



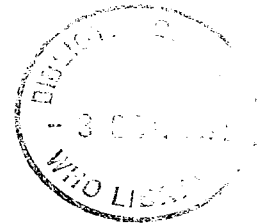
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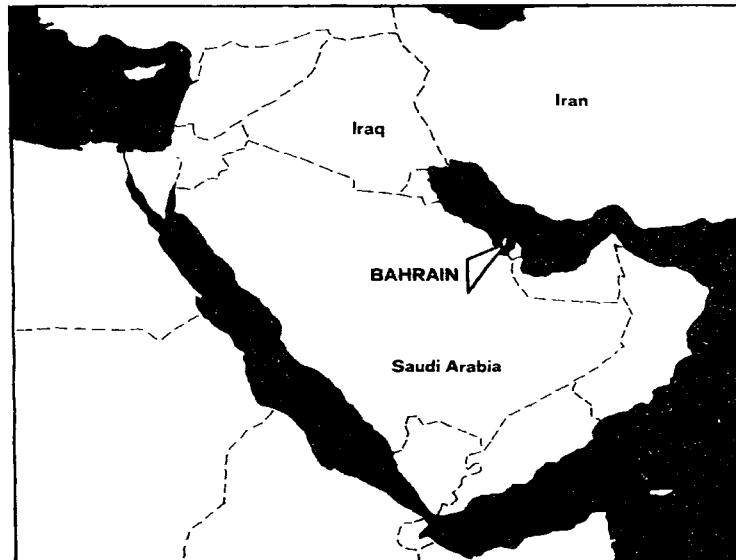
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INDEX

**REPORT TO
THE GLOBAL COMMISSION
FOR CERTIFICATION OF
SMALLPOX ERADICATION**



BAHRAIN



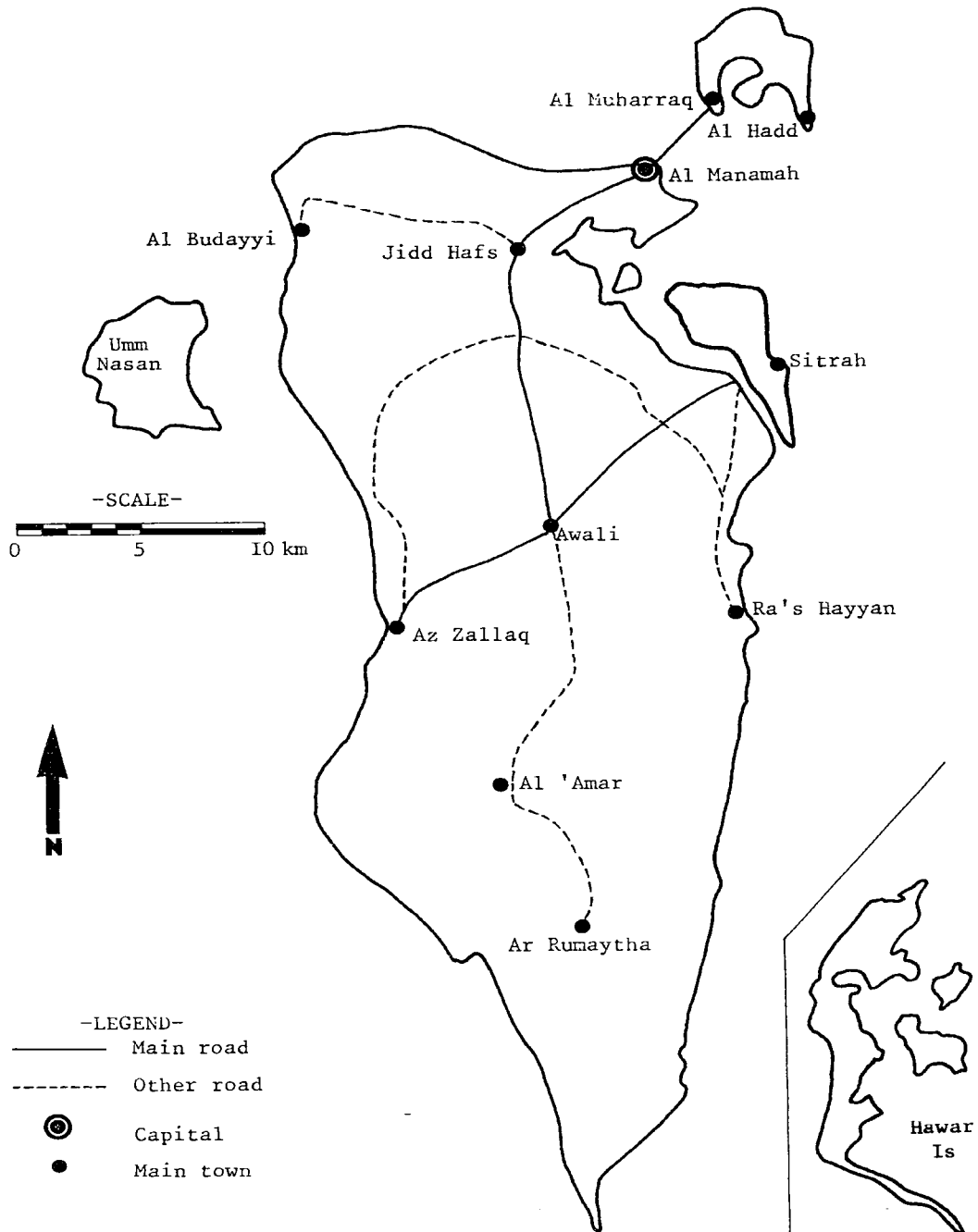
**MINISTRY OF HEALTH
BAHRAIN**

WORLD HEALTH ORGANIZATION

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MAP OF BAHRAIN SHOWING THE MAIN ISLANDS



