NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

PUBLIC HEALTH GUIDANCE

DRAFT SCOPE

1 Guidance title

Sunlight exposure: communicating the benefits and risks to the general population

1.1 Short title

Sunlight exposure: benefits and risks

2 Background

a) The National Institute for Health and Care Excellence (NICE) has been asked by the Department of Health (DH) to develop public health guidance about communicating the benefits and risks of sunlight exposure to the general population.

b) This guidance will support a number of related policy documents including:

- Healthy lives, healthy people: our strategy for public health in England (DH 2010a)
- Equity and excellence: liberating the NHS (DH 2010b)
- Public health outcomes framework for England 2013–2016 (DH 2012)
- Improving outcomes: a strategy for cancer (DH 2011a)

- ‘Update on vitamin D’ (Scientific Advisory Committee on Nutrition [SACN] 2007)[1]

c) This guidance will provide recommendations for good practice, based on the best available evidence of effectiveness, including cost effectiveness. It is aimed at professionals, commissioners and managers with public health as part of their remit working within the NHS, local authorities and the wider public, private, voluntary and community sectors. It is also aimed at those who report on health issues in the media. It may also be of interest to groups at increased risk of vitamin D deficiency or skin cancer, their families and carers, and other members of the public.

d) The guidance will complement NICE guidance on skin cancer prevention[2] and on the prevention of vitamin D deficiency. For further details, see section 6.

This guidance will be developed using the NICE public health guidance process and methods guides.

[1] The Scientific Advisory Committee on Nutrition (SACN) vitamin D working group are currently reviewing the Dietary Reference Values for vitamin D intake. SACN’s work will complement this guidance.

[2] NICE is currently consulting on whether the guidance on skin cancer prevention (public health guidance 32) should be updated; depending on the outcome of this consultation NICE will decide whether and to what degree the guidance will be updated and if it will be incorporated into the new guidance on sunlight exposure.

3 The need for guidance

a) Sun exposure provides a number of health benefits and risks. It is estimated that people make more than 90% of the vitamin D they need, which is essential for bone health, from the ultraviolet (UV) B part of sunlight[3]. Exposure to sunlight has also been shown to be beneficial to sleep patterns and mental health (Holick, 2001). Conversely, sun exposure is directly linked to skin cancer as well as being responsible for a lot of eye disease (for example, cortical cataracts [Yam, 2013]) and possibly playing a role in reactivating some viral diseases (for example, herpes simplex [Norvel, 2006]). The risks and benefits of sun exposure for an individual depend on a number of variables including skin type, geographical location, time of year and day, and weather conditions.

b) The complexity of communicating the benefits of attaining optimal vitamin D levels versus the risk of skin damage from sun exposure makes it difficult to provide a simple, coherent and safe message that influences public opinion effectively (BAD, 2009). Research reported in the media on the role of sunlight in preventing vitamin D deficiency appears to conflict with sun protection messages (Eagle, 2009). This apparent inconsistency is likely to lead to misunderstanding among the general public, uncertainty about the right action to take, or mistrust of the evidence sources. Effective communication of risk should help people to make an informed choice about gaining health benefits and minimising the risk from sun exposure.

c) While studies have shown that most people are aware of the risks of overexposure to the sun (DH, 2003) a significant disparity exists between knowledge and behaviour (Hiom, 2006). Factors which

[3] Sunbeds emit mainly UVA rather than the UVB needed to produce vitamin D (Lucas et al. 2006).

influence people's attitudes on self-protection against skin cancer include the immediate effects of sun exposure on psychological wellbeing, the time lag between sun exposure and skin cancer development, a belief that skin cancers can be easily treated and the fashion for tanned skin (BAD, 2009). At the same time, many people in the UK may lack adequate exposure to sunlight as a result of cultural clothing practices, an increasingly indoor lifestyle (Lucas et al. 2006) or overzealous skin protection practices (Misra et al. 2008). Public perception of the risks of vitamin D deficiency is likely to increase as a result of media reporting; challenges therefore exist to ensure skin protection practices are not unduly compromised as a result (Youl et al. 2009).

