

conditions,¹ it must be acknowledged that he has courageously admitted that the government is no longer willing to fund an NHS that adheres to its founding principles of comprehensiveness, universality, and access based on need, and has taken a decision that will at least ensure national consistency in access to sildenafil. While the BMA has long campaigned for increased funding for the health service,⁹ it has also repeatedly stated that if the government and taxpayers are unwilling to provide the necessary resources, the government should be explicit about what the NHS will and will not provide, rather than leaving those judgments to individual doctors or to the accident of where patients live. The BMA has also broadly supported the proposal to establish a National Institute for Clinical Excellence¹⁰ as a way of ensuring that the introduction of new and expensive drugs is managed in accordance with evidence on clinical effectiveness.

However, sildenafil is a decidedly effective drug, which is cheaper and more acceptable for patients than alternative treatments and highly cost effective in cost per QALY terms.¹¹ If the NHS cannot afford to fund the additional costs of such new treatments without rationing, it would surely be far better to look at withdrawing ineffective treatments elsewhere in the health service rather than inequitably denying access to the new treatment for many who would benefit, unless they can fund their own treatment.

The secretary of state's proposals for the introduction of sildenafil may be rationing but they are not rational. Perhaps they will, however, lead to the public debate about NHS rationing for which the BMA has long campaigned. That debate must include a rational consideration of need, clinical effectiveness, cost effectiveness, equity, and social values.¹²

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- 1 Department of Health. *Viagra: NHS prescription proposals announced*. London: Department of Health, 1999. (Press release 21 January.)
- 2 British Medical Association. *GPC Viagra statement*. London: BMA, 1999. (Press release 21 January.)
- 3 Department of Health. *Sildenafil (Viagra)*. London: Department of Health, 1998. (HSC(98)158.)
- 4 General Medical Council. *Good medical practice*. London: GMC, 1998.
- 5 National Health Service, England and Wales. *The National Health Service (General Medical Services) Regulations 1992*. Schedule 2, para 43(1). London: Department of Health, 1992.
- 6 Beecham L. UK issues guidance to doctors on Viagra. *BMJ* 1999;318:279.
- 7 Benet AE, Melman A. The epidemiology of erectile dysfunction. *Urol Clin North Am* 1995;22:699-709.
- 8 Pfizer. *Viagra (sildenafil citrate) tablets. Draft package insert*. New York: Pfizer, 1998.
- 9 Health Policy and Economic Research Unit. *Options for funding health care*. London: BMA, 1997.
- 10 Department of Health. *A first class service: quality in the new NHS*. London: Department of Health, 1998.
- 11 Quirk F, Giuliano F, Peña B, Mishra A, Smith MD, Hockey H. Effect of sildenafil (Viagra) on quality-of-life parameters in men with broad-spectrum erectile dysfunction. *J Urol* 1998;159:998.
- 12 Maynard A, Bloor K. *Our certain fate: rationing in health care*. London: Office of Health Economics, 1998.

Gulf war syndrome

There may be no specific syndrome, but troops suffer after most wars

By the end of the Gulf War in February 1991 US, British, and Canadian forces had deployed about 697 000, 53 000, and 4500 military personnel, respectively, to south west Asia. The conflict required rapid mobilisation of coalition combat troops, and massive numbers of casualties were expected.¹ An extensive medical infrastructure and preventive medicine effort was deployed to support the troops.²⁻³ During the operation service personnel were exposed to a wide variety of known and potential health hazards. These exposures included smoke from oil well fires, extremes of hot and cold weather, petroleum products and fumes, depleted uranium, pesticides, endemic infectious diseases, and other physical and psychological stressors. The preparations for war included training in chemical warfare, immunisation against certain biological warfare agents, and use of the nerve agent protection pill, pyridostigmine bromide.

