

**Journal of Occupational and Environmental Medicine**

Issue: Volume 45(3), March 2003, p 219

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Publication Type: [DEPARTMENTS: Letters to the Editor]

ISSN: 1076-2752

Accession: 00043764-200303000-00001

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**Vaccination Records in Gulf War Veterans**

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To the Editor:

Biological warfare vaccinations have been implicated as a cause of the increased rate of reported symptoms in Gulf War veteran. Our study group examined a group of 180 personnel who were prepared for Gulf deployment but were never actually sent. Their vaccination records were checked, and only 5 of 180 had any preparatory vaccinations, of which only one was a biological warfare vaccine. This is in contrast to another group of personnel who were deployed to the Gulf, in which 95 of 120 vaccination records were verified. This letter advises caution in using self-reported vaccination status in armed forces personnel.

Vaccination of service personnel against the effects of biological weapons has been a much debated and controversial topic. With the elevation of international terrorism into the hub of the media's eye since September 11th 2001 and the subsequent military action, this issue has once again become one which is of considerable interest. Previous studies have shown that those servicemen who went to the Gulf report more symptoms and disorders than other service personnel. <sup>1</sup> Other studies have shown that there is a link between deployment and the occurrence of medically unexplained symptoms. <sup>2,3</sup> One question that remains unanswered is whether the reporting of the symptoms of Gulf War-related illness is related to vaccination alone, deployment to a combat zone alone, or both.

Our study group has examined a group of service personnel who reported having received vaccines in preparation to deploy to the Gulf during the war at beginning of the 1990s but in fact never went (prepped but not deployed, or PBNB). Preparation for deployment would have included vaccination against the biological warfare pathogens anthrax and plague; additionally, Pertussis vaccine was used as an adjuvant. Investigation of these PBNB personnel would be an opportunity to examine whether these unexplained symptoms are related to deployment per se or whether the administration of the biological warfare vaccines alone might be significant.

A cross-sectional postal survey of military personnel, inquiring about vaccination history, was conducted in 1997 by Unwin et al 1 about which vaccination history was inquired. The following three groups were sampled: 4248 Gulf War veterans, 4246 service personnel from the Bosnia conflict, and a cohort of 4246 who were serving in the armed forces during the Gulf War but were not deployed. A further set of questionnaires were sent to a small cohort taken from the first study group in which PNBND status was specifically inquired. There were 180 individuals who reported being PNBND, and these were further investigated to confirm their vaccination status before further analyses were undertaken. Records were sought either from the person themselves, the Army Records Department in Glasgow (for those who had been discharged from the services), or from the unit medical centers for those still serving. Another investigation being conducted by our group examined 120 service personnel who had been deployed that also required that vaccination records were verified.

There were 115 (64%) replies from the vaccination records investigations of the PNBND group. It was confirmed that only five individuals received any vaccination in preparation for deployment, with only one of these being definitely a vaccine that was supposed to protect against biological warfare agents (the others were routine vaccinations such as typhoid). This is in contrast to the deployment group of whom 95 of 120 had their biological warfare vaccination history confirmed. We are therefore unable to verify the existence of substantial numbers of service personnel who received biological warfare vaccines but never made it to the Gulf. It is possible that some personnel were confused about what they did receive, which is not surprising given the poor communication customary within armed forces that are in preparation for war. We are thus unable to use this potential natural experiment to disentangle the roles of vaccination and or/deployment in the etiology of Gulf-related illness. We also counsel caution in using unverified reports of vaccine status in studies on this area.

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