Health and economic impact of sunbed use in Wales – a rapid review of the evidence

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Paper produced in response to request from Denbighshire County Council CHIG in view of recent publicity surrounding problems with the use of sunbeds.

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Key messages

- The number of people diagnosed with skin cancer (melanoma and non-melanoma skin cancer) has increased significantly in the United Kingdom (UK).
- Malignant melanoma is now the most common cancer in young adults (aged 15-34 years). During 2006 in Wales, 505 cases of malignant melanoma were diagnosed and there were 113 deaths recorded in 2007.
- There is good evidence that sun exposure is the main cause of skin cancer.
- Other factors that significantly influence the risk of skin cancer are the presence of fair skin, light coloured eyes, freckles or large moles.
- There is good quality evidence from observational studies that the use of sunbeds, particularly by young people increases the risk of skin cancer. There was survey evidence that young people are gaining access to sunbeds in Wales and that the level of supervision and information is poor.
- Excess exposure to sun causes adverse effects other than skin cancer, such as ocular melanoma, photoageing and immunosuppression. Further good quality evidence is however required.
- The perceived benefits of sunbed use are largely psychological and cosmetic in nature. The maintenance of Vitamin D levels by sunbed use is not recommended.
- Following reports of serious adverse effects of sunbeds, in particular from unsupervised outlets, the Welsh Assembly Government has launched an inquiry into their use and possible methods for regulation in Wales.
- Determining the number of tanning/sunbed establishments in Wales proved difficult. In one survey, Wales had the highest registration rate with The Sunbed Association in the UK, with 17% of the 203 salons located in Wales registered. The outlet rates increased with increasing deprivation for urban areas and increasing affluence for rural areas.
- An internet search revealed a “best rated” list of 5 tanning premises for the Denbighshire area. There was no information on the number of people employed in tanning salons in Wales and therefore the impact of reducing sunbed use on employment could not be quantified.
- The number of sunbeds operated by local authorities in Wales has reduced to three following campaigns from expert groups. At the present time only 3 (Vale of Glamorgan, Flintshire and Wrexham) of the 22 local authorities in Wales offer sun beds in their premises, and Wrexham and the Vale of Glamorgan Council are in the process of removing sunbeds from their leisure centres.
- There is no requirement that private sector UV sun tanning facilities be registered or licensed by local authorities, therefore local authorities have no formal mechanism for regulating how these facilities are offered.
- There is public and expert support for the ban of unmanned salons and the under 18s from using sunbeds.
- It is recommended that statutory regulations under an advanced Private Members Bill, supported by a registration scheme should be introduced into Wales.
1. Introduction

There are two main types of skin cancer, non-melanoma skin cancer and the more serious, but less common malignant melanoma. In the United Kingdom (UK) there have been significant increases in the number of people diagnosed with skin cancer. In 2006, 10,400 malignant melanoma cases (505 in Wales) and approximately 81,500 non-melanoma skin cancers were recorded. Incidence rates of melanoma have quadrupled since the 1970s and in 2007, approximately 2000 people died from malignant melanoma in the UK, with 113 deaths in Wales. Almost one third of cases of malignant melanoma occur in people under 50 and it is more than twice as common in young women (<34 years) than in young men.

Ultraviolet (UV) radiation from the sun and artificial sources such as sunbeds is of considerable public health concern and there is increasing scientific evidence relating to cumulative ultraviolet (UV) radiation exposure and the potential it has to cause damage to the skin, such as sunburn, skin cancer and ocular problems. Episodes (even brief ones) of burning UV radiation exposure at an early age are implicated as a major risk factor for melanoma. Artificial tanning devices such as sunbeds are being used at an increasing rate and evidence indicates that the use of sunbeds increases the risk of malignant melanoma, especially in people who find it difficult to tan, such as those who are fair skinned. Sunbeds emit predominantly UVA and some UVB, both of which can damage the DNA in cells of the skin. In recent years however, lamps of sunbeds have been manufactured that produce higher levels of UVB to mimic the solar spectrum and speed the tanning process. Whilst UVB has well known carcinogenic properties and excessive exposure is known to cause skin cancers, recent scientific studies suggest that high exposures to the longer wavelength UVA could also have an impact on skin cancer occurrence. It has been estimated that sunbeds cause 100 deaths from melanomas annually in the UK.