1. BACKGROUND INFORMATION

1.1 Geography

The Bahrain islands form an archipelago in the Arabian Gulf, between the Qatar peninsula and the mainland of Saudi Arabia. Their total area is about 650 km². Bahrain ('Two Seas'), the largest island, is 50 km long and 16 km wide. Muharraq, a small island to the north-east, is connected with Bahrain by a causeway, nearly 2.5 km long, carrying a motor road. Other islands are Sitra, to the east, Umm Ah-Nassen to the west, Jidda, also to the west, the Hawar group off Qatar and several islets, some uninhabited. The islands are low lying, the highest ground being a hill in the centre of Bahrain, 150 m high.

1.2 Climate

The climate is cool and temperate from December to the end of March, becoming very hot and humid during the summer months. In August and September temperatures can rise to 44°C.

1.3 Population

The population recorded in the 1971 census was 216 815. The population of Bahrain now totals about 300 000, of whom three-quarters are Bahrainis, and the balance are expatriates from the Middle East, Asia and Europe (Tables 1 and 2). The majority of the people are Moslem Arabs.

1.4 Government

Bahrain is an independent sovereign state ruled by an Amir through an appointed cabinet. The country is divided into five rural areas administered by municipalities, reporting to a central municipal council.

Table 1
Distribution of Population by Age, Nationality
and Sex. (1976 Estimate)

Age Group	Bahraini		Non-Bahraini		Total	
	Number	Percent. of Total Population	Number	Percent. of Total Population	Number	Male to Female Ratio ^a
0-4	34 800	12.4	7 170	2.5	41 970	1.02
5-9	33 480	11.9	8 050	2.9	41 530	1.02
10-14	31 220	11.1	6 390	2.3	37 610	1.10
15-24	46 690	16.6	20 180	7.2	66 870	1.42
25+	66 990	23.8	26 660	9.3	93 590	1.47
Total	213 180	75.8	68 390	24.2	281 570	1.21

^a Number of males per female. For all age groups the ratio is 1.00 for Bahrainis and 1.43 for non-Bahrainis.

Table 2
Distribution of Population by Region^a
(1971 Census)

Region ^b	Population	Percentage of Total
Manama	89 399	41.5
Muharraq	49 540	22.9
Jid Hafs	19 521	9.0
Northern	10 614	4.9
Western	8 689	4.0
Central	14 228	6.6
Sitra	11 323	5.2
Rifa'a	12 633	5.9
Total	215 947	100.0

^a Distribution by sex and nationality is similar to that shown in Table 1 for all regions, except Manama where there is a larger than average proportion of non-Bahraini males.

^b Refer to Figure 2.

1.5 Education

There were, in 1976/77, 114 state schools for boys and girls with 2 696 teachers and 61 201 pupils. In addition there are 7 private schools.

Education is compulsory through the primary level; adult education is encouraged. Today more than a quarter of the population is enrolled in schools and the education appropriation is one of the largest single items in the state budget - in 1975 as much as 27% of the total expenditure.

Table 3
Number of Classes and Students by Educational Category
1976

	Classes	Students
Primary	1 099	41 751
Intermediate	236	8 533
Secondary (General)	215	7 154
Technical, Commercial	61	1 665
Higher (incl. Teacher Training Colleges)	12	281
Religious	8	113
Total	1 631	59 497

Source: Statistical Bureau, Ministry of Finance and National Economy, Bahrain Government

1.6 Transport and Communications

Roads are good and there is a national bus system. Muharraq Airport is just over three miles from the centre of Manama, the capital town, and is the destination of one of the Concorde services from London. The port of Mina Sultan is being further developed. There were, in September 1976, over 35 000 telephones. There is a state-operated radio station and television.

2. HEALTH SERVICES

2.1 General

The Health Services of Bahrain are the longest established in the Arabian Gulf region. The American Mission Hospital, with 110 beds, and the Victoria Memorial Hospital, with 10 beds, opened at the turn of the century. The Bahrainian Government took its first step towards a comprehensive health system for all its people in 1925, with the appointment of a physician to a pearl-divers' seaborne clinic and a dispensary on Muharraq island.

At the time, smallpox was endemic; malaria and trachoma were the main causes of death and blindness; amoebic dysentery, anaemia, tuberculosis and venereal disease were prevalent. Over the past 52 years the steady growth of Bahrain's health services for both preventive and curative care has resulted in the eradication of smallpox, a negligible incidence of trachoma and malaria and other communicable diseases and one of the lowest maternity mortality rates of any country in the area. That health is a major concern of the Bahrainian Government is demonstrated by the fact that during the past 15 years the annual expenditures of the Ministry have increased eleven-fold. In 1977, 5.5% of public expenditure was for health.

