

## Meningococcal immunisation in Ghana

Sir—Christopher Woods and colleagues (Jan 1, p 30)<sup>1</sup> highlight their experience of a mass vaccination, to circumvent a meningococcal disease epidemic in Ghana, in 1997. The campaign resulted in a 72% coverage rate and is estimated to have prevented 23% of cases. Had the current WHO recommendations been followed, then 61% of cases would have been prevented, the investigators calculated. The investigators acknowledge that the same virtual proportion of prevented cases would have been obtained through a routine immunisation programme with a similar coverage achievement before onset of the epidemic. It is surprising then that the investigators assert with great assurance that, while awaiting meningococcal A conjugate vaccine, the actual strategy advocated by WHO is as effective and more practical than a strategy of routine vaccination with currently available vaccines. To be scientifically correct, it should be acknowledged that both strategies have drawbacks, as proved by the relatively low percentage of cases prevented. Logistic and threshold refinement may allow real improvement of the actual WHO strategy.<sup>2</sup> But a study by Bovier and colleagues<sup>3</sup> highlights that mass-vaccination strategy is less cost-effective than either routine preventive vaccination or a combination of routine and emergency mass vaccination. Moreover, concern has also been raised that the cost of a death averted by vaccination is fifteen times higher than the cost of a death averted by treatment.<sup>4</sup> On the other hand, in high-risk districts of Bénin, routine vaccination with cost recovery was implemented with encouraging results in terms of vaccine coverage (60%), and possibly in reducing the risk of meningococcal epidemics.<sup>5</sup> Because there is no scientific evidence that proves one strategy to be more practical than any other, it would be detrimental to discourage additional efforts to improve responses to a major public health problem yet unresolved, especially when those efforts prove cost-effective.

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- 1 Woods CW, Armstrong G, Sackey SO, et al. Emergency vaccination against epidemic meningitis in Ghana: implications for the control of meningococcal disease in West Africa. *Lancet* 2000; 355: 30–33.
- 2 de Chabalier F, Djingarey M, Hassane A, Chippaux JP. Meningitis seasonal pattern in Africa and detection of epidemics: a retrospective study in Niger, 1990–1998. *Trans R Soc Trop Med Hyg* 2000. (in press).
- 3 Bovier PA, Wyss K, Au HJ. A cost-effectiveness analysis of vaccination strategies against N meningitidis meningitis in sub-Saharan African countries. *Soc Sci Med* 1999; 48: 1205–20.
- 4 Veeken H, Ritmeijer K, Hausman B. Priority during a meningitis epidemic: vaccination or treatment? *Bull WHO* 1998; 76: 135–41.
- 5 Hassan J, Massaogbdji A, Chippaux JP, et al. Meningococcal immunisation and protection from epidemics. *Lancet* 1998; 352: 407–08.

Sir—Christopher Woods and colleagues<sup>1</sup> used data from the Ghana meningitis epidemic of 1997 to stimulate the potential effectiveness of various vaccination strategies. We disagree with their conclusion that WHO threshold-based meningitis control strategy<sup>2</sup> is the best strategy. First, we think that this strategy is not feasible in field circumstances—as the Ghana outbreak exemplified. Experience from other meningitis-belt countries also showed that effective vaccination coverage of 85% was hardly ever reached within 1 week from crossing the epidemic threshold and that in reality delays were in the order of 2 months or more.<sup>3,4</sup> The delays were due, between the crossing of the threshold and the declaration of the epidemic, to weaknesses in the surveillance system and, subsequently, to resource and logistic constraints. Despite rather exceptionally favourable circumstances (awareness of on-going epidemics in neighbouring countries, immunisation teams at stand-by, and a reasonably well-organised health service) the actual delay to reach effective immunisation coverage in Ghana was, as reported by Woods and colleagues, 3 months. The level of disease reduction (18% of deaths prevented) remained far below the one (72%) that could theoretically be achieved when applying the strategy recommended by WHO.

Our bone of contention concerns the apparently inevitable delays. They are a manifestation of the influence of external factors (eg, financing) on the health sector affecting routine service delivery (including Expanded Programme for Immunisation [EPI]) and, even more, the capacity to adequately respond in an emergency situation. Also, the investigators failed to mention the crucial importance of adequate clinical management of meningitis in epidemic situations.<sup>5</sup> It is too often observed that all energy goes

into implementing a hopelessly delayed vaccination strategy, with foreseeably poor results, without giving due priority to providing access to treatment for those with the illness. Yet, cost-effectiveness analysis has shown that treatment with a single dose of oily chloramphenicol is superior to immunisation.<sup>5</sup> The availability of this orphan drug is hence one of the cornerstones of current meningitis response, and should be guaranteed. We ought not to sit back because of the conclusions drawn by Woods and colleagues, but actively support all initiatives that strive for universal access to essential drugs while promoting research for better and affordable meningococcal vaccines that provide long-lasting immunity. These affordable vaccines could then be integrated into the EPI-schemes of the countries in the meningitis belt.

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### Authors' reply

Sir—We agree with François de Chabalier, Dedzo McDamien, and their colleagues that logistics may impede implementation of a threshold strategy, but routine vaccination strategies have similar problems. Additional approaches, including vaccination of school children and cost-recovery should be assessed, but these approaches are unlikely to be widely applicable. The cost-effectiveness analysis<sup>1</sup> presumes that vaccination of children aged 5 years will have the same cost and coverage as the routine EPI, but EPI does not target children aged 5 years; further, in some of the most severely affected meningitis-belt



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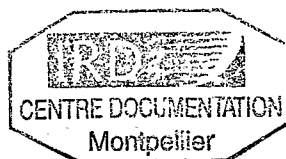
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