

REACTIONS TO ANATOXIN INJECTIONS.

In considering anatoxin reactions immediate fainting from nervous strain is excluded. This happened every now and then, to a total of 0·4 per cent. in the series immunized.

Immediate general reactions occurred in thirty-four children in the 6,585 immunized, or 0·5 per cent. They may occur within a few minutes after first, second, or third injection of anatoxin. The child looks pale as though about to faint, but does not faint. The pulse is slow and weak, later irregular. The child is conscious throughout, complains of feeling cold, but of nothing else, except occasional nausea without vomiting. There may be muscular twitchings sometimes. The attack lasts anything up to thirty minutes, usually about fifteen minutes. Adrenalin was always given, and repeated if necessary, together with shock treatment. Recovery was universal.

Rashes originating from the injection site, with joint pains, and once with high temperature, occurred in 5 children, 0·07 per cent., usually about the seventh day following injection.

Local reactions, an area of erythema, swelling, and tenderness at injection-site (less than 3 in. in diameter), occurred in 12·1 per cent of those receiving injections. Local reactions more than 3 in. in diameter occurred in a further 5·1 per cent, the total reactions being 17·2 per cent.

General reactions up to twenty-four hours after anatoxin injections occurred in 9·4 per cent. of children immunized. They consisted of headache, nausea, or vomiting, anorexia, and sometimes pyrexia coming on a few hours after the injection was given. Compare this 9·4 per cent. general reactions in school-children with the 1·7 per cent. pre-school general reactions mentioned previously. The situation is difficult, as parents dislike having their pre-school children submitted to injection treatments, and yet this is the age when protective treatment is not only most needed, but also most easily sustained.

FOLLOW-UP OF DIPHTHERIA-IMMUNIZATION CAMPAIGN.

First Re-Schick Testing Results.

Towards the end of 1936 a small outbreak of diphtheria resulting in two deaths occurred in the country town of Pio Pio ; accordingly it was decided to offer immunization to the children attending the local school, and 149 children were immunized. These children received a three-injection course of treatment, whereas the children attending a neighbouring school received two injections only.

Six months later the children from both schools were Schick tested :—

—	No. Retested.	Secondary Schick +	Schick +ve. after.			Reduced Doses.
			Three Doses.	Two Doses.	One Dose.	
Pio Pio	89	5	1	1	1	2
Kohua Road	25	6	..	6

The results indicated the advisability of giving the three-injection course. Prior to the retesting of these country schools the children attending the Hamilton schools had been offered immunization, and the consents had been given the two-injection course as recommended by the Commonwealth Serum Laboratories. This group of children constitutes Series I in this paper. As a result of the retesting of the above small country schools it was decided to give the remaining schools in the South Auckland district a three-injection course of immunization. This group of children constitutes Series II.

Results of Secondary Schick Testing in 1937 and 1938 Campaign.

Three to six months after receiving their final injection 2,050 originally Schick positive children were re-Schicked, and the following results obtained :—

—	1937: Primary Schick Positives.	1938: Secondary Schick.		
		Tests.	Positives.	Percentage.
Series I: Two and less doses	847	568	186	32·7
Series II: Three and less doses	2,190	1,482	125	8·4

Series I were proceeded with on the strength of the Commonwealth Laboratories statement that 90 per cent. of persons receiving two doses of $\frac{1}{2}$ c.c. and 1 c.c. anatoxin at three-weekly intervals will be immunized. In our experience only 73·8 per cent. gained immunity with two doses ; the balance of the campaign was worked on a three-dose basis, and this achieved 98·1 per cent. immunity.

Comparison of Efficiency of Two and Three Doses Anatoxin.

—	Primary Schick Positive.	Secondary Schick.	
		Positive.	Percentage.
Series I: Two injections anatoxin $\frac{1}{2}$ c.c. and 1 c.c.	380	100	26·2
Series II: Three injections anatoxin $\frac{1}{2}$ c.c., 1 c.c., and 1 c.c.	941	18	1·9