2.2 Public Health Structure

The central authority for the country's health administration is the Ministry of Health, headed by a Minister and assisted by two under-secretaries (Figure 1). Today the Ministry of Health's facilities include the Salmaniya Medical Centre, three

specialized hospitals for chest, psychiatry and maternity care, 13 comprehensive health centres, and four school clinics. Its Public Health service carries out programmes for communicable disease control, environmental health and health education (Figure 2).

Treatment at all the health centres and hospitals is free of charge. In addition to this state-financed health system, private facilities are available: the American Mission Hospital, the Awali Hospital for BAPCO employees and their families, and a few clinics. A military hospital for the Bahrain Defence Force is in operation. There are also 35 physicians on the islands who have their own private practice.

Fig. 1: Ministry of Health Administrative Structure

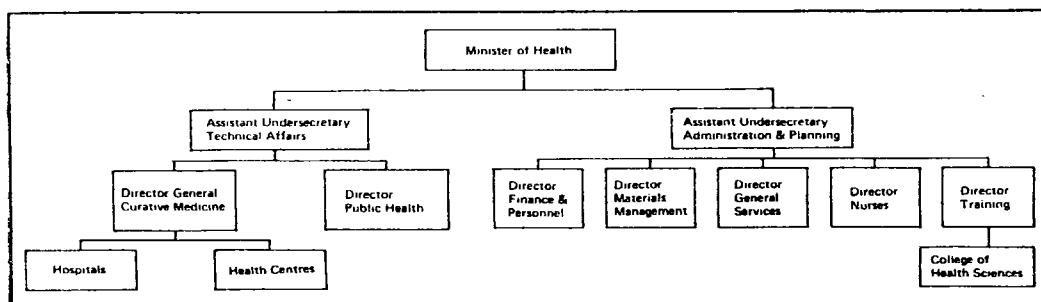


Fig. 2: Bahrain - Health Units and Regions

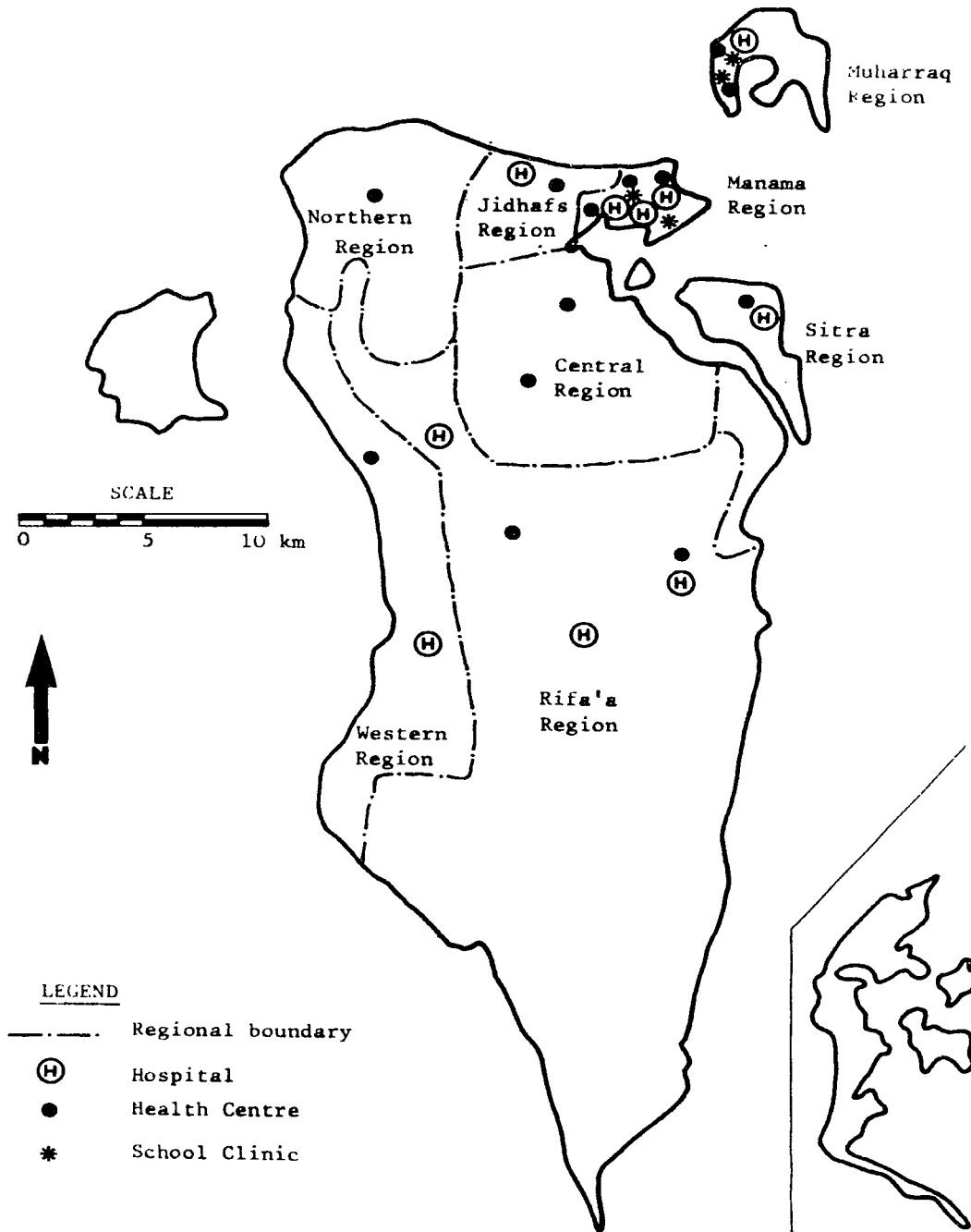
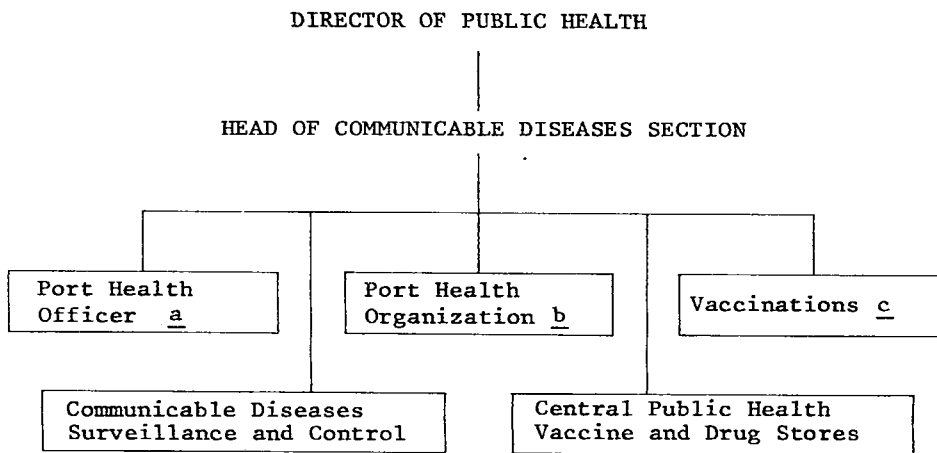


