

## Tables and Figures



Table 2-1. Morbidity and mortality statistics (inpatients) 1984

Diseases	JPMC		JPMC, Children Hospital		Central Govt. Polyclinic		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases (%)	Deaths (%)
Infectious Diseases including meningitis neonatal & respiratory tract infection	611	43	1,437	180	1,023	36	3,071 (11.0)	259 (20.6)
Neoplasms	932	179	61	1	139	6	1,132 (4.1)	186 (14.8)
Nutritional disorder including anemia	54	0	430	34	88	3	572 (2.0)	37 (2.9)
Circulatory disorder	857	64	102	21	639	35	1,598 (5.7)	120 (9.5)
Perinatal & congenital disorder	91	6	841	146	900	31	1,832 (6.6)	183 (14.5)
Accidents & injuries	1,936	256	212	5	677	12	2,825 (10.1)	273 (21.7)
Others	8,485	59	1,551	86	6,861	57	16,897 (60.5)	202 (16.0)
Total	12,966	607	4,634	473	10,327	180	27,927	1,260

Source: Annual Bulletin, Vol. XXII, Biostatistic Section, MOH

Table 2-2. Communicable diseases notifiable in public hospital (Inpatients) 1984-1986

Diseases	1984		1985		1986		Total		Case fatality rate %
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	%	
Diarrhea	308,270	382	386,652	173	409,384	2,307	1,104,306	58.3	32.4
Tuberculosis	101,734	644	111,464	498	149,004	905	261,043	13.8	23.2
Measles	22,165	29	26,686	51	42,304	318	91,155	4.8	4.5
Whooping cough	48,095	0	55,559	0	53,835	45	157,489	8.3	0.5
Diphtheria	758	18	1,052	3	3,179	239	4,989	0.3	2.9
Tetanus	5,930	199	7,684	56	5,073	377	18,687	1.0	7.2
Tetanus neo.	712	157	450	42	1,064	229	2,226	0.1	4.9
Poliomyelitis	894	3	747	1	2,660	171	4,301	0.2	2.0
Chickenpox	1,130	2	1,273	0	2,718	318	5,121	0.3	3.6
Mumps	31,725	2	38,723	0	52,935	20	123,383	6.5	0.2
Influenza	21,262	0	25,107	0	40,140	0	86,509	4.6	-
Meningitis	5,590	104	592	44	6,048	825	12,230	0.6	11.0
Leprosy	1,471	1	1,684	0	3,859	51	7,014	0.4	0.6
Hepatitis	1,397	17	-	-	2,150	295	3,547	0.2	3.5
Malaria	-	-	-	-	55	0	55	0.0	-
Puerperal fever	527	0	1,507	1	1,769	68	3,803	0.2	0.8
Rabies	28	5	-	-	163	73	191	0.0	0.9
Sprue	-	-	213	0	7,535	34	7,748	0.4	0.4
Erysipelas	-	-	21	0	552	46	573	0.0	0.5
Scarlet fever	174	0	63	0	480	70	717	0.0	0.8
Total	551,862	1,563	659,477	869	784,907	6,391	1,895,087		0.47

Source: Biostatistic Section, MOH

Table 2-3 EPI-Pakistan National Immunization Coverage  
Evaluation (Fully Immunized) 1984-1988

PROVINCE	12-23 MONTHS CHILDREN			MOTHERS		
	1984	1987	1988	1984	1987	1988
PUNJAB	78 %	83 %	85 %	43 %	52 %	75 %
SIND	30 %	56 %	74 %	3 %	26 %	42 %
NWFP / FATA	60 %	75 %	89 %	6 %	35 %	64 %
BALUCHISTAN	17 %	6 %	40 %	0.5%	7 %	31 %
A. J. K.	30 %	38 %	86 %	7 %	12 %	76 %
PAKISTAN	59 %	69 %	81 %	25 %	40 %	64 %

NOTE : Based on card and history.

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National Programme Manager EPI/CDD  
Islamabad, 09 March, 1988

Table 2-4 Age Specific Mortality of Children Under Five, Pakistan and Provinces

Places	Age specific mortality*			Under five diarrhoeal		Average age(months)of	
	0-1(years)	1-4years	0-4(years)	Mortality rates*	Death ratio	All Deaths	Diarrhoeal Deaths
PAKISTAN	123.8	34.3	55.3	19.7	0.35	11.0	11.7
Rural	127.6	35.2	56.7	15.8	0.27	10.3	13.9
Urban	116.6	32.3	52.5	27.5	0.51	12.3	9.2
PUNJAB	125.7	40.2	60.5	19.2	0.30	10.0	13.8
Rural	127.6	41.9	62.0	15.8	0.24	8.5	15.5
Urban	121.7	36.5	57.4	26.4	0.44	11.6	12.9
SIND	120.5	27.1	46.4	23.2	0.46	10.6	9.7
Rural	127.5	28.6	48.3	14.3	0.29	9.6	14.2
Urban	112.5	25.2	44.7	31.3	0.69	12.0	7.3
N.W.F.P.	125.0	26.1	53.8	19.5	0.35	11.8	12.8
Rural	126.4	26.1	53.6	19.6	0.35	13.0	15.2
Urban	117.6	26.3	54.5	18.9	0.33	5.3	1.0
BALUCHISTAN	117.6	26.1	53.3	13.9	0.29	8.5	5.6
Rural	130.4	26.0	50.0	10.4	0.20	6.0	6.8
Urban	90.9	26.3	40.8	20.8	0.50	12.7	1.0
Under five diarrhoeal death ratio = $\frac{\text{Under five diarrhoeal deaths}}{\text{Under five deaths}}$							* /1,000 live birth

Source : Diarrhoeal disorders and feeding practices in Pakistan, 1984.

Table 2-5 Frequency of Causative Microorganisms in Diarrhoeal Patients

	(1)	(2)	(3)
Rotavirus	-	-	28.8%
Rotavirus + Bacteria	-	-	6.4
E. Coli	30.0%	45.7%	48.4
Proteus Morganii	4.7	18.2	-
Shigella	2.0	15.4	3.4
Pseudomonas Aeruginosa	1.6	4.3	1.1
Salmonella	1.6	3.2	2.7
Klessiella aeromonas	-	9.6	-
Enterobactor aeromonas	-	3.6	-
Giardia Intestinale	1.3	-	0.8
Others	-	-	1.2
Negative	58.8	-	7.6
Total	100.0	100.0	100.0

(1) Kahan, MMA, et al. JPMA, 31, 201-203, 1987

(2) Kahan, MMA(1982): 250 stool samples of diarrheal patients form Rawalpindi General Hospital, Holy Family Hospital and Centrel Govt. Polyclinic, Islamabad

(3) Bhutta, TI et al. Rotavirus enteritis in hospitalized infants and yound children, JPMR, 1987

Table 2-6 Medical Status in Karachi City

DEMOGRAPHIC INDICATORS	Orangi		Karimabad Colony		Chanasser Goth		Graz Village		Issa Naqri		Azam Basti	
Sex Ratio (males per 100 females)	113	101	107	104	112	112	112	112	112	112	112	112
% of population below 5 years	18.4	8.4	20.4	21.4	20.5	20.5	20.5	20.5	20.5	20.5	19.8	19.8
% of population below 15 years	49.0	28.4	50.1	49.8	46.8	46.8	46.8	46.8	46.8	46.8	48.2	48.2
% of population below 60 years	4.6	6.8	5.0	5.2	4.2	4.2	4.2	4.2	4.2	4.2	3.5	3.5
Crude birth rate (per 1000 population)	40.8	16.3	40.5	44.0	44.4	44.4	44.4	44.4	44.4	44.4	41.0	41.0
Crude death rate (per 1000 population)	9.6	7.3	11.2	14.7	18.4	18.4	18.4	18.4	18.4	18.4	10.9	10.9
Infant Mortality Rate (per 1000 live births)	110.4	33.3	95.0	145.0	143.6	143.6	143.6	143.6	143.6	143.6	105.0	105.0
Infant deaths as percent of total deaths	45.2	7.4	34.3	54.6	44.0	44.0	44.0	44.0	44.0	44.0	35.9	35.9
Child (1-4 years) as percent of total deaths	5.5	11.1	14.8	11.3	12.0	12.0	12.0	12.0	12.0	12.0	8.7	8.7
% of currently married women never used FP method	-	4.2	82.2	86.5	83.5	83.5	83.5	83.5	83.5	83.5	77.5	77.5
% of women 15-49 currently using contraceptive	-	55.7	7.4	6.2	11.7	11.7	11.7	11.7	11.7	11.7	14.7	14.7
MORBIDITY AND HEALTH RELATED INDICATORS												
% ill for over one week (of those reported ill)	67.7	76.7	65.2	59.0	-	-	-	-	-	-	63.7	63.7
Major disease (among those reported ill) %:												
Malaria/Fever	19.0	3.7	11.1	15.1	10.4	10.4	10.4	10.4	10.4	10.4	21.4	21.4
Respiratory infection	24.2	25.3	27.0	24.0	-	-	-	-	-	-	41.5	41.5
Diarrhoea/GIT	17.6	7.7	9.7	13.2	-	-	-	-	-	-	8.0	8.0
Hypertension/CVD/Diabetes	3.2	18.9	7.1	8.9	-	-	-	-	-	-	11.6	11.6
Health facility utilized (by those reported ill) %:												
Govt. Hospital/Dispensary	9.7	7.3	12.9	9.0	11.2	11.2	11.2	11.2	11.2	11.2	26.2	26.2
Private Hospital/Clinic	59.8	63.4	82.1	81.0	40.4	40.4	40.4	40.4	40.4	40.4	64.9	64.9
Hakin	1.6	0.6	0.6	2.2	1.4	1.4	1.4	1.4	1.4	1.4	2.4	2.4
Homeopath	0.4	2.9	1.5	2.1	1.4	1.4	1.4	1.4	1.4	1.4	3.0	3.0
Compounder/unqualified Doctors	3.4	0.3	0.3	4.3	7.8	7.8	7.8	7.8	7.8	7.8	2.1	2.1
Faith Healer	0.2	0.1	0.0	1.4	0.8	0.8	0.8	0.8	0.8	0.8	0.2	0.2
None	22.7	17.6	2.6	0.0	37.0	37.0	37.0	37.0	37.0	37.0	1.2	1.2
Average expenses incurred on treatment per capita (on those reported ill) Rs.	72.00	46.00	99.00	100.0	-	-	-	-	-	-	-	-
Cause of death:												
Diarrhoea/GIT and infectious Diseases	19.7	8.0	13.3	22.3	-	-	-	-	-	-	21.4	21.4
Birth Related	30.6	3.7	13.3	5.6	-	-	-	-	-	-	6.1	6.1
CVD/Stroke	14.0	51.8	26.7	16.7	-	-	-	-	-	-	9.2	9.2
Cancer	5.6	14.8	0.0	11.1	-	-	-	-	-	-	3.1	3.1

Source : Karim MS . Health, demographic and socioeconomic conditions in selected Karachi Abadis of Karachi, July 1988.



Table 2-7 Registered Number of Leprosy Patients in Provinces(1986-87)

<u>Karachi alone:</u>	<u>14,041</u>		
<u>Sind Rural Area:</u>	<u>2,276</u>	<u>Baluchitan:</u>	<u>1,251</u>
Hyderabad	1,201	Quetta	482
Mirpurkhas	356	Gwadur	192
Sukkur	305	Khuzdar	181
Larkana	226	Others	396
Thatta Charo	114	<u>Norhtern Area:</u>	<u>652</u>
Nawabshah	68	Gilgit	302
<u>N. W. F. P.</u>	<u>6,947</u>	Diamc	222
Balakot	1,466	Others	128
Peshar	1,211	<u>Panjab:</u>	<u>2,626</u>
Pir Baba	990	Rawalpindi	1,841
Pattan Hohi.	503	Lahore	610
Warri	333	Faisalabad	175
Matta	328	<u>Azad Kashmir:</u>	<u>3,473</u>
Dassu Kohi	226	Muzaffarabad	492
Kabal	225	Abbassp ur	437
Bajour	215	Kahota	295
Khaza	199	Rawalkot	219
Dir	180	Bagh	201
Chitral	167	Khundal Shahi	200
Mardan	159	Dhani	192
Alpurai	155	Kahari	137
Chakesar	153	Ghari Dopatta	115
Sanar Bagh	101	Holti	114
		Others	1,071
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TOTAL, PAKISTAN : 31266			
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Table 2-8 AIDS Cases Reported MOH (April, 1988)

Case No.	Case 1	Case 2	Case 3	Case 4	Case 5
Sex	male	male	male	Female	Female
Age	32 yrs.	31 yrs.	35 yrs.	35 yrs.	25 yrs.
Occupation	seaman	seaman	seaman	housewife	seaman
Nationality	Tanzanian	Pak-Canadian Tanzanian		Pakistani	Kenyan
Date reported	Jan. '87	Dec. '87	Feb. '88	Aug. '87	Apr. '88
Outcome	died	died	died	living	living
(date)	22.1.'87	5.3.'88	15.3.'88	Hospital	Hospital

Source: Note for Record on Discussion between MOH and WHO AIDS Team, 19-28 April 1988

Table 2-9 Incidence of HIV-Antibodies in Six High-Risk Group Members in Pakistan

Group	No. of Sera	Initially reactive		Repeatedly reactive		Western blot reactive
		(Abbott EIA)	(Abbott EIA)	(Abbott EIA)	(Organon Teknika ELISA)	
Blood donors	121	14 (11.6)	3 (2.5)	1 (0.8)	1 (0.8)	1 (0.8)
Polytransfused	25	0	—	—	—	—
Lymphadenopathy cases	24	1	0	—	—	—
Drug abusers	40	1 (2.5)	1 (2.5)	1 (2.5)	1 (2.5)	1 (2.5)
Hemophiliacs	14	2	0	—	—	—
Family members of a positive case	6	2 (33.3)	2 (33.3)	2 (33.3)	2 (33.3)	2 (33.3)
Total	230	20 (8.7)	6 (2.6)	4 (1.7)	4 (1.7)	4 (1.7)

Note: Numbers in parentheses indicate percentage.