d) Vitamin D insufficiency is common in the UK population (Pearce and Cheetham, 2010), with greater risk of vitamin D deficiency among certain subpopulations (see section 4.1.1). From October to April in the UK there is not enough UVB for vitamin D synthesis from sunlight, so the population relies on body stores (from sun exposure in the summer) and dietary sources to maintain vitamin D levels (SACN, 2007). The British national diet and nutrition survey found evidence of low vitamin D status in male and female adults and older children (DH, 2011b). There have been reports that rickets, caused by vitamin D deficiency, is re-emerging among children in the UK (Pearce and Cheetham, 2010).

e) Excessive sun exposure, either cumulative over a lifetime or in intermittent high doses, is the main cause of skin cancer and one of the most avoidable causes of cancer risk and mortality in the UK population. Skin cancer rates have increased rapidly in England in the last 30 years, possibly in part owing to increased travel to sunnier countries (Hiom, 2006), and it is now the most common cancer. In 2010 in the UK 12,818 cases of skin cancer were

diagnosed, with 2203 deaths from malignant melanoma and 546 deaths from non-melanoma skin cancers (Cancer Research UK, 2013). The risk of all types of skin cancer increases with age, but rates of malignant melanoma are disproportionately high in 15–34 year olds, and it is now the second most common cancer in that age group.

f) The Department of Health estimated the costs to the NHS from skin cancer to be £105.2 million in 2008–9 (Vallejo-Torres et al. 2013). It has been estimated that the cost to the NHS in England from skin cancer will amount to over £180 million in 2020 (Vallejo-Torres et al. 2013). On the other hand, primary care spending on treatments for vitamin D deficiency rose from £28 million in 2004 to £76 million in 2011 (Robinson, 2012; Health and Social Care Information Centre, 2012).

4 The guidance

Public health guidance will be developed according to NICE processes and methods. For details see section 5.

This document defines exactly what this guidance will (and will not) examine, and what the guidance developers will consider. The scope is based on a referral from the DH (see appendix A).

4.1 Who is the focus?

4.1.1 Groups that will be covered

- The general population, particularly people at increased risk of:
  - skin cancer:
    - ◊ people with fair skin
    - ◊ people with fair or red hair
    - ◊ people with more than 50 moles

- ◊ babies and children
- ◊ outdoor workers
- ◊ people with a family history of skin cancer
- ◊ people who sunbathe or use indoor tanning devices

– vitamin D deficiency:

- ◊ pregnant and breast-feeding women
- ◊ infants and young children aged under 5 years
- ◊ people with dark skin, for example, people of African, African-Caribbean, Middle Eastern and South Asian origin
- ◊ older people aged 65 and over
- ◊ people who have low or no exposure to the sun (for example, people who cover their skin for cultural reasons, and people who are housebound or confined indoors for long periods).

4.1.2 Groups that will not be covered

- People who have diseases, conditions or who are taking medication which mean increased exposure to sunlight is not advised.

4.2 Activities

4.2.1 Activities/measures that will be covered

- Activities to increase health practitioners' knowledge, intentions, ability and confidence in relation to giving tailored advice to people about the benefits and risks of sun exposure, what constitutes safe sun exposure, and how often they offer such advice.
- Activities to increase people's understanding of the health benefits and risks of sun exposure, to help them assess their own level of health risk and benefit (and that of others in their care) and modify their behaviour accordingly.
  – This includes the use of different narrative, numeric, verbal and visual data presentation formats (for example, personal story or testimonial,

static versus interactive, tree diagrams, icon array, icon plot, info-graphics, data maps) to communicate complex health risk information.

- These activities may be delivered by one or more of the following approaches (either separately or combined):
  - ◊ one-to-one or group-based verbal information (planned or opportunistic)
  - ◊ leaflets, posters and other printed information
  - ◊ new media: the Internet (including social networking sites), email and text messaging
  - ◊ mass-media campaigns.

The Committee will take reasonable steps to identify ineffective measures and approaches.

