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COMMUNICABLE DISEASES PREVENTABLE BY IMMUNIZATION AND THE PRESENT STATUS OF IMMUNIZATION IN THE REPUBLIC OF AFGHANISTAN

by

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INTRODUCTION

Afghanistan is a landlocked country. It is boundered by the USSR on the north, by Pashtonistan on east and south and by Iran on the west. The extreme north-eastern tip of Afghanistan which narrows into a panhandle borders China.

The size of Afghanistan is about 700 000 square kilometers. Its altitude ranges from 150 to 8 000 meters B.S.L. Its climate according to topographical regions varies from tropical to hilly areas. The range of temperature varies according to the area from -40°C to +15°C in winter and from +15°C to +45°C in summer.

The population of Afghanistan is about seventeen million, out of which two million are nomads. The population is more dense in valleys and at bases of mountains.

For administrative purposes, Afghanistan has twenty-seven provinces. Each province is divided into divisions, districts and sub-districts; for smallpox and malaria eradication programmes, the country is divided into three regions.

INCIDENCE AND MORTALITY OF COMMUNICABLE DISEASES PREVENTABLE BY IMMUNIZATION

The N.I.C.D.C. started its activities as a branch of Preventive Medicine since May 1974 in the frame of M.P.H. It is still a young department with no clear picture and information of main communicable diseases based on statistical data, from the point of view of Public Health and Preventive Medicine. Although the reports on hospital patients are available, these are not a representative data, but a selective and misleading data. Therefore, for the time being, it is difficult to present a complete picture of incidence and mortality of all communicable diseases which are preventable by immunization.

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For finding the real picture of these problems, we started to improve our reporting system through P.H.O. and B.H.S., and besides that, we decided that P.H.I. should carry surveys and start pilot studies in different areas and complete the real picture of P.H. problems outside the hospitals under different field conditions in order to avoid selective and non-representative results.

Here I would like to present the incidence and mortality of communicable diseases preventable by immunization (on the basis of available representative data but not on the basis of hospital reports).

1. Smallpox : Incidence and mortality of smallpox are nil since July 1973.

2. Tuberculosis : The results of a study carried in four provinces in different regions among selective village people by skin test and chest X-Ray examination, are presented in tables 1 and 2.
Tuberculosis appears to be the most important and widespread of all the chronic incapacitating infectious diseases in Afghanistan. According to the estimation of N.I.T.B., 50 000 to 60 000 sputum positive pulmonary TB cases are existing in the country with a total number of about 210 000 for all kinds of TB.

3. Diphtheria : Diphtheria is a public health problem especially for susceptible age groups among people notaware of the benefits of immunization, and due to lack of hospitals in all parts of the country, which increases the mortality of diphtheria.
By the available representative data I would like to put light on the magnitude of the disease.

   (a) according to the statistics available on diphtheria in March 1969, sixty-five per cent of cases occurred among children below 10 years of age, twenty-seven per cent in the age group 10 - 20 years, six per cent in persons above 20; one case above 60 years old was confirmed by laboratory culture.

   (b) in a schick test survey which was carried in Kabul city in six clusters of pre-school children on a random basis, the range of schick positive reaction varied from forty to sixty per cent and the ratio of schick positive reaction increased parallely to the age increase.

In another study which was carried in four provinces among villages, all collected sera were examined for the presence of diphtheria antitoxin in haemagglutination test with the antigen of corynobacterium diphtheriae. The results are summarized in table 3.

4. Pertussis : Outbreaks of pertussis occur every two to three years among susceptible children in late autumn or winter when the cold weather, secondary infection, complications and poorly available health services increase its mortality. Therefore it is a big health problem for the children in rural areas when it occurs.

5. Tetanus : In Afghanistan, an agricultural and animal raising country with developing health services, tetanus is also a major health problem among most of our people living and working under conditions in which quite often they are exposed to the disease which has a high incidence, and poor health services in rural areas make its mortality high.
Although DPT and DT vaccines for the prevention of these diseases are available, unfortunately for the time being we do not have a regular programme for mass vaccination throughout the country under the present field conditions, except in those places where kindergartens and nursery houses exist, and for people who could go to hospitals or health services.

6. Poliomyelitis : According to a survey carried in 1959 on a sample of 967 persons, selected at random in Kabul, the results of which are presented in table 4, in the youngest age group less than 3 years, antibodies of types 1, 2 and 3 of poliovirus were found in 59 and 57 per cent of children. For the age group over5 years the percentage of positive findings was over 90 per cent for all types of poliovirus. With the improvement of environmental sanitation in the future, it may become a problem; we hope that with developing of basic health services throughout the country, after carrying further studies in different areas according to needs, we could start vaccination but for the time being we do not have a regular programme for polio vaccination.

7. Measles : Measles is another childhood disease which occurs in epidemic form every three to four years in winter when the cold weather, secondary infection and lack of hospital care increase its mortality rate. I hope in future with developing of basic health services throughout the country we could do something for prevention of the disease by vaccination.