Source: R.M. Khanani et al.: Human Immunodeficiency Virus-Associated Disorders in Pakistan ;  
AIDS Research and Human Retroviruses, 1988

Table 2-10 Incidence of HIV-Antibody in Some Specified Groups(NIH, April 1988)

Tested Groups	Total Tested	Ist Screen by ELISA		Repeat Scan by Pos.		Western Blot Confirmation
		Neg.	Pos.	Neg.	Pos.	
Blood Donors (Hilal-e-Ahmer)	12500	12488	12	12	0	-
Persons living in malaria endemic regions (Gujrat, Hafizabad & Gujranwala)	957	950	7	7	0	-
Hepatitis positive Samples	845	837	8	8	0	-
Referred cases from various hospitals	827	808	19	0	19	19
Afghan Refugees	773	773	0	-	-	-
Total	15902	15856	46	27	19	19

Source: Note for Record on Discussion between MOH, Government of Pakistan and WHO AIDS Team, Islamabad, 19-28 April 1988

Table 2-11 Prevalence of HIV-Antibodies in General Population and High Risk Groups, Lahore, 1987-1988

GROUPS	NUMBER TESTED	NO. POSITIVE BY ELISA			NO. POSITIVE BY WESTERN BLOT
		FLOW LAB.	WELLOOME	BEHRING	
General population	1050	2	0	0	0
Prostitutes	60	2	0	0	0
Homosexuals(Eunuchs)	30	0	0	0	ND
Blood Transfusion Recipients	60	**	**	**	**
Blood Donors	60	0	0	0	ND
Haemophilics	20	0	0	0	ND
Parenteral Drug Abusers	30	1	0	0	0
Persistent Generalized Lymphadenopathy	60	0	0	0	ND
Expatriates/Visitors of					
U. S. A.	200	4	0	0	0
Europe	30	0	0	0	ND
Bangkok	1	1	1	0	0
TOTAL : ---	1601	11	2	1	1

\* ND--NOT done

\* \* Case of AIDS (Late Mumtaz Begum)

Source: S, Z, H. Bokhari : A Seroepidemiological Study on Human Immunodeficiency Virus (HIV) Infection, College of Community Medicine, 1988

Table 2-12 Reported Cases of Malaria Patients by Years in Pakistan

Year	Population	No. of Slides Collected	No. of Positive cases	S P R (%)	API/1000
1960		Base Line Surveys		15.57	
1961		25,733	936	3.64	
1962		83,230	754	0.91	
1963		272,178	7,479	2.75	
1964		407,977	6,660	1.63	
1965		1,078,216	15,859	1.47	
1966		1,731,691	6,206	0.36	
1967		2,574,664	6,465	0.25	
1968		3,251,913	11,562	0.36	
1969		4,705,567	45,929	0.98	
1970		3,847,538	107,999	2.81	
1971		3,778,934	202,496	5.36	
1972		4,409,863	642,958	14.58	
1973	45,450,481	4,252,184	599,177	14.09	13.183
1974	46,856,165	3,094,098	303,936	9.82	6.487
1975	48,305,324	3,205,689	238,315	7.43	4.934
1976	49,799,303	3,857,854	122,219	4.28	2.454
1977	51,279,670	2,667,315	47,571	1.78	0.928
1978	52,737,019	2,588,257	16,160	0.62	0.306
1979	53,929,411	2,682,351	12,304	0.46	0.228
1980	55,103,689	3,006,624	17,707	0.59	0.321
1981	56,934,577	3,018,468	37,923	1.26	0.666
1982	58,067,409	3,303,067	56,360	1.71	0.971
1983	58,468,028	2,587,920	51,596	1.99	0.883
1984	60,746,320	3,255,853	73,996	2.27	1.218
1985	62,133,283	3,119,695	77,607	2.49	1.249
1986	63,997,281	2,919,894	91,289	3.13	1.426

(Annual Report, 1986-1987, Directorate of Malaria Control, GOP)

Table 2-13 Reported Cases of Malaria Species by Years in Pakistan

Year	No. of Slides	No. Positive		S P R(%)		P. f. rate(%)
		P. v.	P. f.	P. v.	P. f.	
1981	3, 018, 468	32, 988	3, 053	1. 09	0. 16	8. 5
1982	3, 249, 851	45, 820	9, 848	1. 40	0. 30	17. 7
1983	2, 587, 920	36, 119	15, 696	1. 39	0. 60	30. 3
1984	3, 255, 853	49, 539	24, 708	1. 53	0. 75	33. 3
1985	3, 119, 695	48, 556	29, 327	1. 55	0. 94	37. 6
1986	2, 919, 894	61, 685	29, 884	2. 11	1. 02	32. 6

(Annual Report, 1986-1987, Directorate of Malaria Control, GOP)

Table 2-14 Reported Cases of Malaria Patients by Years in Punjab Province

Year	Population	No. Slide	No. Posi.	S P R(%)	API
1961		20,527	648	3.15	
1962		82,325	759	0.92	
1963		233,664	5,077	2.17	
1964		379,350	4,902	1.29	
1965		858,590	6,546	0.76	
1966		1,529,892	2,861	0.19	
1967		2,295,099	3,256	0.14	
1968		2,671,125	7,375	0.20	
1969		3,682,718	35,858	0.97	
1970		2,827,986	85,509	3.02	
1971	28,252,000	2,549,884	171,209	6.71	6.06
1972	29,063,000	3,055,643	622,093	20.35	21.40
1973	29,897,000	2,898,420	591,932	20.42	9.79
1974	30,755,000	2,053,366	291,402	14.19	9.47
1975	31,637,900	2,383,259	209,090	8.77	6.60
1976	32,589,977	1,994,160	105,552	5.29	3.23
1977	33,543,901	1,927,013	36,920	2.13	1.10
1978	34,428,929	1,541,132	7,820	0.50	0.22
1979	32,298,054	1,612,884	5,828	0.36	0.18
1980	36,190,099	1,838,153	9,537	0.52	0.26
1981	37,048,855	1,693,578	17,419	1.03	0.47
1982	37,651,501	1,815,879	27,095	1.49	0.72
1983	38,097,554	1,497,830	29,968	2.00	0.78
1984		2,084,222	53,823	2.58	1.37
1985		2,130,093	45,416	2.13	1.14
1986		1,890,361	47,106	2.49	1.29

(1961-1983; Malaria Control Programme in Pakistan, Pakistan Medical Research Council)

(1984-1986; Annual report. 1986 :1987, Directorate of Malaria Control, GOP)



Table 2-15 Reported Cases of Malaria Species by Years in Punjab Province

Year	No. Slides	No. Posi.	P. v.	P. f.	Mix	P. f. rate(%)
1971	2, 549, 884	171, 209	161, 913	9, 030	266	5. 27
1972	3, 055, 643	622, 093	567, 573	53, 815	701	8. 65
1973	2, 898, 420	591, 932	523, 820	67, 355	757	11. 37
1974	2, 053, 366	291, 402	256, 451	34, 689	256	11. 90
1975	2, 383, 259	209, 090	118, 420	90, 405	265	43. 23
1976	1, 994, 160	105, 552	72, 740	33, 000	188	31. 26
1977	1, 927, 013	36, 920	27, 022	9, 970	72	27. 00
1978	1, 541, 132	7, 820	6, 165	1, 686	31	21. 56
1979	1, 612, 884	5, 828	3, 428	2, 426	26	41. 62
1980	1, 838, 153	9, 537	7, 633	1, 935	31	25. 35
1981	1, 693, 578	17, 419	15, 003	2, 458	42	16. 38
1982	1, 815, 879	27, 095	20, 339	6, 827	71	25. 20
1983	1, 497, 830	29, 968	20, 009	10, 052	93	33. 55
1984	2, 084, 222	53, 823				36. 50
1985	2, 130, 093	45, 416				37. 38
1986	1, 890, 361	47, 106				32. 05

(1961-1983; Malaria Control Programme in Pakistan, Pakistan Medical Research Council)

(1984-1986; Annual Report, 1986-1987, Directorate of Malaria Control, GOP)

Table 2-16 Reported Cases of Malaria Patients by Years in Sind Province

Year	Population	No. Slide	No. Posi.	S P R(%)	API/1000
1965	3,024,591	56,764	3,731	6.57	1.23
1966	3,262,455	78,629	3,133	3.98	0.96
1967	6,821,153	210,688	5,091	2.42	0.74
1968	7,071,810	422,999	8,394	1.98	1.18
1969	6,393,927	713,895	8,994	1.26	1.40
1970	6,569,327	534,132	12,108	2.27	1.84
1971	6,647,049	580,709	11,369	1.96	1.71
1972	6,187,194	615,299	9,508	1.55	1.53
1973	6,824,359	657,307	11,280	1.72	1.65
1974	7,141,249	252,313	3,620	1.43	0.50
1975	7,444,993	36,090	1,793	4.97	0.24
1976	7,748,738	336,705	6,219	1.85	0.80
1977	8,032,821	396,535	8,535	2.15	1.06
1978	8,260,022	397,101	7,357	1.85	0.89
1979	8,471,098	412,444	4,332	1.05	0.51
1980	8,579,767	456,501	3,497	0.77	0.40
1981	9,164,127	511,414	5,077	0.99	0.55
1982	9,353,429	525,772	7,219	1.37	0.77
1983	9,624,678	447,426	12,516	2.79	1.30
1984		439,706	9,534	2.17	0.98
1985		465,787	14,265	3.06	1.43
1986		474,063	17,089	3.60	1.68

(1961-1983; Malaria Control Programme in Pakistan, Pakistan Medical Research Council)

(1984-1986; Annual Report. 1986-1987, Directorate of Malaria Control, GOP)

Table 2-17 Reported Cases of Malaria Species by Years in Sind Province

Year	No. Slides	No. Posi.	P. v.	P. f.	Mix	P. f. rate(%)
1965	56,764	3,731	2,565	1,207	42	32.35
1966	78,629	3,133	1,771	1,405	43	44.85
1967	210,688	5,091	3,224	1,946	80	38.22
1968	422,999	8,394	6,572	1,987	183	23.67
1969	713,895	8,994	6,132	2,914	166	32.40
1970	534,132	12,108	8,273	3,936	114	32.51
1971	580,709	11,369	9,069	2,363	63	20.78
1972	615,299	9,508	6,897	2,682	71	28.21
1973	657,307	11,280	7,034	4,334	89	38.42
1974	252,313	3,620	2,506	1,142	28	31.55
1975	36,090	1,793	1,203	598	8	33.35
1976	336,705	6,219	3,261	3,021	63	48.58
1977	396,535	8,535	3,417	5,167	49	60.54
1978	397,101	7,357	3,911	3,503	57	47.61
1979	412,444	4,332	2,378	1,989	35	45.91
1980	456,501	3,497	2,302	1,215	20	34.74
1981	511,414	5,077	3,516	1,602	41	31.55
1982	525,772	7,219	4,806	2,457	44	34.04
1983	447,426	12,516	8,406	4,181	71	33.49
1984	439,706	9,534				37.87
1985	465,787	14,265				59.00
1986	474,063	17,089				61.12

(1961-1983; Malaria Control Programme in Pakistan, Pakistan Medical Research Council)

(1984-1986; Annual Report, 1986-1987, Directorate of Malaria Control, GOP)

Table 2-18 Reported Cases of Malaria Patients by Years in N.W.F.P.

Year	Population	No. Slide	No. Posi.	S P R (%)	API/1000
1966	2,662,234	92,432	3,162	3.42	1.18
1967	2,788,492	92,975	753	0.82	0.27
1968	4,632,428	228,366	1,785	0.78	0.38
1969	5,658,981	379,443	1,748	0.46	0.31
1970	6,330,891	442,404	9,280	2.09	1.46
1971	6,520,158	605,751	18,214	3.00	2.79
1972	7,032,752	674,905	10,199	1.51	1.45
1973	7,289,051	676,038	3,329	0.49	0.45
1974	7,588,663	727,543	7,514	1.03	0.99
1975	7,810,845	763,459	27,078	3.54	3.46
1976	7,969,814	494,492	10,164	2.05	1.27
1977	8,127,265	505,363	1,894	0.37	0.23
1978	8,169,753	608,844	646	0.10	0.08
1979	8,272,073	583,824	1,815	0.31	0.21
1980	8,427,046	612,590	1,982	0.32	0.23
1981	8,608,917	601,508	3,987	0.66	0.44
1982	8,790,466	603,602	4,437	0.73	0.50
1983	9,074,109	569,819	5,357	0.94	0.59
1984		668,892	9,764	1.46	1.04
1985		473,193	16,728	3.53	1.75
1986		516,240	26,234	5.08	2.72

(1961-1983; Malaria Control Programme in Pakistan, Pakistan Medical Research Council)

(1984-1986; Annual Report, 1986-1987, Directorate of Malaria Control, GOP)

Table 2-19 Reported Cases of Malaria Species by Years in N.W.F.P.