In 2007 the Welsh Assembly Government (WAG), the Scottish Government, the Department of Health, Social Services and Public Safety for Northern Ireland (DHSSPS NI) and the Department of Health (DH), requested that the Committee on Medical aspects of Radiation in the Environment (COMARE) provide advice regarding the safety of UV sunbeds in the UK. The COMARE report, published in June 2009 indicated that the scientific evidence for the potentially harmful effects of UV radiation had been reviewed by a number of scientific expert groups. In June 2009 the Health, Wellbeing and Local Government Committee in WAG set up an inquiry into the use and regulation of sunbeds in Wales.

There is evidence that some communications from the sunbed industry have dismissed the health risks and marketed the benefits of use e.g. for the maintenance of adequate Vitamin D levels. One medical oncologist has received intense media attention for his support of sunbed use. There is therefore an urgent need for clarification of the association of sunbeds with adverse health conditions and the effective regulation of sunbed establishments.
The National Public Health Service was asked by Denbighshire County Council to look at evidence around the positive and negative effects of sunbeds in view of the recent publicity surrounding problems with their use.

2. Aims

To perform a rapid review of the evidence on the advantages and disadvantages of use of sunbeds, with special reference to the situation in Wales.

3. Research questions

Evidence was sought to answer the following questions:-

1. What are the specific health and safety implications (negative and positive) relating to the exposure of persons to UV radiation from sunbeds for cosmetic purposes?
2. The positive and negative economic impacts of sunbed use in Wales.

4. Methods

The research questions in Section 3 were converted to structured questions for searching using the Population, Intervention, Comparison and Outcome (PICO) format.¹¹

4.1 Identifying existing and ongoing research

4.1i Literature searching

Systematic searching: As per the protocol contained in The Evidence Checklist¹² a scoping search was initially performed to identify major papers on published evidence and refine the final search strategy. For the present overview, search terms contained in the search strategies were used from published reviews and they were kept broad to maximise retrieval of references. The databases Ovid Medline, Embase, Cochrane Database of Systematic Reviews, ACP Journal Club EBM reviews; Database of Abstracts of Reviews of Effects; Cochrane Central Register of Controlled Trials; British Nursing Index and Cinahl were searched using the search terms sunbed, sun bed, sunbeds, solaria, tanning, home tanning, indoor tanning, sun tanning parlours, tanning devices, melanoma, malignant melanoma, cutaneous melanoma, skin cancer, skin cancer, prevention, UV and ultraviolet radiation, adverse effects, regulation.

The type of literature on sunbeds necessitated the use of a pragmatic approach to searching for evidence in order to achieve production of the review, within the short timescales for delivery. It is clear that there had to be a balance between timeliness and rigour and high quality evidence and systematic reviews, meta-analyses, randomised controlled trials (RCTs), health technology assessments and clinical guidelines were identified first. It should be emphasised that the review is not a systematic review of primary studies.
High level searching: It is well known that the classical databases for medical literature, such as Medline, do not adequately index all relevant literature. The reviewer used previously described validated methods that involved the use of meta-search engines and other databases for 'high level' searching to quickly identify relevant evidence.

For critical appraisal, the methods recommended for use in the National Institute for Health and Clinical Excellence Guideline Development Methods manual were used. The quality of the evidence was graded using the NICE hierarchy of evidence and the quality checklists. Evidence was rejected if graded as poor quality, apart from where it was of Level 1 type (see Appendix 1 for explanation of evidence grading system) and was highly relevant to the question. The levels of evidence for the included papers are given after each reference in the reference section. Due to practical limitations a single reviewer performed the final selection, critical appraisal and data extraction.