NATIONAL IMMUNIZATION PROGRAMME

Smallpox eradication programme

Organization and administration : A Plan of Operation for the smallpox eradication programme in Afghanistan was prepared jointly by the Government and WHO in September 1968,

with as main objective the systematic vaccination of the population of the country and the development of a surveillance programme.

The country was divided into four zones and a staff and supply organization were planned. Accordingly, the Kandahar zone was established in November 1968, the Central Directorate came into being in May 1969, the Kunduz zone was set up in July 1969, the Kabul zone was organized in April 1970 and the Herat zone in February 1971. At present only the first three zones are operating, headed by the Zonal Directors.

Personnel : The basic operational unit in the field is the surveillance team, consisting of one supervisor, two to three vaccinators and a driver. In the Kabul zone there are three surveillance teams, in the Kandahar zone two and in the Kunduz zone one surveillance team.

Vaccine and source of vaccine : The freeze-dried smallpox vaccine is provided from the USSR as a donation to the World Health Organization for the smallpox eradication programme.

Storage and transportation : Vaccine is stored in the cold room of the Public Health Institute and in refrigerators of the Central Directorate and Kandahar zone. To the provinces it is distributed on a monthly basis.

Operation : The surveillance teams perform active search for any suspected case of disease with rash all over the country according to the half-yearly time-tables devised for every zone separately. The time-tables take into account previous experience of the smallpox eradication, accessibility of the area and the weather conditions in summer and winter, seasonal migration of the nomads etc. One of the teams in the Kandahar zone is specially designated to perform surveillance among nomads. The essence of the present day surveillance is to contact the village leaders, the health establishments, teachers and rank-to-file villagers, to find out about any suspected case and also to encourage the reporting system.

Supervision : Regular and permanent supervision of the surveillance activities in the field is performed by the officers of the Ministry of Public Health, WHO staff, the Central and Zonal Directorates of the National Smallpox Eradication Programme.

Recording : On the basis of the zonal half-yearly time-table, each team works out its own thorough Plan of Action for each province and for every month, so that not a single Woleswali is missed. Within the Woleswali limits the itinerary of the team's movements is worked out so that the most vulnerable areas are visited and also the team's presence can be checked up. The results of the job done during a day are recorded.

Evaluation of the programme : The "attack phase" was begun on 1 April 1969 and ended in July 1972; the "consolidation phase" was concluded in December 1973; at present the "maintenance phase" is in progress in all zones. There has been no case of smallpox, either indigenous or imported in the country since July 1973. Despite this, and keeping in mind the epidemic situation of smallpox in Asia in the light of probable importations of the disease from still endemic countries, WHO allocated funds for the smallpox eradication programme till the end of 1976 to continue maintenance and permanent vigilance activities.

BCG vaccination programme

Organization : The BCG mass campaign has been launched on a large scale during the second quarter of 1975, following a pilot period started in December 1973. The organization is as follows : a Central Director of Vaccination administers the campaign, where twelve mobile teams of vaccinators are employed.

Administration : Centrally administered campaign, with zonal sub-administration, utilizing former smallpox eradication project Zonal Offices. Mass campaign covers age groups 0 - 14 with BCG and 0 - 4 with smallpox vaccination simultaneously.

Personnel : Each mobile team is composed of 6 vaccinators, one supervisor and a driver. Every zone (three in total) has one Zonal Director and 1 - 2 field operators. One evaluation team evaluates, by sample surveys, the vaccination.

Vaccine : BCG vaccine utilized is manufactured in Japan (freeze-dried BCG vaccine) and donated by UNICEF. Smallpox vaccine is produced in USSR and donated by them. Vaccine is stored in the cold room of the Public Health Institute and transported by the campaign cars twice a month to the field.

Operation - Supervision : Have already been explained.

Recording : The recording and reporting system has been checked during the pilot work. BCG vaccinations are recorded by numbers, without age groups, and smallpox vaccinations by the count of needles utilized. Daily output per vaccinator and per team is recorded on a special form, and a monthly report for every team separately sent to the Central Director.

Evaluation : One team of four sanitarians (two trained tuberculin testers and two registrators) is assessing the work done. Sample surveys covering up to five per cent

randomly selected population are done, checking both scars. From time to time a sample survey by tuberculin testing is done.

CONSTRAINTS OF NATIONAL PROGRAMME

For the above-mentioned national programme of smallpox eradication, for surveillance and other activities under difficult field conditions, the vehicles which are working from the beginning of the programme need maintenance which is daily becoming more expensive because each vehicle has worked on difficult roads for about one million kilometers; this increases the cost of activities and also sometimes, due to repair of cars, the programme may be postponed. The same problem to some extent also exists for BCG vaccination programme. In the case of N.I.T.B., implementation of BCG without treatment of the source of infection will not eliminate the disease. Therefore, N.I.T.B., besides mass vaccination, started with full activities through all health services for case-finding and treatment of those who are spreading the disease. On the other hand, the treatment of TB is a long-term treatment, but unfortunately WHO and UNICEF, which were the source of help to us in this respect, decreased their help from $ 140 000 to $ 20 000 which delays reaching the goal of TB elimination.