Fig. 3: Public Health Administration



Sanitary staff include 31 public health inspectors, staff nurses and other related staff.

- a Medical treatment for crew and passengers of ships and aircraft arriving in Bahrain. Also other public health duties.
- b Public health inspectors who conduct inspections of vessels and aircraft, vaccinations, surveillance of arriving passengers, control of imported foods and general hygiene measures at ports and airports
- c For international travel requirements and for routine vaccination.

2.3 Health Manpower Development

Bahrain has an established education system that can provide an adequate supply of candidates at the intermediate and secondary level to fill the training programmes offered by the Ministry of Health. Vocational training programmes have also been a tradition of the Government for almost 20 years, most of them in the Ministry of Health.

Since the first school for nurses opened in 1959, the Ministry's nursing school programmes have resulted over the years in a dedication to the profession unusual to the area; three of the first graduating class of five serve in top staff positions today. Training courses for other paramedicals have also existed for several years. And it has always been the Ministry's policy to support out-of-country education for Bahraini nationals; in 1976, a total of 114 Ministry personnel in all categories were sent abroad for training, 42 of them women.

The official Government aim for "Bahrainization" of the work force at all levels within 15 to 20 years creates the necessity for more sophisticated training at the higher professional levels because it is at these higher levels that foreigners are concentrated. In 1976 only 30% of doctors and dentists and 16% of registered nurses were Bahraini. In all other categories of health workers the proportion of non-Bahrainis was minimal.

At present, however, it is the middle-level personnel that is critically needed for the expansion of Bahrain's health services, and it is at this level that the Ministry of Health is concentrating its major effort. Thus, the College of Health Sciences was founded in 1976. When the College is in full operation, some 200 students will be graduated each year, equipped with the knowledge and skills necessary for effective operation of the Ministry's Medical Centre, health centres and Public Health programmes. The distribution of health manpower is shown in Table 4.

Table 4

Health Ministry Manpower, by Facility and Category, 1976

Category of Staff	Employed in:			Total
	Curative Medicine & Ministry Admin.	Health Centres	Public Health Dept.	
Consultants and Residents	109	44	12	165
Dentists	2	4	3	9
Nurses, registered	453	53	4	510
Nurses, practical and auxiliary	320	79	18	417
Pharmacists and pharm. technicians	27	45	1	73
Laboratory technicians	72	4	9	85
Physiotherapy technicians	15			15
X-ray technicians	35			35
Operating-room technicians	18			18
Orthopaedic technicians	4			4
Other technicians	23			23
Ambulance attendants	6			6
Statistician clerks			4	4
Occupational hygienist			1	1
Health educators			4	4
Public health inspectors and observers			103	103
Administration	228	50	27	305
Maintenance and drivers	740	111	239	1 090
TOTALS	2 052	390	425	2 867

2.4 Communicable Disease Control

There are no inaccessible or remote communities in Bahrain. No inhabitant of Bahrain should take more than an hour to reach the nearest Health Centre. The vast majority of the people are health conscious, and, when a person is ill with an eruptive fever, either members of his family or neighbours (out of fear of infectivity) can be relied upon to bring this to the notice of the Health Centre doctors and/or the Public Health authorities.

