

**11 November 2009**

**Recommendation of the Finnish, Swedish, Icelandic and Norwegian Radiation Safety Authorities regarding prohibition of sunbed/solarium services to people under the age of 18 years.**

Exposure to ultraviolet radiation (UV), including solarium use, can cause severe negative health effects. The Nordic authorities therefore advise against the use of sunbeds for tanning purposes since exposure of the general population to UV-radiation should be limited (Nordic Radiation Protection and Health Authorities, 2005).

A basic and internationally accepted principle for radiation protection is that any practice involving radiation must be justifiable, i.e. do more good than harm. The World Health Organisation based International Agency for Research on Cancer (WHO-IARC) has now classified UV-emitting tanning devices as “carcinogenic to humans” (IARC-News, 2009). This fact raises serious questions on the justification behind using sunbeds for tanning purposes.

Young persons below 18 years of age and UV sensitive people (skin type I – II) are strongly advised not to use sunbeds (Scientific Committee for Consumer Products, 2006; Nordic Radiation Protection and Health Authorities, 2005). There is a significant increased risk for developing cutaneous malignant melanoma associated with using sunbeds, particularly for those who start using sunbeds in their teens and twenties (IARC, 2006).

**Therefore the Finnish, Swedish, Icelandic and Norwegian Radiation Safety Authorities recommend regulation of tanning facilities open to the public that includes the prohibition of use, sale or hire of sunbeds for people below 18 years of age.**

Further information including the rationale, relevant data and a discussion concerning recommendations on commercial sunbed services to people under the age of 18 years is provided in the Appendix.

- Finnish Radiation and Nuclear Safety Authority (Säteilyturvakeskus, STUK)
- Swedish Radiation Safety Authority (Strålsäkerhetsmyndigheten)
- Icelandic Radiation Safety Authority (Geislavarnir Ríkisins)
- Norwegian Radiation Protection Authority (Statens strålevern)

## **18 year age limit for using sunbeds/solaria for tanning purposes**

Exposure to ultraviolet radiation (UV), including solarium use, can cause severe negative health effects in the population. Behaviour patterns and tanning habits among the general population is of concern regarding exposure to natural solar UV; the Finnish, Swedish, Icelandic and Norwegian authorities as well as other health-agencies and cancer prevention organisations are working, using information tools, towards the goal of reducing skin cancer incidence. However, with respect to artificial tanning and the use of sunbeds, though both information and legislative tools have been used and will continue to be used, stricter legislation is needed.

A working group within the IARC met in June 2009 to reassess the carcinogenicity of types of radiation previously classified as “carcinogenic to humans” (Group 1) and to identify additional tumour sites and mechanisms of carcinogenesis. The IARC released the results of this work on 27 July 2009 (IARC-News, 2009). With respect to solaria the working group changed the classification of the use of UV-emitting tanning devices to Group 1 i.e., “carcinogenic to humans”. The scientific basis for this decision is that a comprehensive meta-analysis concluded that the risk of cutaneous melanoma increased when use of tanning devices started before 30 years of age (IARC, 2006). The IARC also concluded that limited data suggested that the risk of squamous cell carcinoma increased when indoor tanning facilities were first used by an individual as a teenager. In addition, the IARC concluded that artificial tanning confers little if any protection against solar damage to the skin and does not grant protection against vitamin D deficiency. Sunbeds and accompanying exposure schedules are optimized for tanning purposes and not for vitamin D production (IARC, 2008).

An excessive use of sunbeds by young people in the Nordic countries has been documented and for many individuals the use of sunbeds starts well before the age of 18 (Køster et al., 2009; T. Sigurdsson, unpublished surveys by IRSA, 2004-2009; MMI, 2004; TNS Gallup, 2009). Sunbed usage has also been linked to increasing rates of erythema, particularly in the youngest age groups (SSM, 2009; MMI, 2004; TNS Gallup, 2009)<sup>1</sup>.

Several recognised international organisations (The International Commission on Non-Ionizing Radiation Protection (ICNIRP, 2003); The Scientific Committee for Consumer Products (SCCP, 2006); WHO (WHO, 2003); and the European Society for Skin Cancer Prevention (EUROSKIN; Greinert et al., 2001) recommend that qualified personnel should guide customers with respect to tanning. In addition, the WHO and the British Committee on Medical Aspects of Radiation in the Environment (COMARE, 2009) recommend national regulation with restricted access or prohibition for those under the age of 18 years and prohibition or a reduction of the number of sunbeds intended for unsupervised use and/or self-determined operation in commercial outlets.

