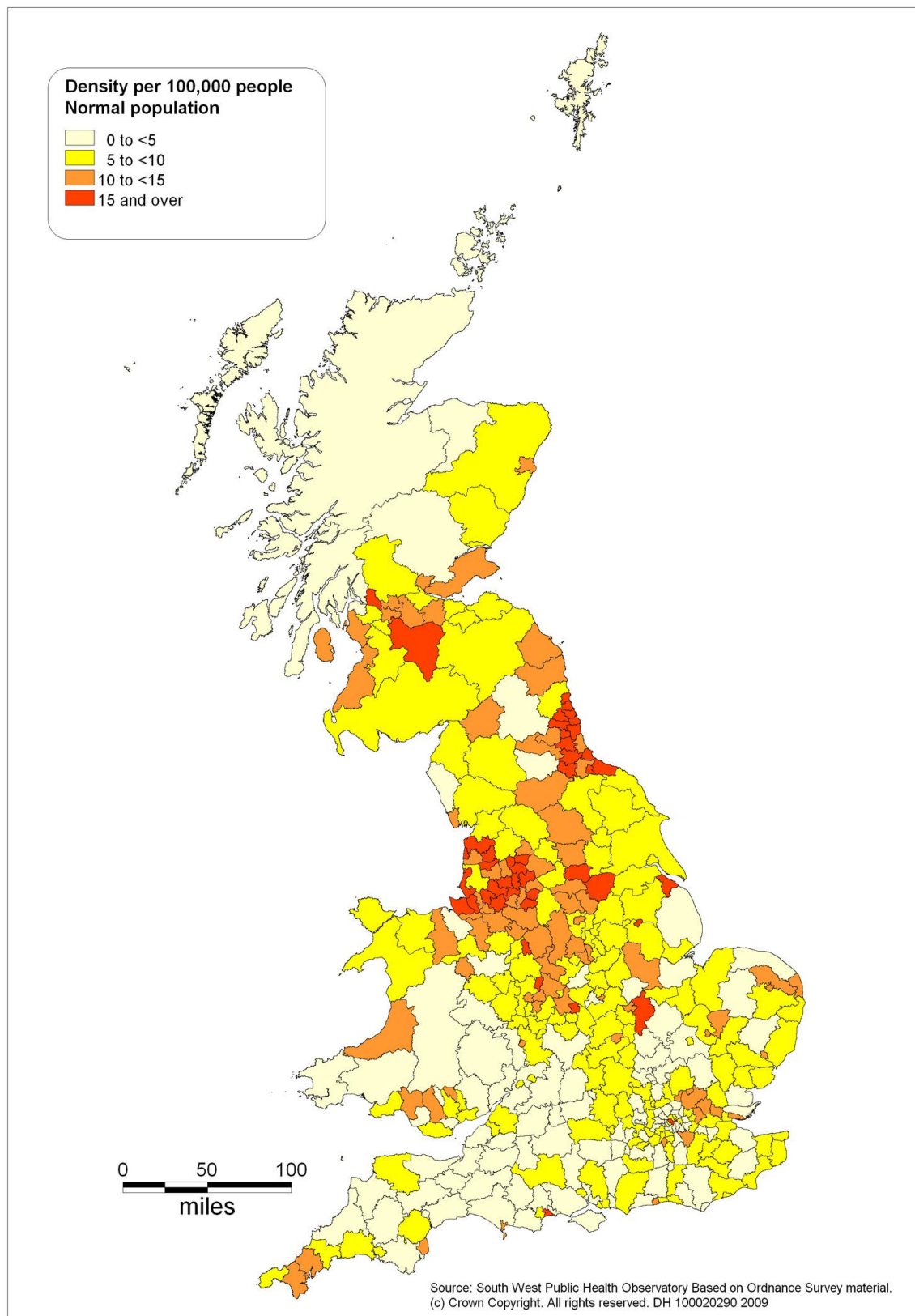
Sunbed outlet data was mapped for each Local Authority to illustrate variations across the UK.

Figure 3 shows sunbed outlets per 100,000 total population. Concentrations of Local Authorities with high sunbed outlet rates per 100,000 population can be seen in the urban areas of North West and North East England. Rates in Southern England were generally relatively low.

Rates in Scotland were highest in West Dunbartonshire and South Lanarkshire Local Authorities, and lowest in the North and West regions. No overall pattern was found in Wales or in Northern Ireland.

Figure 4 shows sunbed outlets per 100,000 'high risk' population (estimated numbers of white persons, aged 15–34). The distribution in the variations of density of sunbed outlets across the UK generally resembled that observed for the total population, although levels in individual Local Authorities differed.

