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TRIENNIAL REPORT

ON

VACCINATION IN ASSAM



FOR THE YEARS



1911-12, 1912-13 & 1913-14.

BY

THE HON'BLE COLONEL H. E. BANATVALA, I. M. S., SANITARY COMMISSIONER, ASSAM.



SHILLONG

PRINTED AT THE ASSAM SECRETARIAT PRINTING OFFICE.

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TRIENNIAL REPORT

ON

VACCINATION IN ASSAM

FOR THE YEARS

1911-12, 1912-13 and 1913-14.

As vaccinations are performed in the hill tracts and in the Manipur State, the statistics in this report include those concerning the population of those regions, and are based on the total population of the Province of Assam according to the Census of 1911, viz., 7,059,857.

2. Almost all vaccination operations in the province are performed by departmental vaccinators. In tea gardens vaccination operations are performed by tea-garden medical officers.

In the first year of the triennium under review there were 331 vaccinators, in the second 330 and in the last 313. The average number of persons vaccinated by each vaccinator was 914 in 1913-14, against 964 in 1912-13 and 877 in 1911 12.

3. Of the 333,649 vaccination operations performed during the year 1913-14,

Total number of operations.

301,241 were primary vaccinations, and 35,408 re-vaccinations, against 333,363 with 198,983 primary vaccinations and 34,380 re-vaccinations in 1912-13, and 305,845 with 290,915 primary vaccinations and 14,930 re-vaccinations in 1911-12.

During the triennium 1911-12, 1912-13 and 1913-14, the total number of vaccination operations performed were 975,857, against 503,061 in the previous triennium, showing an increase of 172,796 cases, which is satisfactory. In 1902-05, the number of operations performed was 881.025 and the number of cases vaccinated in the triennium under review compares favourably with the numbers in 1902-05. The variations in the district figures are discussed in section 8.

4. The ratio of deaths from small-pox per 1,000 of population during the year 1913

Mortality from small-pox.

was '40, against '67 in 1912 and '35 in 1911. In each
year of the triennium the highest rate was recorded in
Kamrup. Vaccination has been vig rously pushed in this district, and this resulted
in an increase of 36,077 operations during the triennium under review, as compared
with the previous triennium.

No widespread epidemic of small-pox was reported in any district. In 1912-13 the disease prevailed in certain parts of the Sylhet district, but its progress was arrested by activity in carrying on vaccination operations in affected areas. The Civil Surgeon, Goalpara, reports an outbreak of small-pox in 1913-14 from Lakhipur, Dudnai, Sidli (Circle III), Guma, and certain parts of Bilasipara thana. Extra vaccinators were appointed and vaccination was continued during the off season.

The diagram showing death rates from small-pox and the protection afforded by successful vaccination is attached.

- 5. During the year 1913-14, 1,324 vaccination operations were performed by the dispensary staff, against 1,590 in 1912-13 and 1,678 in 1911-12. The areas round dispensaries reserved for the dispensary staff were opened to the departmental vaccinators in 1908-09 and dispensary vaccination is now confined to the hill districts. A small quantity of lymph is kept in certain dispensaries in the plains for those who prefer to be vaccinated by this agency.
- 6. The percentage of success of operations performed by all establishments combined was 98.41 in the case of primary vaccinations and 78.15 in that of re-vaccinations in 1913-14, against 97.91 and 73.99, respectively, in 1912-13 and 98.14 and 80.98, respectively, in 1911-12.

The successful percentages in primary vaccinations and re-vaccinations in the case of vaccinators were 98:47 and 78:11, respectively, in 1913-14, against 97:92 and 73:01, respectively, in 1912-13 and 98:19 and 80:28, respectively, in 1911-12. In the case of the dispensary staff the percentages of success were in 1913-14, 93:26 and 88:47, respectively, against 96:20 and 75:41, respectively, in 1912-13 and 97:54 and 94:87, respectively, in 1911-12; and in the case of other agencies 97:17 and 71:89, respectively, in 1913-14, against 97:46 and 84:49, respectively, in 1912-13, and 97:28 and 83:33, respectively, in 1911-12

Persons successfully vaccinated per 1.000 of population during the year 1913-14 were 45.59, against 44.57 in 1912-13 and 41.85 in 1911-12. I am unable to accept the 100 per cent. of success in re-vaccination operations reported from certain districts.

7. During the triennium all vaccinations were performed with glycerinated

Different methods of vaccina. lymph manufactured by the Vaccine Depôt at Shillong.

tion.

8. The subjoined table gives an idea of the progress male in vaccination in the districts of Assam year by year. By comparing the work of the triennium under review with that of the previous triennium we find that there was an increase in eight districts and a decrease in four. The increase (1,22,141) is most marked in Sylhet, in which a steady increase has been maintained since 1911-12. As remarked in the report in 1912-13 small-pox broke out in the subdivisions of Habiganj, Sunamganj and North Sylhet in this district and a large number of operations were performed in that year. The Civil Surgeon made an experiment to work the district with licensed vaccinators and 11 licenses were issued, but as the experiment was not successful, licensed vaccinators will not be appointed in Sylhet in future. The reasons for the lack of success of this agency appear to be that much difficulty is experienced by vaccinators in realizing fees from the people. The Civil Surgeon in his report acknowledges with appreciation the assistance received from the district executive in combating popular opposition to vaccination. The next highest increase (36,077) is reported in the district of Kamrup. The "Mahapurushias" of this district object on religious grounds to accept vaccination, but their prejudice is being slowly overcome. 20,667 of them have been vaccinated during the triennium under review against 4,013 in the previous triennium. The Civil Surgeon remarks that personal influence is of great value in overcoming this opposition. Nowgong reports an increase of 9,615 operations. The attention of the district authorities was drawn to the very unsatisfactory state of vaccination in this district last year: 8 additional vaccinators were sanctioned by the Local Board and 13,380 operations were performed in 1913-14, which is the highest in record for the last 15 years. This very satisfactory increase is due to the efforts of the Civil Surgeon, Lieutenant Charles Bancroft, energetically supported by the district executive authorities under the Deputy Commissioner, Mr. J. A. Dawson, I.C.s. Cachar follows with an increase of 7,709 operations. Rai Sahib Behari Lal Dhar, Deputy Inspector of Schools, rendered very considerable help to the Civil Surgeon in pushing on vaccination in his district. The increase of 5,946 operations in the Garo Hills is satisfactory. The number of operations performed in 1913-14 is reported to have been double that of 1912-13. The figures are obviously so large for this small and sparsely populated district that I am not satisfied as to their correctness, and I am enquiring into the matter. If accepted as correct they mean that in a district well known for its want of communications and with a density of population of 50 persons per square mile the average number of operations performed by each vaccinator was 4,000, as against the Sylhet district with a density of 458 persons per square mile and an average of 1,444 operations for each vaccinator. The Civil Surgeon reports that people were under the impression that a single vaccination in infancy is sufficient protection for life, but when it was explained to them that vaccination to be effective must be repeated every 6 or 7 years, a large number of re-vaccinations were performed. The Civil Surgeon of Darrang remarks that vaccination is progressing slowly and he believes that the people now understand its benefit. The prejudices of the Miri sect who were formerly opposed to vaccination are now being overcome. A decrease of 6,699 operations in the Khasi and Jaintia Hills district during the triennium as compared with the number of the previous triennium is partly due to the abnormal activity displayed in 1908-09; but in view of the fact that the vaccinating staff was strengthened by 5 additional permanent vaccinators and one additional Sub-Inspector of Vaccination in October 1911, more activity should have been displayed. The decrease of 7,228 operations in the district of Sibsagar during the triennium is said