---

<sup>1</sup> In Denmark, 59% of the girls and 42% of the boys in the age group 15-19 had used solaria the last 12 months compared to 29% in the age group 15-29 (Køster et al. 2009). 48% of the girls and 22% of the boys reported using solaria before the age of 14. In Iceland, 20% in the age group 12-15 report visiting solaria in the previous 12 months according to annual questionnaires (2004-2009) (T. Sigurdsson, IRSA). In Norway, 26% of the girls and 16% of the boys had used solarium before 15 years of age, and in the age group 15-24 years those who had used solarium the last year increased from 24% to 55% from 2004 to 2009 (MMI 2004 and TNS Gallup 2009). A yearly questionnaire regarding sun-habits among the Swedish population has revealed that sunbed burns are frequent and on the rise in the age group 18-24 years, increasing from 13% in 2005 to 22% in 2008 (SSM 2009). In Norway, those experiencing erythema increased from 1/3 to 1/2 of the users from 2004 to 2009.

The Norwegian, Swedish, Finnish and Icelandic regulations require written exposure schedules to be present for the customers and a poster advising against solarium use for those under the age of 18 years. The Norwegian Radiation Protection Authority has performed several inspection surveys (Nilsen et al., 2008; NRPA Årsmelding, 2008) which indicate a low level of compliance to national regulations. For example, 50 % of the surveyed tanning facilities in Norway did not inform customers against the use of solaria for those below 18 years of age. Moreover, UV measurements collected during 2008 in 210 different sunbeds showed that permitted radiation limits were exceeded in more than half of the sunbeds studied, and that “extreme” values (more than twice the radiation limit) were observed in 5 % of the sunbeds.

Several countries (see Reference #19), such as France, Spain, Portugal, Belgium, Scotland, Germany and 6 out of 7 states in Australia have, in the period 1997 - 2009, started to regulate use of sunbeds by national laws which prohibit use of sunbeds for persons under 18 years of age. In addition, several other European countries are in the process of legislating an 18 year age limit. The Low-voltage Directive 2006/95/EC and the European standard EN 60335-2-27/A1 (10/2008) on "*Household and similar electrical appliances - Safety - Part 2-27: Particular requirements for appliances for skin exposure to ultraviolet and infrared radiation*" already requires that the usage instructions contain a statement that UV appliances are not to be used by persons under the age of 18 years. However, the voluntary ‘certification’ of sun-studios and requirements for trained staff to control usage and ascertain no use by young persons failed in Germany: Only 750 out of 5000 sun-studios were certified between 2003 - Sept 2008, leading to the 18 year age restriction by law (Bundesministerium, 2009).

Prohibition of the use of solaria for those under the age of 18 years is expected to reduce the number of skin burns and the risk of skin cancer. This will in turn lead to reduced costs for the society and reduced suffering for the individual.

In conclusion it is the view of the Finnish, Swedish, Icelandic and Norwegian Radiation Safety Authorities that the health risks associated with use of sunbeds for those under the age of 18 years far outweigh any perceived benefits, the majority that of which are psychological and cosmetic. The Finnish, Swedish, Icelandic and Norwegian Radiation Safety Authorities therefore recommend that the use of commercial sunbeds for tanning purposes should be prohibited for people below 18 years of age.

#### **References:**

1. Nordic Radiation Protection and Health Authorities 2005. UV-Radiation of Sun beds. Common public health advice from Nordic radiation protection and health authorities.
2. IARC 29/07/2009. Lyon, France. [http://www.iarc.fr/en/media-centre/iarcnews/2009/sunbeds\\_uvradiation.php](http://www.iarc.fr/en/media-centre/iarcnews/2009/sunbeds_uvradiation.php) (31.8.2009).
3. Special Report: Policy. A review of human carcinogens – Part D: radiation. [www.thelancet.com/oncology](http://www.thelancet.com/oncology) **Vol 10 August 2009**; 751-2.
4. IARC Working Group. The association of use of sunbeds with cutaneous malignant melanoma and other skin cancers: a systematic review. *Int J Cancer* 2006; **120**: 1116-22.
5. IARC (2006). Exposure to artificial UV radiation and skin cancer. IARC Working Group Reports Vol.1. Lyon: International Agency for research on Cancer.
6. IARC (2008). Vitamin D and Cancer. IARC Working Group Reports Vol 5.
7. WHO (2003). Artificial tanning sunbeds – risks and guidance. WHO, Geneva.