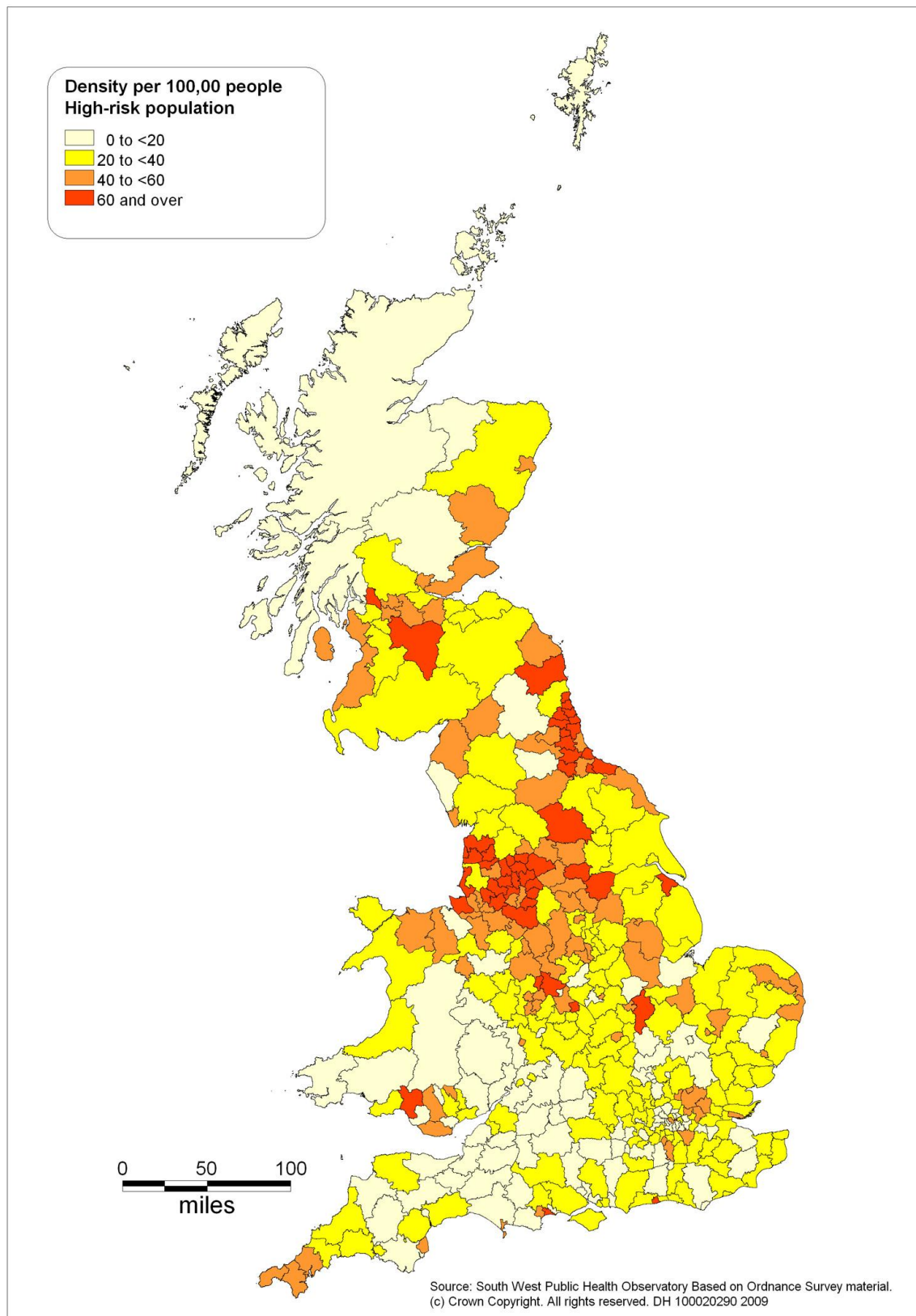
Figure 3: Sunbed outlets per 100,000 total population by Local Authority, 2006



Note: Northern Ireland is not shown because of Ordnance Survey license restrictions.

Source: South West Public Health Observatory (2006); IMD deprivation quintiles and populations based on national datasets for England (2007), Wales (2005), Scotland (2006) and Northern Ireland (2005); urban/rural classifications based on national datasets for England and Wales (2004), Scotland (2003/4) and Northern Ireland (2005).

Figure 4: Sunbed outlets per 100,000 'high risk' population by Local Authority, 2006



Note: Northern Ireland is not shown because of Ordnance Survey license restrictions.

Source: 2001 Census; South West Public Health Observatory (2006); IMD deprivation quintiles and populations based on national datasets for England (2007), Wales (2005), Scotland (2006) and Northern Ireland (2005); urban/rural classifications based on national datasets for England and Wales (2004), Scotland (2003/4) and Northern Ireland (2005).

4.7 Membership of the Sunbed Association

For this report, the Sunbed Association provided their membership list which contained 1,171 UK registered members. Postcode data was available for 1,149 records which were matched to the South West Public Health Observatory register. Only 496 of the 5,350 (9%) sunbed outlets identified by this UK search were registered with the Sunbed Association. Membership varied by country, with the lowest percentage membership in Northern Ireland (4%) followed by Scotland (7%) and England (9%). Wales had the highest percentage membership with 17% of outlets registered with the Sunbed Association.

5 Discussion

This is the first UK study investigating the variation in the distribution of sunbed outlets by geography and area deprivation. The findings show higher rates of sunbed outlets per 100,000 total and estimated 'high risk' population in more deprived areas. Adjusting for urban/rural area type differences across deprivation quintiles slightly reduced the gradient of increasing outlet rates with increasing quintile of deprivation, but did not remove the association.

