

INFLUENZA IN SAMOA: *Value of Vaccines*

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In a note published in the *Medical Journal of Australia* (1919, vol i, p.359) Surgeon Lieutenant Francis Temple Grey, R.N., M.B.Syd., who was the officer commanding the Samoa relief expedition, 1918, states that the epidemic arrived from New Zealand on November 7th, 1918, when natives from different parts of the group had assembled in Apia to meet friends coming from New Zealand; they went on board and carried the infection to the most distant parts of the group. The incubation period was 2 days; the scourge reached its height on the tenth day. The ages most affected were from 18 to 35 and the old. The mortality was greater among men than among women—in the proportion of 15 to 13. The incidence among the natives was 80%. Out of a population of 36,405 the deaths numbered 7,264. Surgeon Lieutenant Grey attributes the mortality partly to the fact that the natives, though apparently of fine physique, have generally a poor chest expansion, and to their habits. The native house has a raised floor of coral and lava pebbles, a thatched roof supported on poles and no walls, but at the beginning of the epidemic, when a native fell ill he lay down in his hut, and his family, having pulled down the blinds, which are normally only lowered in wet weather, lay down with him in sympathy. When the fever was at its height, on the third day, the natives cast off their clothes, pulled the blinds up, and many of the men went into the sea to cool themselves. This was often followed by pneumonia, although, except in children, few cases, even with precautions, escaped bronchopneumonia. At the height of the epidemic many lives were lost owing to want of food consequent on the cessation of its collection. On December 8th, 1918, food collection was resumed, and the decline of the epidemic was popularly dated from that. Bronchopneumonia and pneumonia were considered to be part of the disease rather than complications, for only 5% adults escaped one or the other. Bronchopneumonia usually set in on the fourth day and in fatal cases there was marked dyspnoea, cyanosis and delirium. Among the whites the incidence was put at 60%, and the case mortality at 2%.

We have received from Surgeon Captain E.T.P. Eames, R.N., Director of Medical Services, Australia, a copy of a note by Surgeon Lieutenant Grey on compulsory inoculation against Spanish influenza. The writer, as stated above, was in charge of the expedition sent to combat an epidemic in British Samoa, where he had an opportunity of witnessing the behaviour of the disease on virgin soil. The full dose of the vaccine used by him contained 125 millions of *Micrococcus catarrhalis*, and 50 million each of pneumococcus, streptococcus and a Gram-positive diplococcus. His experience showed Pfeifer's bacillus to be unnecessary as a constituent of a vaccine directed against the epidemic. Immunity begins to

“peter out” after the fifth week, and he gave a full dose (50 million pneumococcus and streptococcus) every 5 or 6 weeks. Only the mildest reaction was observed. He did not inoculate children or the old, unless requested, as they appeared to have relative immunity.

He recommends compulsory inoculation on the first signs of the appearance of an epidemic influenza, and that the inoculations should be repeated every month or six weeks. He claims that this will decrease the incidence of the disease, mitigate its severity, and reduce the mortality to a low figure.

He advances the following evidence:

1. The entire ship's company of the man-o-war which took my expedition to the islands was inoculated. Communications with the shore at the various ports was, as far as possible, avoided, but this ideal was not entirely attained. Not one case developed.

[The ship returned to Australia in February, 1919 and in the middle of March an epidemic broke out, producing by the end of the month about 100 cases, without any deaths. He considers that this is evidence that inoculations made at the end of November and December gave immunity up to the middle of March and rendered the disease when it broke out, non-fatal.]

2. Every member of my expedition was inoculated at least four times in three months. Not a single case developed although the risk of infection was no small one when it is remembered that in Samoa alone one fifth of the entire population was wiped out by the scourge. Two officer had an illness of four to five days not as severe as the so-called influenza of normal times.

3. An interesting experiment to test the efficacy was provided by the Governor of American Samoa, who sent, against the wishes of British Samoa, forty natives from Pago Pago (a clean port) to Apia during the progress of the epidemic. These were isolated, inoculated and not released until judged to be in a positive phase. Not one contracted the disease, and the Secretary of Native Affairs, who knew their names and villages, reported all clear after a lapse of one month.

4. Ship's company and passengers of the steamer which brought the expedition from Suva to Sydney were inoculated without exception. We anchored in quarantine in Sydney, and on the second day a case was taken ashore. We remained on board, quarantined another week. Although the ship was very overcrowded, not another case developed.

5. The naval depot at Williamstown contains a floating population of about 500, half of whom live on shore, and the rest, of course, have a fair amount of shore leave. All hands have been inoculated twice in the last three months. Down to March there had been only fifteen cases, all mild except two, and no deaths. In March an influenza epidemic broke out in the naval depot characterized by high infectivity, extraordinary mildness, and an average age incidence of 18.5; it caused 100 cases within a fortnight, but it was not clear that it was true influenza.

From the beginning of the year to the date of the note (June 20th, 1919) 2,875 ratings were victualled at the depot. There were 345 cases of influenza, five with pneumonic signs, but no deaths.