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LIST OF ABBREVIATIONS

| | |
|--------|---|
| ACGIH | American Conference of Governmental Industrial Hygienists |
| BCC | Basal cell carcinoma |
| CI | 95% confidence interval |
| CIE | Commission Internationale de l'Eclairage |
| DF | Degrees of freedom |
| GVHD | Graft versus host disease |
| GP | General practitioner (family doctor) |
| IARC | International Agency for Research on Cancer |
| ICNIRP | International Commission of Non-Ionising Radiation Protection |
| IPD | Immediate pigment darkening |
| ISO | International Organization for Standardization |
| MED | Minimal erythematous dose |
| NRPB | National Radiation Protection Board |
| NTP | National Toxicology Program |
| OR | Odds ratio |
| PUVA | Psoralen photochemotherapy |
| RR | Relative risk |
| SCC | Squamous cell carcinoma |
| SED | Standard erythematous dose |
| UNEP | United Nations Environment Programme |
| UV | Ultraviolet |
| WHO | World Health Organization |

PREAMBLE

The concern that there may be an association between exposure to artificial UV radiation and skin cancer was reactivated in 2003-4 when the 10th Report on Carcinogens published by the National Toxicology Program in the USA classified UVA radiation as a "Known Carcinogen to Humans".

In October 2004, the French Ministry of Health contacted the Director of the International Agency for Research on Cancer (IARC), Dr Peter Boyle, raising a particular concern about the continuous increase in incidence of melanomas in France and in the world. Since the last IARC Monograph on ultraviolet (UV) radiation in 1992, a large number of epidemiological and experimental studies have been conducted on the risks associated with exposure to UV radiation. The Ministry therefore requested IARC to investigate the possibility of reevaluating the carcinogenic risk associated with this radiation, particularly concerning artificial UV sources and the use of indoor tanning facilities.

A Working Group and a Secretariat were gathered by Dr Peter Boyle to this end. The Secretariat met in January to prepare for the meeting of the Working Group in June 2005. The Working Group met on 27–29 June 2005 to compile the present document.

EXECUTIVE SUMMARY

We have assessed the available evidence relating to possible detrimental health effects of exposure to artificial ultraviolet radiation through use of indoor tanning facilities, in particular whether their use increases the risk for skin cancer. Epidemiologic studies to date give no consistent evidence that use of indoor tanning facilities in general is associated with the development of melanoma or skin cancer. However, there was a prominent and consistent increase in risk for melanoma in people who first used indoor tanning facilities in their twenties or teen years.

Limited data suggest that the risk of squamous cell carcinoma is similarly increased after first use as a teenager. Artificial tanning confers little if any protection against solar damage to the skin, nor does use of indoor tanning facilities grant protection against vitamin D deficiency. Data also suggest detrimental effects from use of indoor tanning facilities on the skin's immune response and possibly on the eyes (ocular melanoma).

Knowledge of levels of UV exposure during indoor tanning is very imprecise. Moreover, early studies published had low power to detect long-term associations with artificial UV exposure that become evident only following a prolonged lag period. Although the available findings are therefore not conclusive, the strength of the existing evidence suggests that policymakers should consider enacting measures, such as prohibiting minors and discouraging young adults from using indoor tanning facilities, to protect the general population from possible additional risk for melanoma and squamous cell carcinoma.