Inclusion Criteria

Search period January 2000 - August 2009

Papers relating to sunbed use

Randomised controlled trials

Systematic reviews

Meta-analyses

Guidelines

Observational studies (where higher quality evidence was not available)

5. Results

The scoping search revealed several good quality reports containing up to date reviews of the literature and information of relevance to the questions. With the time constraints for production of the document, these secondary sources were used extensively to inform the present document, supplemented with relevant evidence found in the searches.

5.1 Chronic effects of UV radiation from sunbeds

5.1i Skin Cancer

The epidemiological data on sunbed use and skin cancer risk are much more limited than for sun exposure and risk. The number of studies which have addressed this potential risk factor is much smaller, and the information collected on the duration and type of use is poorer. The UV radiation emissions of sunbeds are very variable and it is very difficult therefore to account for this in the studies reported. A confounding
factor in the studies is sun exposure, as it is difficult to disaggregate UV radiation exposure from sunbathing and from sunbed use. The sun’s rays contain 3 types of UV radiation:

- UVA makes up most of our natural sun light and causes skin ageing
- UVB causes the sun to burn the skin and is the main cause of non melanoma skin cancer
- UVC is mostly filtered out by the atmosphere of the earth

It has always been considered that UVB is the main risk for skin cancer. Sunbeds produce mostly UVA, but all produce some UVB and there is increasing evidence that UVA may also cause skin cancer.

5.1ii Melanoma

Case–control studies were summarised in a review of 19 studies by the International Agency for Research on Cancer (IARC) Working Group. \(^{14}\) Overall in this analysis, there was a positive association with ever having used a sunbed and melanoma (summary relative risk (RR) = 1.15, 95% confidence interval (CI) 1.00–1.31), although evidence of a dose–response relationship was scant. First use of sunbeds before the age of 35 years significantly increased the risk of melanoma, based on seven studies (summary RR = 1.75, 95% CI 1.35–2.26). The authors of the review concluded that the data are suggestive of an effect of UV radiation exposure from sunbeds, but there were concerns that users of sunbeds were also likely to be sunbathers. The IARC review found eight studies in which the risk was adjusted for confounders related to sun exposure and sun sensitivity. In these studies the summary relative risk was similar to that from the overall analysis, thus providing a positive association with melanoma.

Of particular importance was the IARC data indicating that there was increased risk associated with sunbed use for individuals under the age of 35 years, compared with older individuals and there are other data supportive of a special effect of sun exposure early in life. Melanocytic naevi (moles) are a risk factor for melanoma and the emergence and proliferation of these naevi is a feature of early life. This fact has led to support for the proposal to ban sunbed access to individuals under the age of 18 years. \(^{16}\) The authors of the IARC report concluded that the risk of cutaneous melanoma is increased by 75% when use of tanning devices starts before the age of 30 years. Higher risk behaviour has been documented in teenagers, with 60% experiencing a burn within the last year \(^{17}\) with repeated sunbed use in 26%. A survey of 4,000 members of the public by Cancer Research UK found that 82% of sunbed users first used a sunbed before the age of 35 years. \(^{18}\) People with known risk factors for skin cancer, especially malignant melanoma, should be advised not to use UV radiation tanning devices. Specifically, these are

(i) skin phototypes I and II and the presence of freckles,

(ii) atypical and/or multiple moles
(iii) a family history of melanoma.

In July 2009 IARC placed sunbeds in group 1 carcinogens, the highest cancer risk category. Sunbeds were previously in the lower group 2A category which contains threats that are probably carcinogenic to humans. Solar radiation has been in group 1 for some time.

The authors of the 2006 report from the European Commission Scientific Committee on Consumer Products (SCCP) concluded that the data on melanoma risk from sunbed use in the general population were scarce. Included in their report were a number of case-control studies but the details on exposure for the majority was small and all, suffered from bias of recall and the effect of confounders. A number of case-control studies reported no evidence of sunbed use as a risk factor for melanoma. (see reference 15 for details) The majority of these studies were, however, small and the prevalence of sunbed usage in cases and controls was very low. Others were supportive of weak evidence or evidence in “at risk” groups.

