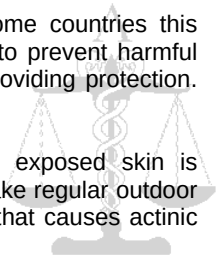
Sun Screens

IARC has considered the risk to health from exposure to sunlight.

Their interim findings suggest that more evidence is needed before the causative role of sunlight and appropriate control of cancer risk can be effectively defined.

Many occupations require work outdoors e.g. farming, maintenance work... In some countries this involves lengthy exposure to intense sunlight. Employers may owe a duty of care to prevent harmful exposure. Some sources have suggested that sunscreens have a role to play in providing protection. IARC seem to be at least unsure of the wisdom of this strategy but state:



> "Daily use of a sunscreen with a high SPF (greater than 15) on usually exposed skin is recommended for residents of areas of high insolation who work outdoors or intake regular outdoor recreation. Daily use of a sunscreen can reduce the cumulative sun exposure that causes actinic keratoses and squamous-cell carcinoma."

These are very specific health outcomes, actinic keratoses are known to have the potential develop into squamous cell carcinoma and are usually removed as a precaution.

The uncertainty attached to this advice is over the effect of encouraging extended exposure. Other ill health outcomes (cutaneous malignant melanoma) may not be prevented by sunscreens, there is insufficient evidence.

> "Sunscreens should not be used as a means of extending the duration of solar exposure."

Schools also have a duty towards students. IARC state that protection of the young is especially important.

> "Adequate solar protection during childhood is more important than at any other time in life, … recommendations should be assiduously applied by parents and school managers."

> "In view of the widespread use of sunscreens, including on children, stringent evaluation of their safety is necessary, particularly with regard to long-term effects. Data on the safety evaluation of sunscreens must be in the public domain so that they are available for independent scientific evaluation."

Comment
Although recommended for use as part of a protection plan, there remain some doubts about their range of effectiveness and possible harmful side effects.

The review of the scientific evidence leads to the following conclusions:

Humans

- "There is *inadequate evidence* in humans for a cancer-preventive effect of topical use of sunscreen formulations against cutaneous malignant melanoma.
- There *is inadequate evidence* in humans for a cancer-preventive effect of topical use of sunscreen formulations against basal-cell carcinoma of the skin.
- There is *limited evidence* in humans for a cancer-preventive effect of topical use of sunscreen formulations against squamous-cell carcinoma of the skin."

Experimental animals

- "There is *sufficient evidence* in experimental animals for a cancer-preventive effect of sunscreen formulations. This evaluation is based on prevention of squamous-cell carcinoma of the skin induced in mice by solar-simulated radiation."

Overall evaluation

"Topical use of sunscreens reduces the risk for sunburn in humans. Sunscreens probably prevent squamous-cell carcinoma of the skin when used mainly during unintentional sun exposure. No conclusion can be drawn about the cancer-preventive activity of topical use of sunscreens against basal-cell carcinoma and cutaneous melanoma. Use of sunscreens can extend the duration of

intentional sun exposure, such as sunbathing. Such an extension may increase the risk for cutaneous melanoma."

Comment

Although there is some degree of protection provided by sunscreens against sunburn it seems that protection against cancer is not certain. There may even be an argument that use of sun screens increases the risk of some forms of cancer.

Protection should be provided by physical barriers to direct, or effectively direct, exposure.

Research into mechanisms of carcinogenesis, mechanisms of protection, dose response relationships (including pre-cancerous states and plausible biomarkers), spectral variations, behavioural factors and genetic factors are all required if full understanding of the risk and its control is to be realised. Current understanding of all these factors is severely limited.