8. The International Commission on Non-Ionizing Radiation Protection (2003) ICNIRP Statement. Health issues of ultraviolet tanning appliances used for cosmetic purposes. *Health Physics*, 84, 119-127.
9. Scientific Committee on Consumer Products, European Commission Health and Consumer Protection Directorate General (2006) Opinion on Biological effects of ultraviolet radiation relevant to health with particular reference to sunbeds for cosmetic purposes. European Commission Health and Consumer Protection Directorate General.  
[http://ec.europa.eu/health/ph\\_risk/committees/04\\_sccp/docs/sccp\\_o\\_031b.pdf](http://ec.europa.eu/health/ph_risk/committees/04_sccp/docs/sccp_o_031b.pdf) (31.8.2009).
10. Greinert, R., A. McKinlay and E.W. Breitbart (2001) The European Society of skin cancer prevention – EUROSkin: towards the promotion and harmonization of skin cancer prevention in Europe. Recommendations. *Eur J Cancer Prev*, 10: 157-162.
11. Committee on Medical Aspects of Radiation in the Environment (COMARE) (2009): Thirteenth Report. The health effects and risks arising from exposure to ultraviolet radiation from artificial tanning devices.  
<http://www.comare.org.uk/documents/COMARE13thReport.pdf> (12.10.2009)
12. Surveys on tanning habits. MMI in 2004 and TNS Gallup in March 2009 for The Norwegian Cancer Society and the Norwegian Radiation Protection Authority. The survey in March 2009 is given as Undersøkelsen i 2009 gjengitt som nyhetssak hos Kreftforeningen:  
[http://www.kreftforeningen.no/forebygging/solvett\\_og\\_hudkreft/solarium/bruker\\_solarium\\_f\\_r\\_de\\_er\\_18\\_r\\_ndash\\_utsatt\\_for\\_hudkreft\\_13228](http://www.kreftforeningen.no/forebygging/solvett_og_hudkreft/solarium/bruker_solarium_f_r_de_er_18_r_ndash_utsatt_for_hudkreft_13228) (25.9.2009)
13. Køster B, Thorgaard C, Clemmensen IH et al. Sunbed use in the Danish population in 2007: a cross sectional study. *Prev Med* 2009; 48: 288-90.
14. Gulliksson, Westermarck, Wester: Recurrent Investigation on Tanning and Out-door Habits for an Indicator of UV-exposure, Poster at COST-726 Seminar, Warsaw 13-14 May 2009.
15. Nilsen LTN, Hannevik M, Aalerud TN et al. Ultraviolet irradiance from tanning devices in 1983-2005: all approved devices and the results of two inspection surveys in Norway. *Photochem Photobiol* 2008; 84: 1100-08.
16. Nilsen LTN, Aalerud TN, Johnsen B et al. Indoor tanning in Norway. Regulations and inspections. *StrålevernRapport 2000:9*. Østerås: Statens strålevern, 2008.
17. Årsmelding 2008. Østerås: Statens strålevern, 2008.  
[http://www.nrpa.no/archive/Internett/Publikasjoner/Annet/Arsmelding\\_2008.pdf](http://www.nrpa.no/archive/Internett/Publikasjoner/Annet/Arsmelding_2008.pdf) (31.8.2009).
18. Nilsen LTN, Aalerud TN, Hannevik M, Veierød MB. UV irradiance in Norwegian sunbeds. Posterpresentasjon ved den 15. Internasjonale Kongress for Fotobiologi, Düsseldorf, Tyskland 18-23. juni 2009.
19. France; Decree No. 97-617 of 30 May 1997, Spain; Real Decreto 1002/2002 of 27 September, Belgium; Royal Decree. Arrêté royal modifiant l'arrêté royal du 20 juin 2002 relatif aux conditions d'exploitation des centres de bronzage (22.11.2007), Germany; "Gesetz zur Regelung des Schutzes vor nichtionisierender Strahlung (19.6.2009), Scotland; Scottish Parliament (2008). Public Health etc. (Scotland) Act 2008 (asp 5), Portugal; Decree-Law No 242 of 20 December 2005, Australia; Makin&Dobbinson "Changes in solarium numbers in Australia following negative media and legislation" *Aust N Z J Public Health*. 2009; 33:491-4.
20. Bundesministerium: "Begründung – Gesetz zur Regelung des Schutzes vor nichtionisierender Strahlung", Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit", p.11 (RS II 1 – 15981), Bonn 16.02.2009.