In the study by Westerdahl et al. an increased risk of melanoma was demonstrated only for use of sunbeds before the age of 35 years (OR, 2.3; CI, 1.2–4.2). Swerdlow et al. showed a significantly increased risk for any use of sunbeds (OR 2.94 95% CI 1.4–6.17) with a significant trend for increased duration of use. Autier et al. showed little evidence of risk overall when corrected for skin type, but did show evidence of increased risk for usage of sunbeds for 10 hours or more, when burning was reported after use of the sunbed, or when the users reported use of the sunbed to tan. The only cohort study to address risk associated with solaria followed more than 100,000 Norwegian and Swedish women for an average of 8 years. This study identified use of a solarium for ≥1 times per month as a risk factor for melanoma. When the exposures occurred between the ages of 20 – 29 years the adjusted relative risk was 2.58 (95%CI 1.48–4.50).

The SCCP report authors stated that “this is probably the most persuasive evidence for a role for sunbeds in causing melanoma, but the data are as yet relatively weak and support the view only that frequent use is deleterious”. This statement is somewhat confusing in the light of one of the report’s final conclusions that the use of UVR tanning devices to achieve and maintain cosmetic tanning, whether by UVB and/or UVA, is likely to increase the risk of malignant melanoma of the skin and possibly ocular melanoma.

The conclusions of the SCCP report are in contrast to those from the authors of the IARC review and some other good quality studies. Gallagher et al. carried out a meta-analysis of 9 case-control studies and the one cohort study and came to the conclusion that sunbed use significantly increased the risk of melanoma with an OR of 1.25 (1.1–1.5) “ever” versus “never” used. This increased to 1.69 (1.3 –2.2) for first exposure as a young adult.
5.1iii Non-melanoma skin cancer

There are two types of non-melanoma skin cancer - basal cell carcinoma (BCC) and squamous cell carcinoma (SCC). A history of sunburn or "recreational" exposure to sunlight increases the risk of BCC and risk is especially high if several episodes of sunburn occurred in childhood. The risk of SCC is however, linked to overall sun exposure throughout life. There appeared to be very few published studies on the relationship between sunbed use and non-melanoma skin cancer risk but there was some evidence for a link between sunbeds and SCC. The data on sunbed usage and SCC risk is limited to small studies and although the IARC Working Group pooled data on three studies and produced a summary relative risk of 2.25 (95% CI 1.08–4.70) for any use of a sunbed, the data overall are few. 14

5.2 Acute and non skin cancer effects

It is well documented that over exposure to UV radiation produces adverse effects other than skin cancer. The use of tanning devices has been associated with acute adverse reactions such as a form of skin fragility known as pseudoporphyria. 26 There have also been case reports of induction and exacerbation of systemic lupus erythematosus. 27, 28, a risk of phototoxic reactions with people using certain medications or applying topical aromatherapy products, such as bergamot oil, that contain photosensitising chemicals and eating plants that contain such chemicals. 30

Immunosupression is a complex issue and studies have shown that the use of sunbeds has an adverse effect on human immune function. Whitmore and Morison reported that 10 full-body exposures over a two-week period suppressed immunity as assessed by a contact hypersensitivity response. Much of the evidence for the role of UVA in humans has come from sunscreen studies in which the addition of UVA filters has been shown to improve immunoprotection. 33

5.2i Photoageing

The association of extensive sunbed use with photoageing of the skin is seen regularly in clinical practice, but is poorly documented in the literature. There was a lack of published literature on the photoageing effects of sunbed use but this would be expected from the long-term use of sunbeds, because photoageing is associated with solar exposure. 34 In humans there is evidence that long-term damage to mitochondrial DNA in elderly skin is related more to photodamage than chronological age and more recently sunbed usage by volunteers who had previously not used these machines was shown to induce the same changes. 35 These biological data therefore provide evidence of changes in the skin which are usually associated with ageing.
5.2ii Effects on the eye

Several studies have assessed the relationship between sunbed use and ocular melanoma and found varying degrees of association and the most recent study 36 provides moderately strong evidence that sunbed use results in ocular melanoma, after adjustment for confounding factors including exposure to solar radiation. The OR for use (never vs ever) was 1.7 (95% CI 1.0 – 2.8) and 2.4 (95% CI 1.0 – 6.1) for first use under 21 years. There was a significant trend (p = 0.04) for duration of use.