The most consistent gradient was observed in England (which had the largest number of sunbed outlets), which showed steadily increasing rates of sunbed outlets with increasing national quintile of deprivation.

In Wales, Scotland and Northern Ireland, the highest outlet rates were observed within the second most deprived quintile (after adjusting for urban/rural mix). In each country, however, the two most deprived quintiles had higher rates than the two most affluent quintiles.

5.1 Completeness of coverage

The online search strategy identified a total of 5,350 sunbed outlet locations across the UK. As there are no comprehensive national registers of sunbed outlets currently available, it is not possible to estimate with any certainty the total number of outlets in existence. The Sunbed Association's figure of 8,000 outlets nationally is probably more of a guess than a firm estimate — however if this figure is taken it suggests that the current study managed to identify approximately two-thirds of all sunbed outlet locations.

Two independent datasets can be used to obtain alternative estimates of the study's survey coverage of sunbed outlets. The Sunbed Association's membership list contained 1,149 outlets, of which 496 (43%) had been independently identified by the search strategy.

A register compiled by Bradford Local Authority identified 94 outlets, compared with 45 identified by the current study. Of these 45, 24 were not on the Local Authority's list — therefore, the two studies combined found 118 outlets, so the current study located only 38% of the total number of outlets identified by both studies combined.

It is not possible to derive a definitive estimate of the degree of sunbed outlet coverage across the UK from the two independent sources, but based on the above discussion it would appear that the likely approximate completeness of coverage by the current survey is at best around 50%, and may be even lower.

The potential impact of the degree of coverage on the study findings is difficult to estimate. The current study primarily identified sunbed salons through internet searches, and so was likely to capture a higher proportion of relatively new, multi-unit, efficiently operated establishments. It is less likely to identify older, more marginal establishments, often providing sunbed facilities as an additional feature to their main business activities (e.g. hairdressers). These businesses are more likely to be operating in economically marginal areas, with relatively high levels of local area deprivation. Therefore, it might be anticipated that if a greater degree of coverage had been obtained by employing additional survey methods, the proportion of outlets found in more deprived areas may have been even higher.

The numbers of sunbed outlets in Northern Ireland and Wales in particular were small, meaning that deprivation quintile rates would be subject to relatively large fluctuations with the addition of a handful of outlets in one quintile area.

Finally, the unit of analysis was based upon sunbed salons, and did not take into account variation in numbers of tanning units within salons. Again, it is more likely that the survey search methods would have identified a larger proportion of large, multi-unit outlets.

5.2 Populations at risk

In the absence of data on users of sunbed facilities, the data was analysed using the total and 'high risk' population (estimated number of white persons aged 15–34) of local areas. These population denominators are resident-based and may not accurately reflect the sociodemographic profile of the population who are present in the locality during salon operating times.

Sunbed salons tend to be primarily located in secondary retail areas, where the combination of property rents and volume of potential customers is most advantageous to their type of business. An example is provided by the City of London Local Authority which had by far the highest outlet rates per 100,000 total and 'high risk' population (156 per 100,000 total population compared with an average of 8.9 for England), and was almost six times the rate of the next highest Local Authority. The City of London Local Authority has a very small resident population (under 8,000 in 2005), but is the place of work for approximately 340,000 persons.

5.3 Policy implications

The fact that it is currently not possible to accurately identify the locations of all sunbed outlets, particularly coin-operated sunbeds, in the UK is concerning. There are potentially serious long-term health issues for people using sunbeds. Accurately locating sunbed outlets is the first step to ensuring that the health of the public is adequately protected.

Very few of the sunbed outlets identified were registered members of the Sunbed Association, which operates a voluntary code of conduct. Membership levels were especially poor in Northern Ireland, and these findings suggest that voluntary regulation of the industry is not ensuring required levels of registration.

There have been calls for the mandatory licensing of sunbed outlets.²¹ This would enable the collection of more complete and accurate data on which to base future research in this area. It is crucial that, if introduced nationally, sunbed registers are properly maintained to ensure completeness, accuracy, reliability and timeliness.

Public health policies need to be based on robust empirical evidence. This study suggests that the rate of sunbed locations per 100,000 population varies by area deprivation in the UK, with those living in poor areas more likely to be exposed to sunbed outlets. However, the risk of sunbed exposure is not simply determined by age, ethnicity and proximity to sunbed outlets. Further research is needed to accurately determine the 'at risk' population. Additionally, there needs to be a more robust data source on the location of UK sunbed outlets. These findings merit further investigation because they suggest a possible source of health inequalities that could be addressed by effective public health policy.