to be due to the absence of small-pox in epidemic form. This is probably more or less correct, as the district organisation is a good one, but the decrease in the number of operations performed should be noted and checked.

The statement showing the total number of persons vaccinated by all agencies viz., Vaccine Department, Dispensaries, tea gardens and Railway Vaccinators, during the Triennia 1908-11 and 1911-14.

Dist	tricts.		Population.	1909-09.	1903-10.	1919-11.	Total of the	1911-12,	1912-13.	1913-14.		Differ	rence.
							triessicm.				triennium.	Increase.	Decrease
4-11	1		,	3	4	5	6	7	8	9	10	11	13
Cachar			4,97,453	17,873	16,075	17,559	61,537	17,425	18,987	22,834	19,343	7,700	
			2,472,671	89,318	81,830	86,901	259,080	115,257	143,779	121,794	350,530	192,741	
Khari and Ja		Hills	235,069	21,838	9,385	5,685	36,038	7,953	12,216	10,032	80,230	100	6,609
Naga Hills			149,623	5,151	5,473	5,805	16,431	5,144	5,047	6,774	17,567	1,135	
Lushai Hills		300	91,004	3,983	3,294	3,491	10,767	8,453	3,522	4,004	11,279	512	-
Goalpara		-	600,643	22,175	27,458	21,733	70,305	23,773	21,272	24,600	69,674	100	72:
Kamrup .			607,828	33,671	20,882	28,56)	90,113	40,537	41,691	43,959	190,190	36,077	
Darrang		444	377,314	10,674	8,143	11,593	30,409	11,626	11,673	11,991	35,290	4,881	***
Nowgong .		***	303,506	5,913	5,103	8,781	19,797	9,005	7,027	13,380	29,412	9,615	
Sibsagar			690,200	26,613	23,283	24,002	72,925	24,431	20,501	20,768	65,700		7,228
Lekhimpur			455,980	19,193	19,826	18,722	57,740	18,230	19,894	17,503	56,548		1,193
iaro Hills		101	158,996	15,650	17,833	13,977	45,850	115,495	13.004	24,217	\$2,508	5,945	***
Manipur .	-		342,622	19,023	13,589	13,945	41,057	13,477	13,817	13,780	41,076	19	
Potal of the P	rovino		7,059,857	255,163	260,205	257,633	803,061	303,845	833,163	338,649	975,857	188,636	15,840

9. Consequent on the territorial redistribution effected on the 1st April 1912, the
vaccination inspecting staff was allotted to Assam accords
ing to their distribution in different districts at the time
the inspecting staff.

of the change without reference to their grades. A
revised gradation of the inspecting staff was therefore proposed and sanctioned witheffect from 1st April 1913. The pay and grading of the staff, as sanctioned, is as
follows:—

		Inspectors.	N	lamber.	Rate of pay.
First grade	 			2	50
Second grade	 			2	45
Third grade	 			4	40
		Sub-Inspector	·.		
Senior g rade	 			6	80
Junior grade	 			14	25

The above provides for three supernumerary junior grade Sub-Inspectors to act in vacancies caused by leave or sickness.

Verification by the Inspecting and 2.71 per cent. of the primary vaccination and re-vaccinations during the year 1913-14, against 5.54 and 2.45, respectively, in 1912-13 and 7.08 and 4.1, respectively, in 1911-12. In the triennium 1902-03 to 1904-05 the average percentage number inspected by Civil Surgeons was 9.22 and 3.69; and from these figures it appears that the amount of attention given by Civil Surgeons to these inspections is decreasing. The subordinate inspecting staff inspected 51.44 and 42.87 per cent. of the primary vaccinations and re-vaccinations during the year 1913-14, against 60.26 and 49.80, respectively, in 1912-13 and 58.10 and 36.59, respectively, in 1911-12. The Deputy Sanitary Commissioner inspected 3,122 cases of vaccinations in various districts.

The following table shows the successes claimed by vaccinators for primary and secondary operations and those found on inspection by the inspecting staff and Civil Surgeons:—

Vaccin	nators.	Inspection	ng staff.	Civil Surg	geons.
Prinary.	Revaccination.	Primary.	Revaccination.	Primary.	Revaccination,
98-47	78-11	92.83	61.53	97.07	64.39

11. In towns in which compulsory vaccination is enforced, 1,843 infants under one year of age were successfully vaccinated during 1913-14, against 1,294 in 1912-13 and 1,530 in 1911-12.

The percentage of infants successfully vaccinated to total number of infants available for vaccination was 78.2 in 1913-14, against 62 per cent. in 1912-13 and 79 per cent. in 1911-12.