Notification of all common communicable diseases as per lists of notifiable diseases for weekly and daily returns is the responsibility of each physician, whether government or private, seeing such cases. Notification by telephone of diseases subject to the International Health Regulations is asked for in addition to notification in writing. Once notifications are received at the Directorate of Public Health, Communicable Diseases Section, surveillance of reported cases of all important communicable diseases is undertaken and control measures set in motion. Public Health Inspectors from the Communicable Diseases Section, assisted by Public Health Inspectors from other Sections as necessary, under the direction of the Head of Communicable Diseases Section, have this responsibility. As mentioned earlier, no household or location is considered remote in terms of distances and time involved in reaching them.

Detailed records are kept at the Directorate of Public Health for all reported cases of selected communicable diseases. These include all the diseases subject to the International Health Regulations (Annex 1 and Table 5).

Table 5

Cases of Rash Diseases Notified by Year 1973-1977^a

Disease	1973	1974	1975	1976	1977
Smallpox	0	0	0	0	0
Chickenpox	1 979	2 431	2 362	2 256	2 476
Measles	3 093	3 874	1 009	4 661	1 263
Rubella	6	437	14	15	22

^a Included in a list of 40 notifiable diseases.

2.5 Port Health Services

Health Inspectors are posted round-the-clock at the International Airport and at the sea-ports for surveillance of disease and inspection of perishable foodstuffs as they are unloaded from planes and ships. Surveillance of Haj pilgrims has been a responsibility of the Public Health Directorate since 1944 (Figure 3).

2.6 School Health Programmes

Four School Clinics, two in Manama and two in Muharraq, are staffed with six physicians and three dentists, working in close collaboration with the Health Centres.

2.7 Health Education

This unit, headed by a physician, reaches out particularly to the outlying villages with cooperation of the Ministry of Labour and Social Affairs, the Red Crescent, women's societies and clubs. Educational materials include films, booklets, posters, T.V. and radio programmes, and newspaper articles.

3. EPIDEMIOLOGY OF SMALLPOX IN BAHRAIN

3.1 Smallpox Incidence Trends

The following extracts from the various annual reports submitted by the Ministry in the past give an indication of the trends of smallpox incidence in the country.

Year 1938/1939

"Smallpox is endemic in the island. Cases rarely present themselves at the dispensaries for treatment during the active stage, but the sequelae are all too apparent throughout the island: in the schools approximately 17% of boys showed scarring from smallpox. A fairly high proportion of cases of blindness result from this cause.

Vaccination against smallpox is available at the clinics but it is rarely requested, except by the more intelligent or as the result of the passport regulations of other countries.

Compulsory vaccination would eradicate this disease almost entirely, but would presumably arouse the opposition which seems invariably to accompany the introduction of this reform into any country."

Year 1939/1940

"No case of smallpox was reported in Bahrain throughout the year. Many vaccinations of civilian adults and children were done at the dispensaries and schools. Boys and girls found unvaccinated at the school inspections were subsequently vaccinated with the consent of their parents."

Summary Report for the years 1925-1940

"No major epidemics of smallpox, but the disease is annually endemic and vaccination becoming slowly accepted. Original vaccinator, an Arab Hakim of the East Coast of Bahrain who inoculated straight from the cow, as Jenner did in England. Scarring from smallpox noted in 22% of town schools and 50% in villages."

Year 1943

"Smallpox negligible."

Year 1944

"A small outbreak of smallpox."

Year 1945

"Smallpox reached its lowest annual figure of 14."

Year 1949

"Sharp outburst of smallpox in Hoorah, from Saudi Arabia. 22 000 vaccinated, and 81 cases admitted to Quarantine Island with 5 deaths only."

Year 1956/1957

"Smallpox, after 6 years, infected Damistan and Maqsha villages, spreading to Manama, where it was halted. Total of 68 cases with 12 deaths, mostly babies and children."

Year 1958

"B.I. "Dumra" carrying a Pakistani smallpox case, caused all 254 Bahrain disembarking passengers to be quarantined. No infection resulted."

Table 6
Reported Smallpox Cases and Deaths 1941-1978

<u>Year</u>	<u>Cases</u>	<u>Deaths</u>
1941	193	*
1942	119	*
1943	43	*
1944		
1945	14	*
1946	21	*
1947	1	*
1948	0	*
1949	81	5
1950	13	-
1951	-	-
1952	-	-
1953	-	-
1954	-	-
1955	1	-
1956	62	10
1957	6	2
1958		
to		
1978	-	-

* Data not available.