Year	No. Slides	No. Posi.	P. v.	P. f.	Mix	P. f. rate(%)
1966	92,432	3,162	2,807	402	47	12.71
1967	92,975	753	714	55	16	7.30
1968	228,366	1,785	1,692	100	31	5.60
1969	379,443	1,748	1,429	306	38	17.50
1970	442,404	9,280	8,194	1,058	121	11.40
1971	605,751	18,214	15,777	2,630	205	14.44
1972	674,905	10,199	9,508	793	102	7.78
1973	676,038	3,329	2,706	656	34	19.70
1974	727,543	7,514	7,049	486	22	6.47
1975	763,459	27,078	24,734	2,470	127	9.12
1976	494,492	10,164	9,525	693	54	6.82
1977	505,363	1,894	1,810	89	5	4.69
1978	608,844	646	565	84	3	13.00
1979	583,824	1,815	1,436	389	10	21.43
1980	612,590	1,982	1,760	234	12	11.80
1981	601,508	3,987	3,711	287	11	7.20
1982	603,602	4,437	4,301	144	8	3.24
1983	569,819	5,357	4,519	858	20	16.01
1984	668,892	9,764				11.09
1985	473,193	16,728				18.76
1986	516,240	26,234				14.93

(1961-1983; Malaria Control Programme in Pakistan, Pakistan Medical Research Council)

(1984-1986; Annual Report, 1986-1987, Directorate of Malaria Control, GOP)

Table 2-20 Reported Cases of Malaria Patients by Years in Baluchistan Province

Year	Population	No. Slide	No. Posi.	S P R(%)	API/1000
1970 Jul. Dec.	1, 103, 256	23, 395	1, 123	4. 80	1. 01
1971	1, 280, 132	72, 385	2, 496	3. 44	1. 95
1972	1, 321, 405	83, 062	1, 179	1. 41	0. 89
1973	1, 512, 797	91, 489	1, 593	1. 74	1. 05
1974	1, 512, 797	79, 879	732	0. 91	0. 48
1975	1, 512, 797	33, 728	484	1. 43	0. 32
1976	1, 543, 103	51, 314	610	1. 18	0. 39
1977	1, 575, 683	57, 598	483	0. 84	0. 30
1978	1, 778, 515	65, 427	406	0. 62	0. 23
1979	1, 839, 136	79, 332	365	0. 47	0. 20
1980	1, 906, 777	62, 675	501	0. 80	0. 26
1981	2, 113, 076	44, 604	469	1. 05	0. 22
1982	2, 271, 603	55, 392	842	1. 52	0. 37
1983 upto Aug.	2, 388, 989	29, 297	533	1. 82	0. 22
1984		63, 000	875	1. 38	0. 34
1985		50, 622	1, 198	2. 36	0. 41
1986		39, 230	860	2. 19	0. 28

(1961-1983; Malaria Control Programme in Pakistan, Pakistan Medical Research Council)

(1984-1986; Annual Report, 1986-1987, Directorate of Malaria Control, GOP)

Table 2-21 Reported Cases of Malaria Species by Years in Baluchistan Province

Year	No. Slides	No. Posl.	P. v.	P. f.	Mix	P. f. rate(%)
1970 Jul- Dec.	23,395	1,123	524	624	25	55.56
1971	72,385	2,496	1,640	890	44	35.74
1972	83,062	1,179	717	489	27	41.75
1973	91,489	1,593	808	805	20	50.56
1974	79,879	732	541	206	15	28.34
1975	33,728	484	186	307	9	63.65
1976	51,314	610	247	374	11	61.76
1977	57,598	483	279	219	15	45.26
1978	65,427	406	284	127	5	31.30
1979	79,332	365	240	132	7	35.40
1980	62,675	501	225	293	17	58.43
1981	44,604	469	292	187	10	39.92
1982	55,392	842	516	349	23	41.45
1983 upto Aug.	29,297	533	398	148	13	27.75
1984	63,000	875				41.83
1985	50,622	1,198				66.11
1986	39,230	860				49.30

(1961-1983; Malaria Control Programme in Pakistan, Pakistan Medical Research Council)

(1984-1986; Annual Report, 1986-1987, Directorate of Malaria Control, GOP)

Table 2-22 Reported Cases of Malaria Patients by Months in Pakistan(1986)

Month	Total Slides	Total Positive	Positive cases			
			P. v.	P. f.	Mix	SPR(%)
January	205,632	4,390	1,710	2,699	19	2.13
February	234,309	4,590	2,336	2,282	28	1.96
March	281,613	5,595	3,744	1,894	43	1.99
April	271,688	7,693	6,666	1,045	18	2.83
May	275,445	8,375	7,416	965	6	3.04
June	169,411	6,483	5,893	598	8	3.83
July	198,995	6,520	5,970	558	8	3.28
August	197,110	6,502	5,566	947	11	3.30
September	293,999	8,360	6,334	2,043	17	2.84
October	311,222	11,646	6,888	4,800	42	3.74
November	268,808	11,473	5,414	6,101	42	4.27
December	251,662	9,662	3,748	5,952	38	3.84
Total	2,919,894	91,289	61,685	29,884	280	3.13

(Annual Report, 1986-87, Directorate of Malaria Control, GOP)

Table 2-23 Reported Cases of Malaria Patients by Sex in Four Districts of Pakistan(1981-1982)

District	Rates(1982)			Positive Cases		
	SPR	API	P. f. %	Male(%)	Female(%)	Total
Sheikhupura	4.17	1.61	33.81	2,051(48.0)	2,223(52.0)	4,274
Bannu	1.7	1.8	11.87	1,539(75.6)	497(24.4)	2,036
Nawabshah	0.68	0.25	30.73	561(85.0)	99(15.0)	660
Khuzdar	0.76	0.34	39.47	145(90.6)	15(9.4)	160

(Malaria Control Programme in Pakistan, Pakistan Medical Research Council)



Table 2-24 Reported Cases of Malaria Patients by Age Groups in Four Districts of Pakistan(1981-1982)

District	Species	Age Groups					Total
		0-9M (%)	10-12M (%)	1-5Yrs (%)	6-11Yrs (%)	12Yrs+ (%)	
Sheikhpura	P.v.	25( 0.9)	51( 1.8)	308(10.9)	623(22.1)	1,812(64.3)	2,819
	P.f.	5( 0.3)	14( 1.0)	237(16.3)	647(44.5)	552(37.9)	1,455
	Total	30( 0.7)	65( 1.5)	545(12.8)	1,270(29.7)	2,364(55.3)	4,274
Bannu	P.v.	2( 0.1)	2( 0.1)	421(13.3)	1,525(48.0)	1,227(38.6)	3,177
	P.f.	0	0	36( 9.1)	199(50.3)	161(40.7)	396
	Total	2( 0.1)	2( 0.1)	457(12.8)	1,724(48.3)	1,388(38.8)	3,573
Nawabshah	P.v.	0	0	27( 6.3)	215(50.4)	185(43.3)	427
	P.f.	0	0	18( 7.7)	104(44.6)	111(47.6)	233
	Total	0	0	45( 6.8)	319(48.3)	296(44.8)	660
Khuzdar	P.v.	0	0	2( 2.2)	10(10.8)	81(87.1)	93
	P.f.	0	0	6( 9.0)	13(19.4)	48(71.6)	67
	Total	0	0	8( 5.0)	23(14.4)	129(80.6)	160
Total	P.v.	27( 0.4)	53( 0.8)	758(11.6)	2,373(36.4)	3,305(50.7)	6,516
	P.f.	5( 0.2)	14( 0.7)	297(13.8)	963(44.8)	872(40.5)	2,151
	Grandtotal	32( 0.4)	67( 0.8)	1,055(12.2)	3,336(38.5)	4,177(48.2)	8,667

(Malaria Control Programmes in Pakistan, Pakistan Medical Research Council)

Table 2-25 Consolidated Results of Chloroquine Tests in Local Strains of P.Falciparum in Pakistan from 1976-1988

Year	Districts	Locality	Total cases	Sensitive	R-I	R-II	R-III	Absent	Type of Test	Drugs used
1976	D. G. Khan, Jhang, M. Garh		50	50	0	0	0	0	in vitro (macro)	
1977-78	D. G. Khan	Malkani Kalan	58	58	0	0	0	0	in vivo	
1978	Bahawalpur	Bunga, Ramzan	28	28	0	0	0	0	in vivo	
1980	Gujrat	Randiali	60	60	0	0	0	0	in vivo	
1981	Sukkur	Rakhiel-Ji Wandh	27	27	0	0	0	0	in vivo	
1981	Sheikhupura	Tarey-Da-Kot	60	58	2	0	0	0	in vivo	
1982	Sheikhupura	Chak No-10	39	39	0	0	0	0	in vivo	
1983	Jhang	Laliana Chak No-40	60	56	4	0	0	0	in vivo	
1983-84	Banawalnagar	Mohammadpur	33	17	15	1	0	0	in vivo	
1984	L. shore	Cajju Matta	16	6	10	0	0	0	in vitro micro	
1984	Karachi	Hub Dam Colony	2	2	0	0	0	0	in vitro micro	
1984	Kasur	Rajji Wala Arain	43	16	24	2	0	1	in vivo	
1984-85	Okara	Puran	15	6	9	0	0	0	in vivo	Chloroquine
			15	3	8	3	0	1	in vivo	Amodiaquine
			15	13	0	1	0	1	in vivo	Pansidar
1985-86	Sialkot	Garowal	38	5	28	2	0	3	in vivo	Chloroquine
			26	10	13	0	0	3	in vivo	Amodiaquine
			17	8	8	1	0	0	in vivo	Pansidar
1986	Sargodha	Mateela	67	36	28	1	0	2	in vivo	
1987	Muzaffargarh	Bait	39	11	16	9	0	3	in vivo	Chloroquine
		Rai Ali	23	15	6	0	0	2	in vivo	Amodiaquine
1987-88	Mardan	Taja	51	3	39	7	0	2	in vivo	Chloroquine
			10	1	8	1	0	0	in vivo	Amodiaquine

(Pamphlet from National Institute of Malaria research and Training, 1987)

Table 2-26      Prevalence of G-6-PD Deficiency in Residents of the Lahore Area of Pakistan  
(R. C. Bollinger and A. Zafar-Latif, 1985)

	Sample size	Intermediate Reactors(%)	Deficient (%)
<u>Villagers</u>			
Male	181	13 (7.2)	3 (1.7)
Female	204	16 (7.8)	3 (1.5)
<u>Urban Dwellers</u>			
Male	292	1 (0.3)	9 (3.1)
Female	103	1 (1.0)	1 (1.0)
<u>Total</u>			
Male	473	14 (3.0)	12 (2.5)
Female	307	17 (5.5)	4 (1.3)

(Pakistan Journal of Medical Research, 24(2), 1985)

Table 2-27 List of the Anopheles Mosquitoes in Pakistan

<u>Anopheles (Anopheles)</u>		
barbirostris	Van der Wulp,	1884
barianensis	James	1911
gigas	Giles	1901
gigas var similenis	James	1911
habibi	Mulligan & Puri	1936
nigerrimus	Giles	1900
lindesayi	Giles	1900
<u>Anopheles (Cellia)</u>		
annularis	Van der Wulp	1884
culicifacies	Giles	1901
dthali	Patton	1905
fluviatilis	James	1902
maculatus	Theobald	1901
maculatus ssp willmori	James	1903
moghulensis	Christophers	1924
multicolor	Cambouliu	1902
pallidus	Theobald	1902
pulcherrimus	Theobald	1902
sergenti	Theobald	1907
splendidus	Koizumi	1902
stephensi	Liston	1901
stephensi ssp mysorensis	Sweet & Rao	1937
subpictus	Grossi	1899
superpictus	Grassi	1899
theobaldi	Giles	1901
turkhudi	Liston	1901

(M. Aslamkhan: Mosq. Syst. Newsletter, 3(4), 1971)

Table 2-28 The List of Anophles Species Recorded and their Distribution in Pakistan

Sr. No.	Name An. species	Provinces				
		Sind	Baluchistan	Punjab	N. W. F. P.	A. K.
1.	A. nigerrimus	**	*	**	**	**
2.	A. lindesayi	—	—	—	*	—
3.	A. annularis	**	**	**	**	**
4.	A. culicifacies	***	***	***	***	***
5.	A. dthali	—	*	—	—	—
6.	A. fluviatilis	**	**	**	***	***
7.	A. maculatus	*	**	**	***	***
8.	A. multicolor	—	*	—	—	—
9.	A. pulcherrimus	***	**	***	***	
10.	A. splendidus	—		***	***	***
11.	A. stephensi	***	***	***	***	***
12.	A. subpictus	***	**	***	***	***
13.	A. superpictus	—	*	—	—	—
14.	A. turkhudi	**	*	**	**	*

\*\*\* : Wide spread distribution and in abundance

\*\* : Restricted distribution and low density

\* : Rarely found(once/twice one or two specimen captured)

(MEP/MCP Records)

