

receiving a weekly dose of around 1 MED to these sites should be sufficient to prevent vitamin D insufficiency. If only the face and hands are normally exposed, then a weekly dose of about 2 MED would be required.

In 1994 we measured the sun exposure of 180 children and adolescents in three regions of England during the spring and summer and found that 98.5% and 91% of children and adolescents, respectively, exceeded a weekly dose of 1 MED.⁶ Adolescents, however, and especially teenage boys, generally expose only their hands and face when outside: the prevalence of weekly doses that exceeded 2 MED in this age group was only 58%. The median time spent outdoors each day by adolescents during those periods when the weekly dose was less than 2 MED was 1.6 hours, rising to 2.5 hours when the weekly dose exceeded 2 MED.

A popular perception is that being outdoors for 5–10 minutes, two or three times a week, in the summer is sufficient for effective vitamin D production. The reason why one to two hours outdoors each day was insufficient in many cases to result in a cumulative weekly dose of 2 MED, even though in the summer this dose could be achieved by lying in unshaded sunshine for about half an hour around noon, is that people are generally upright, the sky is often cloudy in the UK and buildings and trees often obscure direct sunlight and part of the sky. All these factors serve to reduce the intensity of sunlight on exposed skin thus necessitating the need for prolonged exposure to acquire sufficient dose. That the exposure to sunlight in many adolescents may be insufficient in the spring and summer would certainly account for the observations that the wintertime vitamin D status of almost all teenage girls living in northern Europe is insufficient.⁷ The association between low vitamin D levels in young people and the subsequent risk of diseases such as osteoporosis or cancer is not clear, however, so the wider implications of this are uncertain.^{3,7}

Such evidence that many adolescents are not sufficiently exposed to the sun is not enough to justify abandoning current awareness campaigns about skin cancer, which are aimed primarily at avoiding excessive

exposure. This is especially true for children and adolescents, for whom exposure to high levels of sunlight strongly determines subsequently increased risk of melanoma.⁸ This is a disease whose incidence is predicted to continue rising in the UK for at least another 30 years, even if current intervention strategies eventually translate into a downturn in incidence.⁹

Furthermore, campaigns such as SunSmart are intended to advise people primarily during recreational exposure for extended periods in strong sunshine when measures to protect the skin, even if they are used, will not be perfect and will still allow the synthesis of vitamin D.¹⁰ So such campaigns should not be abandoned, and British children and adolescents need not deliberately spend extended periods in strong sunshine. Rather, those whose lives are spent almost entirely indoors, in the shade, or in vehicles should take the opportunity during casual everyday activities to walk on the sunny side of the street and, when possible, to avoid taking the car.

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Competing interests: None declared.

- 1 Wharton B, Bishop N. Rickets. *Lancet* 2003;362:1389–400.
- 2 Egan KM, Sosman JA, Blot WJ. Sunlight and reduced risk of cancer: is the real story vitamin D? *J Natl Cancer Inst* 2005;97:161–3.
- 3 Zittermann A. Vitamin D in preventive medicine: are we ignoring the evidence? *Br J Nutrition* 2003;89:552–72.
- 4 Gillie O. *Sunlight robbery: Health benefits of sunlight are denied by current public health policy in the UK*. London: Health Research Forum, 2004. www.healthresearchforum.org.uk/reports/sunlightrobbery.pdf (accessed 21 Jun 2005).
- 5 Holick MF. Sunlight "D"ilemma: risk of skin cancer or bone disease and muscle weakness. *Lancet* 2001;357:4–6.
- 6 Diffey BL, Gibson CJ, Haylock R, McKinlay AF. Outdoor ultraviolet exposure of children and adolescents. *Br J Dermatol* 1996;134:1030–4.
- 7 Andersen R, Mølgård C, Skovgaard LT, Brot C, Cashman KD, Chabros E, et al. Teenage girls and elderly women living in northern Europe have low winter vitamin D status. *Eur J Clin Nutrition* 2005;59:533–41.
- 8 Whiteman DC, Whiteman CA, Green AC. Childhood sun exposure as a risk factor for melanoma: a systematic review of epidemiological studies. *Cancer Causes Control* 2001;12:69–82.
- 9 Diffey BL. The future incidence of cutaneous melanoma within the UK. *Br J Dermatol* 2004;151:868–72.
- 10 Diffey BL. Sunscreen isn't enough. *J Photochem Photobiol B: Biology* 2001;64:105–8.

Drug safety and regulation

New powers and resources are needed

In the past few months, medical journals have published numerous editorials and news items relating to drug safety and regulation.^{1–3} The withdrawal of rofecoxib (Vioxx) has been the single biggest issue,⁴ but the cardiovascular safety of other cyclo-oxygenase-2 (COX 2) inhibitors⁵ and possible suicidal tendencies associated with selective serotonin reuptake inhibitor (SSRI) antidepressants have also raised considerable concerns.⁶ These high profile cases have resulted in the regulatory bodies responsible for drug safety coming under fire.

From reports in journals it would be easy to get the impression that the US Food and Drug Administration was uniquely at fault over the regulation of COX 2 inhibitors⁷ and the UK Medicines and Healthcare products Regulatory Agency over paroxetine.³ Given

that the regulatory decisions made before and after the marketing of these drugs have been similar throughout the developed world, this can hardly be a logical conclusion. Overall, regulators around the world use similar systems and make similar decisions. If they all get something wrong then it is probably the fault of inadequacies in the underlying systems and, perhaps, the science underpinning them.