3.2 The Last Smallpox Outbreaks

The last known cases of smallpox in the country were the result of two outbreaks during the year 1956/1957. The details of the outbreak were as follows:

The first outbreak began about the middle of October 1956. The first case, in Dumistan, was a young child who had been on a visit to Iraq with his parents and developed symptoms 7 days after his return to Bahrain. The patient showed no signs of vaccination, made an uneventful recovery and there was no spread of the disease in the area. A few weeks later, 8 cases were reported from Maqsha and once again investigation showed that the original case had contracted the infection in Iraq and had arrived in Bahrain during the pre-eruptive stage of the disease, so escaping detection by the Port Health Inspectors. The

outbreak spread from Maqsha to the surrounding villages and to the main district of Manama but it went no further and eventually died out in the middle of January 1957. The total number of cases was 68 with 12 deaths. Most of the patients were babies and children in the 8 - 12 years age group, and twice as many males as females were affected. None of the cases had been vaccinated. With the exception of three non-locals, domiciliary medical treatment was provided as parents refused to allow the patients to be removed to hospital. This arrangement was unsatisfactory from an epidemiological as well as a medical point of view. The high vaccination state of the community which had been built up over the past few years prevented the outbreak from assuming more serious proportions. It was estimated that 85% of the population had been protected in this way but when the outbreak started over 50 000 revaccinations were carried out as a further precautionary measure.

4. SMALLPOX VACCINATION

4.1 Vaccination Activity

Mass vaccination concentrating mainly on children under 5 years of age has been in practice since 1950. Intensive vaccination campaigns at times of incidence of smallpox in Bahrain or in neighbouring countries has helped to reinforce the immunity of the population; it is estimated that 85 to 95 per cent of the population is protected.

Every year during the cooler months (October to May) vaccinators go out to all the villages and towns in Bahrain to vaccinate all children who do not have marks of previous vaccination. The school medical service ensures systematic vaccination of all school children.

During the 1956-57 outbreak, most of the cases were being treated in their homes, with strict isolation practically impossible to enforce. The sheet anchor in the prevention of spread of the disease was the thorough vaccination of the population.

Vaccination is not compulsory in Bahrain. But as a good proportion of the people travel abroad not infrequently and since smallpox vaccination has been required by most countries, revaccination at 3 year intervals has resulted for many.

Freeze dried vaccine and bifurcated needles have been used for all vaccinations since 1966.

4.2 Vaccination Data

The number of smallpox vaccinations performed by the Ministry personnel from 1967 to 1977 and during the first six months of 1978 are shown in Tables 7 and 8.

Table 7

Smallpox Vaccinations Performed, 1967-1977

Year	Primary	Revaccination	Total
1967	6 194	129 076	135 270
1968	1 337	64 363	65 700
1969	4 766	78 507	83 273
1970	5 742	71 725	77 467
1971	4 766	85 828	90 594
1972	6 954	100 722	107 676
1973	6 510	83 956	90 466
1974	6 072	83 927	89 999
1975	8 595	95 970	104 565
1976	6 604	80 868	87 472
1977	7 708	94 574	102 282

Table 8

Smallpox Vaccinations Performed by Month, 1978

Month	Primary Vaccination	Revaccination	Total
January	557	2 069	2 626
February	607	2 854	3 461
March	707	3 490	4 197
April	741	2 851	3 592
May	880	4 184	5 064
June	717	5 475	6 192
July	669	4 640	5 309
	<u>4 878</u>	<u>25 563</u>	<u>30 441</u>

5. SPECIAL OPERATIONS CARRIED OUT FOR CERTIFICATION OF SMALLPOX ERADICATION
JANUARY - JULY 1978

5.1 General

In order to satisfy the Global Commission members that the country is free of smallpox the Ministry of Health undertook to carry out a plan of action as specified by WHO, for a period of six months, and present the data required. The plan of action spelled out the following activities:

(1) Chickenpox surveillance

- (a) This involved notification of all chickenpox cases with epidemiological details.
- (b) Epidemiological investigations of chickenpox outbreaks if associated with death.
- (c) Specimens for laboratory examination from the following cases:
- chickenpox cases with no visible scar of smallpox vaccination;
 - serious chickenpox cases in adults;
 - chickenpox cases where rash is present in palm of hands and/or sole of feet;
 - chickenpox cases in an outbreak associated with death.

(2) Facial Scar Survey

Where indicated and specially in vulnerable areas, the facial scar survey is to be carried out preferably in children under 10 years of age. All children with at least five facial scars are to be investigated specially.

- (3) The proper epidemiological investigation of any rumour of smallpox reported.

5.2 Notification of Chickenpox Cases

Although chickenpox has all along been a notifiable disease, cases have been specially reported in epidemiological detail since January 1978, as required. A total of 3 154 chickenpox cases were thus examined up to July 1978. These cases, by areas of occurrence and according to age, sex and previous smallpox vaccination status, are shown in Tables 9 and 10.