4.2.2 Activities/measures that will not be covered

a) The management of vitamin D deficiency.

b) The management of skin cancer.

c) The management of conditions that may increase the risk of vitamin D deficiency (for example, end-stage liver disease; renal disease; fat malabsorption syndromes such as cystic fibrosis, coeliac disease and inflammatory bowel disease; or medications affecting vitamin D metabolism) or skin cancer (for example, epidermolysis bullosa, Gorlin syndrome or a weakened immune system).

4.2.3 Activities/measures being assessed by SACN that will be included in the guidance

a) The biochemical indicators of vitamin D status and the validity of the threshold concentrations (the concentration of a substance that must be present in an organism before its given effect becomes evident) and ranges used to assess risk of deficiency and excess.

b) The association between vitamin D status and various health outcomes at different life stages and in different population groups, and the effects of factors that modify biological responses.

c) The contribution of vitamin D produced through the skin to vitamin D status in the UK, taking account of factors that modify the effects of skin exposure to sunlight, the risks of skin damage and other adverse health outcomes associated with sunlight exposure.

d) The relative contributions made by dietary vitamin D intake and vitamin D produced through the skin to the vitamin D status of the UK population.

e) The potential adverse effects of high vitamin D intakes.

4.3 Key questions and outcomes

Below are the overarching questions that will be addressed along with some of the outcomes that would be considered as evidence of effectiveness:

Questions:

- What are the most effective and cost-effective ways of presenting and disseminating complex health risk information to help people assess their own (or others for who they have a duty of care for) level of health benefits and risks from sun exposure, and change their sun exposure risk beliefs and sun protection practices accordingly? How does this differ for subpopulations, including:
  - people with different levels of education
  - people with learning disabilities
  - people with physical impairments (for example, sight issues if relying on visual representation of risk)
  - people whose first language is not English?

- How have the health benefits and risks of sun exposure been conveyed in media coverage?
  - What type of evidence sources are news articles based on? How accurate are the evidence sources and how in line with the source evidence is the article?
  - How balanced are news articles in terms of outlining vitamin D benefits and skin cancer risks? Is reference made to the role of individual risk factors?

- What are the barriers to, and facilitators for, risk communication strategies and interventions in optimising safe sun exposure knowledge and protection practices? How does this vary by subpopulations?
  - What are people's knowledge, beliefs, attitudes and perception of the benefits and risks of sun exposure?
  - From what sources do people gain their knowledge regarding safe sun exposure (for example, news media, health professionals, peers)? What is the relationship between the source of knowledge, levels of accurate knowledge and sun exposure and protection practices?
  - How do people make judgments about risk from sun exposure and how does this influence decisions about sun exposure and protection practices?
  - How do people interpret and respond to conflicting messages on sun exposure and health? To what extent are they aware that messages differ according to individual risk factors?
  - What has been the impact of increased knowledge of the benefits of vitamin D on sun exposure practices?
  - How effective have sun safety messages been in achieving safe sun exposure and protection practices? How does this vary by different messages (for example, stay out of the sun at midday, use SPF 15) and why?
  - To what extent do people understand the UV Index? How does it impact on their sun exposure and protection practices?

Expected outcomes:

These may include:

- changes to the format in which sun exposure health risks and benefits are reported or depicted
- changes in practitioners' knowledge, intentions, ability and confidence in relation to giving tailored advice to people about the benefits and risks of sun exposure, what constitutes safe sun exposure, and how often they offer such advice
- increases in people's knowledge of how to competently assess their individual level of risk and benefit from sun exposure
- changes in risk beliefs, risk perception, knowledge and attitudes in people and their behavioural intentions towards safe sun exposure
- changes in the intensity, frequency and duration of people's sun exposure (this could be an increase for people at increased risk of vitamin D deficiency and a decrease for people at increased risk of skin cancer) and in sun protection practices
- reduction in the incidence of morbidity and mortality from non-melanoma and malignant melanoma skin cancer attributable to natural and artificial UV exposure (this may be measured in terms of a reduction in the incidence of sunburn or cumulative UV exposure)
- reduction in the incidence of morbidity attributable to vitamin D deficiency
- increases in the health-promoting benefits of sun exposure, including improved sleeping patterns and mental health
- the views and experiences of the people planning and delivering risk communication strategies and interventions on the barriers to, and facilitators for, improving safe sun exposure knowledge and sun protection practices
- the views and experiences of the people receiving communication strategies and interventions about improving safe sun exposure knowledge and sun protection practices.