The principal result of UV radiation exposure on the eye is corneal damage. The damage is generally limited to the epithelial cells of the cornea and the condition tends to be short lived. Although the primary emission from sunbeds is UVA, which has a greater transmission than UVB, it is exposure to radiation in the 295–325 nm wavelength range of UVB that has been shown to induce cataract formation. Sunbeds produce limited 295–325 nm radiation, but the health risks should still be taken into account. The use of protective goggles will prevent exposure of the eyes to harmful levels of UV radiation and the risk of ocular damage.

5.3 Perceived benefits of sunbed use

For the general public using commercial sunbed outlets, there are some perceived beneficial effects from exposure to UV radiation, described below:

5.3i Sunbeds and vitamin D levels

The importance of having optimal levels of vitamin D in the serum for many aspects of health, and the demonstration that population levels of vitamin D in the serum are low in the UK means that supporting measures to raise levels need to be addressed. It has been suggested that use of sunbeds might be a useful means of correcting low levels of vitamin D in the population and it has been suggested that a 10 minute session yields 2,000 to 4,000 international units (equivalent to four to eight servings of fatty fish or two to four pills of supplement. 37 Tanning with UVB-emitting sunbeds would be expected to improve vitamin D status and this has been reported in one study 38 that showed that people who used a sunbed at least once a week for at least 6 months had a mean serum concentration of 25 hydroxyvitamin D (25(OH)D) of 115.5 ± 8.0 (SEM) nmol/L compared with the controls who had levels of 60.3 ± 3.0 nmol/L (P < 0001). The tanners also had significantly higher hip bone mineral density. This study has several methodological problems. The study relied on recall of sunbed use without establishing serum 25(OH)D before sunbed use, the tanning group had much greater sunlight exposure and there was a much greater proportion of white-skinned people in the tanning group. There is also evidence that although use of sunbeds can increase vitamin D levels, this reaches a plateau after a few sessions. 39 Many experts have concluded that use of fatty fish and supplements are a preferable means of increasing vitamin D levels in multiethnic populations around the world. 40 Given that there are wholly safe alternatives, the benefit of sunbed use as a source of vitamin D is outweighed by the risks.
5.3ii Psychological/feel good factor

There appears to be psychological benefits of sunbed use. Many people claim to feel better after sunbed use, but studies using primarily UVA emitting sunbeds showed that mood effects could not be attributed to circulating serotonin or melatonin or opioid peptides. The most popular reason for using sunbeds appears to be improving appearance. One study from Bradford, UK, suggested that usage was associated with perceptions of ‘looking healthy’ or ‘looking better’. It can be concluded that use of sunbeds to acquire a tan has psychological benefits associated with a perception that the person’s appearance is improved, although it is clear that the psychological factors that influence the use of sunbeds are complex.

5.3iii Protection from sunburn

Many people use sunbeds before holidays in sunny countries in the belief that the sunbed-acquired tan will protect them from the sun, as well as ‘improving’ their appearance. The level of protection afforded by a sunbed tan is, however, small. In one study, the effects of exposure to a UVA sunbed three times a week for four weeks was compared in 31 normal subjects with those seen in nine control subjects exposed to sunbeds emitting visible light. The mean protection factor against later UVB induced erythema was 3.2 ± 0.3 after the UVA sunbed course and 1.6 ± 0.2 among the controls. During the course of the study significantly more adverse effects were seen in the individuals exposed to a UVA sunbed. The changes found in both groups were attributed to small amounts of UVB emission from both active and control lamps. The level of protection was therefore limited and moreover was associated with morbidity. The COMARE report states that at best a sunbed session provides at best a factor 3 sunscreen.

5.3iv Sunbeds and sunburn

A history of sunburn has been reported as a risk factor in melanoma and because burning is not a common feature when tanning using UVA sunbeds, proponents of cosmetic tanning have taken this to imply that tanning with sunbeds is safer than in sunlight. Lack of burning with sunbeds should not be taken as evidence that tanning with sunbeds is safer than in sunlight since burning per se is not necessarily associated with increased risk of melanoma, but is simply a marker of a high dose of solar radiation exposure (principally UVA exposure). There have however been reports of a number of young people who have received severe burns from sunbeds.