Table 2-29 Immediate Infection Rate in *A. Culicifacies*, *A. Stephensi* and *A. Subpictus*  
(F. Malmood and M. B. Macdonald, 1985)

Month	<i>A. culicifacies</i>						<i>A. stephensi</i>						<i>A. subpictus</i>					
	oocyst sporozoite						oocyst sporozoite						oocyst sporozoite					
	-	+	%	-	+	%	-	+	%	-	+	%	-	+	%	-	+	%
August '83	200	4	2.0	269	4	1.4	66	2	2.9	86	0	0.0	N.D.			N.D.		
September	209	5	2.3	362	5	1.4	75	0	0.0	69	0	0.0	10	0	0.0	56	0	0.0
October	487	3	0.6	396	3	0.8	146	0	0.0	121	0	0.0	220	0	0.0	72	0	0.0
November	449	1	0.2	477	2	0.4	75	0	0.0	18	0	0.0	257	0	0.0	155	0	0.0
December	390	2	0.5	476	0	0.0	37	0	0.0	74	0	0.0	69	0	0.0	34	0	0.0
January '84	373	3	0.8	495	0	0.0	111	0	0.0	37	0	0.0	N.D.			N.D.		
February	141	0	0.0	260	0	0.0	4	0	0.0	6	0	0.0	N.D.			N.D.		
March	164	0	0.0	226	0	0.0	32	0	0.0	24	0	0.0	N.D.			N.D.		
April	251	1	0.4	363	0	0.0	100	0	0.0	121	0	0.0	N.D.			N.D.		
May	188	0	0.0	540	2	0.4	146	0	0.0	465	0	0.0	N.D.			N.D.		
June	146	0	0.0	465	0	0.0	289	0	0.0	42	0	0.0	N.D.			N.D.		
July	289	0	0.0	860	0	0.0	42	0	0.0	149	0	0.0	N.D.			N.D.		
August	334	1	0.3	848	2	0.2	101	0	0.0	301	0	0.0	46	0	0.0	88	0	0.0
September	226	0	0.0	469	2	0.4	180	0	0.0	363	0	0.0	109	0	0.0	185	0	0.0
October	396	6	1.5	793	3	0.4	262	0	0.0	455	0	0.0	370	0	0.0	666	0	0.0
November	244	2	0.8	472	2	0.4	64	0	0.0	141	0	0.0	252	1	0.4	503	0	0.0
December	459	1	0.2	682	0	0.0	55	0	0.0	101	0	0.0	37	0	0.0	133	0	0.0

(PJMR, Vol. 24, 1985)

Table 2-30 Spraying Status of Malathion During 1986

	Punjab		Sind	N. W. F.	Baluchistan
	Round I	Round II			
Malathion consumed(M. T.)	1758.728	576.517	493.090	498.876	57.717
Sub-Sector	1,362	-	493	-	66
Localities	8,088	3,485	2,683	1,170	365
Houses	2,065,386	701,997	431,101	510,896	44,936
Population	10,937,329	3,635,912	2,361,751	3,876,323	275,976

(Annual Report, 1986-87, Directorate of Malaria Control, GOP)

Table 2-31 Susceptibility Tests Conducted During 1975-1982  
M.C.P.(Punjab)

YEAR	D. D. T. 4%						D. L. D. 4%(BHC)						MALATHION. 5%						PENITORTION %(SUMITHION)						TOTAL TESTS				
	A. CUL.			A. STE.			A. CUL.			A. STE.			A. CUL.			A. STE.			A. CUL.			A. STE.							
	TOT	R	T	S	TOT	R	T	S	TOT	R	T	S	TOT	R	T	S	TOT	R	T	S	TOT	R	T	S					
1975	225	184	40	1	71	58	13	-	318	181	103	34	80	38	33	9	137	-	-	137	18	-	-	18	-	-	-	849	
1976	107	86	20	1	61	41	20	-	143	109	30	4	98	83	13	2	100	-	-	100	83	-	-	83	-	-	-	592	
1977	71	49	22	-	43	32	11	-	106	68	33	5	74	42	32	-	172	-	-	172	114	-	-	114	-	-	-	580	
1978	59	41	17	1	60	46	12	2	67	33	23	11	75	38	17	-	79	-	-	79	76	-	-	76	1	-	5	422	
1979	127	111	16	-	96	88	8	-	109	65	42	2	98	70	28	-	39	-	-	39	48	-	-	48	-	-	-	517	
1980	111	110	1	-	64	64	-	-	78	77	1	-	59	59	-	-	126	3	4	119	41	1	-	40	-	-	-	479	
1981	85	84	1	-	33	33	-	-	72	65	3	4	44	43	1	-	100	1	9	90	73	4	21	48	98	-	-	59	564
1982	204	187	14	3	84	71	11	2	180	155	23	2	86	74	12	-	184	1	28	155	124	33	53	38	159	-	-	94	1115

TOT = TOTAL  
R = RESISTANT  
T = TOLERANT  
S = SUSCEPTIBLE

(Malaria Control Programme in Pakistan, PMRC, 1983)



Table 2-32 Susceptibility Tests Conducted During 1975-1983  
M.C.P.(Sind)

YEAR	D. D. T. 4%						D. L. D. 4%(BHC)						MALATHION 3.2%/5%						FENITORTION 1.0%						TOTAL TESTS	
	A. CUL.			A. STE.			A. CUL.			A. STE.			A. CUL.			A. STE.			A. CUL.			A. STE.				
	TOT	R	T	S	TOT	R	T	S	TOT	R	T	S	TOT	R	T	S	TOT	R	T	S	TOT	R	T	S		
1975	16	14	2	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	
1976	-	-	-	-	4	3	1	-	10	-	8	2	4	1	2	1	24	2	-	22	4	-	-	-	46	
1977	26	16	8	2	8	4	3	1	51	3	20	28	3	-	2	1	63	4	4	55	22	-	-	-	173	
1978	14	14	-	-	1	1	-	-	24	22	2	-	6	6	-	-	38	-	-	38	15	-	-	-	98	
1979	34	25	6	3	12	11	1	-	21	16	5	-	10	8	4	-	32	-	-	32	4	-	-	-	113	
1980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31	-	5	26	7	-	1	6	38	
1981	3	3	-	-	2	2	-	-	1	1	-	-	1	1	-	-	30	-	-	30	15	-	-	1	6	59
1982	2	2	-	-	-	-	-	-	-	-	-	-	1	1	-	-	14	-	-	14	14	-	1	13	33	
1983																										
UPTO SEP.	1	1	-	-	1	1	-	-	-	-	-	-	1	1	-	-	4	-	-	4	2	-	-	2	4	13
TOT - TOTAL, R - RESISTANT, T - TOLERANT, S - SUSCEPTIBLE																										
(Malaria Control Programme in Pakistan, PMRC, 1983)																										

(Malaria Control Programme in Pakistan, PMRC, 1983)

Table 2-33 Review of V.I. Situation (1960-1986)

YEAR	LOCALITY	NO. OF CASES RECORDED	DIAGNOSTIC TESTS	AGE	SEX
1960	Khaplu valley	55	27-Cases were thoroughly examined and diagnosis confirmed on the basis: i) LD-bodies seen in bone marrow material. ii) Serologically using OFT. No cases recorded.	1 - 6 Yrs (80 %)	Male children showed higher infection rates than females
	Kharmang valley	5			
	Total	<u>60</u>			
1964	Follow up study of the above areas				
1974	Kharmang valley	25	Confirmation on: i) LD-bodies seen in bone marrow material.	< 15 Yrs less frequent in the adolescent and adult age group	-
1975	Kharmang valley	2			-
1979	Khaplu-valley Kharmang valley Shigar valley Rundu valley	NIL			-
1983-85	Azad Kashmir Cilgit Agency Abbottabad Rawalpindi	9 cases 2 " 1 " 2	Confirmed on: i) LD-bodies seen in Bone marrow material. ii) Biopsy		Male:female ratio was 3.7:1
1986	Azad Kashmir/ Northern Areas	16	Confirmed on: i) LD-bodies seen in Bone marrow material. ii) Serologically using IFAT.	10 months-6 years	Male:female ratio was 3:1

(M. A. Munir and M. A. Rab, 1987)

Table 2-34 Incidence of Visceral Leishmaniasis in Villages in Northern Pakistan

Villages	Number of cases-Year of survey		
	1960	1974	1975
Kuru	23	0	-
Gwadi	11	0	-
Keris	10	0	-
Parkuta	5	-	2
Kunis	3	-	-
Khaplu	2	-	-
Kaptun	2	-	-
Thogu	2	-	-
Yugo	2	-	-
Kamango	-	6	0
Manthoka	-	5	0
Gohari	-	3	0
Madhupur	-	4	0
Ghasing	-	1	1 Clinical case. Negative bone marrow smears
Chando	-	1	0

(M. I. Barmey, Y. Wajir and F. A. Lari ; Tropical Doctor, 1979 )

Table 2-35 Major Epidemics of Leishmaniasis in Pakistan

YEAR	CITY	PROVINCE	NO. CASES	TYPE CASES
1935	QUETTA	BALUCHISTAN	-	Earthquake victims.
1971-72	MULTAN	PUNJAB	2,500	OPD Nishtar Hospital
1974	-	BALUCHISTAN	892	Army Personnel
1975	-	-do-	502	-do-
1977	UTHAL	-do-	100	Textile workers

OPD = Out Patient Department

(M. A. Mumir and M. A. Rob, 1987)

Table 2-36 Results of CI-Surveys Conducted Between 1977-1986(Burney et al., 1986)

YEAR	LOCALITY	PROVINCE	TOTAL NUMBER OF CASES RECORDED	NO. OF ACTIVE CASES	NO. OF RECENTLY CASES	TYPE OF LESION	% OF CASES WITH MULTIPLE LESION	% CASES WITH SINGLE LESION	AV. NO. OF MULTIPLE LESION PER PERSON
1977	JHELM	PUNJAB	32	-	32	WET	26(81.25%)	6(18.7%)	2 - 7 °° 13
*1980 (Feb/ Mar)	UTHAL	BALUCHISTAN	38	29	9	WET	30(78.94%)	8(21.05)	2 - 11
**1982 (Feb/ Mar)	UTHAL	BALUCHISTAN	22	10	12	-	-	-	-
***1982	UTHAL	BALUCHISTAN	117	60	57	WET	-	-	-
1982 (April)(Loralai)	DUKKI	BALUCHISTAN	117	-	-	-	-	-	-
1983 (NOV)	KOHLU	-do-	(0.9 %)	4	-	-	-	-	-
1984 (May)	KHUZDAR	-do-	NIL	-	-	-	-	-	-
° 1986	UTHAL	-do-	116	5	111	WET	5	-	-

\* - Survey carried out among the textile workers of Uthal Textile Mills.

\*\* - School survey conducted in Uthal School students examined.

\*\*\* - Survey conducted in Uthal. 200 textile workers examined.

° - Survey conducted in school children.

°° - Thirteen Lesions seen only in one person.

Table 2-37 Monthly Distribution of the Cases of Leishmaniasis Treated at Military Hospital of CMH Quetta and Multan

Month	No. of Cases	Percentage
January	119	16.62
February	41	5.73
March	37	5.17
April	7	0.98
May	4	0.56
June	4	1.12
July	8	1.12
August	61	8.52
September	129	18.01
October	85	11.87
November	121	16.90
December	100	13.96
Total	716	100.00

(M. I. Burney and F. A. Lari ; P. J. M. R, 1986)

Table 2-38 Distribution of Various Rodents in Uthal District

Species	Rodents Trapped		Infected Species	
	No.	Percent	No.	Percent
<i>Meriones hurrianae</i>	280	54.0	25	9
<i>Tatera indica</i>	191	37.0	-	-
<i>Gerbillus nanus</i>	29	5.6	-	-
<i>Gollunda ellioti</i>	14	2.7	-	-
<i>Rattus rattus</i>	4	0.7	-	-
Total	518	-	25	-

(I. P. Ahmed ; P. J. M. R, 1988)

Table 2-39 Distribution of Cutaneous Leishmaniasis in Meriones Hurrianæ According to the Season

Month	No. of <i>M. hurrianæ</i>		Infected <i>M. hurrianæ</i>	
	Trapped		No.	Percent
January	28		-	-
February	25		-	-
March	22		-	-
April	25		7	28
May	27		9	36
June	23		9	36
July	20		-	-
August	21		-	-
September	20		-	-
October	22		-	-
November	21		-	-
December	26		-	-
Total	280	-	25	100

(I. P. Ahmed ; P. J. M. R, 1988)

Table 2-40 Sandflies Collected from Rodent Burrows in Uthal (Oct. 1985)

Species	Number of collected			Average Percentage of	
	Total	Male	Female	per sticky trap	sand flies collected
Ph. papatasi	212	178	34	1.35	49.07
Ph. salehi	15	9	6	0.09	3.47
S. africana	3	1	2	0.01	0.69
S. clydei	178	139	39	1.13	41.20
S. dentata	23	7	16	0.14	5.32
S. squamipleuris	1	-	1	0.01	0.23

Ph = Phlebotomus  
S = Sergentomyia

(M. A. Rab, et al ; J. P. M. A, 1986 )

Table 2-41 Villages of Endemic for Guinea Worm Disease, Pakistan, 1987

Province	District	Positive Villages	Number of cases in villages	
			>10	<10
North-West Frontier	Bannu	Lakki	7	21
	D. I. Khan	D. I. Khan	3	20
		Kulachi	2	23
		Tank	—	3
Punjab	D. G. Khan	Taunsa	12	58
Sind	Tharparkar	Chachro	46	137
		Others/Autres	6	55
	Sanghar	Khibro	1	7
Pahistan		401	77	324

Based on history guinea worm disease in 1985-1987 during national search, May-June 1987.