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Appendix 1: Data collection proforma

Name of data source	[coding frame: www.yell.com www.scoot.co.uk www.192.com www.thomsonlocal.com www.touchlocal.com www.118.com www.ufindus.com] www.whitepages.com.uk www.thomweb.com}
Name of shop/agency	[coding frame: Free text 50 char]
Full address [leave 6 lines]	[coding frame: Free text 50 char]
Full Post code	[coding frame: >LA&&\ 0LL;0;_]
Is the agency a member of a professional body	[coding frame: Yes/No/Don't Know]
Which body is it	[coding frame: Free text 50 char]
Agency Type hosting the sunbed	[coding frame: Don't Know Hotel Local Authority Facility Private Facility Cosmetic Outlets Retail Outlets]
Does this agency hire sunbeds for private use?	[coding frame: Yes/No]
Does this agency only offer Spray tans?	[coding frame: Yes/No]
	[Completed after completion of dataset]
Name of Sunbed manufacture	[coding frame: Free text 50 char]
Number of sunbeds in agency	[coding frame: 2 digits long]
Type of sunbed	[coding frame: coin operated attended sunbed]
Spec of sunbed	[coding frame: Free Text 50 char]

Appendix 2: Sunbed outlets in the UK

Note: The tables in Appendix 2 are ranked by sunbed outlets per 100,000 total population by Local Authority.

Table A1: Sunbed outlets per 100,000 total population and 'high risk' population by Local Authority in England

Local Authority	Region	Number of sunbed outlets	Sunbed outlets per 100,000 'high risk' population	Sunbed outlets per 100,000 total population
City of London	London	12	643.3	156.2
Blackpool	North West	38	116.0	26.6
Wigan	North West	75	95.1	24.6
Sunderland	North East	69	92.6	24.6
St. Helens	North West	42	95.2	23.6
Durham	North East	20	72.5	22.4
Gateshead	North East	42	90.3	22.1
Sefton	North West	60	97.0	21.5
Salford	North West	46	78.6	21.3
Warrington	North West	40	83.8	20.8
Newcastle upon Tyne	North East	56	72.3	20.8
Tameside	North West	44	84.0	20.6
Wansbeck	North East	12	80.4	19.5
Bolton	North West	51	82.4	19.4
Wirral	North West	60	84.8	19.2
Bury	North West	35	81.4	19.2
Hyndburn	North West	15	77.5	18.2
North Tyneside	North East	35	76.9	18.1
South Tyneside	North East	27	75.6	17.9
Hartlepool	North East	16	73.2	17.6
Bournemouth	South West	28	64.2	17.4
Middlesbrough	North East	24	67.4	17.3
Wyre	North West	19	83.3	17.3
Lincoln	East Midlands	15	57.9	17.3
Stockport	North East	48	73.6	17.1
Chester-le-Street	North East	9	71.2	17.0
Liverpool	North West	73	59.5	16.7
Doncaster	Yorkshire and The Humber	48	69.3	16.6
Nuneaton and Bedworth	West Midlands	20	69.1	16.6
Rossendale	North West	11	70.0	16.6
Redcar and Cleveland	North East	23	70.1	16.5
North East Lincolnshire	Yorkshire and The Humber	26	68.0	16.3

Local Authority	Region	Number of sunbed outlets	Sunbed outlets per 100,000 'high risk' population	Sunbed outlets per 100,000 total population
Darlington	North East	16	68.8	16.2
South Ribble	North West	17	67.6	16.1
Preston	North West	21	62.4	16.0
Blyth Valley	North East	13	63.6	16.0
Cannock Chase	West Midlands	15	60.0	15.9
Sedgefield	North East	14	66.7	15.9
Burnley	North West	14	68.0	15.9
East Northamptonshire	East Midlands	13	65.8	15.8
Rochdale	North West	32	67.2	15.5
Westminster	London	35	53.9	15.3
Stoke-on-Trent	West Midlands	36	57.3	15.0
Wakefield	Yorkshire and The Humber	48	60.2	15.0
Forest Heath	East of England	9	54.0	14.7
Oldham	North West	32	64.9	14.6
Barnsley	Yorkshire and The Humber	32	58.3	14.4
Calderdale	Yorkshire and The Humber	28	62.7	14.2
Blackburn with Darwen	North West	20	65.7	14.2
Harrogate	Yorkshire and The Humber	22	61.0	14.1
Worcester	West Midlands	13	50.1	14.0
Lichfield	West Midlands	13	61.5	13.6
Carlisle	North West	14	56.6	13.6
Ellesmere Port & Neston	North West	11	57.5	13.5
Halton	North West	16	51.2	13.4
Macclesfield	North West	20	63.3	13.3
Fylde	North West	10	65.7	13.3
Worthing	South East	13	60.3	13.2
Congleton	North West	12	55.4	13.0
North Warwickshire	West Midlands	8	54.0	12.9
Sheffield	Yorkshire and The Humber	67	48.5	12.8
Trafford	North West	27	55.7	12.8
Erewash	East Midlands	14	51.4	12.7
Staffordshire Moorlands	West Midlands	12	56.0	12.6
Norwich	East of England	16	39.5	12.6
Alnwick	North East	4	61.6	12.5
Oadby and Wigston	East Midlands	7	58.9	12.5
Manchester	North West	55	43.1	12.4
Broadland	East of England	15	57.3	12.3
Stockton-on-Tees	North East	23	49.2	12.3