Despite the arduous conditions, morbidity rates among US troops were lower than in previous wars.⁴⁻⁵ Mortality was also much lower than expected. Altogether 372 deployed US troops died in 1990-1: 40% from combat, 52% from accidents (primarily related to training and motor vehicles), and 8% from illness.⁶ Illnesses in Gulf War veterans have been a source of intense controversy on both sides of the Atlantic. Since 1991 many veterans and their families have voiced concerns about possible health conse-

quences of their service, and many have complained of being unwell, reporting a wide array of medical complaints. Some veterans have alleged a conspiracy to deny the existence of Gulf War syndrome and to cover up toxic chemical exposures. Clinical manifestations have varied, though the most commonly reported symptoms have been fatigue, headaches, joint pains, rashes, shortness of breath, sleep disturbances, difficulty concentrating, and forgetfulness. Recent reports, including one in this week's *BMJ* (p 290),⁷ have looked at the long term effects of these exposures. What do they tell us?

In this issue Coker et al confirm these clinical observations in British Gulf War veterans.⁷ Their report catalogues the examination findings of a large case series covering 1000 servicemen and women who voluntarily attended the Ministry of Defence's medical assessment programme. The programme uses a structured evaluation protocol that includes a comprehensive medical history, an exposure questionnaire, physical examinations, and extensive laboratory testing. Patients are referred to specialist consultants after the initial evaluation as needed. The participants reported multiple common medical symptoms, including affective problems (50%), fatigue (42%), joint and muscle aches (40%), cognitive problems (26%), headaches (26%), respiratory complaints (24%), gastrointestinal problems (22%), sleep disturbances (21%),

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and skin problems (19%). Participants often had multiple symptoms, and most had more than one diagnosis. Musculoskeletal disorders, respiratory conditions, and post-traumatic stress disorder were diagnosed in 18%, 16%, and at least 12%, respectively. Similar adverse health effects have been reported among other groups of UK, US, and Canadian Gulf War veterans.^{8 9 10}

Post-traumatic stress disorder was diagnosed in a small but substantial proportion of the individuals evaluated by the medical assessment programme. The literature suggests that the prevalence of post-traumatic stress disorder among Gulf War veterans varies considerably, from 3% to 50%, with most studies in the lower range.¹¹ Stress has been suggested as an important contributory factor in Gulf War veterans' illnesses. However, post-traumatic stress disorder alone does not account for the majority of illnesses in this population, and clinicians should be cautioned not to attribute the somatic symptoms of Gulf War veterans to stress without a thorough, exclusionary diagnostic evaluation. The medical assessment programme's protocol can serve as a valuable set of clinical guidelines for the general practitioner who is evaluating a Gulf War veteran with poorly defined medical complaints.

Coker et al are right to emphasise the limitations of their self selected case series.⁷ As a voluntary programme, the medical assessment programme has limited generalisability and cannot be used to estimate prevalence. However, these clinical registries are a crucial component of the necessary response to Gulf War veterans' health concerns because they provide medical care and an opportunity to discuss the possible health consequences of Gulf service with a knowledgeable physician. In addition, the clinical programmes serve as a strong foundation for developing research questions and hypotheses.

A well focused, coordinated UK Gulf health research programme, overseen by the Medical Research Council, has also been developed, and epidemiological studies to assess veterans' health and answer fundamental questions about the incidence and prevalence of morbidity and mortality are in progress. As part of this programme Unwin et al recently published the results of a large, cross sectional postal survey of British Gulf War veterans.¹² Their principal finding was that Gulf War veterans were two to three times more likely to report an entire array of symptoms than were service personnel who had either served in Bosnia or not been deployed. Symptoms included chronic fatigue, irritability, headaches, cognitive difficulties, sleep problems, and joint pain. An accompanying paper used factor analysis to assess symptom clusters in the survey results but failed to identify a unique illness among Gulf War veterans.¹³

Fukuda et al showed similar findings in a random sample of over 3000 US Air Force National Guard and active duty forces.¹⁴ Both studies found that the non-deployed veterans also met the illness criteria; symptom reports occurred with greater frequency among Gulf War veterans but were not unique to Gulf War service. The pattern of symptoms differed little from those of troops who served elsewhere but they occurred at an increased rate. Haley et al administered a detailed questionnaire to 249 members of a US Reserve Naval mobile construction battalion that served in the Gulf¹⁵: 70% of this unit reported health

concerns, and through factor analysis the authors identified six clusters of symptoms which they grouped into unique syndromes. Neither the work of Fukuda et al nor Ismail et al could replicate these findings.