During the year 1913-14 almost all available infants were vaccinated in the towns of Goalpara, Golaghat, Shillong and Dibrugarh. 93 per cent. of the available infants were vaccinated in the town of Tezpur, in Nowgong 87-3 per cent., in Sylhet 82-8 per cent., in Dhubri 78-4 per cent., in Jorhat 71-5 per cent., in Sibsagar 61-2 per cent., in Silchar 51-8 per cent., in Gaubati in 46-6 per cent., and in Habiganj 4-7 per cent.

Last year the attention of Civil Surgeons was drawn to the unsatisfactory state of infant vaccination in compulsory areas and the inspecting staff was directed to obtain from the registrars of births a list of the names and addresses of all children born within their registration circles and to follow the history of each child carefully until it is successfully vaccinated. The town of Silchar is not well protected. The Civil Surgeon points out that the existing arrangement under which the vaccinator does the work of a clerk and of a typist in the Municipal Office is not satisfactory, and he recommends that a whole-time vaccinator be appointed. The attention of the Chairman will be drawn to this. During the year 1913-14, 53 notices were issued to parents and guardians of children in the town of Silchar, 8 persons were prosecuted and 1 was convicted. The remaining 7 were discharged on condition that they would have their children vaccinated. In the same town 29 persons were prosecuted and 22 convicted in 1911-12 and 1912-13. The Bengal Vaccination Act, V of 1880, was extended to the Municipality of Habiganj in December 1913, a Municipal vaccinator has been appointed, and it is hoped that protection will be afforded to all infants next year. From January to March 90 primary vaccinations and 56 revaccination operations were performed in this town.

Notices under the Act were served on defaulters in the towns of Dhubri and Goalpara, and as a result of this the objectors yielded to vaccination. In the town of Gauhati in 1913-14 out of a recorded birth-rate of 287 and an infant mortality of 38, only 116 children were vaccinated out of 249 who should upon theoretical calculations have been vaccinated. The attention of the Civil Surgeon was drawn to this failure to carry out infant vaccinations, and it was pointed out that if the defect was not remedied forthwith it would have an adverse effect on the health of the people. The attention of the Civil Surgeon will again be drawn to this subject. The Deputy Sanitary Commissioner has noted a reluctance on the part of the public to aid the inspecting staff in verifying the results of vaccination work in this town, and it appears that the importance of efficiency in this department of work is not sufficiently realised.

In 1911-12, the Imperial Vaccination Act, XIII of 1880, was replaced by the Bengal Vaccination Act, V of 1880, in the Sylhet, Gauhati, Dhubri, Goalpara, Nowgong and Dibrugarh Municipalities. The Bengal Vaccination Act, V of 1880, has not yet been extended to the Municipalities of Sunamganj and Karimganj and the Union of Maulvi Bazar, and this should be done at an early date.

12. The total number of capillary tubes loaded at the Animal Vaccine Depôt at Shillong with lymph was 1,875,886 in 1913-14 as compared with 1,819,859 in 1912-13 and 1,716,938 in 1911-12. S92 calves were inoculated in 1913-14 as compared with 962 in 1912-13 and 917 in 1911-12. The average cost of manufacturing lymph per tube during the year 1913-14 was 2·1 pies as compared with 2·4 pies in 1912-13 and 2·05 pies in 1911-12.

The cost of the Depôt during the past three years is shown in the accompanying table :-

18 11 1	19.5	William S	1911-1	2.	1	1912-1	3.	1	1913-1	4.	
1	10 30	mup 14	2		1	3		1	4		
100000000000000000000000000000000000000		g-lame l	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.
Establishment			4,461	7	6	4,191	11	7	4,777	4	9
Purchase of calves			7,504	0	0	8,568	0	0	8,029	0	(
Purchase of vaccine tubes			8,788	3	0	7,535	8	0	5,6,7	4	(
Miscellaneous		Condition!	2,714	7	5	2,649	3	9	2,554	4	
Total			23,438	1	11	22,944	7	4	20,977	12	1

Major H. Innes, I.M.s., was in charge of the Depôt throughout the triennium except a short period from the 18th February 1914 to the 31st March 1914, during which period Major L. B. Scott, I.M.s., held charge. The subordinate charge of the depôt was held throughout the triennium by Sub-Assistant Surgeon Rai Sahib Kamal Charan Datta. This depôt still continues to supply lymph to the Eastern Bengal districts. The quality of the lymph is generally reported to be excellent.

13. The total cost of the department for the year 1913-14 was Rs 64,426-4-4, as against Rs. 66,342-10-8 in 1912-13 and Rs. 64,501-6-1 in 1911-12. Of the total expenditure of Rs. 64,426-4-4 during the year 1913-14, Rs. 43,202-14-5 were paid from provincial revenues, Rs. 19,273-15-1 from local funds, Rs. 1,089-13-10 from municipal funds and Rs. 859-9-0 were contributed by the Manipur State. The average cost of each successful vaccination was Re. 0-3-4 in 1913-14 as compared with Re. 0-3-6 in 1912-13 and Re. 0-3-8 in 1911-12.

14. The total number of vaccination operations performed on tea estates was 11,662 in 1913-14, as against 12,504 in 1912-13 and 13,525 in 1911-12. In 1913-14, 847 operations were reported to have been performed in jails and lunatic asylums and 88 on the line of Eastern Bengal State Railway in the district of Kamrup.

The Deputy Sanitary Commissioner reports (I) that in the course of his inspection of rural vaccination work, numerous cases of falsification of returns by vaccinators have come to his notice. It appears to be a general practice throughout the Assam Valley Districts, for vaccinators to enter the number of insertions made by them in the column showing the number of points successful and they do not appear to make any effort to verify the result of their operations, with the result that nearly all their work shows 100 per cent. of successes. The only check on these returns is the verification performed by the inspecting staff, who cannot, however, inspect the entire work of the vaccinators. The percentage of successful results reported is therefore higher than is in truth correct. The Deputy Sanitary Commissioner, out of 3,122 operations and entries verified, found a percentage insertion success of 95.57.

The remedy for this falsification of returns is to insist on the inspecting staff reporting to the Civil Surgeon all vaccinators who show successful returns against cases of failure, and to dismiss those who deliberately fudge their returns.

(II) That the order by which vaccinators should leave Form I—the village register of vaccination—with the gaonbura on completion, is rarely observed, and this gives rise difficulty in inspecting vaccination when the vaccinator is working elsewhere. Civil Surgeons should see that this order is carried out.