5.4 Economic Impact of Sunbed Use in Wales

Some tanning businesses are registered with the Sunbed Association (TSA) which has estimated that there are around 8,000 tanning facilities nationally, only a fifth of whom are members of TSA (K Banks, Chief Executive, The Sunbed Association, personal communication, 2006) and in 2007 there were 1,171 UK TSA registered members. The website of the TSA was searched in an attempt to locate registered
tanning premises in Wales, but this information was only available to members. A Google search for tanning salons in Denbighshire produced the Sheriff Ratings page that gave lists of salons in order of “best rated”. On further examination this rating was arbitrary with no supporting reviews data. A total of 5 premises were listed in the Denbighshire area – four in Rhyl and one in Prestatyn.

A study conducted by the South West Public Health Observatory sought to identify outlets providing sunbed facilities by a desk-top UK-focused search utilising internet directories. This identified a total of 5,350 sunbed outlets across England, Scotland, Wales and Northern Ireland and corresponds to approximately two-thirds of the 8,000 sunbed outlets estimated by TSA 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. A comparison between 1,149 TSA members for whom postcode data were available and the outlets identified using the internet directory search revealed matches for only 496 of the 5,350 (9%). Membership varied by country. The lowest percentage membership was found in Northern Ireland (4%) followed by Scotland (7%) and England (9%). Wales had the highest percentage membership with 17% of outlets registered with TSA. Conversely, from the membership list for TSA, 496/1,149 outlets (43%) were identified by the internet search strategy. No data could be found on the number of people employed in the sunbed outlets and the income generated by such establishments.

In Wales the survey found that:-

(i) the outlet rates increased with increasing deprivation for urban areas, the highest outlet rate was observed in the second most deprived quintile (DQ4).
(ii) there was no discernable trend for town and fringe areas.
(iii) the rates increased with increasing levels of affluence for rural areas, although the total number of outlets for this area type was small (n = 12).

The average years of life lost in the UK for melanoma has been calculated as over 15 years per death, indicating that the impact is high. The cost to the NHS is considerable with an estimated spend in 2002 of almost £58 million on diagnosis and treatment of NMSCs and £13 million for malignant melanoma. When the indirect costs (patient costs, morbidity and mortality costs) are included with the costs to the NHS, the total estimated cost of skin cancer in the UK for 2002 was >£190 million, with 63% of the costs due to malignant melanoma. Revenue implications specific for Wales in terms of healthcare costs were not found in the literature search. Data was unfortunately lacking on the revenue in Wales in terms of employment of personnel in sunbed outlets and therefore the impact of reducing sunbed use could not be quantified.

5.5 Use of Sunbeds in Wales

There is considerable anecdotal evidence that young people are gaining access to, and using, commercial sunbeds in Wales. There have also been a number of high
profile instances where young people have been burnt as a result of unsupervised sunbed use. Cancer Research UK was commissioned by the Department for Public Health and Health Professions to carry out a study to explore the extent of sunbed use and patterns of use amongst under 18s in Wales. The main results are:-

- Overall, 8.2% (95%CI: 6.5%, 9.9%) of all children aged 11-17 said they had used a sunbed at least once, this figure increased to 16.7% (13.2%, 20.2%) for girls.
- Sunbed use was significantly lower in Cardiff at 5.3% (CI: 3.0%, 7.6%) than in the rest of Wales at 9.8% (7.5%, 12.0%).
- One in five children who use sunbeds uses them at least once a week.
- With regard to supervision of sunbed use, 41.5% (30.4%, 52.6%) said they were unsupervised when they used tanning equipment in either a tanning/beauty salon or gym/leisure centre.
- Only half of children (50.0%; CI: 35.2%, 64.8%) were given information on the harm sunbeds can cause.

