Published in final edited form as:

Occup Environ Med. 2012 December ; 69(12): 932. doi:10.1136/oemed-2012-101057.

Vaccinating welders against pneumonia

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Dear Editor

Recently, the Department of Health in England (DH) recommended that welders should each receive a single dose of the 23-valent pneumococcal vaccine (PPV23) [1]. Although this advice arises in the context of occupational health and safety practice in the UK, we believe that readers internationally with responsibility for the health of welders may be interested to learn of this development.

The evidence behind the DH's advice has accumulated steadily over the last two decades and now rests on several pillars. These include: successive national analyses of occupational mortality for England and Wales, which have consistently demonstrated increased death rates from pneumonia in welders (and other workers with exposure to metal fume) over more than five decades [2]; more recent mortality analyses from England and Wales [3,4] and from Sweden [5] that have shown a short-term reversible risk for pneumonia, and for lobar and pneumococcal pneumonia in particular; a large case-control study of hospitalised community-acquired pneumonia, which confirmed a short-term effect of metal fume exposure on incidence (and not simply case-fatality rate), especially in relation to lobar disease and microbiologically proven pneumococcal infection [6]; a reported excess of microbiologically established invasive pneumococcal disease in Canadian welders [7]; two older reports, one concerning welders from a metal trades union in the US [8], another of welders in British shipyards [9]; and sundry case reports from Europe, which spawned at least one national alert from a labour inspectorate [10].

The mechanism by which metal fume raises risks of pneumonia remains uncertain at present, but could involve free radical injury of host defences in the lungs or an excess of exogenous iron serving as a nutrient for micro-organisms [2]. The dose-response relation is also unknown, but the DH has decided to act on present evidence.

Elsewhere we review the implications for protecting welders' health [11]. We estimate, using the Canadian data, that one case of IPD may be preventable over a 10-year period by vaccinating some 588 welders against pneumococcal infection. However, some residual uncertainties about the optimal coverage and timing of a vaccination programme based on the PPV23 vaccine remain still to be resolved.

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