Table 9

Notified Chickenpox Cases by District and Month, January to July 1978

Districts	January	February	March	April	May	June	July	Total
Manama	13	166	216	227	337	156	67	1 182
Muharraq	4	67	101	174	241	76	48	711
Jidhafs Region	1	24	36	45	76	30	13	225
Northern Region	3	11	20	14	19	11	2	80
Western Region	-	-	5	3	6	1	-	15
Middle Region	41	61	55	38	19	16	-	230
Sitra Region	-	97	138	2	71	16	4	328
Rifa'a Region	1	30	78	67	85	33	2	296
Not specified	87	-	-	-	-	-	-	87
Total	150	456	649	570	854	339	136	3 154

Table 10
Notified Chickenpox Cases by Age, Sex and Vaccination Status^a
1 January - 31 July 1978

Age Group	Male			Female		
	Vaccinated	Un-Vaccinated	Total	Vaccinated	Un-Vaccinated	Total
0	16	44	60	17	41	58
1 - 4	330	107	437	322	114	436
5 - 14	932	95	1 027	822	93	915
15 - 24	37	0	37	12	0	12
25+	68	1	69	16	0	16
Total	1 383	247	1 630	1 189	248	1 437

^a Of total 3 154 cases reported, age and vaccination status was not specified for 44 males and 43 females.

5.3 Laboratory Data

Since January 1978, specimens from chickenpox cases of the specified categories were collected and sent to WHO for examination. During the six month period, 50 such specimens were examined. All were found to be smallpox negative.

The details of the specimens collected are shown in Tables 11 and 12 and Annex 2.

Table 11
Results of Laboratory Testing of Specimens Collected March - August 1978

Region of Collection	Number of Specimens	Results - Number of Specimens Positive for:	
		Herpes Varicella (by EM)	Variola Virus
Muharraq	14	5	0
Manama	26	7	0
Northern	1	0	0
Western	1	1	0
Central	2	1	0
Jidhafs	3	1	0
Sitra	3	1	0
Total	50	16	0

Table 12
Distribution of Patients from whom Laboratory Specimens
were collected by Age Group and Vaccination Status

Age Group	Vaccinated	Unvaccinated	Total
0 - 4	1	13	14
5 - 9	9	7	16
10 - 14	3	-	3
15+	16	1	17
Total	29	21	50

5.4 Facial Scar Survey

The School Health Physicians, the Health Centre doctors and the central team of sanitarians and vaccinators participated in this country-wide survey. Altogether 23 169 children under 10 years were examined. Seven children were said to have some scarring of the face. But epidemiological investigations revealed that six of them were recent chickenpox cases with minimal and superficial scarring, whereas the one with more than five deep pitted scars was confirmed to have had smallpox in 1969, when the child was 10 months old in Karachi (Pakistan). For details see Table 13.

Table 13
Smallpox Facial Pockmark Survey, January - July 1978

Regions	Primary Student Population (6 to 12 years) 1976 - 1977	No. of Children Examined Under 10 years	No. found with Facial Pockmarks ^a	No. with Smallpox Vaccination Scar
Manama	14 211	8 472	1 ^b	7 499
Muharraq	10 418	2 257	0	2 207
Jidhafs Region	4 563	2 294	0	1 835
Northern Region	2 830	5 605	0	5 181
Western Region	1 806	571	0	553
Middle Region	3 813	2 087	0	1 826
Sitra Region	2 301	156	0	151
Rifa'a Region	2 648	4 193	0	3 917
Total	42 590	25 635	1	23 169

^a Seven children were initially reported as being pockmarked; however 6 were found to have the scars of chickenpox rather than true facial pockmarks of smallpox.

^b Omani child who contracted smallpox in Pakistan in 1969 when he was 10 months old.

5.5 Rumour of Smallpox

During the period under survey, no case was reported or even suspected as smallpox.

6. CONCLUSION

The last known outbreak of smallpox in the country was in 1956/1957. A good surveillance system exists. All the population has easy access to medical units. Chickenpox has been a notifiable disease all along; there has not been even a suspect case of smallpox for years. This success was achieved mainly by mass vaccination of the population. It appears that smallpox has indeed been eradicated from the country.

STATE OF BAHRAIN
MINISTRY OF HEALTH
DIRECTORATE OF PUBLIC HEALTH
NOTIFIABLE DISEASES — WEEKLY RETURN

Return for the week ending Saturday: _____

From: _____

To: The Department of Communicable Diseases Control, Directorate of Public Health

Diseases	Cases	Deaths	Diseases	Cases	Deaths
Typhoid Fever			Yellow Fever		
Paratyphoid Fevers			Viral Hepatitis		
Other Salmonella Infections			Typhus		
Cholera			Influenza		
Brucellosis			Tuberculosis of respiratory system		
Bacillary Dysentery			Tuberculosis, other forms		
Amoebiasis			Syphilis & its sequelae All cases (new & old)		
Scarlet Fever			out of which new cases		
Streptococcal sore-throat			out of which Congenital Syphilis		
Diphtheria			Gonococcal infection		
Whooping Cough			Food poisoning (infection and intoxication)		
Meningococcal infections			Erysipelas		
Other Meningitis (Please specify)			Leprosy — all cases:		
Plague			out of which new cases only		
Relapsing Fever			Tetanus		
Acute Poliomyelitis			Anthrax		
out of which paralytic form			Trachoma (active)		
Acute infectious encephalitis			Malaria B.T.		
Smallpox			Malaria M.T.		
Measles			Rheumatic fever		
Rubella					
Chickenpox					
Mumps					
Disease	Name	Age	Sex	Full Address Office/Residence	

Please follow the instructions on the cover page in filling these returns.

