government health officials to recommend a vaccine for this winter that includes protection against A-Brazil, A-Texas, and B–Hong Kong. The recommendation occasioned the customary request by health officials that Congress appropriate money to provide free immunisation for chronically ill and elderly Americans. Several million dollars have been made available, but there is no discernible publicity campaign to push people toward the vaccine this season. An increased skepticism about influenza vaccines, and even about other kinds of immunisation, is our legacy of the swine flu affair. Although that ill-fated series of events came to a grinding halt only three years ago, it has swiftly been enshrined in the waxworks of history as a classic instance of public health efforts gone awry. The affair has been studied in retrospect by medical scientists, health-policy analysts, business school economists, professors of public administration—and, most recently and intensively, by lawyers.

**Public attitudes towards vaccination**

A brief recounting of the events of 1976 is sufficient to show why the affair is probably unique, and why it continues to affect public perceptions of vaccination more generally. In February of that year, an Army recruit at Fort Dix, New Jersey—one of a dozen with a respiratory infection at the time—went on a training hike and subsequently died with pneumonia. For several reasons, which look less compelling now than then, the viral isolate was thought possibly to be a hand-me-down of the extremely virulent agent that had felled multimties around the world in 1918. Government health experts urged a massive immunisation programme to protect against such an eventuality in the winter of 1976-7. President Gerald Ford accepted the recommendation, asked for $135m from Congress to pay for vaccine, got it, and instructed pharmaceutical companies to begin manufacture of sufficient vaccine to immunise nearly everyone in the country—over 200 million doses.

From that point onward, almost nothing went right. Most of the vaccine manufactured in the crash programme turned out not to have the neuraminidase component—a lack thought to compromise the vaccine’s effectiveness. Insurance companies would not cover vaccine manufacturers against liability suits that might arise in such a mass vaccination programme; Congress eventually had to enact a law making the government liable if something went wrong. Production of other vaccines, the most important being polio, lagged because of the emphasis on flu. Immunisation against swine flu began in October with a great hoop-la of publicity by scientists and government officials who were usually more reserved. Almost immediately, the deaths of a dozen older vaccine recipients in several States caused a temporary halt in the programme until it was determined that the vaccine was not at fault. But then, the increasing occurrence of the Guillain-Barré syndrome in people who had been vaccinated raised new fears. In mid-December, as the number of confirmed paralysis cases climbed above 50, the swine flu vaccination programme was halted, never to be resumed. About 40 million people had received the shots.

In the meantime, three cases of swine flu were detected in the US, all in individuals who had been in contact with pigs. There are no firm figures on the number of patients with the Guillain-Barré syndrome associated with swine flu vaccination. There are guesses that as many as 300 people died of the paralysis. There are more than 1000 legal claims against the government alleging death or injury from the Guillain-Barré syndrome after swine flu shots.

The entire matter of government liability in the wake of the swine flu programme has become a monster. More than 3700 claims were filed, demanding indemnifications totalling $3400m. Fewer than a hundred cases have been settled, and only one has gone to trial. Delays in handling claims for injuries that occurred three years ago are potentiating repercussions for many aspects of disease prevention in the US. Government health officials concede that a principal worry is that the swine flu hangover will adversely affect immunisation programmes against childhood diseases.

Last winter’s flu immunisation effort—continuing a government programme that has been in effect since the 1960s—managed to dispense only about one million of the 3-5 million doses planned. Congress’s General Accounting Office looked into that dismal state of affairs to see what went wrong. The General Accounting Office found, for one thing, that the vaccine had been prepared against A-USSR when the real threat was the new A-Brazil. The antigenic drift of influenza viruses makes a mockery of early vaccine manufacture. Yet, health officials make predictions of future danger on the basis of existing threat. Both professional and public awareness of that disjunction has been heightened since the swine flu affair. Even the Federal Government acts as if it is not operating with firm convictions about flu immunisation; it heralded a $15m programme but later scaled it down to little more than $8m.

The General Accounting Office also found that liability problems—stemming directly from the experience with swine flu—last winter made many State public-health officials wary of participation in any flu vaccination effort. The survey of difficulties did not include the opinions of the people likely to be vaccinated, but it is not beyond imagining that those who remember that paralysis was once associated with a flu shot will be reluctant to accept what the government is offering this year.

A vaccine against pneumococcal pneumonia has been on the American market for over 18 months. A recent symposium was convened in New York to discuss why the vaccine has been given to barely 5% of people at high risk of pneumonia. Everyone agreed that the swine flu affair had helped reduce the stature of any vaccine. They also agreed that, while the swine flu experience was not beyond the statistically predictable limits, it appeared much worse to a public that had not been truly informed of the risk.

The way things are going on the flu front, this season’s best hope may have come recently from a “consensus development” conference at the National Institutes of Health. The participants endorsed the use of amantadine hydrochloride for both prevention and treatment of all types of influenza A. Studies of prophylactic amantadine in over 110 000 individuals indicate a reduction of A-type flu infection by 35% to 50%, and a reduction of clinical illness by 50% to 70%. Treatment studies show appreciably reduced fever, and periods of illness shortened by 50%. Minor nervous system symptoms crop up in as many as 7% of patients taking the recommended daily 200 mg of amantadine. Amantadine-resistant strains of influenza A develop easily in tissue cultures, the conference was warned, but no resistant strain has yet been isolated from man. Those figures suggest a lesser effectiveness for amantadine than for influenza vaccine. But, in the present atmosphere of mistrust, anything called a “medicine” might be more effective than something called a “vaccine.”

No reprints of this article will be available from the authors.

**Correction**

**Procedures in Practice: Kidney biopsy**

We regret that an error occurred in this article (23 February, p 547) in the figure listing contraindications to the procedure. The fifth line should have read “prothrombin time >10 s.”