Thus, though Gulf War veterans' illnesses are real and sometimes disabling, they do not seem to constitute a unique illness. A growing consensus is emerging from the clinical and epidemiological evidence that there is no Gulf War syndrome—though a rare medical condition in a small subgroup of Gulf War veterans cannot be excluded conclusively. The findings reported in this issue are consistent with these conclusions. Importantly, similar poorly defined, postwar illnesses have been shown after every military conflict this century, including the two world wars and the Vietnam war.¹⁶ Traditionally, military medicine has focused on combat casualty care and prevention. There is now a growing awareness in military medicine that in future wars combat casualties often will not have visible wounds. The prevalence, natural history, and causes of these illnesses are, however, poorly understood. Detailed baseline health screening on entry into military service, better monitoring of physical and psychological stressors during combat, and well designed, prospective epidemiological studies will be necessary to gain a better understanding of this postwar health phenomenon. Proactive prevention must be developed to reduce the burden of postwar illnesses. This is the challenge for future research: our veterans serve bravely and deserve no less.

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- 1 Congressional Review Service. *Iraq-Kuwait crisis: A chronology of events, July 17, 1990-December 23, 1991*. Washington, DC: Library of Congress, 1992.
- 2 Department of Veterans Affairs Employee Education System. *A guide to Gulf War veterans' health: 1998 continuing medical education program*. St Louis: VA Medical Center, 1998.
- 3 Blank RR, Bell WH. Special reports: medical aspects of the Persian Gulf war. *N Engl J Med* 1991;324:857-9.
- 4 Lindsay GC, Dasey C. Operations Desert Shield/Storm infectious disease rates: A fortuitous anomaly. *United States Army Medical Research and Development Command News*. 1992;Feb:5-6.
- 5 Hyams KC, Hanson K, Wignall FS, Escamilla J, Oldfield EC. The impact of infectious diseases on the health of U.S. troops deployed to the Persian Gulf during Operations Desert Shield and Desert Storm. *Clin Infect Dis* 1995;20:1497-1504.
- 6 Writer JV, DeFraites RF, Brundage JF. Comparative mortality among US military personnel in the Persian Gulf region and worldwide during Operations Desert Shield and Desert Storm. *JAMA* 1996;275:118-21.
- 7 Coker WJ, Bhatt BM, Blatchley NF, Graham JT. Clinical findings for the first 1000 Gulf War veterans in the Ministry of Defence's medical assessment programme. *BMJ* 1999;318:290-4.
- 8 Coker WJ. A review of Gulf war illness. *J R Nav Med Serv* 1996;82:141-46.
- 9 Goss Gilroy Inc. *Canadian epidemiological study of Gulf War Veterans*. Ottawa: Goss Gilroy Inc, 1998.
- 10 Persian Gulf Veterans Coordinating Board. Unexplained illnesses among Desert Storm veterans: a search for causes, treatment, and cooperation. *Arch Intern Med* 1995;155:262-8.
- 11 Wolfe J, Proctor SP. The Persian Gulf War: new findings on traumatic exposure and stress. *PTSD Research Quarterly* 1996;7:1-3.
- 12 Unwin C, Blatchley N, Coker W, Ferry S, Hotopf M, Hull L, et al. The health of United Kingdom servicemen who served in the Persian Gulf war. *Lancet* 1999;353:169-78.
- 13 Ismail K, Everitt B, Blatchley N, Hull L, Unwin C, David A, et al. Is there a Gulf War syndrome? *Lancet* 1999;353:179-82.
- 14 Fukuda K, Nisenbaum R, Stewart G, Thompson WW, Robin L, Washko RM, et al. Chronic multisymptom illness affecting Air Force veterans of the Gulf war. *JAMA* 1998;280:981-8.
- 15 Haley RW, Kurt TL. Self reported exposure to neurotoxic chemical combinations in the Gulf War. A cross sectional epidemiologic study. *JAMA* 1997;277:231-7.
- 16 Hyams KC, Wignall FS, Roswell R. War syndromes and their evaluation: From the US Civil War to the Persian Gulf War. *Ann Intern Med* 1996;125:398-405.