Table 1

PREVALENCE OF REACTIONS IN SKIN TESTS WITH TUBERCULIN BY AGE

	(Bamyan) Saidabad					(Mazar) Bulla Quchi					(Lashkarga) Gawargin					(Herat) Karokh				
	Reactors to:					Reactors to:					Reactors to:					Reactors to:				
	No.	PPD-S		PPD-G		No.	PPD-S		PPD-G		No.	PPD-S		PPD-G		No.	PPD-S		PPD-G	
Age	Tested	No.	%	No.	%	Tested	No.	%	No.	%	Tested	No.	%	No.	%	Tested	No.	%	No.	%
0-9	81	7	8.6	4	4.9	92	14	15.2	10	10.9	118	9	7.6	27	22.9	97	19	19.6	23	23.7
10-19	67	18	26.9	26	38.8	65	24	36.9	18	27.7	39	13	33.3	24	61.5	60	29	48.3	24	40.0
20-29	39	25	64.1	24	61.5	54	28	51.9	23	42.6	32	19	59.4	21	65.6	58	49	84.5	45	77.6
30-39	38	30	78.9	29	76.3	47	31	66.0	24	51.1	46	32	69.6	37	80.4	47	41	87.2	35	74.5
40-49	35	28	80.0	28	80.0	42	34	81.0	29	69.0	17	13	76.4	14	82.4	34	29	85.3	27	79.4
50+	45	41	91.1	39	86.7	46	41	89.1	30	65.2	24	14	58.3	12	50.0	38	31	81.6	24	63.2
Total	305	149	48.9	150	49.2	346	172	49.7	134	38.7	276	100	36.2	135	48.9	334	198	59.3	178	53.3

Table 2

DIAGNOSIS OF TUBERCULOSIS IN CHEST ROENTGENOGRAM

Diagnosis	Saidabad N=219		Bulla Quchi N=86		Gawargin N=135		Karokh N=284		All villages N=724	
	No.	%	No.	%	No.	%	No.	%	No.	%
Pulmonary lesion consistent with TB	9	4.1	3	3.5	2	1.5	8	2.8	22	3.0
Cavity	5	2.3	3	3.5	1	0.7	0	0	9	1.2
Pleural effusion	2	0.9	2	2.3	0	0	1	0.4	5	0.7
Calcifications	21	9.6	5	5.8	12	8.9	9	5.2	47	6.5

Table 3

PER CENT WITH TITRES OF 1:40 OR MORE IN HAEMAGGLUTINATION TESTS WITH DIPHTHERIA TOXIN BY AGE

	Saidabad			Bulla Qucht			Gawargin			Karokh		
	No.	Titre 1:40+		No.	Titre 1:40+		No.	Titre 1:40+		No.	Titre 1:40+	
Age	Exam.	No.	%	Exam.	No.	%	Exam.	No.	%	Exam.	No.	%
0-9	51	9	17.6	73	35	47.9	95	48	50.5	64	38	59.4
10-19	67	9	13.4	64	28	43.8	41	11	26.8	59	42	71.2
20-29	38	4	10.5	54	20	37.0	35	13	37.1	55	33	60.0
30-39	39	5	12.8	48	18	37.5	42	14	33.3	48	23	47.9
40-49	34	3	8.8	39	11	28.2	16	5	31.3	33	18	54.5
50+	42	2	4.8	41	9	22.0	24	9	37.5	37	20	54.1
Total	271	32	11.8	319	121	37.9	253	100	39.5	296	174	58.8
Age adjusted			12.3			38.3			37.2			58.3

Table 4

DISTRIBUTION OF TITRES OF NEUTRALIZING ANTIBODIES OF POLIO VIRUS WITHIN DIFFERENT AGE GROUPS
MULTIPURPOSE HEALTH SURVEY, KABUL, 1966-1967

Age	Individuals under survey	Type I								Type II								Type III							
		Total examined	Negative	Titres (log 2)					% Pos	Total examined	Negative	Titres (log 2)					% Pos	Total examined	Negative	Titres (log 2)					% Pos
				2-3	4-5	6-7	8-8	10+				2-3	4-5	6-7	8-9	10+				2-3	4-5	6-7	8-8	10+	
1-2	98	45	14	10	10	8	2	1	69	46	19	9	10	10	4	3	59	46	20	11	8	5	2	-	57
3-4	123	69	7	13	22	14	7	6	90	69	8	13	13	16	8	11	88	69	18	18	19	9	4	1	74
5-9	265	147	9	32	37	50	10	9	94	145	12	20	35	43	20	15	92	145	13	47	48	26	8	3	91
10-14	141	83	2	7	17	34	16	9	98	85	1	1	13	27	34	9	99	85	2	14	25	31	9	4	98
15+	340	182	-	24	73	62	20	3	100	182	3	16	56	59	35	3	98	182	13	31	69	53	15	1	93