There is also considerable confusion surrounding intensity of use. The British Medical Association in its policy statement on use of sunbeds states that sunbeds should not be used for cosmetic purposes at all, however the British Photodermatology Group recommends that if people use sun beds, they should not exceed two courses a year of no more than 10 sessions. The HSE recommend no more than 20 sessions a year and suggests that the user consult with the operator of the sun bed to determine how long a session should be depending on their skin type. The TSA advises that 2 to 3 sessions a week is acceptable but that skin should be rested for 24 hours between each session, 48 hours where the user is of skin type 2.

5.5 Regulation

The only UK authority to currently regulate sunbed use with legislation is Scotland, through the Public Health etc (Scotland) Act 2008. The Act prohibits use of sunbeds by people under 18 years of age and also the sale or hire of sunbeds to people under 18. Some businesses in the rest of the UK operate under a voluntary code of conduct agreed by the Sunbed Association. Currently the only laws covering the use of sunbeds in the UK is Health and Safety legislation. The HSE performed a consultation in 2008 on its revised guidelines on controlling the health risks associated with working with UV tanning equipment and the latest guidelines were published in May 2009. To comply with this legislation, duty holders are required to assess the health and safety risks caused by their work activities which will include the risks to employees and customers from exposure to ultraviolet radiation and put in place measures to control these risks as far as is reasonably practicable.

In the evidence submitted to WAG enquiry by Cancer Research UK into the use and regulation of sunbeds the authors have made the following evidence based policy recommendations:-

- Under-18s should not be permitted to use sunbeds
• Unstaffed salons should be banned as a matter of priority
• Clear, accurate health information should be displayed in all sunbed salons, warning of the risks associated with sunbed use
• Regulation of the sunbed industry should be supported as we believe that voluntary codes have proved ineffective. A licensing system, for example, could ensure that a number of minimum health, safety and good practice guidelines were met in all tanning facilities.

Although WAG currently has no legislative competence to bring forward legislation to license sunbed salons, Cancer Research UK believes that the Assembly could seek such powers. The London sunbed licensing legislation is fixed within the local government arena, and the Assembly is able to acquire legislative competence in areas relating to local government.

Despite the arguments that offering sunbeds raises revenue for local authorities, Cancer Research UK supports the continued phasing-out of tanning facilities in local authority premises. Local authorities are committed to promoting health and well-being in their communities and the location of sunbeds in some local authority-owned facilities sends a mixed message to the public.

The Chartered Institute of Environmental Health (CIEH) Wales has actively campaigned to have sunbeds operated by local authorities removed from their premises. The number of local authorities offering sunbeds in Wales has reduced significantly and this obviously has a revenue implication as it is reported that the Vale of Glamorgan council earns £15,000 per year from the sunbeds. At the present time only 3 (Vale of Glamorgan, Flintshire and Wrexham) of the 22 local authorities in Wales offer sunbeds in their premises, and Wrexham (Watkin A., personal communication) and the Vale of Glamorgan Council will remove sunbeds from their leisure centres by the end of the financial year. Flintshire County Council's Leisure Services Section maintains a total of 5 sunbeds spread across three of its Leisure Centres: Flint, Holywell and Deeside. There is no requirement that private sector UV sun tanning facilities be registered or licensed by local authorities, therefore local authorities have no formal mechanism for regulating how these facilities are offered.

The CIEH is also currently working with Cancer Research UK through the Sunsmart campaign to look at potential ways of controlling the use of sunbeds. The CIEH is also actively examining regulation in Wales and commissioned a survey that involved visits to 69 different premises in South East Wales (CIEH (Wales), 2008). The research was carried out on the basis of 'mystery shopper' visits, with operators being asked a standardised range of questions. Five unstaffed studios were visited amongst the larger sample. Of those interviewed 30% (21) were members of The Sunbed Association. As part of the interview, businesses were asked about age restrictions for use, frequency of use and time between sessions, use of eye protection, and advice given regarding illness and use of specific medication as well as skin type. An assessment of any warning information or notices was also carried out. The survey found that the majority of those questioned would allow a person below 16 years of age to use a sunbed, although in some cases this was conditional...
upon the consent of an adult. In addition, in observational studies unstaffed commercial outlets appeared to be used by the under 16s. There was considerable variation in views about appropriate intervals between sessions, with some operators allowing consecutive treatments with less than a 24-hour gap. In addition, a large proportion of premises used coin operated equipment (apart from unstaffed facilities), potentially allowing disregard of any advice about session length. There was little investigation into the health of prospective customers and little information on medication that would preclude sunbed usage. Fewer than 25% of operators carried out a formal skin type assessment.