He suggests that it is a question whether the system of employing licensed vaccinators is suitable for Assam, and that it is probable that better results would be obtained were only paid vaccinators employed.

He has observed that when licensed vaccinators and paid vaccinators are working in the same district, as in Kamrup, the temptation to the paid vaccinator to extort payment to which, unlike the licensed vaccinator, he is not entitled, is considerable. The result of the dual system is that in some cases the people refuse to pay the licensed vaccinator the fees to which he is entitled, while in other cases, the paid vaccinator extorts fees to which he has no claim.

The Civil Surgeon of Goalpara has drawn attention to a misunderstanding of the meaning of Form 2—Village register of vaccination. It is commonly assumed that column 14, successful in one point, refers to the success of the vaccination operation as a protection against small-pox, whereas the entry only refers to the insertion success. Vaccination operations showing less than two successful points of insertion should not be shown in Form 6 or Form 39 among successful operations.

He also draws attention to the insufficient number of insertions frequently made. There is little doubt that the tendency in Assam is to accept too few a number of insertions as a satisfactory protection against small-pox. Civil Surgeons should instruct their district vaccinators that insertions in one point only are to be shown in form 6 as failures and that they should endeavour to vaccinate in three or in four points whenever possible. Success in this direction might be considered in allotting rewards to vaccinators.

15. The prescribed statements are appended to these notes.

H. E. BANATVALA, Col., I.M.S., Sanitary Commissioner, Assam.

The following diagram illustrates the death-rates from small-pox in each district side by side with the proportion of the population protected against the disease by vaccination during the seven years 1907-1908 to 1913 1914.

to 1913 19)14.								
Propertion of doubs from small-pox yer 10,000 of population.	Cachar.	Sylhet.	Goalpara.	Kamrup.	Darrang.	Nowgong.	Sibragar,	Lakhimpur.	Propertion of gonu- lation protected per 10,000.
1	2	3	•	5	6	7	8	9	10
19°00 18°00 17°00									4,500 4,500 4,600
16:00				1		1			
15:00				- /					4,300
14:00								13/1/3	4,200
13:00									4,100
12:00			11						4,000
11:00									3,990
				-	-			1-	3,800
1000				1					3,700
9-00	-				-				3,606
8-00					-				3,500
7-00									
6.00									3,400
5-00							-		3,900
4-00		1					-		3,200
3.00						1			3,100
								-	3,000 2,900
1:00		,					1		2,900
-90								-	2,700
-60			-						2,500
-70									2,400
-10									2,300
*40									2,200
. 30	1								2,100
-19									1,900
-18						1		-	1,800
*17									1,700
-16									1,500
*14								-	1,400
-13									1,300
-12									1,100
*10	The state of the s							-	1,009
**00								-	900 809
*08									700
101								-	60%
*00	-								500
104									400 300
-03 -(2								-	200
*01		-				-		-	100
0		+1-1	+	+		1			0
	Kree-Elsek	lines indicate	death-rates fro	om small-pos.					

Note. Black lines indicate death-rates from small-pos. Red lines indicate the proportion of population protected by vaccination.



STATEMENTS Nos. I-VII.

Statement No. I-Showing particulars of Vaccination in

No.	District.	Population of district according to the census of 1911.	average population per square mile.	Average number of vaccinators employed throughout the season.	Total	number of p vaccinated.	eracus	Average number of persons vaccia- ated by each vaccinator.	Total.	Primary
1	2 .	3	4	5		6		7	8	,
	SURMA VALLEY AND HILL DISTRICTS.		1		Male,	Female.	Total.			
2 3	Cachar By paid vaccinators Sylhet By paid vaccinators } Khasi and Jaintia Hills By paid vaccinators.		139 458 40	22 80 4 9	11,001 60,633 1,408 4,833	9,508 54,913 1,399 5,199	20,503 115,546 2,807 10,032	1,444	17,997 101,667 2,805 7,63	1,666 8,258 448 1,646
5	Naga HillsBy paid vaccinators Lushai HillsBy paid vaccinators	149 623 91,204	48 12	5 5	3,279 2,255	2,9 7 1,413	6.206 3,698		5,479 3,108	
	Total of Sur- ma Valley and Hill Districts, By licensed vaccinators	3,446,030	136	{121 4	82,001 1,408	73,984 1,399	155,985 2,807		135,884 2,805	12,519 448
	Assam Valley Districts.									
6 7 8 9 10 11 12	Gealpara { By paid vaccinators } By licensed vaccinators } Kamrup { By paid vaccinators } By paid vaccinators } By paid vaccinators } By paid vaccinators Nowgong By paid vaccinators } By paid vaccinators } By paid vaccinators } By licensed vaccinators } By licensed vaccinators } By licensed vaccinators } By licensed vaccinators } By paid vaccinators }	600,643 667,828 377,314 303,596 690,299 468,989 158,936	151 { 173 { 110 79 138 { 103 { 50	2 26 46 36 16 25 23 11 14 14 6	296 12,591 17,876 5,227 6,238 6,657 7,139 2,727 4,455 3,012 13,999	180 11,534 15,860 4,515 5,648 6,224 6,562 2,510 4,215 2,783 10,030	476 24,125 33,736 9,742 11,886 12,881 13,700 5,237 8,670 5,795 24,029	928 734 271 743 515 596 476 619 414	320 22,514 31,507 9,460 11,433 12,799 13,572 5,235 8,609 5,761 14,918	242 8,982 7,976 2,397 2 078 3,952 3,622 1,664 2,094 657 13,096
	Total of Assam Valley Dis- tricts. By paid vaccinators By licensed vaccinators	3,267,605	118	132	56,659 23,557	48,719 21,342	105,378		93,158 42,970	
13	Manipur By paid vaccinators	346,223	41	9	7,098	6,561	13,659	1,518	13,6/6	11,611
	Total Vac. By paid vaccinators		ſ	263	145,758	129,264	275,022	1,050	242,668	57,190
	eine Depart- { By ticensed vaccinators }	7,059,657	115	91	24,965	22,741	47,706	524	45,775	
1	Total Dispensaries			353	170,723	152,005	322,728	914	288,443	71,338
	Total Sailways		***	****	88	***	1,324	***	1,005	230
	Total tea gardens by garden agencies				5,868	5,794	11,662		11,092	5,483
	Total Jails and Lunatic Asylums				845	2	847		613	0,400
-	Grand total	7,059,857	115	353	177,524	157,801	336,649		301,241	77,051

Sum

	Total number of	persons vaccinated,	Total number of op	otal number of operations performed			
	Primary,	Re-vaccinations,	Primary.	Re-vaccinations.			
1	3	3		5			
By dispensary staff (Statement III)	288,443 1,005 11,793	319	288,443 1,005 11,7#3	34,285 319 804			
Total	301,241	35,408	301,241	35,408			

DEPARTMENT.