(WHO ; Weekly Epidemiological Record, 1988, No.24)

Table 2-42 Population cases of dracunculiasis and rates per 100,000 population  
Punjab Province, Pakistan, 1980

District	No. of cases (1980)	Population(1981) (in thousands)	Cases per1000000
Attock	304	1,140	27
Rawalpindi	1547	2,123	73
Thelur	170	1,162	15
Gujrat	3579	2,247	159
Cujranwala	49	2,659	2
Sialkot	556	2,706	21
Sheikhupura	559	2,101	27
Lahore	4295	3,572	120
Kasur	468	1,530	31
Mianwali	—	1,376	—
Sargodha	90	2,557	4
Faisalabad	209	4,656	4
Jhang	117	1,962	6
D. G. Khan	148	1,581	9
Muzaffargarh	236	2,151	11
Multan	65	4,068	2
Yehari	121	1,320	9
Sahiwal	135	3,613	4
Bahawalnagar	95	1,447	7
Bahawalpur	574	1,371	42
R. Y. Khan	464	1,834	25
Tatal	13,781	47,176	29

(WHO, Weekly Epidemiological Record, 1985, No. 5)



Table 2-43 Reported cases intestinal prastic infection in Pakistan (1)

Authors	Siddiqui & Bano	Pal & Malik	Bano & Begum	Bilquees, Khan & Ahmed	Nawaz & Nawaz	Pal & Rana	Pal & Rana	Munir
Year of Report	1979	1979	1981	1982	1983	1983	1983	
Locality	Peshawar	Islamabad	Peshawar	Karachi	Peshawar	Islamabad	Rawalpindi	Lyallpur
Subjects	school children	school children	school children	adults	food handler	hospital Patients	hospital Patients	various groups
Total Cases	400	3,478	1,140	3,249	166	3,490	5,360	1,000
NO. (%) Positive				988	51.2%	42.1%	41.9%	18.2%
<i>E. histolytica</i>		11.9%	6.6%	18.4%	12.7%	5.6%	5.3%	
<i>E. coli</i>			16.9%		32.5%	2.7%	1.5%	6.5%
<i>I. buetchlii</i>						1.4%	1.8%	
<i>G. lamblia</i>		41.9%	10.2%	8.2%	22.9%	31.8%	32.9%	0.4%
<i>T. hominis</i>								
<i>P. hominis</i>						0.6%	0.4%	
<i>C. mesnili</i>			3.7%					
<i>B. coli</i>								0.3%
<i>A. lumbricoides</i>	13.5%	11.1%	7.4%	3.6%	4.2%	5.8%	15.5%	0.4%
<i>A. duodenale</i>		2.3%	0.2%	0.8%	0.6%	1.2%	9.8%	5.3%
<i>T. trichiura</i>	0.7%	2.1%	0.1%	0.7%		1.7%	2.8%	0.4%
<i>E. vermicularis</i>	3.5%	9.1%	0.1%	1.8%	3.0%	4.6%	4.7%	0.5%
<i>H. nana</i>	18 %	21.6%	4.7%	0.7%		16.4%	8.7%	3.5%
<i>T. saginata</i>				0.1%		0.4%	1.2%	0.3%

(Continued)

Table 2-43 Reported cases intestinal parasitic infection in Pakistan (2)

Authors	Ali et al.	Baqai & Zuberi	P.M.R.C.	P.M.R.C.	P.M.R.C.	N.I.H.	N.I.H.
Year of Report	1984	1986	1986	1986	1986	1986	1987
Locality	Peshawar	Karachi	Multan	Bahawalpur	Rawalpindi	Islamabad	
Subjects	Paediatric Outpatient	diarrhoeal patients	residential persons	Adults 20-30 yrs.	hospital patients		
NO. cases	100	455	697	666	1,115	2,000	1,787
% positive	28%	71.2%	13.8%	17.1%	20.8%	13.1%	13.0%
<i>E. histolytica</i>		36.5%	2.9%	0.5%	2.6%	0.5%	0.3%
<i>E. coli</i>		3.3%	2.9%				
<i>I. buetchlii</i>		0.5%					
<i>G. lamblia</i>		43.7%	1.6%	6.6%		7.7%	7.8%
<i>G. intestinalis</i>					12.7%		
<i>T. hominis</i>		0.8%					
<i>B. coli</i>							
<i>A. lumbricoides</i>	17.0%	8.0%	4.0%	1.1%	1.4%	1.7%	1.7%
<i>A. duodenale</i>	6 %	0.8%	1.1%	3.9%	2.0%	0.9%	1.2%
<i>T. trichiura</i>		1.0%			0.4%	0.4%	0.4%
<i>E. vermicularis</i>		1.5%	0.7%		0.2%	0.2%	0.2%
<i>H. nana</i>	5 %	3.3%		0.6%	0.6%	1.8%	1.3%
<i>T. saginata</i>	5 %	0.3%	0.1%	0.2%	0.2%	0.1%	0.1%
<i>S. stercoralis</i>		0.3%		1.1%			

(Continued)

Table 2-43 Reported cases intestinal parasitic infection in Pakistan (3)

Authors	Sano	Sano	Sano	Sano	Sano
Year of Report	1988	1988	1988	1988	1988
Locality	Jamshoro	Kotri	Kumb Doro	Hyderabad	Jamshoro
Subjects	hospital patients	fisherman	children	high school	primary school
NO. cases	189	25	43	97	102
% positive	22.2%	48.0%	58.1%	45.4%	51.0%
<i>E. histolytica</i>			2.3%		2.0%
<i>E. coli</i>	10.1%	20.0%	39.5%	19.6%	25.5%
<i>I. buetchlii</i>	2.6%	4.0%	4.7%	8.2%	14.7%
<i>H. nana</i>					1.0%
<i>G. lamblia</i>	5.8%	32.0%	9.3%	10.3%	17.6%
<i>G. mesnili</i>					2.9%
<i>A. lumbricoides</i>					
<i>A. duodenale</i>	1.6%		18.6%	1.0%	
<i>T. trichiura</i>					
<i>E. vermicularis</i>	0.5%	4.0%	2.3%		
<i>H. nana</i>	2.1%	8.0%	9.3%	19.6%	12.7%
<i>T. saginata</i>				1.0%	

Table 2-44 Correlation between protozoan infection and environmental conditions in Rawalpindi

	Number of individuals	E. histolytica	E. coli	I. buetach- lii	G. Lamblia	P. hominis
Faecal pollution of the premises						
Low	1470	4.76	1.02	1.36	20.40	0.34
Moderate	2085	5.22	1.67	1.91	37.17	0.38
Heavy	1805	5.87	1.66	1.93	38.17	0.44
Faecal disposal						
Sanitary privy	3410	4.69	1.26	1.61	25.80	0.23
Unsanitary privy	1250	6.40	1.76	1.60	43.52	0.40
No facility	700	6.42	2.14	2.85	48.57	1.14
Drainage						
Open	3410	5.65	1.61	1.99	35.92	0.43
Underground	1950	4.71	1.28	1.38	27.64	0.30
Domestic refuse						
Bins	2224	5.39	1.43	1.66	28.59	0.40
Open	3136	5.26	1.53	1.84	35.96	0.38
Water supply						
Tap water	4728	4.27	1.37	1.52	29.86	0.35
Hand pump	342	13.74	2.33	3.80	65.78	0.58
Well	190	18.94	3.68	5.26	66.84	1.05
Personal cleanliness						
Good	920	4.13	1.08	1.30	22.28	0.21
Satisfactory	1980	4.04	1.11	1.81	32.07	0.35
Poor	2460	6.78	1.95	1.91	37.56	0.48
Physical condition						
Well nourished	1685	4.51	0.59	1.30	13.94	0.17
Under nourished	1882	5.36	1.32	1.75	37.77	0.37
Malnourished	1793	6.02	2.50	2.23	45.62	0.61
Family size						
1-3	1040	4.61	0.96	0.96	30.48	0.09
4-6	1375	4.50	1.38	1.67	32.94	0.43
7-9	1737	5.46	1.61	2.41	33.39	0.46
10+	1208	6.62	1.90	2.06	34.27	0.49

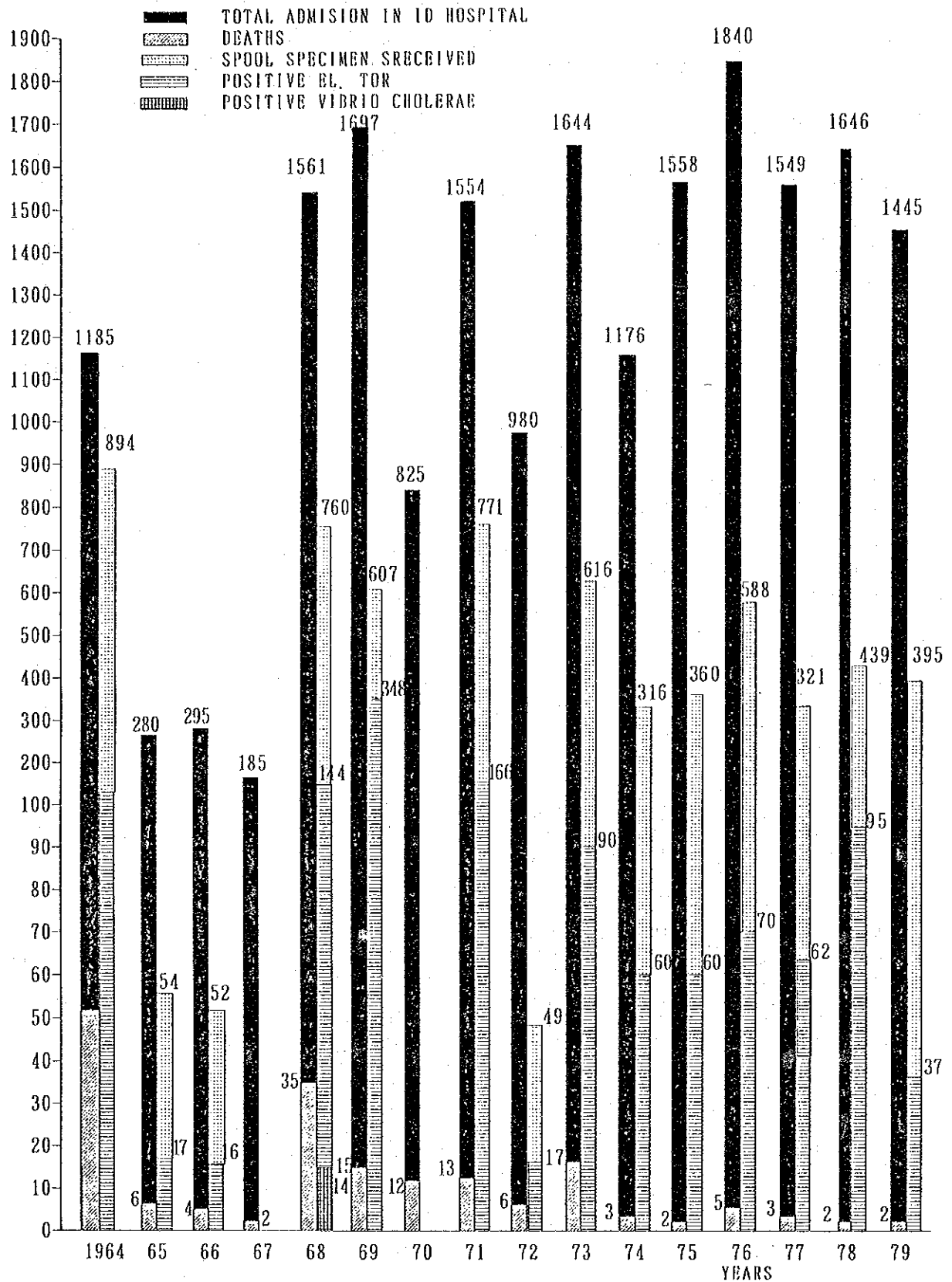
(Pal and Rama; J. P. M. A, 1983)

Table 2-45 Correlation between protozoan infection and environmental conditions in Islamabad

	Number of individuals	E. histolytica	E. coli	L. buetach- iii	G. Lamblia	P. hominis
Faecal pollution of premises						
Low	3321	5.35	2.55	1.38	31.04	0.60
Moderate	100	10.00	3.00	2.00	40.00	1.00
Heavy	69	13.04	7.24	2.89	55.07	1.44
Faecal disposal						
Sanitary privy	3433	5.24	2.88	1.31	31.63	0.58
Unsanitary privy	35	20.00	11.42	8.57	34.28	2.85
No facility	22	45.45	27.27	9.09	50.00	5.54
Drainage						
Open	90	7.77	4.44	2.22	27.77	1.11
Underground	3400	5.58	2.61	1.41	31.38	0.61
Domestic refuse						
Bins	2580	5.11	2.51	1.35	31.55	0.58
Open	910	7.14	3.07	1.64	32.41	0.76
Water supply						
Tap water	3435	31.12	2.32	1.33	31.41	0.58
Hand pump	25	60.00	12.00	4.00	40.00	4.00
Well	30	71.42	20.00	8.57	57.14	5.71
Personal cleanliness						
Good	936	3.52	1.38	1.06	15.59	0.21
Satisfactory	1477	5.95	3.11	1.48	37.23	0.74
Poor	1077	7.24	3.15	1.67	38.34	0.83
Physical condition						
Well nourished	992	3.83	1.81	1.10	26.81	0.50
Under nourished	1360	5.36	2.35	1.32	34.77	0.51
Malnourished	1138	7.55	3.17	1.84	41.30	0.87
Family size						
1-3	950	3.15	1.26	0.84	24.73	0.31
4-6	1025	4.68	2.04	1.07	27.31	0.48
7-9	780	6.66	3.46	1.79	37.17	0.76
10+	735	9.11	4.48	2.31	40.68	1.08

(Pal and Rama; J. P. M. A, 1983)

Fig. 2-1 Cholera Epidemics, Lahore; 1964-79



Source : Bokhari SR et al. The pattern of Vibrio el-tor epidemics in Punjab, Pakistan Journal of Health, 25, 1, 1988.