Recommendations from the survey were that:

(i) Operation of sun tanning equipment should be controlled by statute.
(ii) Commercial sunbed outlets should be licensed.
(iii) Unstaffed premises should be prohibited.
(iv) Eye protection should be compulsory.
(v) Use by the under 18s should be prohibited.

CIEH Wales note that there is currently conflicting guidance on the age at which individuals should be allowed to access UV sun tanning facilities. Persons under the age of 18 years are not recommended to use UV tanning equipment by the British Medical Association, Cancer Research UK and the HSE. CIEH could not determine whether TSA has amended and updated its Code of Practice, however the unmanned facilities that CIEH visited in June and July 2008 had notices indicating that no persons below the age of 16 years could use the equipment. 54

The CIEH has suggested that there are two options for controlling sunbed establishments. The first is by a system of licensing, to be carried out and enforced by local authorities. The second is by way of statutory regulations supported by a registration scheme. The CIEH does not endorse the licensing regime route because uniformity of licensing conditions is essential and each local authority may take a different approach or may word the licensing conditions in a different way. The CIEH consider that the best way of ensuring consistency of protection across Wales is by way of regulation. There would be no issue of inconsistency, since the regulations would apply across the whole of Wales and would be enforced by the local authorities in the same way and to the same standard. It is suggested that the regulations should reflect the COMARE report recommendations. 1

Control of UV sun tanning equipment is not in the current UK Government’s programme of legislation and with an election by June 2010 it is unlikely to be added to it. The CIEH suggest therefore that advancement of a Private Members Bill would be the most likely way for progress to be made in this regard. It is the view of the CIEH that the committee should propose that the National Assembly for Wales seek through a Legislative Competence Order the power to regulate UV sun tanning premises in Wales. There should be an accompanying registration scheme requiring that all existing premises are inspected on a regular basis and any new premise that wishes to open should be inspected and should satisfy the legislative requirements prior to being allowed to open. The legislation should allow local authorities to
prosecute for breach of statutory requirements and to close premises that are operating in an unsatisfactory manner.
6. References


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Appendix 1  Evidence levels and quality grading  
(modified from NICE Guideline Methodology Manual)

<table>
<thead>
<tr>
<th>Level of Evidence</th>
<th>Type of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1++.</td>
<td>High-quality meta-analyses, systematic reviews of RCTs, or RCTs with a very low risk of bias</td>
</tr>
<tr>
<td>1+.</td>
<td>Well-conducted meta-analyses, systematic reviews of RCTs, or RCTs with a low risk of bias</td>
</tr>
<tr>
<td>1-.</td>
<td>Meta-analyses, systematic reviews of RCTs, or RCTs with a high risk of bias</td>
</tr>
<tr>
<td>2++.</td>
<td>High-quality systematic reviews of case–control or cohort studies. High-quality case–control or cohort studies with a very low risk of confounding, bias, or chance and a high probability that the relationship is causal</td>
</tr>
<tr>
<td>2+.</td>
<td>Well-conducted case–control or cohort studies with a low risk of confounding, bias, or chance and a moderate probability that the relationship is causal</td>
</tr>
<tr>
<td>2-.</td>
<td>Case–control or cohort studies with a high risk of confounding bias, or chance and a significant risk that the relationship is not causal</td>
</tr>
<tr>
<td>3</td>
<td>Non-analytic studies (for example, case reports, case series)</td>
</tr>
<tr>
<td>4</td>
<td>Expert opinion, formal consensus</td>
</tr>
</tbody>
</table>

Quality grading
++ = good quality  
+  = fair  
+/- = fair to poor  
-  = poor