Assam during the year 1913-14.

vaccination			Re	-vaccination-		Percentage	e of success-	Insted	Percent	age of un-	Average annual ber of person		number	annual of deaths
Baccensfe	al.					results we	n which the	Illy vacculation.	total	cases to	fully vaccinating provious fi	ed dur-		mall-pex previous rears.
Over one and under six years.	Total of all ages.	Unknown.	Total.	Successful,	Unknown.	Primary.	Be-vaccination.	Persons successfully vaccinated per 1,030 of population.	Primary.	Re-racellation.	Number.	Ratio per 1,000.	Number.	Batlo per 1,000.
10	11	19	13	14	15	16	17	18	19	20	21	23	23	24
111	-	194		1			1							
13,603 68,936 1,992 4,264	17,756 100,456 2,403 7,530	24 42	2,506 13,879 2 2,399	1,799 10,367 1 1,598	37 91	98:79 98:80 85:63 99:20	- 72*86 74*70 50*00 69*23	39:31 45:79 38:83	{··· -55	1.48	3 97,527 10,476	39-44	7 863 48	*01 *34 *20
3,649 2,250	5,230 2,806	47 253	727 520	507 870	25 93	98-23 83-92	72·32 74·45	29:05 20:33	-86 8-14	3:58 15:76	4,678 2,641	31·23 28·95		
92,702 1,992	19 3 ,474 2,402	366	20,101	14,611	2 7	98:49 85:63	73-74 50-00	3-68	{*26	1.23	} 130,889	37:98	918	-26
64 10,833 21,195 5,321 9,195 7,444 8,111 3,152 5,828 4,645 1,454	315 21,8 11 31,171 9,3: 9 11,274 12,789 13,447 5,210 8,466 5,593 14,500	141 7 2 43 2, 50	156 1.611 2,229 282 453 82 128 2 61 34 9,111	93 1,159 1,524 229 234 65 109 2 39 29 8,138	22 71 18 2 8 1 5 242	98:44 97:02 98:95 99:28 98:61 99:93 99:08 99:52 98:83 98:85 97:86	69:40 75:26 68:93 81:79 52:58 79:27 8:83 100:00 69:64 85:29 91:76	39-97 63-37 30-50 42-34 27-19 30-84 142-75	61 62 62 63 63 63 63 63	14·10 4·41 ·80 71 1·77 ·78 8·20 2·66	} 22,076 } 32,419 9,474 6,421 } 19,292 } 14,391 14,053	48·45 25·10 21·14	299 740 277 479 177 20 18	'49 1'10 '73 1'57 '25 '04
53,502 23,951	92,012 42,143	100	12,520	10,203	295 79	98:87	85·55 76·70	44:61	(.33	2:43	118,126	36.15	2,010	-61
732	12,343	1,072	33	33		93:32	100.00	35.74	7.87		11,251	32-49		
147,026 25,943 172,969	237,829 44,545 282,374	1,538 145 1,683	32,354 1,981 34,285	24,876 1,420 26,296	543 79 623	98-63 97-62 98-47	78:17 76:67 78:11	3.72	\$\frac{.63}{\$\cdot .58}\$	1:67 4:09 1:81	260,266	36.85	2,928	·dI
613	900	+40	319	261	24	93-26	88.47		3.98	7.52	2,528			
	73					82-95								
4,719	10,901	25	570	899	14	98.20	71.76		.22	2.45	11,059			
	486		234	179	23	79:28	86-89			11.96	400			
178,301	294,734	1,748	35,408	27,135	688	98-41	78.15	45-59	.28	2.70	274,253	28.34	2,928	-41

mary.

eases in wh were k		Vaccinate	her of persons 'd by each nator.	Number of successfully v		Ratio of suc- cessful vac- cination p.r	Total cost of Department,	Average one: o
Primary.	Re-vaccina-	Vaccinators employed.	Persons vacci- anted by each vaccinator.	Under one year.	One and under six years.	1,000 of po- pulation.	are positioned.	esse.
6	7	8	9	10	11	13	13	14
98·47 93·26 97·17	78:11 88:47 71:89	353	914	71,338 230 5,483	172,969 613 4,719	43-72	Rs. a. p 64,426 4 4	Rs. s. 0 3
98-41	78-15	353	914	77,051	178,301	45.59	64,426 4 4	0 3

Statement No. II-Showing the cost of Vaccination in

			leve-											Expen
No.	District.	European supervising officer.	Pay.	Native supervising officer.	Fay.	Paid vaccinators.	Pay.	Leensed vaccinators.	Pay.	Clerks.	Pay.	Peons, etc.	Pay.	Total pay of establishment,
1	3	3	4	5.	6	7	8	9	30	n	12	13	14	15
			Re, a. p.		Rs. s. p.	- 199	Rs. a. p.		Bs. a. p.	-	Rs. a. p.		Rs. a. p.	Rs. a. p.
1	Cachar	331		2	787 15 6	22	1,506 1 0				-			2,204 0 6
2	Sylbet		-	6	2,182 6 5	80	7,134 15 0	4				***		9,317 8 8
8	Khnei and Jaintia Hills	***		2	660 0 0	9	1,728 0 0			***		***		2,388 0 0
. 4	Naga Bills	***		1	200 0 0	5	840 0 0			See 2				1,140 0 0
	Lushai Hills	***	-	1	200 0 0	5	480 15 4	***		***		***	***	786 15 4
6	Goalpara		-	2	840 0 0	2	200 0 0	26	***			***		1,200 0 0
7	Kamrup	***		3	1,126 0 0	40	3,163 8 0	38			100		***	4,189 8 0
8	Darring			2	900 0 0	16	1,505 0 0	- 300		***	140			2,463 0 0
9	Nowgong	100		2	961 0 0	23	1,227 15 4							2,188 15 4
10	Sibengar			2	894 2 10	24	1,612 7 .0	11	-	***		1	96 0 0	2,002 9 10
13	Lakbimpur			2	880 0 0	14	1,440 0 0	34	***		***	100		2,300 0 0
12	Garo Hills	-		1	896 0 0	6	657 0 0		***			407		1,053 0 0
13	Manipur State	***	2.00	1	240 0 0	9	600 0 0		-	-			***	860 0 0
	Total of Districts	-		27	10,447 8 9	203	22,322 13 8	91		101		1	98 0 0	33,866 6 5
	Shillong Vaccine Depôt	1	600 0 0	1	1,868 4 11	16	2,808 15 9			100	*	1-0		4,777 4 8
	Total for the Province	1	600 0 0	28	12,515 15 8	278	24,031 13 5	91		1		1	98 0 0	37,045 11 1