4.4 Status of this document

This is the draft scope, released for consultation on 3 September until 1 October 2013. Following consultation, the final version of the scope will be available at the NICE website in November 2013.

5 Further information

The public health guidance development process and methods are described in Methods for development of NICE public health guidance (2012) and The NICE public health guidance development process (2012).

6 Related NICE guidance

Published

Ambulight photodynamic therapy for the treatment of non-melanoma skin cancer. NICE medical technology guidance 6 (2011).

Skin cancer prevention: information, resources and environmental changes NICE public health guidance 32 (2011).

Metastatic malignant disease of unknown primary origin. NICE clinical guideline 104 (2010).

Skin tumours including melanoma. NICE cancer service guidance (2010).

Promoting physical activity for children and young people. NICE public health guidance 17 (2009).

Maternal and child nutrition. NICE public health guidance 11 (2008).

Community engagement. NICE public health guidance 9 (2008).

Physical activity and the environment. NICE public health guidance 8 (2008).

Behaviour change. NICE public health guidance 6 (2007).

Referral guidelines for suspected cancer. NICE clinical guideline 27 (2005).

Under development

Vitamin D: implementation of existing guidance to prevent deficiency. NICE public health guidance (publication expected June 2014).

Prisons: physical conditions and diseases. NICE public health guidance (publication date to be confirmed).

Appendix A Referral from the Department of Health

The Department of Health asked NICE to develop public health guidance on:

‘Prevention of vitamin D deficiency: Safe sunlight exposure for the UK population including the benefits of sun exposure.’

Appendix B Potential considerations

It is anticipated that the Public Health Advisory Committee (PHAC) will consider the following issues:

- The target audience, actions taken and by whom, context, frequency and duration.
- Whether it is based on an underlying theory or conceptual model.
- Whether it is effective and cost effective.
- Critical elements. For example, whether effectiveness and cost effectiveness varies according to:
  - the diversity of the population (for example, in terms of the user's skin type, geographical location, age, gender or ethnicity)
  - the status of the person delivering it and the way it is delivered
  - its frequency, length and duration, where it takes place and whether it is transferable to other settings
  - its intensity.
- Any trade-offs between equity and efficiency.
- Any factors that prevent – or support – effective implementation.
- Any adverse or unintended effects.
- Current practice.
- Availability and accessibility for different groups.

Appendix C References

British Association of Dermatologists (2009) A summary of key messages to be included in public information resources for the primary prevention of skin cancer

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Department of Health (2010a) Healthy lives, healthy people: our strategy for public health in England. London: Department of Health

Department of Health (2010b) Equity and excellence: liberating the NHS. London: Department of Health

Department of Health (2003) The NHS Cancer Plan: Three years progress report - Maintaining the momentum. London: Department of Health

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Health and Social Care Information Centre (2012) Prescription cost analysis England 2011. London: Health and Social Care Information Centre

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Misra M, Pacaud D, Petryk A et al. (2008) Vitamin D Deficiency in Children and Its Management: Review of Current Knowledge and Recommendations. Pediatrics 122: 3984

Norval M (2006) The effect of ultraviolet radiation on human viral infections. Photochemical Photobiology 82 (6):1495–504

Pearce SHS, Cheetham TD (2010) Diagnosis and management of vitamin D deficiency. British Medical Journal 340

Robinson S (2012) Treating vitamin D deficiency

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Vallejo-Torres L, Morris S, Kinge JM et al. (2013) Measuring current and future cost of skin cancer in England. Journal of Public Health (e-print ahead of publication)

Yam JCS and Kwok AKH (2013) Ultraviolet light and ocular diseases. International Ophthalmology (e-print ahead of publication)

Youl PH et al. (2009) Vitamin D and sun protection: the impact of mixed public health messages in Australia. International Journal of Cancer 15: 124(8): 1963–70