

## TREATMENT OF INFLUENZA

BY F. H. WETMORE, M.D.

*Hampton, N.B.*

THE incidence and mortality rate of this disease in the recent pandemic were so high, and the probability of its near recurrence is so great, that treatment both prophylactic and curative becomes of vital importance. Let us see what our recent experience throughout the world has taught us.

*Prophylactic measures.* In preparing for another outbreak, the health department should again have ready a list of available nurses, and the doctors should be asked to report cases of the disease to the department.

A committee appointed by the American Public Health Association at its annual meeting, held in Chicago last November, to give a report on the disease and formulate rules for its prevention, stated in part that we should:

1. "Break the channels of communication by which the infective agent passes from one person to another.
2. "Render persons exposed to infection immune or at least more resistant by the use of vaccines.
3. "Increase the natural resistance of persons exposed to the disease by augmented healthfulness."

1. The channels of communication by which the infective agent is conveyed from person to person are recognized. And some of the methods by which these channels are broken are, isolation of the sick, wearing of masks, and washing of hands by the nurses and attendants, and the care of the sputum. Pamphlets containing these and other directions might well be prepared by the health department, and distributed freely to the public through the post offices, public schools, etc. But these measures and the closing of public places were put in force during the last epidemic, and were found to be lamentably inefficient in checking the spread of the disease. There were too many light, unrecognized cases—carriers of the disease—the so-called contact cases—to say nothing of the

probability of healthy carriers—whose actions, of course, could not possibly be controlled. Let us then look at the second rule formulated by the Committee, namely:

2. "Render persons exposed to infection immune, or at least more resistant by the use of vaccines." By prophylactic vaccination we have controlled the smallpox scourge, and rendered our armies probably twice as efficient by preventing outbreaks of typhoid and para-typhoid fever. We also vaccinate successfully against dysentery, cholera, and pneumonic plague, a disease the most deadly on record to attendants on the sick, which gives off infected material from the mucous membranes as does influenza. The measures used in preventing attendants from taking pneumonic plague are vaccination, and wearing of masks, followed by gargles and mouth washes. By far the most efficient of these is vaccination. A prophylactic vaccine for influenza, to be of most use, should contain not only Pfeiffer's bacillus, which is supposed to be the cause of the initial symptoms, but also different strains of the pneumococcus, and streptococcus, one or both of which is the cause of the deadly complications—the different forms of pneumonia. An authority on preventive medicine, Dr. E. C. Rosenow, of Rochester, prepared such a mixed vaccine, and found it of great benefit as a preventive in the epidemic. And in different parts of the globe bacteriologists connected with military organizations, which have done much in the past for preventive medicine, have prepared a similar vaccine which they report was of great prophylactic benefit in the recent epidemic.

Major F. T. Cadham, C.A.M.C., of Winnipeg, in the June number of the CANADIAN MEDICAL ASSOCIATION JOURNAL, reports the results of inoculation of 4,842 soldiers, out of 7,600 resident in the district. Of the inoculated there were two hundred and eighty-two admissions to the influenza hospital with seventeen cases of pneumonia, 6·05 per cent., and five deaths, 1·7 per cent. Of the uninoculated there were two hundred and thirty-eight admissions, with forty-one cases of pneumonia, 17·1 per cent.; and seventeen deaths, 7·1 per cent.

#### ADMISSIONS TO HOSPITAL

		Pneu- monia	Per cent.	Deaths	Per cent.
Inoculated.....	282	17	6·05	5	1·7
Uninoculated.....	238	41	17·1	17	7·1

Captain D. A. Macdonald, who was in charge of the hospital, states that in the inoculated, the disease and complications were not so severe as in the uninoculated, and the average stay in hospital was only half as long. No soldier who received two inoculations died of the disease.

The records of the use of the same or similar vaccine prepared by Dr. Gordon Bell, chairman of the Manitoba Provincial Board of Health, and used freely among civilians of Winnipeg and the West, show that the incidence of pneumonia was about four times as great, and the mortality rate was four times as great in the uninoculated as in the inoculated.

The Naval Training Station at San Francisco reports in the *American Medical Association Journal*, of March 22nd, 1919, marked beneficial results from the use of a mixed prophylactic vaccine.

A noted contribution to this subject comes from Major J. Pratt Johnson, M.C., D.A.D.M.S., C.A.M.C., Director Clinical Research Laboratories, Johannesburg, South Africa, in the March, 1919, number of *American Medicine*. He has prepared a vaccine from one hundred and fifty virulent strains of *M. catarrhalis*, streptococcus, pneumococcus, streptococcus-mucosus capsulatus, B. Friedlander, B. influenzae, B. septus, and staphylococcus, and used it freely not only prophylactically, but also therapeutically, against pneumonia complicating influenza. He says the results have been astounding. The mortality from pneumonia has been enormously reduced by the therapeutic use of mixed vaccines. One practitioner reported over one hundred cases and another two hundred cases of pneumonia treated with mixed vaccines without a single death.

During the epidemic, my own experience in the use of vaccines both prophylactic and therapeutic, was, I believe, much the same as the results given in this paper. A mixed stock vaccine was used, put up by Sherman of Detroit. At my first visit to a case of influenza, unless the type was very mild, a therapeutic dose was given to the invalid and preventive doses to the other inmates of the house. The therapeutic dose was given whether the temperature was high or subnormal. The earlier in the attack the inoculation took place, the less danger of pneumonia developing later. From October 17th to December 22nd, 1918, one hundred cases of influenza and twenty-three cases of pneumonia were reported to the health board, with one death, that of a five months' primipara, who nursed her husband through an attack while ill herself, and developed broncho-pneumonia (a light attack) and marked cyan-

osis before death. This was early in the epidemic before the dangers of a pregnant condition were recognized. Four other cases were lost during the winter—a chronic invalid, who developed pneumonia; a case who had double pneumonia and marked cyanosis when first seen, ten days after the beginning of the attack; a six months' primipara, who nursed her husband until ill herself, and then waited upon herself instead of calling upon the nurse with her bed-pan; and a case of pneumonia, with marked delirium and rigidity of the neck muscles, for whom neither vaccines nor medicinal agents proved beneficial. I am well satisfied that on the whole the combined vaccine used was beneficial both as a preventive and for curative purposes.

