

Influenza in a school, 1969

M. A. WELLER, M.B., B.S., M.R.C.G.P.

Thaxted

AN account is given of an epidemic of A.2 1968 (Hong Kong) Influenza in a mixed school (The Friends' School, Saffron Walden, Essex) in the winter of 1969, in which 37 per cent of the boarding pupils were clinically affected. There were 380 pupils, 260 boarding and 120 day attenders, whose ages ranged from 11 to 18 years. Of the day pupils 51 are boys and 69 girls; of the boarders 138 are girls and 122 boys.

Prophylactic measures

In the autumn of 1968 the staff and pupils were immunized with Influvac. This contains:

A2/England/1/66-5250 H.A. units

A2/Netherlands/68/65-5250 H.A. units

B/Johannesburg/33/58-1750 H.A. units

B/Netherlands/78/66-5250 H.A. units

Total virus content 17,500 H.A. units and it is reformulated each year in the light of information provided by the World Health Organization, to include the strains likely to give the best level of protection for the coming season.

This preparation did not contain the strain of A.2 1968 (Hong Kong), a virus which had only a few weeks previously become known and for which no vaccine was available.

A total of 386 people was immunized. Of these 103 were day pupils, and 228 were boarders (i.e. 87 per cent of the pupils, both day and boarders), and the remaining 55 were school staff. There were no serious side effects from the immunization.

The epidemic

The epidemic appeared to start in the senior classes of the school, spread through the fifth form between 11 and 16 February, and to all the other forms between 14 and 21 February. By 28 February the epidemic was almost over and the number of admissions to the sanatorium ceased as dramatically as they had increased at the beginning of the month.

Spread of infection

The serial interval in this epidemic appeared to be between 24 and 48 hours. The 'dose' of virus necessary for it to 'take' from one patient to the next may be related to the number of hours of exposure of the recipient to the donor. The evidence for this is that the epidemic appears to have spread through the school by contact one with another by exposure in class, the earlier cases being in the fifth and fourth forms, and later cases in the third and lower forms.

Clinical features

Clinical presentation showed fairly wide variation. Features common to nearly all cases, however, were:

1. *Lethargy, exhaustion and prostration.*
2. *Fever* was variable. Of the 98 pupils admitted, 14 had temperatures of 102°F and over, and 22 had temperatures in the range of 100°F-102°F. The development

of fever was slower than that observed in previous influenza epidemics, and often did not rise to its maximum until 24 hours or so after the onset of illness.

A pupil presented during the afternoon surgery feeling unwell. As all the beds in the sanatorium were full she was invited to sit in the sister's sitting room while waiting. The temperature was noted to be almost normal when she attended the sanatorium, but half an hour later she was curled up in the chair fast asleep. A.2 influenza with a high fever on the second day was subsequently proved. In another child the temperature on admission was only 100°F but raised to 105°F on the evening of admission. In a third child the temperature was 100°F on admission and rose to 104°F on the morning of the second day.

3. *Headache.* In some patients, particularly in the older age-groups and amongst the staff, severe band-like headache—enough in one incident to make a man say he almost cried with it, occurred. Severe limb aches and backache occurred in some cases.

4. *Respiratory catarrh.* This was also a variable feature, some patients having gross nasal congestion, with a 'thick' sounding voice, and with rhinitis and conjunctivitis. Actual nasal discharge was not marked, and handkerchiefs or tissues were not necessary in large quantities. Irritant cough was not a common feature of the early cases of the epidemic, but was more troublesome as the epidemic developed.

5. *Duration of illness.* The illness usually lasted only three to four days.

Diagnosis

Diagnosis was made on clinical grounds in most cases, but the virus was identified and the epidemic confirmed as follows.

On 19 February at the height of the epidemic, two nose swabs and one throat swab were taken from six febrile patients, and immediately broken off into transport medium, kept cool and transported to the laboratory 12 miles away by rail arriving there one-and-a-half hours after being taken. Five of the six specimens were reported positive by telephone 48 hours after the specimens were received. Identification of influenza A.2 (Hong Kong) was completed three days later by means of haemagglutination—inhibition titrations. Further confirmation of the diagnosis was made by taking paired specimens of blood from one patient from whom the virus was isolated.

Management

Initially, as is common to all epidemics, the first cases received optimum treatment—that is, they were admitted to the well-equipped sanatorium with 14 beds. Their temperatures were recorded four hourly and they were all seen and examined by the medical officer. As the epidemic advanced and, in particular, when 17 patients were admitted in one day, the standard of care had to be lowered to cope with the situation. A junior dormitory with 12 beds was taken over as an annexe to the sanatorium, to which the less dramatically-ill patients were admitted or transferred. A twice daily round was carried out, each patient being observed from the clinical point of view, and any unusual features such as earache, cough, high fever, were checked.

In the initial stages of the epidemic oxytetracycline (Imperacin) tablets 250 mg were prescribed for individual patients; for example, if a patient had previously had sinusitis or evidence of susceptibility to infection an antibiotic was prescribed in the early stages of the febrile illness.

Towards the middle and end of the epidemic, however, it became impossible owing to work-load to assess each case individually, and the criterion of fever over

102°F or the sister's or doctor's special knowledge of the patient were used as indications for prescribing antibiotics.

Effect of Influvac immunization

Of the 98 boarders who developed the disease 13 had not been immunized during the previous autumn. The attack rate (40 per cent) in the non-immunized section of the school (32 failed to have the injection) was slightly higher than the attack rate (37 per cent) in the immunized community.

There was no clinical evidence that the illness was any different either in length or severity in either the immunized or non-immunized pupils.

Summary

An epidemic of laboratory-confirmed A.2 '68 (Hong Kong) influenza occurring in a mixed school is described. Thirty-seven per cent of the boarding pupils became ill. The effects of immunization with vaccine containing strains different from the one isolated is described.

The urgent need for research into and provision of adequate supplies of the correct vaccine is emphasized. A practical means of preventing epidemics of influenza in closed communities such as the school described are shown to be a necessary medical, social and economic need of our times.

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The Greeks had no name for it

Confusion out of knowledge might well be a commentary on this age of scientific revolution. With each passing day some new fact is unearthed, some new process revealed and, with each discovery, some new word is coined, more often by accident than by design and added to the language. In science these words become part of the daily speech of the informed few but are often quite unintelligible to those outside the particular circle. Small wonder that the gap between one scientific discipline and another is widening. But what is worse, workers in the same discipline are often at a loss to understand what these fellows are up to.

In medicine, the number of new terms has increased in recent years, many of them referring to the mode of action of new drugs like adrenergic blockers, alpha blockers, beta blockers, etc., most of them sliding into medical terminology, and it takes some time before there is general agreement on one of these terms used. This of course plays havoc with the modern computerized information methods. This machine, brilliant and stupid at the same time, can do our mathematics for us but cannot correct errors in programming. Thus, it becomes necessary for all of us to use these new terms with precision, and not to adopt old terms to some new product or process just because it appears to be related in some way.

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