Local Authority	Region	Number of sunbed outlets	Sunbed outlets per 100,000 'high risk' population	Sunbed outlets per 100,000 total population
Epping Forest	South East	15	54.3	12.3
Rotherham	Yorkshire and The Humber	31	51.0	12.3
East Staffordshire	West Midlands	13	53.3	12.2
Northampton	East Midlands	24	45.1	12.2
Bromley	London	36	53.1	12.1
Torbay	South West	16	57.5	12.0
Southend-on-Sea	East of England	19	50.9	11.9
Richmondshire	Yorkshire and The Humber	6	43.3	11.9
Walsall	West Midlands	30	53.4	11.8
Chorley	North West	12	48.1	11.8
Amber Valley	East of England	14	50.1	11.8
Easington	North East	11	48.6	11.7
South Kesteven	East Midlands	15	50.9	11.6
Derbyshire Dales	East Midlands	8	58.1	11.6
Berwick-upon-Tweed	North East	3	59.6	11.6
Harlow	East of England	9	43.0	11.5
Brentwood	East of England	8	52.5	11.4
Leeds	Yorkshire and The Humber	84	41.7	11.4
Broxbourne	East of England	10	44.8	11.3
Wear Valley	North East	7	49.8	11.3
Vale Royal	North West	14	48.0	11.1
Barrow-in-Furness	North West	8	46.9	11.1
Carrick	South West	10	51.1	11.1
Corby	East Midlands	6	43.8	11.0
Chesterfield	East Midlands	11	46.5	11.0
Weymouth and Portland	South West	7	48.2	10.9
Chester	North West	13	43.4	10.9
Broxtowe	East Midlands	12	45.5	10.9
Ipswich	East of England	13	41.7	10.8
Great Yarmouth	East of England	10	47.7	10.7
Havering	London	24	46.0	10.6
Knowsley	North West	16	40.9	10.6
Wolverhampton	West Midlands	25	49.7	10.6
Sandwell	West Midlands	30	49.1	10.5
Derwentside	North East	9	43.7	10.4
Kerrier	South West	10	47.0	10.3
Oswestry	West Midlands	4	42.8	10.2
Epsom and Ewell	South East	7	46.6	10.2
Basildon	East of England	17	39.1	10.1

Local Authority	Region	Number of sunbed outlets	Sunbed outlets per 100,000 'high risk' population	Sunbed outlets per 100,000 total population
Pendle	South East	9	46.6	10.0
Bassetlaw	East Midlands	11	42.4	9.9
Kirklees	Yorkshire and The Humber	39	42.9	9.8
Stafford	West Midlands	12	42.1	9.8
Derby	East Midlands	23	39.7	9.8
Newcastle-under-Lyme	West Midlands	12	37.9	9.7
Nottingham	East Midlands	27	32.0	9.5
Allerdale	North West	9	42.4	9.5
Poole	South West	13	42.1	9.5
Dudley	West Midlands	29	40.8	9.5
Bolsover	East Midlands	7	39.4	9.5
Reigate and Banstead	South East	12	40.4	9.4
Penwith	South West	6	46.6	9.3
Chelmsford	East of England	15	36.9	9.3
Scarborough	Yorkshire and The Humber	10	44.4	9.2
Bradford	Yorkshire and The Humber	45	42.6	9.2
Bexley	London	20	39.0	9.0
Mansfield	West Midlands	9	37.0	9.0
Fenland	East of England	8	40.2	9.0
Canterbury	South East	13	34.1	9.0
York	Yorkshire and The Humber	17	31.8	9.0
Selby	Yorkshire and The Humber	7	38.8	8.9
North Kesteven	East Midlands	9	40.4	8.9
Sutton	London	16	35.6	8.7
Hinckley and Bosworth	East Midlands	9	37.2	8.7
Dacorum	East of England	12	37.1	8.7
Ashfield	East Midlands	10	34.6	8.7
Crewe and Nantwich	North West	10	36.5	8.7
Wychavon	West Midlands	10	39.8	8.7
Bristol, City of	South West	35	29.1	8.6
Waveney	East of England	10	40.0	8.6
Peterborough	East of England	14	34.2	8.6
Plymouth	South West	21	31.2	8.5
South Staffordshire	West Midlands	9	39.1	8.5
Barking and Dagenham	London	14	34.2	8.5
Lancaster	North West	12	30.5	8.4
Dover	South East	9	38.0	8.4
Brighton and Hove	South East	21	28.0	8.4
North Lincolnshire	East Midlands	13	36.1	8.2