^{*} The average cost of each successful vaccination as shown in column 27 has been calculated on the total number of successful vaccinations † Includes the cost of lymph manufactured for

Assam during the year 1913-14.

d	iture.							Paid frem			racilas-	recentful case.
		Contin	ngencies.								191	control (
	Travelling allowince,	Cest of lymph.	Other conlingencies.	Total cost.	Imperial Fond.	Provincial Fond,	Lotal Fund.	Municipalities.	Native States.	Total.	Number of all secessful if as and re-rectinations,	Exerage cost of each, see
-	16	17	18	10	20	- 31	- 23	23	24	25	25	27
1	Be. s. p.	Es. a. p.	Rs. a. p.	Řs. s. p.	Rs. s.p.	Es. a. p.	R*. s. p.	Es. a. p.	Bs. a. p.	B4. a. p.		R+, a. p.
1	1,815 4 6		103 2 0	8,812 7 0		1,007 6 0	1,761 1 0	84 0 0	_	3,812 7 0	19,555	0 3 1
	2,346 1 9		147 4 8	11,810 11 5	200	3,765 5 9	7,900 11 5	105 10 10	-	11,810 11 5	118,926	0 1 8
1	1,154 14 0		21 10 6	3,564 8 6		8,372 8 6		102 0 0		3,564 8 6	9,128	0 6 3
1	310 10 0		7 0 0	1,466 10 0		1,408 10 0			9-4	1,466 10 0	8,843	0 4 0
1	455 6 0		75 2 5	1,317 7 0		1,317 7 9		-715	in a	1,317 7 9	2,708	0 7 7
1	629 7 9		146 6 4	1,975 14 1	200	1,488 13 9	421 0 4	63 0 0		1,975 16 1	23,418	0 1 4
1	916 2 6		831 0 0	5,526 10 6		2,115 15 6	3,006 11 0	324 0 0	***	8,838 10 6	42,323	0 2 1
1	513 15 0		114	2,979 15 0		1,413 15 0	1,476 0 0	90 0 0	***	3,979 15 0	11,508	0 4 1
1	897 0 8		80 0 0	2,615 15 10		1,848 12 6	1,218 0 4	51 3 0	***	2,615 15 10	15,654	0 3 3
	-		60 0 0	2,602 9 10		954 2 10	1,708 7 0		***	2,613 9 10	18,708	0 2 3
1	504 7 e		430 0 0	8,534 7 0		1,404 7 0	1,650 0 0	180 0 0	***	3,234 7 0	14,127	0 3 7
1	548 9 6		10 0 0	1,6:1 9 6		1,611 9 6				1,911 9 6	12,078	0 1 2
-	-		19 9 0	859 9 0	***				850 9 0	859 9 0	12,376	0 1 1
-	9,100 14 6		1,481 2 6	45,448 7 5		22,225 1 6	19,273 15 1	1,090 15 10	850 9 0	43,448 7 5	308,070	0 2 3
-		14,952 3 6	1,248 4 9	20,977 12 11†		20,977 13 11				20,977 12 11*		
-	9,100 14 6	14,952 3 6	2,729 7 3	64,426 4 4		43,202 14 5	19,273 15 1	1,089 13 10	800 9 0	64,426 4 4	309,670	0 3 4

and re-racefactions performed by the Special Department only, the Eastern Bengal districts.

B.-DISPENSARY

Statement No. III-Showing Dispensary Vaccination

		aries in the a vac-	of vaccina- dispensarios	ons vac-	rersons cinator.		1	Primary vacc	ination.	
District.		dispen-ar to which relied.		of persons	each vac			Successfu	1.	
		Number of dispense cach district to which cinator is attriched.	Average number tors attached to during the season.	Total number . cinated.	Average number of persons vaccinated by each vaccinator.	Total.	Under ene year.	Over one and under six years.	Total of all ages.	Un- known
1		2	3	4	5	6	7	8	9	10
Cachar				45		35	6	15	35	
Sylhet	*****		***	***					***	
Chasi and Jain'ia . Naga Hills				568		348		210	317	"
ushai ,,				306		248	64	228	227	1
oslpara						240	1	1		
Camrup							***			
brrang										
Nowgong	***			94		92	12	80	92	
Sibsagar				***				***		
akhimpur	***								***	
Jaro Hills	***	***	***	188		159	21	86	107	3
Manipur State				123		123	120	2	122	***
Total				1,824		1,005	230	613	900	4

Comparative Statement No. IV-Showing the number of persons primarily vaccinated, the undermentioned

										Persons	
Establishm	ent.		Total number, Number success- fully vacula tod.		Total number-	Number meets: fally vacelnated.	Total number,	Number meess fully raccinated.	Total number.	Number cucesas- fully vaccinated,	
										Year ending	
			390	M-05.	190	5-0e.	190	0-07.	1907-68-		
1			2	3	4	6	6	7	8		
Government			59,039	58,216	43,036	40,857	27,714	29,119	39,433	38,531	
Dispensaries			20,852	20,234	24,943	24,297	23,319	22,614	15,664	15,294	
Municipal			2,487	2,481	2,058	1,977	2,748	2,785	3,299	3,262	
Local Funds			159,693	158,266	153,252	148,926	165,182	162,257	146,694	142,534	
Licensed vaccinator	3		20,811	20,723	19,580	19,487	37,704	\$7,562	25,072	24,874	
Apprentices		***	2,033	2,976	4,391	4,359	10,857	7,756	3,812	3,801	
Native States		***	14,700	13,855	16,389	14,252	15,527	14,281	14,247	12,150	
Total		***	280,622	276,761	263,649	254,155	283,061	276,354	248,220	240,416	

VACCINATION.

in Assam during the year 1913-14.

