Large parts of sub-Saharan Africa have effectively no health care at all, with only 600 000 healthcare workers for a population of 682 million.² For example in Ghana, faced with a ratio of nine doctors to every 100 000 patients,³ is it any wonder that young, talented health professionals are burnt out and despairing, and that they leave for a better life in the North? Only 60 of the 500 doctors trained in Zambia since independence are still there.⁴ Mozambique has only 500 doctors for a population of 18 million.⁵

What can be done? We cannot and should not prevent completely the migration of doctors and nurses. Medicine has a strong tradition of international collaboration, with doctors moving around the globe to gain further training and different clinical experience. Indeed, we like to think that international exchange and diversity enrich us all. This is a romantic delusion. We gain in the North, but developing countries lose out by losing their doctors permanently.

Any number of incentives have been tried to persuade doctors to remain in or return to their countries of origin—enhanced salaries, better pensions, cars, and housing allowances. Ethical recruitment codes may make us feel that we occupy the moral high ground. But, as long as the rich countries have plenty of vacancies, the flow of healthcare professionals from South to North will continue.

The most important element of the solution is self sufficiency. The BMA and the Royal College of Nursing have urged the prime minister and the chancellor of the exchequer to commit the UK to training enough people to become self sufficient in workforces of doctors and nurses. This would not be a huge leap for the UK since we have been expanding the number of medical school places year on year since 1997. Over the same period, we could radically expand the number of exchanges, overseas elective periods, and twinning programmes that would help our very hard pressed colleagues to feel less isolated and overburdened.

But what of the US? Already, it employs half of all English speaking doctors in the world. And it wants more. By deadly coincidence, the US wants to employ one million more healthcare workers in the next 15 years⁶—exactly the extra number needed for sub-Saharan Africa to fulfil the millennium development

goals.⁷ The US system regards healthcare professionals as a commodity to be purchased in the market and is making little provision currently to increase the number of doctors and nurses it trains at home. Nurses in the US, with an average salary of \$65 000 (£36 000; €53 000),⁸ are the most highly paid in the world.

The US is a great place to live and work. Unless it can be persuaded to think and act differently, it will soak up skilled workforce from every available source, including the UK. We would find it difficult and irksome to spend UK taxpayers' money training doctors to care for American patients. But we are a rich country, and many of those doctors would eventually return home. Ghana is already contributing to an obscene reversal of the flow of aid: it spends around \$9m each year on medical education⁹ only to lose its doctors to a voracious and insatiable health market in the North. The African initiative of the G8 countries will fail spectacularly if the richest nations of the world do not allow the poorest to maintain the bare essentials of healthcare provision.

James Johnson *chairman of council*

BMA, BMA House, London WC1H 9JP
(jjohnson@bma.org.uk)

Competing interests: None declared.

- 1 Department for International Development. Millennium development goals. Child mortality. www.dfid.gov.uk/mdg/childmortalityfactsheet.asp (accessed 20 Jun 2005).
- 2 The 3 by 5 Initiative. *Preventing and treating HIV/AIDS in poor countries will help deliver better health services through 2005 and beyond*. 1 November 2004. www.who.int/3by5/mediacentre/news27/en/ (accessed 20 Jun 2005).
- 3 World Health Organization. Communicable Disease Surveillance and Response. *Global atlas of infectious diseases*. www.who.int/GlobalAtlas/DataQuery/browse.asp?catID=180100000000&lev=3 (accessed 20 Jun 2005).
- 4 Development Gateway. *Capacity development for MDGs. Rising to the challenges: the millennium development goals for health*. 12 November 2004. topics.developmentgateway.org/mdg/rc/ItemDetail.do~1024486 (accessed 20 Jun 2005).
- 5 Office of the United States Global AIDS Coordinator. *Country profile. Mozambique*. June 2004. www.usaid.gov/our_work/global_health/aids/Countries/africa/us_mozambique.pdf (accessed 20 Jun 2005).
- 6 Cooper RA. Weighing the evidence for expanding physician supply. *Ann Intern Med* 2004;141:705-14.
- 7 *Bull World Health Organ* 2005;83(1):1-80.
- 8 Orlovsky C. Survey says: nurse salaries on the rise. http://w3.rn.com/news_news.asp?articleID=13080 (accessed 20 Jun 2005).
- 9 Hagopian A, Thompson MJ, Fordyce M, Johnson KE, Hart GL. The migration of physicians from sub-Saharan Africa to the United States of America: measures of the African brain drain. *Hum Res Health* 2004. http://eprints.ouls.ox.ac.uk/archive/00000847/01/hagopian_2004.pdf (accessed 20 Jun 2005).

Do white British children and adolescents get enough sunlight?

Probably, and calls to abandon campaigns for skin cancer awareness are misguided

Fear of skin cancer, prompted by campaigns such as "SunSmart" (www.sunsmart.org.uk) in the United Kingdom, may have led to children spending less time exposed to sunlight, reducing opportunities for the production of vitamin D in the skin and resulting in a consequent detriment to bone health.¹ Furthermore, recent evidence shows that sunlight exposure and the resulting synthesis of vitamin D might reduce the risk of certain cancers² and, perhaps, of other diseases such as multiple sclerosis.³ In response, there have been calls for current skin cancer

awareness campaigns in the UK to be abandoned.⁴ Are such calls justified?

Adequate sun exposure is not easily defined,¹ but one of the leading proponents of the beneficial effects of sun exposure has indicated that exposing the face, hands and arms two to three times a week to a third to a half of the exposure necessary to result in a just perceptible reddening of white skin (the so called minimal erythema dose, MED) in the spring, summer, and autumn is more than adequate to satisfy the body's requirement for vitamin D throughout the year.⁵ In other words,

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.

Brian Diffey *professor*

Regional Medical Physics Department, Newcastle General Hospital, Newcastle NE4 6BE
(b.l.diffey@ncl.ac.uk)

Competing interests: None declared.

- Wharton B, Bishop N, Rickets. *Lancet* 2003;362:1389–400.
- 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.
- Zittermann A. Vitamin D in preventive medicine: are we ignoring the evidence? *Br J Nutrition* 2003;89:552–72.
- 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)
- Holick MF. Sunlight “D”ilemma: risk of skin cancer or bone disease and muscle weakness. *Lancet* 2001;357:4–6.
- Diffey BL, Gibson CJ, Haylock R, McKinlay AF. Outdoor ultraviolet exposure of children and adolescents. *Br J Dermatol* 1996;134:1030–4.
- Andersen R, Mølgaard 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.
- 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.
- Diffey BL. The future incidence of cutaneous melanoma within the UK. *Br J Dermatol* 2004;151:868–72.
- 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