US vaccination

Statutory compensation urged

Washington

THE Institute for Medicine last week added its voice to the many others complaining that present disincentives to the development and production of vaccines constitute a threat to public health in the United States. There is no knowing whether this latest warning will carry weight with the administration, the Congress and the courts.

Plaintively, the committee responsible for last week's report, *Vaccine supply and innovation*, remarks that recommendations of previous committees have been ignored "for reasons unrelated to the potential utility of the recommendations", which is a polite way of saying that political considerations and/or idleness have supervened.

The Institute of Medicine's committee, under its chairman Jay P. Sanford of the Uniformed Services University of the Health Sciences, argues that continuing immunization against an extended range of infections should be an essential part of public health provision in the United States. But the committee says that vaccine supply is made "precarious" by the obstacles faced by manufacturers, some of which are economic (attenuated patent protection, for example) and others legal, particularly the uncertainty about liability for injuries associated with the administration of vaccines.

The most arresting part of the committee's argument is its careful demonstration that the application of the present law is shot through with anomalies. Its chief recommendations are that there should be a national vaccine commission in the United States to anticipate problems connected with vaccination, together with a statutory compensation scheme.

Paediatric vaccines are the most immediate worry, according to the committee, which says that two of the three manufacturers of DTP vaccine (offering protection against diphtheria, tetanus and pertussis or whooping-cough infections) had given up manufacture of the vaccine a year ago. Since then, apparently, Wyeth has subcontracted to supply Lederle with vaccine not for distribution under its own label, while Connaught Laboratories (a subsidiary of Squibb) has managed to obtain liability insurance to allow manufacture to be resumed.

There are similar problems with the supply of poliomyelitis and the combined measles, mumps and rubella (german measles) vaccines, with stockpiles held by the Centers for Disease Control down to 15 and 12 weeks respectively, partly because of congressional niggardliness on the cost of the stockpile programme. The committee says that the supply position is "disconcertingly unstable".

On the economic front, the committee says that part of the reason for the twofold reduction of the number of manufacturers making vaccines between 1968 and 1975 may be that the vaccine business is less profitable than the development of pharmaceuticals. The cost of developing new vaccines is estimated at between $20 million and $30 million, shared roughly equally between manufacturers (who pay for clinical trials and production development) and the federal agencies, which bear the cost of basic research.

The total value of the vaccine market in 1982, on the other hand, is estimated to have been $170 million, which the committee says may be only a fraction of the sales in a single year of a successful drug. Even so, according to the committee, the economic basis of the vaccine industry may recently have been strengthened by last year's legislation extending the patent life of new medicines to compensate for licensing delays, the decision of the Supreme Court in 1980 that strains of living organisms may be patented and administrative decisions during the past few years that have given universities and other recipients of federal grants the right (and even the responsibility) to exploit intellectual property arising from their research.

On the legal front, the committee is less optimistic. A survey among manufacturers in the spring last year showed that there were 166 outstanding liability suits, and a further 65 were laid in the following twelve months. Only a small proportion of the outstanding claims had been settled in the interval, often for amounts of the order of $1 million. Some manufacturers claimed that legal costs of defending vaccine suits amounted to "several millions of dollars a year" and that the cost of defending a single suit might amount to $500,000.

Citing the law as it stands, the committee says that a manufacturer cannot be held responsible for damage done by a vaccine which is not defective, but goes on to complain that courts in various of the United States have been prone to interpret the legal position more broadly, and in unpredictable ways.

In legal suits during the past fifteen years, it seems that a manufacturer's duty to warn recipients of a vaccine (or, when children, their parents) of the dangers of vaccination has commonly contributed to the award of damages against manufacturers. The committee cites one suit in which the manufacturer was held liable for the occurrence of polio in the parent of a child vaccinated with Sabin (attenuated live virus) vaccine and administered by the Texas Department of Public Health. The courts held that the parent should have been told that the prior administration of Salk vaccine would have avoided the risk; the Institute of Medicine's committee points out that Salk vaccine was not being manufactured at the time.

In another case, a manufacturer was found to be liable for damage caused by Sabin vaccine because the physician who had administered it privately felt that the warning on the package insert that a few

A check-list of vaccine hazards

THE Institute of Medicine report says that attempts to measure the risks associated with vaccines are complicated by the difficulty of relating cause and effect, by the circumstances that vaccine injury tends to be regarded seriously only after the incidence of damage from the uncontrolled infection has been substantially reduced and because of the lack of knowledge of the mechanism of vaccine injury. But immunodeficiency argues against the use of vaccines of any kind.

On the basis of experience in the United States, the report gives the following data.

Pertussis. **The frequency of fever (39°C or more) is roughly 7 per cent within 24 hours of vaccination, apparently a consequence of the pertussis component of DTP (diphtheria–tetanus–pertussis) vaccine. The frequency of permanent injury, in the form of encephalopathy, is reckoned, from British data, to be one in about 150,000 in infants given three doses in the first year of life.**

Diphtheria. **While earlier preparations of the toxin produced temporary reactions, better purification has eliminated fatal or disabling reactions.**

Tetanus. **Anaphylactic reactions to tetanus toxin are recognized at the rate of 1 per 1.5 to 2.0 million doses, but no fatalities are known.**

Poliomyelitis. **The risk of contracting paralytic polio from its oral vaccine is estimated at 1 in 11 million doses. But the committee says that consideration is now being given to switching back to inactivated polio vaccine.**

Measles. **Between 5 and 15 per cent of infants at 15 months develop a fever of 39.4°C a week after vaccination. Measles encephalitis, a complication of the natural infection, is estimated permanently to affect fewer than 1 in a million vaccinated children. The rate of slow-virus infection, leading to progressive fatal neurological disease, is too small to be estimated.**

Rubella. **Persistent arthritic conditions are recognized in a few vaccinated women.**

Mumps. **The report recognizes no permanent consequences of the use of mumps vaccine except that of allergic reaction to proteins from the eggs in which the virus is grown.**

Influenza. **The 500 cases of Guillain–Barré syndrome reported after the use of swine flu vaccine in 1976 are "unprecedented"; the cause remains unknown.** □

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