



## EDITORIAL

## THE ETHICS OF IMMUNISATION

Immunisation is in many respects a unique medical intervention. It has also created some unique bioethical challenges which are becoming increasingly pertinent as technological and epidemiological advances bring more vaccine-preventable diseases closer to the point of extinction. (For the purposes of this discussion 'immunisation' means universal immunisation, that is the administration of vaccines to all individuals at a certain age, essentially in infancy. Its purpose is not only for personal protection but also for the protection of society by establishing herd immunity and reducing or even eliminating the reservoirs of the infection. In contrast, selective or targeted immunisation aims only to protect the individual and has little or no effect on the epidemiology of the infection and brings little or no protective benefit to society.)

The success of universal immunisation and its ability to modify the epidemiology of vaccine-preventable diseases depends on the achievement of very high levels of vaccine coverage — the higher the basic reproductive number of the infectious agent, the higher the level of coverage needed.<sup>1</sup> Clearly, therefore, the decision to accept or refuse vaccination has a significant bearing on the welfare of society. The ethical implication of this concerns the question whether individual rights such as the right to refuse vaccination have greater intrinsic value, and therefore supersede the duty of the individual to society for the benefit of all. The medical profession has largely tended to focus on individual patient rights and the bioethical framework of the profession needs to be re-visited to also include the rights of the community. At first blush societal rights may appear to be somewhat excluded from the medical dictum of beneficence and non-maleficence which is largely individual-focused. Refusal to have one's children immunised is unquestionably a constitutional right. For a small proportion of individuals refusal to be vaccinated may be based on sincere objections on religious or philosophical grounds. In some cases there may be cogent medical contraindications.<sup>2,3</sup> However, most vaccination refusal is based on ignorance ('vaccines may be harmful — my child will be protected anyway by the other kids being vaccinated', 'measles is not a serious disease any more', 'polio doesn't exist any more'), so-called 'new age' or 'mother earth' thinking (homeopathic vaccines, nosodes, chiropractic manipulation, etc.), or anthroposophical considerations ('it is good for my child's development to get natural measles'). Health care professionals must energetically dispel these myths and there are a number of excellent publications and website addresses to empower practitioners to do this.<sup>4,7</sup> It is probable, however, that if elimination and eradication of vaccine-preventable diseases are to become a reality, additional measures may well be required and consideration should be given to the

institution of some form of coercive measure in order to achieve the requisite high levels of vaccine coverage and the framework for its ethical justification needs to be prepared now. The most successful coercive regulations have been the school immunisation laws enforced throughout the USA.<sup>8</sup> These laws, which act as a supplementary measure to routine immunisation schedules to ensure very high vaccine coverage, have been credited with extraordinary success in controlling vaccine-preventable diseases in that country. Furthermore, experience in the USA, a country steeped in the tradition of individual rights, has shown that the great majority of its citizens have accepted the school immunisation laws, with less than 1% of new school entrants in 42 states sampled claiming exemption on medical, religious or philosophical grounds.<sup>8</sup>

Finally, an issue of particular importance to universal immunisation is the attempt on ethical grounds to apply and implement a universal bioethical standard. A uniform globally applied safety regulatory standard for vaccines, as commendable as it may initially seem, has led to some unfortunate consequences for the developing world. A particularly poignant example was the recent unfortunate withdrawal of rotavirus vaccine. Approximately 600 000 - 800 000 children die annually from rotavirus diarrhoeal disease — over one a minute — the vast majority in the developing world. The tetravalent rhesus rotavirus vaccine, which was licensed in the USA in August 1998 and administered to approximately 1 million American infants, was associated with 15 reported cases of intussusception, one of whom died, which occurred 1 - 2 weeks after receiving the vaccine.<sup>9</sup> Following a recommendation by the Centers for Disease Control in July 1999 to suspend this vaccination, the vaccine was withdrawn worldwide later that year.<sup>10</sup> In the USA, where rotavirus is responsible for some 20 - 40 deaths annually (besides over 50 000 hospitalisations) the decision may appear justifiable. However, this decision taken in a wealthy First-World country deprived the developing world of a vaccine which could potentially have prevented half a million childhood deaths annually because of the universal regulation stipulating that vaccines be licensed in the country of origin before being registered in any other country.

Vaccines, together with the provision of safe water, are responsible for profound benefits to humankind. To attain these benefits, however, vaccines are unique in demanding from a healthy population a mixture of, in the main, self-interest, together with a small measure of altruism. From the medical profession this may require some modification in traditional ethical thinking from a total focus individual rights to also include a consideration of societal duties. Globally, international health authorities may also need to reconsider the value of an inflexible universal bioethical policy.

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1. Fine PEM. Herd immunity: history, theory, practice. *Epidemiol Rev* 1993; 15: 265-302.
2. Zotti C, Silvaplana P, Ditommaso S, Russo R, Ruggenini AM. Compulsory and non-compulsory immunizations: contraindications perceived by medical practitioners. *Vaccine* 1992; 10: 742-746.
3. Wood D, Halfon N, Pereyra M, Hamlin JS, Grabowsky M. Knowledge of the childhood immunization schedule and of contraindications to vaccinate by private and public providers in Los Angeles. *Pediatr Infect Dis J* 1996; 15: 140-145.
4. Bedford H, Elliman D. Concerns about immunisation. *BMJ* 2000; 320: 240-243.
5. Hall R, O'Brien E. *Immunisation Myths and Realities*. Canberra: Commonwealth Department of Health and Aged Care, 1999.
6. Chen RT, DeStefano F. Vaccine adverse events: causal or coincidental? *Lancet* 1998; 351: 611-612.
7. <http://www.cdc.gov/nip/vacsafe/vaccinesafety/questions/questions.htm>;  
<http://www.who.int/vaccines-diseases/safety/prof/misconcept.htm>;  
<http://www.unc.edu/~aphillip/www/vaccine/informed.htm>
8. Orenstein WA, Hinman AR. The immunization system in the United States — the role of school immunization laws. *Vaccine* 1999; 17: S19-S24.
9. Centers for Disease Control and Prevention. Intussusception among recipients of rotavirus vaccine — United States, 1998 - 1999. *MMWR* 1999; 48: 577-581.
10. Centers for Disease Control and Prevention. Withdrawal of rotavirus vaccine recommendation. *MMWR* 1999; 48: 1007.

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