Local Authority	Region	Number of sunbed outlets	Sunbed outlets per 100,000 'high risk' population	Sunbed outlets per 100,000 total population
West Lancashire	North West	9	34.6	8.2
Portsmouth	South West	16	27.4	8.2
North East Derbyshire	East Midlands	8	37.4	8.2
Wyre Forest	West Midlands	8	34.5	8.2
Newark and Sherwood	East Midlands	9	36.3	8.1
Thurrock	South East	12	30.1	8.1
Cheltenham	South West	9	29.5	8.1
Hastings	South East	7	34.7	8.1
Kettering	East Midlands	7	32.5	8.1
Camden	London	18	28.0	8.1
St. Edmundsbury	East of England	8	32.4	8.0
Castle Point	East of England	7	35.1	7.9
East Riding of Yorkshire	Yorkshire and The Humber	26	36.7	7.9
Salisbury	South West	9	33.0	7.8
Woking	South East	7	32.4	7.8
Spelthorne	South East	7	32.9	7.8
South Norfolk	East of England	9	37.8	7.8
Thanet	South East	10	36.1	7.8
North Devon	South West	7	36.9	7.7
Milton Keynes	South East	17	29.5	7.7
Redbridge	London	19	42.0	7.6
East Hertfordshire	East of England	10	30.7	7.6
Coventry	West Midlands	23	29.9	7.5
Kingston upon Hull, City of	Yorkshire and The Humber	19	26.6	7.5
Rushcliffe	East Midlands	8	32.4	7.5
Telford and Wrekin	West Midlands	12	28.7	7.4
Solihull	West Midlands	15	34.7	7.4
Hertsmere	East of England	7	32.6	7.4
Chichester	South East	8	36.4	7.4
Leicester	East Midlands	21	35.7	7.3
Richmond upon Thames	London	13	29.2	7.3
Caradon	South West	6	35.4	7.3
Colchester	East of England	12	26.3	7.2
Kingston upon Thames	London	11	27.0	7.1
Gedling	East Midlands	8	31.0	7.1
King's Lynn and West Norfolk	East of England	10	33.3	7.1
Three Rivers	East of England	6	32.9	7.1
Reading	South East	10	22.8	7.0

Local Authority	Region	Number of sunbed outlets	Sunbed outlets per 100,000 'high risk' population	Sunbed outlets per 100,000 total population
Ribble Valley	North West	4	32.1	7.0
Tendring	East of England	10	36.7	7.0
South Northamptonshire	East of Midlands	6	31.8	6.9
Warwick	West Midlands	9	27.2	6.8
South Derbyshire	East Midlands	6	27.9	6.8
Birmingham	West Midlands	68	32.5	6.8
Medway	South East	17	26.1	6.8
Wellingborough	East Midlands	5	29.0	6.7
Adur	South East	4	32.0	6.7
South Lakeland	North West	7	32.3	6.7
Bromsgrove	West Midlands	6	31.3	6.6
Cherwell	South East	9	25.5	6.6
High Peak	East Midlands	6	29.1	6.6
Daventry	East Midlands	5	28.4	6.6
Braintree	East of England	9	26.7	6.5
Gosport	South East	5	23.9	6.5
Maidstone	East of England	9	26.4	6.4
Watford	East of England	5	24.2	6.3
Charnwood	East Midlands	10	23.7	6.3
Gloucester	South West	7	25.7	6.2
Tonbridge and Malling	South East	7	27.2	6.2
Southampton	South East	14	19.0	6.2
Surrey Heath	South East	5	26.9	6.2
Melton	East Midlands	3	27.3	6.2
Merton	London	12	25.7	6.1
Castle Morpeth	North East	3	30.9	6.1
West Berkshire	South East	9	24.4	6.1
Shepway	South East	6	27.8	6.0
South Gloucestershire	South West	15	24.1	5.9
Restormel	South West	6	26.8	5.9
Aylesbury Vale	South East	10	24.1	5.9
West Lindsey	East Midlands	5	28.6	5.9
Hambleton	Yorkshire and The Humber	5	28.2	5.9
Windsor and Maidenhead	South East	8	24.9	5.8
Suffolk Coastal	East of England	7	29.6	5.8
Welwyn Hatfield	East of England	6	23.3	5.8
Babergh	East of England	5	27.1	5.8
Eden	North West	3	26.9	5.8

Local Authority	Region	Number of sunbed outlets	Sunbed outlets per 100,000 'high risk' population	Sunbed outlets per 100,000 total population
Bridgnorth	West Midlands	3	24.1	5.8
Tunbridge Wells	South East	6	24.5	5.8
Rother	South East	5	34.4	5.7
Ryedale	Yorkshire and The Humber	3	28.5	5.7
Teignbridge	South West	7	28.3	5.6
Rugby	West Midlands	5	24.1	5.6
Wycombe	South East	9	23.7	5.6
Winchester	South East	6	22.5	5.5
Elmbridge	South East	7	26.1	5.5
South Oxfordshire	South East	7	23.3	5.5
Mid Sussex	South East	7	24.9	5.5
Craven	Yorkshire and The Humber	3	27.4	5.4
Islington	London	10	19.1	5.4
Sevenoaks	South East	6	25.5	5.4
Tamworth	West Midlands	4	19.5	5.3
Tower Hamlets	London	11	24.8	5.3
Hillingdon	London	13	23.0	5.2
Shrewsbury and Atcham	West Midlands	5	22.1	5.2
Boston	East Midlands	3	23.2	5.2
Waverley	South East	6	23.1	5.2
Cambridge	East of England	6	13.8	5.1
Kensington and Chelsea	London	9	19.4	5.1
East Cambridgeshire	East of England	4	21.8	5.1
Redditch	West Midlands	4	19.4	5.1
Harborough	East Midlands	4	22.9	5.0
North Hertfordshire	East of England	6	21.9	5.0
Rochford	East of England	4	22.3	5.0
Tandridge	South East	4	23.5	5.0
Enfield	London	14	22.3	4.9
Maldon	East of England	3	22.3	4.9
Huntingdonshire	East of England	8	20.3	4.9
Swindon	South West	9	18.4	4.9
Arun	South East	7	24.7	4.8
Croydon	London	16	24.3	4.8
Swale	South East	6	19.4	4.7
Breckland	East of England	6	21.3	4.7
South Bucks	South East	3	24.1	4.7
North Cornwall	South West	4	23.2	4.7
Wokingham	South East	7	18.8	4.6