Prophylactically the mixed vaccine lessens the incidence of both influenza and pneumonia, and renders the disease less severe. Therapeutically it forestalls the toxæmia, and prevents complications.

*Curative Treatment. General management.* The things that count in the general management of a case are *absolute rest in bed* from the first, fresh air, and good nursing. The bad cases are those that persist in being around, or who are compelled to look after other members of the family, after they are themselves affected. Prophylactic and therapeutic inoculation may be unable to save such a one from the dangerous pneumonia. *Fresh air:* Let the windows be kept open from the first. And if there is any suspicion of lung complications, order the patient's bed brought as near to the open window as possible, and see that the order is carried out before you leave the house. When possible, put the bed in a corner of the room between two windows, kept wide open from top to bottom day and night. Of course see that the patient is provided with plenty of bed-clothing, with artificial heat inside the bed. As in ordinary pneumonia and tuberculosis, so here, absolutely fresh air is life-saving. *Good nursing:* Put a nurse in charge of a case early so as to conserve the resisting power of the patient, and besides, prevent other members of the family from becoming over-fatigued. Without a nurse, one never knows whether or not their orders of vital importance such as clearing out of the primæ viæ, and the keeping up of proper nourishment will be promptly and efficiently attended to. All honour to the nurse, who throughout the recent dangerous pandemic was not afraid to work day and night, hand in hand with the physician, in their life-saving mission, to prevent the patient from drifting on and on, into hopeless, helpless, septicæmic cyanosis!

When called to a case, isolate the patient, arrange masks and hand washing for the attendants, and see that the sputum is properly taken care of. This last can be done by having bits of rags or paper, and a paper bag as a receptacle pinned to the bedside and later burned. See that a bed-pan is available. *Diet:* Give liquids entirely at first. A mixture of milk and lime water is good, one part lime water, two parts milk, of which the patient may take from six to eight ounces every two hours; or milk and raw eggs may be taken, an egg to a pint of milk, half the quantity every two hours. If the case is serious, see that the patient has nourishment at night as well as during the day.

*Medicinal treatment:* Clear out the digestive tract early with a saline cathartic, such as Epsom salts, preceded by fractional doses of calomel in case of vomiting, and repeat the saline each day unless contraindicated. Acidosis being usually present, alkaline treatment, I think, does as much good as any other, without doing harm. Some give both bicarbonate of soda, c.p., and citrate of potash, giving from seven to ten grains of each drug separately and alternately each hour. A third form of alkali is the lime water and milk. The treatment generally agrees well with the digestive system and the bicarbonate of soda has a tendency to gradually lessen the pains. When alkalies are administered, a somewhat smaller dose of the therapeutic vaccine is required. In view of the oncoming toxæmia and tendency to vaso-motor paresis, we must avoid the coal tar products as much as possible. Aceto-salicylic acid is usually given for the pains. *For the cough*, moderate doses of heroin (1/12 gr.) is given. *Insomnia* also may be treated by heroin, or a stronger opiate.

*Circulatory failure.* Some autopsies having shown disorganization of the adrenals, one would be inclined to recommend adrenalin chloride solution for cases showing vaso-motor paresis, and lowered blood pressure; and in two or three cases where used, I found it helpful in tiding over a weak spell. To combat the circulatory failure accompanying pneumonia, tincture of digitalis in five to fifteen drop doses every four, six or eight hours has been used a good deal, with or without alcoholic stimulants in half ounce doses. As in other diseases, so here, a dangerous toxæmic condition would appear to be an indication for free alcoholic stimulation.

I wish to draw attention to a condition of localized pleural effusion, which is sometimes the cause of continued high fever in pneumonia. The withdrawal by the needle of even a small amount of serous fluid in such a case, may start the patient on the road to

recovery. *Convalescence:* The patient should be kept in bed from three to ten days after the fever disappears, according to the severity of the case.

A good tonic for convalescence is one composed of quinine hydrochloride, one quarter to half a grain, dilute hydrochloric acid, about ten minims, tincture of nux vomica, five to ten minims, made up with essence of pepsin to one dram, given after meals.

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THE death rate from tuberculosis in 1918 continued to decline, the rate being 187.4 as compared with 188.9 in 1917. There has been a decrease in the annual death rate, without exception, since 1911, when the rate was 224.6 per 100,000. The reductions in the rate since 1916 have been much smaller than the preceding years; 1.3 per 100,000 in 1917 and 1.5 per 100,000 in 1918, as compared with 11.7 per 100,000 in 1912. Since 1911 the total reduction in the tuberculosis death rate has been 37.2 per 100,000 or 16.5 per cent. of the 1911 rate. One death in every six from tuberculosis has been either prevented entirely or delayed. The improvement in 1918 as compared with 1917 would have been much greater but for the last three months of the year. In the first nine months, the 1918 rate was seven per 100,000 lower than the 1917 rate; but for the last three months, the rate was 15.8 per 100,000 higher than the 1917 rate. The tuberculosis death rate usually drops considerably in the last quarter of the year; but in 1918, probably because of the influenza epidemic, the decline was slight in amount. Similar conditions are found in the figures for both the State and city of New York. There was some fear that war conditions would result in an increase in the death rate of tuberculosis, but apparently this has not occurred.