Fig. 2-2 Organizational Chart of Directorate of Malaria Control  
(Federal Government)

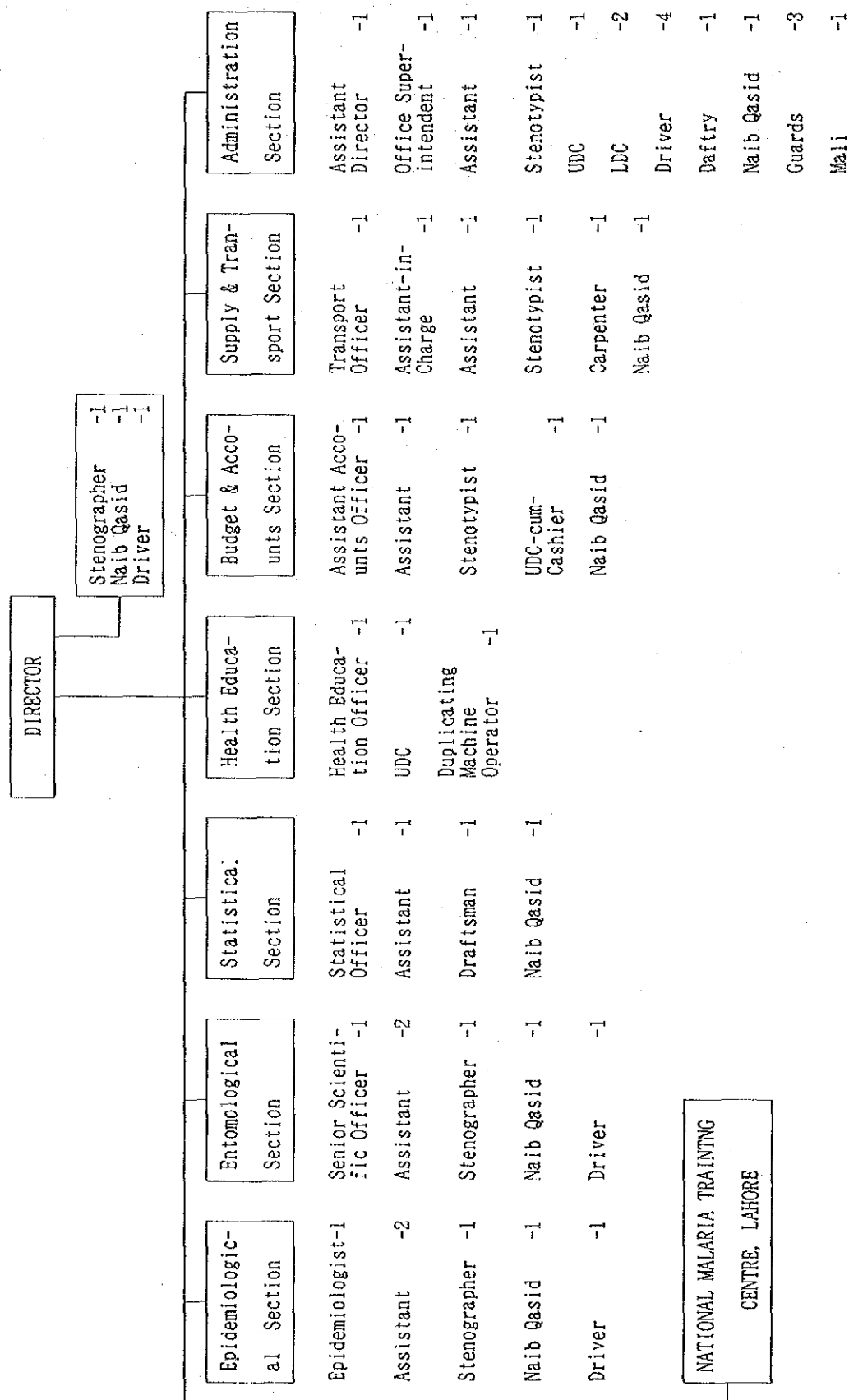


Fig. 2-3

Organizational Chart of National Malaria Training Centre, Lahore  
(Federal Government)

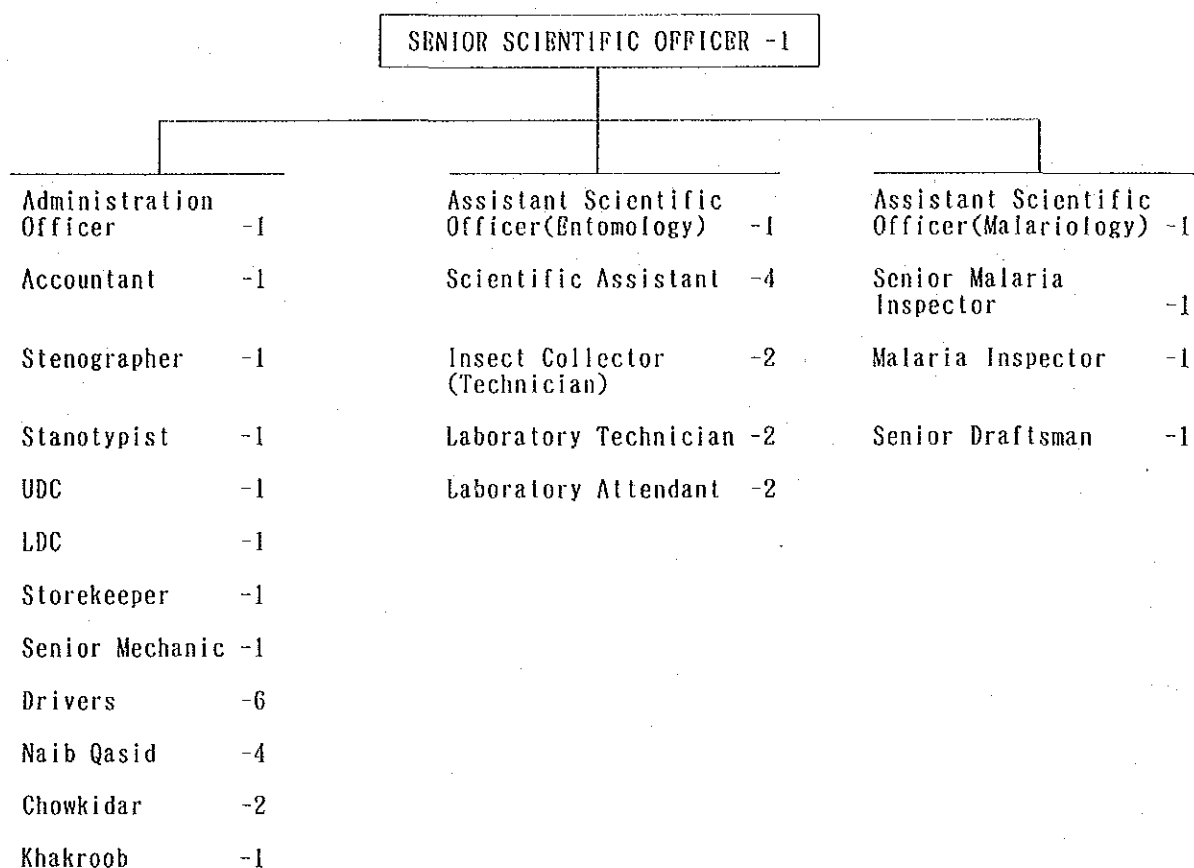
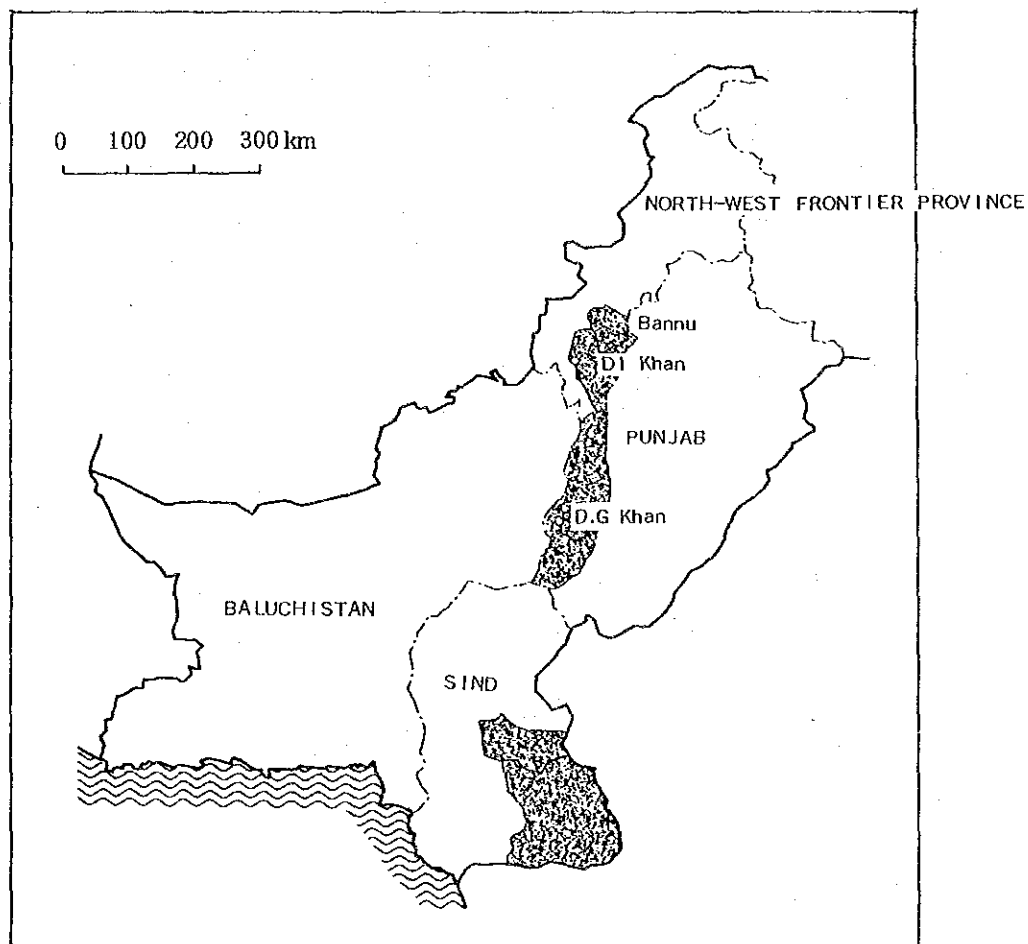




Fig. 2-4 Areas found to be endemic for guinea worm disease during the national search, Pakistan, July 1987



(WHO ; Weekly Epidemiological Record, 1988, No. 24)

Table 3-1 Population by Age and Sex (1981 Census)

Ages (Years)	Both Sexes		Male		Female		Sex Ratio
	Population	%	Population	%	Population	%	
All Ages	84,253,644	100	44,232,677	100	40,020,967	100	1.11
0-4	12,948,378	15.4	6,334,322	14.3	6,614,056	16.6	0.96
5-9	13,485,054	16.0	7,003,400	15.8	6,481,654	16.2	1.08
10-14	11,083,202	13.2	6,054,452	13.7	5,028,750	12.6	1.20
15-19	7,947,329	9.4	4,327,810	9.8	3,619,519	9.0	1.20
20-24	6,560,060	7.8	3,357,834	7.6	3,202,226	8.0	1.05
25-29	5,605,775	6.7	2,970,470	6.7	2,635,305	6.6	1.13
30-34	4,731,239	5.6	2,448,871	5.5	2,282,368	5.7	1.07
35-39	4,300,757	5.1	2,172,839	4.9	2,127,918	5.3	1.02
40-44	3,958,367	4.7	1,985,919	4.5	1,972,448	4.9	1.01
45-49	3,146,667	3.7	1,650,180	3.7	1,496,487	3.7	1.10
50-54	3,028,925	3.6	1,674,487	3.8	1,354,438	3.4	1.23
55-59	1,640,834	1.9	879,239	2.0	761,595	1.9	1.15
60-64	2,255,937	2.7	1,326,536	3.0	929,401	2.3	1.43
65-69	1,002,558	1.2	566,784	1.3	435,774	1.1	1.30
70-74	1,175,141	1.4	687,820	1.6	487,321	1.2	1.41
75 & Over	1,383,421	1.6	791,714	1.8	591,707	1.5	1.34