	Re-vaccination		Percentage of su which the resul		Percentage of unknown cases * to total cases.			
Total.	Successful.	Unknown.	Primary.	Ro-vaccination.	Primary.	Re-vaccination		
11	12	13	14	15	16	17		
10	6	4	100-00	100-00		40.00		
220	203	17	92.42	100.00	1.44	7.73		
58	34		93.42	58.62	2.02			
		***		***				

2		2	100.00		***	100.00		

29	18	1	82-95	64.29	18.87	3.41		
***			99.19		444	***		
319	261	24	93-26	88 47	3-98	7:55		

and the number of those persons who were successfully vaccinated in Assam in each of official years.

early vaccinated.		dec man						and the same of		
Total number, Number success-	Total number.	Number successfully vaccinated.	Total number,	Number succes- fully vaccinated,	Total number.	Number success-	Total number.	Number success-	Total number.	Number success.

190	1905-09-		10	191	0-11-	1911-	12.	191	2-13.	1913-14,		
10	- 11	19	13	14	15	16	17	18	19	29	21	
39,838	39,078	31,212	30,128	25,926	23,580	24,950	24,146	30,130	28,802	33,014	31,655	
3,160	2,990	2,818	2,474	2,549	2,128	1.464	1,390	1,036	937	1,005	900	
3,513	3,098	2,809	2,182	2,347	2,237	3,262	3,023	3,517	3,093	2,897	2,865	
150,917	149,433	147,644	142,315	161,234	154,616	179,897	176,566	179,380	176,013	179,040	176,981	
31,084	30,929	39,645	38,285	31,811	29,902	37,963	37,231	45,790	44,336	44,537	43,523	
5,010	4,920	5,187	5,102	4,682	4,563	16,762	16,411	13,669	13,512	15,329	15,007	
13,302	11,100	13,316	10,166	13,358	11,612	13,193	11,756	13,656	11,521	13,626	12,343	
246,824	241,548	212,131	230,652	241,907	228,638	277,481	270,523	287,178	278,274	289,448	283,274	

Statement No. V-Showing particulars of Vaccination verified by Inspecting Officers for the year 1913-14.

and the second second								11/1/19		10000	1111		-		100		-
				To	tal nur	aber inspec	tol.	Perce to	total	of inspendented.	etion	813	tage of cressfu mber is	I to tot	al	reported	
District.		Total m of per vaccin	soms	By Deputy - Sanitary Commissioners	Civil Surgeous.	By Native Superin- tendents or other	Inspecting officers.	By Deputy Sanitary Commissioners or	Civil Surgeons.	By Native Superin-	inspecting officers.	By Deputy Sanilary	Surgeo	By Native Superin-	inspeting officers,	Percentage of successes	by vaccinators.
		Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-raccination.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Primary.	Re-vacelnation.	Primary.	Ro-vaccination.	Primary.	Re-raccination.
1		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Cachar		18,032	2,516	1,314	131	12,949	1,463	7-28	5-20	71-93	58-15	99-01	67 17	96-07	68-01	95-79	72-86
Sylhet		104,472	13,681	1,651	***	49,398	6,001	1:18		47:28	43-23	99-81		92-20	67-90	98-45	74-69
Khasi and Jaintia Hills	1 400	7,633	2,300	638	200	7,023	1,782	8-61	9.50	92-00	74-23	98-63	60-00	99-47	72-78	29-20	69-23
Naga Hills	100	5,827	947	808	23	869	32	11:94	2-32	14:00	3-35	95-40	40-90	95-05	43.75	98.23	72-33
Lushai		3,356	648	18		1,078	94	-54		31-97	14:51	94144		80-53	61.20	83-90	74-45
Goalpara	***	22,634	1,767	2,000	22	11,943	931	8:76	1.24	51.86	52'69	92-84	72-73	91.87	76.47	97-63	74-79
Kamrup		40,967	2,511	2,050	37	26,927	1,773	5.02	1-47	65-73	70-61	98-00	81-00	97-00	63-29	90-05	70-37
Darrang	***	11,433	453	422	12	5,700	183	3.60	2-65	49-85	40-30	97-60	\$0.00	96-16	45-35	95-61	52-58
Nowgong	211	17,501	84	1,373	***	6,779	60	10-64	100	52-59	77'38	99-40	***	93-15	24-45	19. 3	79-27
Sibragar	***	18,807	130	2,478	***	4,748	100	13:17	***	25:24	71-10	97-95		98-70	88-23	99-20	85'33
Lakhimpur	11.1	14,370	95	82	200	10,830	46	.87		75-57	\$3-80	95-12	***	99-14	63-04	98-84	75-50
Garo Hills	***	15,077	9,140	1,697	465	2,008	9,358	11:25	5-20	13-91	25-80	83-14	79:92	84.08	63-27	97-86	91-76
Manipur State	***	18,749	33	1,477		8,006		10-74		62-03		13:00		84-20		98-32	100-00
Total	***	280,448	35,604	15,925	928	148,500	14,836	5-50	271	51-66	42-87	97-07	64:30	92-83	61-58	98-47	78-11

Statement No. VI-Showing the number of Vaccinations performed in Municipal towns on children under one year of age during the year 1913-14.