Local Authority	Region	Number of sunbed outlets	Sunbed outlets per 100,000 'high risk' population	Sunbed outlets per 100,000 total population
St Albans	East of England	6	19.7	4.6
Ashford	South East	5	19.6	4.6
Bedford	East of England	7	19.1	4.6
Waltham Forest	London	10	21.3	4.5
Rushmoor	South West	4	15.1	4.5
Greenwich	London	10	18.7	4.5
Dartford	South East	4	17.4	4.5
North West Leicestershire	East Midlands	4	19.2	4.5
Bracknell Forest	South East	5	16.3	4.5
Chiltern	South East	4	22.5	4.5
Lambeth	London	12	17.9	4.4
Isle of Wight	South East	6	21.7	4.4
Blaby	East Midlands	4	18.7	4.4
East Lindsey	East Midlands	6	22.0	4.4
Stratford-on-Avon	West Midlands	5	21.2	4.4
Wandsworth	London	12	13.3	4.3
South Bedfordshire	East of England	5	18.3	4.3
Barnet	London	14	19.4	4.3
Exeter	South West	5	13.5	4.3
Lewes	South East	4	22.0	4.3
Eastbourne	South East	4	19.2	4.2
Eastleigh	South East	5	17.6	4.2
Oxford	South East	6	11.3	4.1
New Forest	South East	7	20.8	4.0
West Oxfordshire	South East	4	17.4	4.0
North Norfolk	East of England	4	21.2	4.0
North Wiltshire	South West	5	16.4	3.9
East Devon	South West	5	20.5	3.8
Runnymede	South East	3	13.7	3.7
Mole Valley	South East	3	18.6	3.7
Fareham	South East	4	16.7	3.7
South Hams	South West	3	19.1	3.6
East Dorset	South West	3	20.4	3.5
Wealden	South East	5	18.7	3.5
Hart	South East	3	14.0	3.4
Havant	South East	4	15.5	3.4
Tynedale	North East	2	16.8	3.4
Harrow	London	7	19.6	3.3

Local Authority	Region	Number of sunbed outlets	Sunbed outlets per 100,000 'high risk' population	Sunbed outlets per 100,000 total population
Luton	East of England	6	14.7	3.2
Mid Bedfordshire	East of England	4	12.8	3.1
North Dorset	South West	2	13.6	3.1
Guildford	South East	4	11.0	3.0
Crawley	South East	3	11.7	3.0
South Cambridgeshire	East of England	4	12.8	3.0
Hammersmith and Fulham	London	5	9.3	2.9
Copeland	North West	2	12.1	2.9
Bath and North East Somerset	South West	5	11.1	2.9
Uttlesford	East of England	2	13.1	2.8
West Somerset	South West	1	15.7	2.8
Mendip	South West	3	12.3	2.8
Hounslow	London	6	12.9	2.8
East Hampshire	South East	3	12.4	2.7
Rutland	East Midlands	1	11.3	2.7
Sedgemoor	South West	3	12.7	2.7
Malvern Hills	West Midlands	2	13.6	2.7
Test Valley	East of England	3	11.7	2.7
Kenet	South West	2	10.5	2.6
Tewkesbury	South West	2	11.6	2.6
Basingstoke and Deane	South East	4	10.0	2.5
North Somerset	South West	5	11.9	2.5
South Holland	East Midlands	2	11.9	2.5
Forest of Dean	South West	2	10.9	2.4
South Shropshire	West Midlands	1	12.9	2.4
Horsham	South East	3	11.2	2.4
Southwark	London	6	10.0	2.3
Herefordshire, County of	West Midlands	4	10.6	2.3
Purbeck	South West	1	11.6	2.2
Christchurch	South West	1	12.7	2.2
Mid Suffolk	South East	2	10.0	2.2
West Dorset	South West	2	11.3	2.1
Gravesham	South East	2	9.2	2.1
West Devon	South West	1	10.2	2.0
Lewisham	London	5	8.9	2.0
Taunton Deane	South West	2	8.0	1.9
Haringey	London	4	7.6	1.8
Vale of White Horse	South East	2	7.3	1.7

Local Authority	Region	Number of sunbed outlets	Sunbed outlets per 100,000 'high risk' population	Sunbed outlets per 100,000 total population
North Shropshire	West Midlands	1	7.5	1.7
Slough	South East	2	8.1	1.7
Ealing	London	5	8.3	1.6
West Wiltshire	South West	2	7.0	1.6
Newham	London	4	11.6	1.6
Brent	London	4	9.5	1.5
Hackney	London	3	7.0	1.4
Mid Devon	South West	1	6.4	1.4
South Somerset	South West	2	5.8	1.3
Stevenage	East of England	1	4.8	1.3
Cotswold	South West	1	5.9	1.2
Stroud	South West	1	4.2	0.9
Isles of Scilly	South West	0	0.0	0.0
Torridge	South West	0	0.0	0.0
Teesdale	North East	0	0.0	0.0