Table 3-2 Sex Ratio by Age and Rural/Urban Areas: 1981

Age Group	Sex Ratio: Males per 100 Females		
	All Areas	Rural	Urban
All Ages	110.59	108.72	115.28
0-14	97.29	95.21	102.70
5-9	107.59	107.69	107.33
10-14	118.41	120.81	112.71
15-19	117.42	118.05	116.13
20-24	110.54	105.12	122.00
25-29	111.74	107.48	121.68
30-34	107.13	102.28	119.32
35-39	102.12	98.87	109.32
40-44	100.49	95.00	115.13
45-49	109.86	104.34	124.97
50-54	123.36	118.36	136.44
55-59	114.39	108.54	132.63
60-64	141.62	139.95	146.85
65-69	128.69	125.70	139.00
70-74	140.18	140.43	139.35
75+	133.02	133.32	131.86

Source: Population Census Organization

Table 3-3 Population by Province (1988 estimation)

Province	1981 Census*		1988 Estimation**	
	Population (Million)	%	Population (Million)	%
Punjab	47.632	56.5	58.982	55.1
Sind	19.029	22.6	23.574	22.0
N.W.F.P	11.061	13.1	13.530	12.6
Baluchistan	4.332	5.2	5.352	5.0
FATA	2.199	2.6	2.703	2.5
AJK	—	—	2.200	2.1
N.A.	—	—	0.738	0.7
Total	84.253	100	107.079	100

Source : \*) Statistical Year Book, 1986

\*\*) Health Services in Sind  
(Gov. of Sind Health Dept. 1988)

Table 3-4 Crude Death Rate in 1976

Age	Crude Death Rate per 1000	
	Male	Female
All Ages	11.4	11.6
0	153.0	135.7
1-4	12.5	15.8
5-9	5.1	4.4
10-14	2.1	2.5
15-19	2.5	3.2
20-24	2.4	3.7
25-29	1.7	4.6
30-34	3.8	3.2
35-39	1.0	4.2
40-44	8.3	4.9
45-49	5.4	4.7
50-54	6.6	14.6
55-59	12.3	5.8
60-64	18.6	23.2
65-69	35.9	20.3
70-74	39.1	49.8
75-79	85.8	56.2
80-84	39.7	93.6
85 & Over	123.9	106.5

Source: Population and Vital Statistics Report(United Nations)

Table 3-5 Morbidity Rates for Pakistan and Provinces by Sex and Urban/Rural Residence

Area	Morbidity Rates (Per 1000 persons)									
	Pakistan		Baluchistan		N.W.F.P.		Punjab		Sind	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
All areas	171.9	170.5	91.5	106.5	199.6	209.6	180.5	173.8	147.5	152.7
Urban	138.2	148.4	78.3	92.7	186.4	205.2	137.9	151.6	134.9	137.5
Rural	185.2	179.1	94.6	109.6	202.0	210.4	194.6	180.9	158.4	166.3

Source : National Health Survey 1982-83

Table 3-6 Age-Specific Morbidity Rate by Sex

Age Groups	Age-Specific Morbidity Rates (Per 1000 persons)		
	Both Sexes	Male	Female
All Ages	171.2	171.9	170.5
0-4 Years	230.5	258.8	208.3
5-9 "	144.8	153.9	134.7
10-14 "	104.2	112.3	95.0
15-19 "	105.0	102.8	107.6
20-24 "	112.0	102.0	122.2
25-29 "	135.4	120.5	149.5
30-34 "	154.5	141.9	165.4
35-39 "	166.9	138.3	196.3
40-44 "	190.5	157.3	223.8
45-49 "	217.5	191.1	247.3
50-54 "	232.2	213.9	253.7
55-59 "	245.4	250.7	239.7
60-61 "	296.3	291.3	303.6
65 and above	372.6	391.8	346.6

Source: National Health Survey 1982-83

Table 3-7 Percentage Distribution of Sick Persons by Sex, Selected Diseases and Urban/Rural Residence

D i s e a s e	Both Areas		Urban		Rural	
	Male	Female	Male	Female	Male	Female
	100.00	100.00	100.00	100.00	100.00	100.00
<b>Total</b>	100.00	100.00	100.00	100.00	100.00	100.00
Tuberculosis	2.51	2.26	2.27	2.23	2.62	2.27
Dysentery	2.62	1.99	2.96	1.67	2.52	2.09
Other Infective diseases commonly arising in intestinal tract.	3.78	3.13	3.81	2.90	3.77	3.49
Certain diseases common among children	3.22	2.97	3.25	3.17	3.21	2.90
Malaria (includes all other fevers)	41.08	39.55	32.72	30.64	43.53	42.42
Allergic disorders	4.03	2.70	3.69	2.37	4.12	2.80
Diabetes mellitus	0.80	0.53	0.84	1.07	0.79	0.35
Diseases of eyes	1.10	1.21	1.43	1.00	1.00	1.28
Chronic rheumatic heart disease.						
Arteriosclerotic and degenerative heart disease and Hypertensive disease.	1.27	2.75	2.46	4.67	0.91	2.14
Acute nasopharyngitis (common cold)	6.76	6.16	9.56	6.71	5.94	5.98
Influenza	4.25	3.55	4.42	4.52	4.20	3.23
Pneumonia	1.15	1.42	0.88	1.14	1.23	1.51
All other respiratory diseases	5.51	4.71	6.68	5.22	5.16	4.55
Diseases of stomach and duodenum except Cancer.	3.59	4.84	3.75	6.86	3.55	4.19
Other diseases of digestive system	2.25	1.69	1.55	2.03	2.46	1.58
Arthritis and rheumatism except rheumatic fever	2.63	3.90	2.50	4.58	2.66	3.68
Accidents, poisonings, and violence (external cause)	1.69	1.07	2.61	0.90	1.42	1.12
All other diseases	11.73	15.57	14.62	19.22	10.91	14.42

Source: National Health Survey 1982-83

Table 3-8 Percentage Prevalence of "Need for Nutrition Intervention" in Children under 5 years using waterlow's Classification of Weight and Height

Growth Failure	Pakistan (%)	Rural (%)	Urban (%)
Severe	7.18	7.16	7.22
Moderately severe	9.52	9.82	8.65
Mild	43.36	43.73	42.29
Satisfactory	39.95	39.28	41.84
Moderately severe (Action needed)	Weight less than 80 percent standard weight for height for age, and height greater than 90 percent standard height for age.		
Mild (Action possibly needed)	Weight greater than 80 percent standard weight for height for age, and height less than 90 percent standard height for age.		
Satisfactory (Not Action needed)	Weight greater than 80 percent standard weight for height for age, and height greater than 90 percent standard height for age.		

Source: Micro Nutrient Survey, 1976-77



Table 3-9 Age at which Supplementary Feeding Started

Place	5-6 months		7-9 months		9-12 months		After 12 months		Total
	Number	%age	Number	%age	Number	%age	Number	%age	
PAKISTAN	162	62.8	45	17.4	40	15.5	11	4.3	258
Rural	102	59.6	32	18.7	27	15.8	10	5.8	171
Urban	60	69.0	13	14.9	13	14.9	1	1.2	87
PUNJAB	92	59.7	26	16.9	27	17.5	9	5.9	154
Rural	61	59.2	17	16.5	17	16.5	8	7.8	103
Urban	31	60.8	9	17.6	10	19.6	1	2.0	51
SIND	41	73.2	9	16.1	5	8.9	1	1.8	56
Rural	19	67.9	6	21.4	3	10.7	-	-	28
Urban	22	78.6	3	10.7	2	7.1	1	3.6	28
NWFP	15	40.9	9	28.1	7	21.9	1	3.1	32
Rural	11	40.7	9	33.3	6	22.2	1	3.7	27
Urban	4	80.0	-	-	1	20.2	-	-	5
BALUCHISTAN	14	93.3	1	6.7	1	6.7	-	-	16
Rural	11	91.7	-	-	1	8.3	-	-	12
Urban	3	75.0	1	25.0	-	-	-	-	4

Source: Diarrhoeal disorders and feeding practices in Pakistan, 1984

Table 3-10 Maternal Mortality 1975

Name of Hospital	Deliveries	Deaths	Death per 1,000 deliveries
Shaukat Haroon Hospital, Karachi	2,026	4	25.4
Civil Hospital(Unit II), Karachi	1,223	31	31
Jinnah Postgraduate Medical Centre, Karachi	4,017	32	7.9
Lady Reading Hosp. Peshawar	864	16	18.5
Lady Willington Hospital, Lahore	3,467	31	9
United Christian Hospital, Lahore	1,270	2	1.6
Holy Family Hospital, Rawalpindi	1,318	4	3.8
Central Govt. Poly Clinic, Islamabad	965	1	1.1
Total Deliveries	15,150		8.0
Total Deaths		121	

Table 3-11 Mortality of Children upto One Year

Place	Number of living children upto age one year	Number of deaths of children upto one(year) during the past year	Age specific mortality for children upto age one year (per 1,000)
PAKISTAN	573	81	123.8
Rural	376	55	127.6
Urban	197	26	116.6
PUNJAB	306	44	125.7
Rural	205	30	127.6
Urban	101	14	121.7
SIND	146	20	120.5
Rural	75	11	127.9
Urban	71	9	112.5
NWFP	91	13	125.0
Rural	76	11	126.4
Urban	15	2	117.6
BALUCHISTAN	30	4	117.6
Rural	20	3	130.4
Urban	10	1	90.9

Source: Diarrhoeal disorders and feeding practices in Pakistan, 1984  
Planning and Development Division, 1984

Table 3-12 Mortality of Children 1+ -4 Years

Place	Number of living children of 1+ -4 years age	Number of deaths 1+ -4 years during the past year	Age specific mortality for children of 1+ -4 (per 1,000)
PAKISTAN	2,058	73	34.3
Rural	1,370	50	35.2
Urban	688	23	32.3
PUNJAB	1,075	45	40.2
Rural	732	32	41.9
Urban	343	13	36.5
SIND	610	17	27.1
Rural	339	10	28.6
Urban	271	7	25.2
NWFP	261	7	26.1
Rural	224	6	26.1
Urban	37	1	26.3
BALUCHISTAN	112	4	26.1
Rural	75	2	26.0
Urban	37	2	26.3

Source: Diarrhoeal disorders and feeding practices in Pakistan, 1984  
Planning and Development Division, 1984

Table 3-13 Mortality of Children under Five Years

Place	Number of living children under five years	Number of deaths of children under five years of age in the past year	Age specific mortality for children under five years (per 1,000)
PAKISTAN	2,631	154	55.3
Rural	1,746	105	56.7
Urban	885	49	52.5
PUNJAB	1,381	89	60.5
Rural	938	62	62.0
Urban	443	27	57.4
SIND	756	37	46.6
Rural	414	21	48.3
Urban	342	16	44.7
NWFP	352	20	53.8
Rural	300	17	53.6
Urban	52	3	54.5
BALUCHISTAN	142	7	53.3
Rural	95	5	50.0
Urban	47	2	40.8

Source; Diarrhoeal disorders and feeding practices in Pakistan, 1984  
Planning and Development Division, 1984

Table 3-14 Frequency of Anti-HAV in Children in Urban and Rural Areas of Rawalpindi and Islamabad

Age.	Urban Areas			Rural Areas		
	No. Tested	Positive for Anti-HAV	(%)	No. Tested	Positive for Anti-HAV	(%)
0 - 6 months	18	18	(100 )	1	1	(100 )
7 - 12 months	17	3	(17.7)	5	3	(60.0)
1 - 3 years	38	10	(26.3)	16	11	(68.6)
4 - 6 years	15	13	(86.6)	18	16	(88.9)
7 - 9 years	29	28	(96.6)	10	9	(90.0)
10-12 years	38	35	(92.1)	14	13	(92.9)
13-15 years	13	4	(69.2)	9	3	(75.0)
Total	161	100	(62.1)	68	56	(82.4)

Source ; Dr. Khalida Kazmi, NIH, Islamabad

Table 3-15 Prevalence of Anti-HAV in Rural and Urban Community

Age.	Urban Areas			Rural Areas		
	No. Tested	Positive for Anti-HAV	(%)	No. Tested	Positive for Anti-HAV	(%)
0 - 1 years	15	2	(13.3)			
1 - 3	38	10	(26.3)	19	4	(44.5)
4 - 6	15	13	(86.6)	12	11	(91.7)
7 - 9	29	28	(96.6)	3	3	(100 )
10-12	38	35	(92.1)	2	2	(100 )
13-15	13	9	(69.2)	3	3	(100 )
16-40				14	12	(85.4)
Total	148	97	(65.5)	43	35	(81.4)

Source ; Dr Khalida Kazmi, NIH, Islamabad

Table 3-16 Number of Rural Localities

Population Size	Province			
	NWFP	Punjab	Sind	Baluchistan
5000 and above	364	772	264	57
2000 — 4999	947	4710	1705	305
1000 — 1999	1256	6157	1915	600
500 — 999	1521	5673	1104	999
200 — 499	1809	4395	483	1705
less than 200	1545	2532	286	1921
uninhabited	367	977	88	524

Source : 1981 Census ; Population Census Organization. Statistics Division,  
Government of Pakistan

Table 3-17 Access to Water by Source 1981 and 1986

	Popln (Census) (1000)	Piped Water	Handpumps		Wells	Ponds, Rivers, Others
			Sweet	Brackish		
			Water Zone	Zone		
1981						
Punjab	34,118	3.6% *	52.0%	25.7%	11.0%	7.9%
Sind	10,761	9.6	37.8	0	19.8	32.8
NWFP	9,396	10.5	5.3	0	36.1	48.2
Baluchistan	3,635	4.2	0.6	0	39.4	55.8
Total	57,910	5.9	38.5	15.1	18.4	22.0
1986						
Punjab	38226	12.0	27.0	39.0	27.0	33.9
Sind	12,057	2.9	13.2	16.2	13.2	70.6
NWFP	10,527	45.0	2.0	47.0	2.0	50.9
Baluchistan	4,073	18.3	0.3	18.6	0.3	50.9
Total	64,883	16.1	18.7	34.8	18.7	46.4

\* : Percentage of Population by Province  
Source : 1981 ; Based on 1980 Housing Survey  
1986 ; PHED and Mission Estimates

Table 3-18 Water Supply Coverage, 1986

Province	Total Population ( ' 000)	Population Coverage		% Coverage
		Piped ( ' 000)	Handpumps ( ' 000)	
Baluchistan	4,073	745	12	18.6 %
NWFP	10,527	4,737	211	47.0 %
Punjad	38,226	4,587	10,321	39.0 %
Sind	12,057	350	1,591	16.2 %
Total	64,883	10,419	12,135	34.8 %

Source : Mission estimates.