RESULTS OF LABORATORY TESTING OF SPECIMENS FROM CHICKENPOX CASES

SERIAL NO.	PATIENT	AGE	SEX	REGION	VACCINATION SCAR	LABORATORY RESULTS	
						HERPES VARICELLA (BY EM)	VARIOLA VIRUS ISOLATION
1	Aziz Hassan Salim	16 yrs	M	Muharraq	Present	+	-
2	Ali Mattooq	4 yrs	M	Sitra Region	Not Present	-	-
3	Fouzia Mattooq	9 yrs	F	Sitra Region	Not Present	+	-
4	S.Moh'd S. Hassan	3 yrs	M	Manama	Present	+	-
5	Hessa A. Wahab	7 yrs	F	Manama	Not Present	-	-
6	Zakarya Adam Baki	1 3/12yrs	M	Muharra	Not present	+	-
7	T.R. Rajendran	23 yrs	M	Muharraq	Present	-	-
8	Aysha Ahmed Haji	16 yrs	F	Manama	Present	-	-
9	Zainab A.Rasool Mokd	1 yr	F	Middle Region	Not Present	-	-
10	Mariam Moh'd Radi	5/12 months	F	Sitra Region	Not Present	-	-
11	M.F. Chacko	24 yrs	M	Manama	Present	+	-
12	Ann Jones	8 yrs	F	Manama	Present	-	-
13	Moh'd Ghuloom Abbas	7 yrs	M	Manama	Not Present	-	-
14	K.M. Sathya	27 yrs	M	Middle Region	Present	+	-
15	Zainab Behzad Ali	2 yrs	F	Muharraq	Not Present	-	-
16	A. Rahim Moh'd Sharif	5 yrs	M	Manama	Not Present	-	-
17	Ebrahim Moh'd Ali	8 yrs	M	Jidhafs Region	Present	+	-
18	Nahid Yousif Kohaji	13 yrs	F	Manama	Present	-	-
19	Ramiah Subbiah	32 yrs	M	Manama	Present	-	-
20	Soaad Moh'd Salem	6 yrs	F	Muharraq	Not Present	-	-
21	Fathia Hassan Isa	5 yrs	F	Jidhafs Region	Not Present	-	-
22	Muna A.Nabi Ghazwan	1½ yrs	F	Manama	Not Present	-	-
23	Najat Ebrahim	14 yrs	F	Manama	Present	-	-
24	Asaad Ahmed Mohsin	6 yrs	M	Manama	Present	+	-
25	Adnan Mahmood Mohsin	9 yrs	M	Manama	Present	-	-
26	Delicia Gunawaredera	29 yrs	M	Muharraq	Present	+	-
27	Khalid Saleh Jamal	6 yrs	M	Manama	Present	-	-
28	Qadir Hassan Abdulla	5/12 months	M	Manama	Not Present	-	-
29	Ghasan Ebrahim Ahmed	7 yrs	M	Muharraq	Present	-	-
30	Ahlam Habib Saleh	2½ yrs	F	Manama	Not Present	-	-
31	Azad Saeed Saif	7 yrs	M	Manama	Present	-	-
32	Fathima S. Ameen	12 yrs	F	Jidhafs Region	Present	-	-
33	Zahra Abdulla Ali	2½ yrs	F	Northern Region	Not Present	-	-
34	P.E. Bert	38 yrs	M	Manama	Present	-	-
35	P.C. Thomas	44 yrs	M	Muharraq	Present	+	-
36	Wassem Ebrahim Abdulla	7/12 mhs	M	Muharraq	Not Present	-	-

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ANNEX 2

RESULTS OF LABORATORY TESTING OF SPECIMENS FROM CHICKENPOX CASES (contd.)

SERIAL NO.	PATIENT	AGE	SEX	REGION	VACCINATION SCAR	LABORATORY RESULTS	
						HERPES VARICELLA (BY EM)	VARIOLA VIRUS ISOLATION
37	Abou Balan	38 yrs	M	Western Region	Present	+	-
38	Arif Mohd Yusuf	5 yrs	M	Manama	Not Present	-	-
39	Saber Ali Taher	8/12months	M	Manama	Not Present	-	-
40	Ebrahim Ali Ahmed	15 yrs	M	Manama	Present	+	-
41	Nirmala Perira	24 yrs	F	Manama	Present	+	-
42	Sadanandan Purusho- man	38 yrs	M	Manama	Present	+	-
43	Backet Harzouk	4 yrs	M	Muharraq	Not Present	+	-
44	G.S. Rao	38 yrs	M	Manama	Present	-	-
45	Appu Velayudhan	38 yrs	M	Muharraq	Present	-	-
46	Bahya Yousif	1 3/12 yrs	F	Manama	Not Present	-	-
47	Sultan Moh'd Hilal	8 yrs	M	Muharraq	Present	-	-
48	Lebna A. Aziz	6 yrs	F	Muharraq	Present	-	-
49	A.K. K mar	45 yrs	M	Manama	Present	+	-
50	Hassan Kalifa	7/12 mths	M	Muharraq	Not Present	-	-