Table A2: Sunbed outlets per 100,000 total population and 'high risk' population by Local Authority in Wales

Local Authority	Number of sunbed outlets	Sunbed outlets per 100,000 'high risk' population	Sunbed outlets per 100,000 total population
Neath Port Talbot	19	60.6	14.1
Denbighshire	11	53.0	11.7
Blaenau Gwent	8	47.6	11.5
Rhondda Cynon Taf	26	43.8	11.2
Ceredigion	8	39.6	10.5
Swansea	22	38.9	9.8
The Vale of Glamorgan	11	40.9	9.1
Conwy	10	43.8	9.1
Gwynedd	10	35.1	8.5
Wrexham	9	27.2	7.0
Torfaen	6	27.9	6.6
Isle of Anglesey	4	26.5	5.9
Newport	8	24.5	5.8
Caerphilly	9	20.9	5.3
Cardiff	15	16.7	4.8
Flintshire	7	18.9	4.7
Bridgend	6	19.3	4.7
Merthyr Tydfil	2	14.6	3.6
Pembrokeshire	4	16.5	3.5
Carmarthenshire	6	15.6	3.4
Monmouthshire	1	5.7	1.2
Powys	1	3.8	0.8

Table A3: Sunbed outlets per 100,000 total population and 'high risk' population by Local Authority in Northern Ireland

Local Authority	Number of sunbed outlets	Sunbed outlets per 100,000 'high risk' population	Sunbed outlets per 100,000 total population
Castlereagh	13	81.1	19.7
Ballymena	11	68.6	18.5
Belfast	44	53.2	16.2
Ballymoney	4	51.6	14.4
Newtownabbey	11	50.2	13.7
Derry	14	42.5	13.2
Dungannon	6	42.7	12.3
Ards	8	41.5	10.8
Magherafelt	4	32.2	9.8
Banbridge	4	32.9	9.3
Cookstown	3	30.6	9.0
Craigavon	7	31.0	8.5
Antrim	4	27.5	8.1
Newry and Mourne	7	27.2	7.8
North Down	6	30.8	7.8
Lisburn	8	26.3	7.3
Coleraine	4	26.0	7.1
Moyle	1	22.9	6.1
Limavady	2	19.2	6.0
Armagh	3	19.0	5.4
Carrickfergus	2	19.3	5.2
Fermanagh	2	12.5	3.4
Larne	1	12.8	3.2
Strabane	1	8.8	2.6
Omagh	1	6.8	2.0
Down	0	0.0	0.0

Table A4: Sunbed outlets per 100,000 total population and 'high risk' population by Local Authority in Scotland

Local Authority	Number of outlets	Sunbed outlets per 100,000 'high risk' population	Sunbed outlets per 100,000 total population
West Dunbartonshire	16	67.2	17.4
South Lanarkshire	47	61.0	15.4
Aberdeen City	28	44.4	13.8
North Lanarkshire	43	49.1	13.3
East Dunbartonshire	14	58.9	13.1
South Ayrshire	14	56.3	12.5
Glasgow City	69	41.0	11.9
West Lothian	18	41.2	11.1
Fife	37	41.7	10.4
Clackmannanshire	5	41.9	10.4
North Ayrshire	14	42.4	10.3
Dundee City	14	35.8	9.9
Edinburgh, City of	44	31.1	9.7
Angus	10	40.5	9.2
Midlothian	7	37.1	8.8
Aberdeenshire	20	36.9	8.6
Renfrewshire	13	30.4	7.6
Stirling	6	26.8	6.9
Dumfries & Galloway	10	32.0	6.8
East Renfrewshire	6	31.3	6.7
Falkirk	9	23.8	6.1
East Ayrshire	7	23.7	5.8
Scottish Borders	6	25.9	5.5
East Lothian	5	24.9	5.5
Inverclyde	4	19.7	4.9
Shetland Islands	1	18.7	4.6
Highland	9	18.9	4.3
Moray	3	13.7	3.4
Perth & Kinross	4	13.2	2.9
Argyll & Bute	1	5.0	1.1
Orkney Islands	0	0.0	0.0
Eilean Siar	0	0.0	0.0

Further information

The full report, *Sunbed outlets and area deprivation in the UK*, is available from the South West Public Health Observatory's Skin Cancer Hub website, <http://www.swpho.nhs.uk/skincancerhub>

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About the South West Public Health Observatory

The South West Public Health Observatory (SWPHO) is part of a network of 12 public health observatories working across the five nations of England, Scotland, Wales, Northern Ireland and the Republic of Ireland. The nine Public Health Observatories in England work together through a single work programme which contains both national and local elements. We produce information, data and intelligence on people's health and health care for practitioners, policy makers and the wider community. Our expertise lies in turning information and data into meaningful health intelligence to support decision makers.

On behalf of the Department of Health, the SWPHO works in partnership with the NHS, local authorities, researchers, national agencies as well as agencies in the South West.

The SWPHO incorporates the National Drug Treatment Monitoring System South West (NDTMS-SW), and in April 2005 merged with the South West Cancer Intelligence Service (SWCIS).

For more information about the SWPHO and its partner organisations, please visit www.swpho.nhs.uk

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