We have been, and are, involved with drug regulation in the United Kingdom. We believe that the whole safety system for drugs might be improved, going well beyond the processes of regulation itself. For example, the pharmaceutical industry clearly has an important role, although the extent and nature of its influence have recently been called into question.⁸ It is important to keep a perspective on where the existing

BMJ 2005;331:4–5

system has come from, how it developed, and where it is going. The current system began a little over 40 years ago in the wake of the thalidomide disaster. Although it has continued to evolve gradually, the basic principles and powers laid down in the 1960s have not changed, and adverse drug reactions remain an important cause of morbidity and mortality.⁹

Drug usage can be made safer through advances in safety science. A model for excellence in pharmacovigilance has been proposed,¹⁰ and some principles from that have gained widespread acceptance—for example, the development of safety specifications and pharmacovigilance plans for enhanced surveillance and reporting of drug related harms. These principles, which will become legal requirements in the European Union later this year, focus particularly on how knowledge on the safety of new drugs can be extended after marketing.

There is already an international guideline that is based on these principles, produced by the International Conference on Harmonisation,¹¹ a body that brings together government regulators and drug industry representatives from the United States, the European Union, and Japan to make international drug regulatory processes more efficient and uniform. The International Society for Pharmacoepidemiology, which provides a forum for the open exchange of scientific information and for the development of policy, education, and advocacy in this field, has also considered these issues and proposed ways to increase safety.¹²

The success of these improvements depends on the strategic coordination of such work and the necessary political support to make things happen. Drug safety, however, is a political graveyard. The priority afforded to this issue and the powers available to enforce it have advanced very little in the past few decades, and influential politicians who might have championed the cause have been conspicuously absent from the debate. Political pressures exist to restrain public expenditure and reduce regulation in health care generally, but if the goal is greater safety through more effective regulation then politicians should understand that new powers and resources will be more important than focusing on the effectiveness of regulators, looking for new people to do the job, and proposing yet more organisational change.

In particular, although clear separation is sensible between people responsible for licensing medicines and those responsible for monitoring postmarketing safety, the case for completely separate (and therefore

new) agencies has yet to be made. It would be more logical to rethink the regulatory powers underpinning postmarketing safety of drugs: these were enshrined in law in the 1960s and have advanced little since.

Furthermore, policymakers and politicians internationally focus too much on the efficacy and cost effectiveness of medicines at the expense of safety. It is now time to grasp the nettle, improve the evidence base on harms, and focus on regulating safety to at least an equal extent.

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- 1 Horton R. Vioxx, the implosion of Merck, and aftershocks at the FDA. *Lancet* 2004;364:1995–6.
- 2 Vioxx: lessons for Health Canada and the FDA. *CMAJ* 2005;172:5.
- 3 Abbasi K. Is drug regulation failing? [Editor's Choice.] *BMJ* 2004;329.
- 4 Lenzner J. FDA is incapable of protecting US "against another Vioxx." *BMJ* 2004;329:1253.
- 5 Drazen JM. COX-2 inhibitors—a lesson in unexpected problems. *N Engl J Med* 2005;352:1131–2.
- 6 Cipriani A, Barbui C, Geddes JR. Suicide, depression, and antidepressants. *BMJ* 2005;330:373–4.
- 7 Horton R. Safety concerns at the FDA. *Lancet* 2005;365:727–8.
- 8 Ferner RE. The influence of big pharma. *BMJ* 2005;330:855–6.
- 9 Pirmohamed M, James S, Meakin S, Green C, Scott AK, Valley TJ, et al. Adverse drug reactions as a cause of admission to hospital: prospective analysis of 18 820 patients. *BMJ* 2004;329:15–9.
- 10 Waller PC, Evans SJW. A model for the future conduct of pharmacovigilance. *Pharmacovigilance Drug Safety* 2003;12:17–29.
- 11 International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use. *ICH Harmonised Tripartite Guideline E2F. Pharmacovigilance planning*. www.ich.org/MediaServer;ser?@_ID=1195&@_MODE=GLB (accessed 6 May 2005).
- 12 International Society for Pharmacoepidemiology. *Statement on regulatory systems to improve pharmaceutical safety*. Bethesda, MD: ISPE, 2005. www.pharmacoepi.org/resources/regstatement0205.pdf (accessed 5 May 2005).

Attempts to prevent postnatal depression

Interventions have not included mental health workers, and have failed

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A systematic review published in this week's *BMJ* concludes that the many psychosocial or psychological interventions tested so far in trials do not effectively prevent postnatal depression.¹ Because this is an important disorder arising from around one in eight births, the authors call for more research on intensive support at home in the postnatal period.¹ As little as 20 years ago, however, there was debate about whether postnatal depression was an important problem at all. It was too often dismissed as

only a minor, transient problem with coping. So what happened in the meantime to warrant these trials of possible prevention?

In 1989 the prevalence of depression among women eight months after birth in population based surveys in Victoria, Australia, was 15.4% (95%

 Two additional references (w1 and w2) are on bmj.com