		unaer on	e year of a	ge auring	in- year	1910-14.
District,		Town.	Number of births during the year 1913,	Number of deaths amongst children under one year during the year 1913.	Number of successful racei- nation on chicken under one year during the year cading Sist March lets.	Date of extension of Vaccination Act to town.
1	AV THE	3	3	4	5	
Cachar		Silehar	193	27	86	21st January 1892.
CII4	5	Sylhet	404	113	241	1st Oxtober 1882.
Sylhet	5	Habiganj	98	34	3	11th December 1913.
Khasi & Jaintis	a Hills	Shillong	288	61	249	21st June 1895.
Trake in		Total of Surma Val ley and Hill Dis- tricts.	983	235	579	
BOOK IN	r	Dhubei	140	24	91	13th February 1891.
Goalpara	[Goalpara	182	41	151	12th November 1890.
Kamrup		Gauhati	287	38	116	August 1882.
Darrang		Tezpur	169	26	133	22nd May 1907.
Nowgong		Nowgong	173	31	124	7th April 1897.
	ſ	Sibsagar	197	14	112	21st January 1892.
Sibsagar	{	Jorhat	239	46	138	12th April 1892.
	i	Golaghat	92	14	73	24th March 1892.
Lakhimpur		Dibrugarh	412	47	326	September 1833.
	1	Total of Assum Valley Districts.	1,891	281	1,264	
		Total for the Prov- ince.	2,874	519	1,843	

Statement No. VII-Showing, side by side, the ratio per 1,000 of population of deaths

16 66

				1904-05.	11	105-06.	11	906-07.	1907-68.		
Dist	rict.		Entio of deaths from small-pox.	Number of successful vaccination,	Ratio of deaths from small-pex.	Number of successful vaccination.	Butle of deaths from small-pox.	Number of successful vaccination.	Batio of deaths from small-pox.	Number of successful vaccination.	
1	ı		2	3	4	5	6	7	8		
Cachar			*06	9,959	-01	18,519	-01	18,640	-004	15,563	
Sylhet			-01	113,890	.008	110,363	-02	108,268	109	82,038	
Khasi and Jaintia	Hills			5,263	,	5,776		5,018	-08	13,179	
Naga Hills				5,514		5,952	-009	5,535	-02	8,557	
Lushai "				2,175		2,320		1,694	-01	3 517	
Goalpara			-07	20,170	15	18,010	1.22	17,989	-67	16,922	
Kamrup	***		-20	31,051	3.17	21,911	3.34	29,365	3.45	31,695	
Darrang			1.07	10,852	1.32	12,545	1.79	12,141	4:19	9,226	
Nowgong		***	3.49	11,316	.08	11,809	-69	7,769	.35	7,139	
Sibsagar			*35	28,422	14	28,466	-06	25,727	-63	20,295	
Lakhimpur				14,942	*04	14,927	-36	16,712	-74	15,409	
Garo Hills			*007	11,967		15,830	-007	15,126		16,826	
Manipur State				13,953		14,517		15,310		12,152	
	Total		-26	279,474	-41	280,945	*55	279,321	-78	252,518	

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from small-pox and the number of successful vaccination during the ten years ending 1913-14.

1	1908-09.	1	1909-10.	1	910-11.	1	911-12.		1912-13.		1913-14-
Ratio of deaths from small-pox.	Ratio of deaths from small-pox. Number of successful vaccination. Eatto of deaths from small-pox.		Number of successful raccination.	Ratio of deaths from small-pox.	Number of successful vaccination.	Ratio of deaths from small-pox.	Number of successful vareination.	Ratio of deaths from small-pox.	Number of successful vaccination.	Ratio of deaths from small-pox.	Number of successful vaccination,
10	11	12	13	16	15	16	17	18	19	20	21
-01	13,533	.02	15,177	.03	15,635	-002	16,641	-008	16,992	·006	19,596
-08	83,817	.07	79,768	.07	83,189	-38	108,287	-99	132,022	'47	113,226
-43	21,272	.59	8,815	.04	5,026	1004	7,369	-13	10,740	-35	9,128
	4,777		5,335		4,518		4,836		5,119		6,263
,	3,585		2,738		2,799		3,121		3,123		3,027
-34	21,875	-83	26,561	-28	19,065	-41	23,151	.69	19,731	.59	23,408
2.40	31,024	1.07	27,111	.28	25,006	1.21	39,178	1.89	39,978	1.02	42,323
2.77	9,028	1.22	6,778	.30	10,036	.56	10,606	-50	10,964	-82	11,508
2.44	5,483	3.49	4,523	3.05	7,456	-44	8,469	.95	6,602	:43	12,946
-85	21,814	-57	19,084	19	21,689	-16	18,490	-09	18,298	14	18,768
.15	14,613	-08	14,688	-05	14,470		14,119	.006	14,063	-07	14,227
	14,851	-09	17,120	.15	13,219	-01	15,161	.(0	12,338	-84	22,813
	11,370		10,429		12,082		12,025		11,678		12,498
-64	257,042	-47	238,127	-28	233,590	-35	282,153	-67	301,648	*40	209,831



Resolution on the Vaccination Report of Assam for the years ending 1913-14.

Extract from the Proceedings of the Chief Commissioner of Assam in the Municipal Department, No. 4466M., dated the 25th July 1914.

READ-

Vaccination Report of the Province of Assam for the three years ending 1913-14.

RESOLUTION.

The large increase in the number of vaccination operations performed in the period under report, as compared with the preceding three years, is satisfactory. Lieutenant-Colonel Gurdon is particularly pleased to notice that the prejudices of the "Mahapurushia" sect in the Kamrup district are being overcome, and that the increase in the number of vaccinations amongst this community during the triennium was more than five-fold.

It is reported that an experiment in the appointment of licensed vaccinators remunerated by fees in Sylhet was not successful, and doubts have been expressed as to the suitability of this system to Assam. This question should be carefully examined by the Sanitary Commissioner.

The insufficiency of the inspection of vaccination work by Civil Surgeons was noticed in the Resolution of the Government of Eastern Bengal and Assam on the Report on vaccination for the three years ending 1910-11, and the Officiating Chief Commissioner is therefore disappointed to find no record of improvement in this respect in the present report. The Inspector General of Civil Hospitals will be asked to obtain the explanations of those officers whose inspection work was inadequate.

Wide variation exists as regards the completeness of vaccination in the compulsory areas, and there appears to be no reason why, whilst almost all the available infants were vaccinated in Goalpara, Golaghat, Shillong, and Dibrugarh, only about half of them were vaccinated in Sibsagar, Silchar, and Gauhati. Lieutenant-Colonel Gurdon trusts that special attention will be paid to this point by the Civil Surgeons concerned.

By order of the Chief Commissioner of Assam,

A. W. BOTHAM,

Second Secretary to the Chief Commissioner of Assam.