Table 3-19 Percentage Rural Distribution of Types of Latrine by Province, 1973 and 1982/83

YEAR	TYPE OF LATRINE							
	FLUSH		WITHOUT FLUSH		OTHER (1)		OPEN SPACE	
	1973	1982/3	1973	1982/3	1973	1982/3	1973	1982/3
BALUCHISTAN	0.9	0.6	10	20.3	14.6	14.4	74.5	64.7
NWFP	0.4	1.2	42	30.2	5.3	12.2	52.3	56.5
PUNJAB	0.7	0.8	4.1	3.4	1.7	2	93.6	93.8
SIND	0.4	0.8	22.1	18.2	10.6	22.1	66.8	58.9
RURAL PAKISTAN	0.6	0.9	12.0	9.7	4.4	6.9	83.0	82.5
RURAL AREAS WITHOUT PUNJAB	0.5	0.7	26.6	24.8	9.6	11.8	63.4	62.7

Sources 1973 — Housing, Economic and Demographic Survey of 8034292 rural housing units  
1982/3 — National Health Survey of 6500 rural households

Note 1. 1973 — any facility outside housing unit  
1982/3 — closed pit

Table 3-20 Percentage Rural Distribution of Types of Latrine by Province, 1982

Province	Flush	Type of Without Flush	Latrine Other (1)	Coverage
Balchistan	0.6 %	20.3 %	14.4 %	35.3 %
NWFP	1.2	30.2	12.2	43.6
Punjab	0.8	3.4	2.0	6.2
Sind	0.8	18.2	22.1	40.3
National	0.9	9.7	6.9	17.5

Source : National Health Survey of 6500 rural households  
Other(1) : Closed Pit.

Table 3-21 Microbial Contaminants of Food related to Site of Collection

Site of Collection	Total No. of Food Samples	Contaminated Food Samples No. (%)
Upper Class restaurants and institutions.	48	19 (39.6%)
Middle class hotels and institutions.	30	12 (40.0%)
Street side shops and vendors.	20	14 (70.0%)
Other sources	88	43 (49.0%)
TOTAL	186	88 (47.3%)

Source : J. P. M. A. JUNE, 1986



Table 3-22 Incidence of Microbial Contamination in Different Foods

Type of Food	NO. OF Samples Examined	Contaminated Food Samples No. (%)
Cooked foods (rice, veg, eggs etc)	26	10 (38.5%)
Cooked Meat. (Chicken, beef, mutton, fish)	51	25 (49%)
Raw Foods (Veg. & Fruits)	12	12 (100 %)
Raw Meats (Chicken, beef, mutton, fish)	14	14 (100 %)
Processed Foods. (Squashes, Veg, Fruits, Meat, Pickles etc.)	45	12 (26.7%)
Dried Foods (Spices, spaghetties, Yeast etc.)	17	17 (100 %)
Snacks (Cakes, Pastries, Patties, biscuits, sandwiches, chatts etc.)	22	9 (41%)
Dessert (Cooked sweet dishes sweet meats etc.)	20	9 (45%)
Milk (Dry and Fresh)	24	10 (41.7%)
Milk Products. (Cheese, butter, cream, Yoghurt etc.)	30	19 (63%)
Soft Drinks.	21	1 ( 5%)
TOTAL	282	138 (49%)

Source: J.P.M.A., June, 1986

Table 3-23 Distribution of Microorganisms Isolated from Different Foods

Type of Food	E. Coli	Staph Aureus	Cl. Per- fringens	Streptococcus Faecalis	Bacillus Cereus	Salmonella Sp	Other* Organisms	Fungus
Cooked food (n=26)	3(11.5%)	1(3.8%)	—	—	—	—	10(38.5%)	—
Cooked meat (n=51)	10(19.6%)	1(2%)	2(4%)	—	—	—	23(45%)	—
Raw food (n=12)	5(41.6%)	1(8.3%)	—	—	—	—	12(100%)	—
Raw meat (n=14)	7(50%)	—	1(7.1%)	—	—	1(7.1%)	11(78.6%)	—
Processed food (n=45)	—	—	—	—	—	—	11(24.4%)	9(20%)
Dried foods (n=17)	—	1(5.9%)	—	—	—	—	13(76.6%)	5(29.4%)
Snacks (n=22)	2(9.1%)	—	—	—	—	—	8(36.4%)	3(13.6%)
Dessert (n=20)	4(20%)	1(5%)	—	—	—	—	8(40%)	—
Milk (n=24)	—	—	—	—	1(4.2%)	1(4.2%)	8(33.3%)	—
Milk products (n=30)	11(36.6%)	—	—	1(3.3%)	—	—	10(33.3%)	—
Soft drinks (n=21)	—	—	—	1(4.8%)	—	—	—	—
TOTAL (282)	42(14.9%)	5(1.8%)	3(1.1%)	2(0.7%)	1(0.3%)	2(0.7%)	120(42.5%)	17(6%)

\*Enterobacter spp., Klebsiella spp., Kluyvera spp., Alcaligenes spp., Serratia spp., Bacillus spp., Coagulase Positive Staphylococcus spp., Pseudomonas spp., Corynebacterium spp., Yeast cells Cedaceae spp., and Proteus spp.

Source: J.P.M.A., June, 1986

Table 3-24 Type of Bacterial Isolates from Beef Samples of Sihala Slaughter House and the Meat Shops of Rawalpindi

Type of Isolates	150 beef samples from slaughter house No. of Isolates	Percentage	150 beef samples from the meat shops No. of Isolates	Percentage
Coliforms	120	22.55	135	17.73
Pseudomonas spp.	15	2.82	105	13.80
Proteus spp.	41	7.70	80	10.51
Serratia spp.	50	9.40	65	8.55
Salmonella typhimurium	31	5.83	41	5.38
Staphylococcus aureus	25	4.70	37	4.86
Staphylococcus epidermidis	70	13.15	95	12.48
Streptococcus faecalis	60	11.28	70	9.20
Bacillus subtilis	90	16.92	95	12.48
Bacillus cereus	20	3.76	25	3.28
Clostridium perfringens	10	1.88	13	1.70

Source : Dr. A. Bari, Quaid-i-Azam University.

Fig. 3-1 Demographic Population (1981 Census)

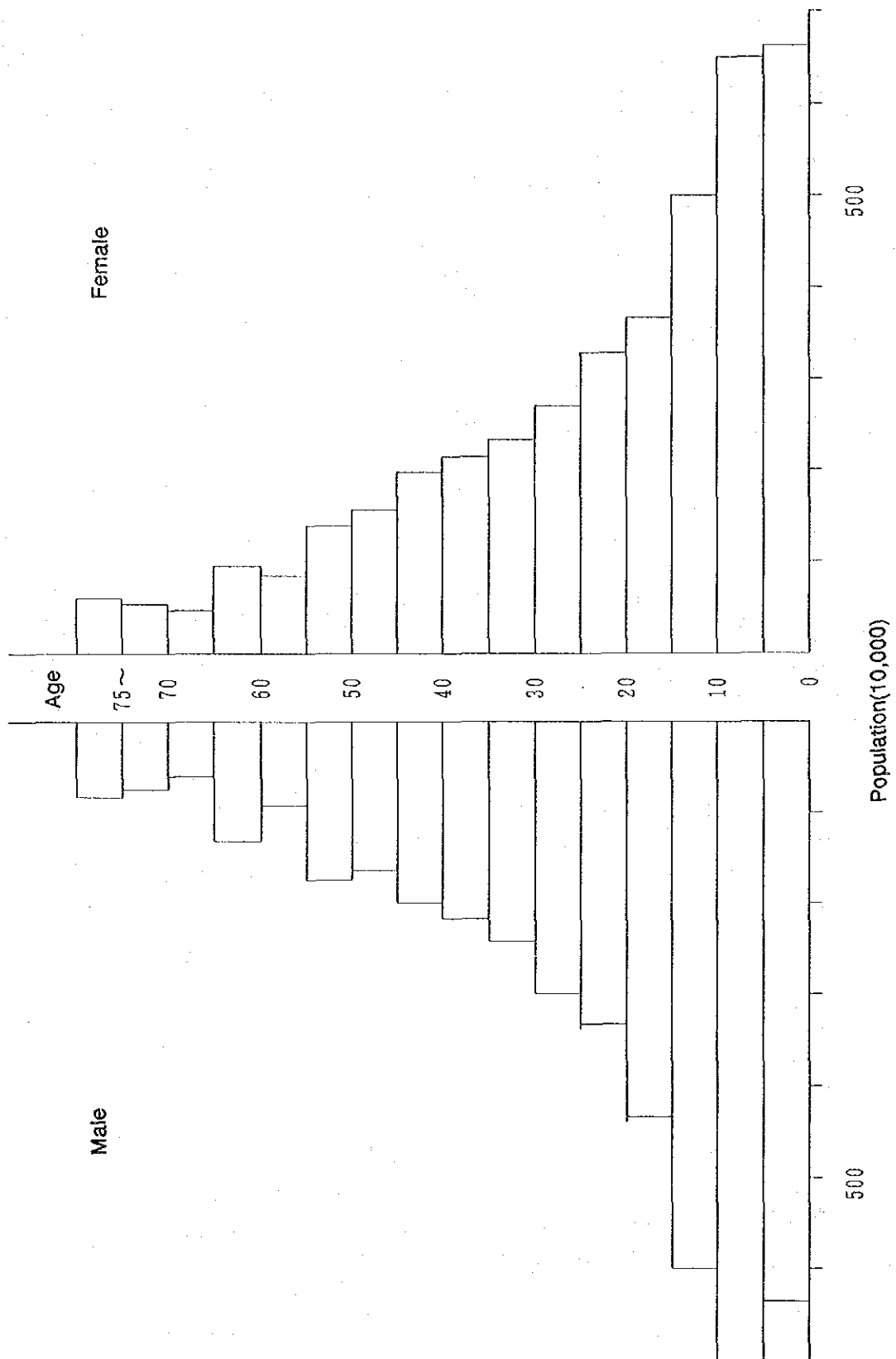


Fig. 3-2 Organization Chart-PHED, Punjab

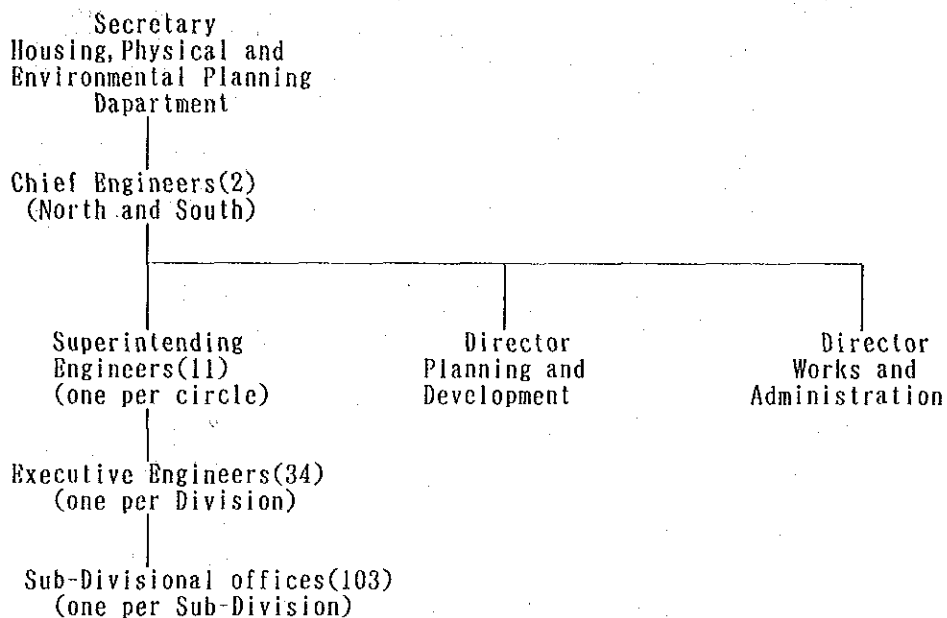


Fig. 3-3 Organization Chart-LGRDD, Punjab

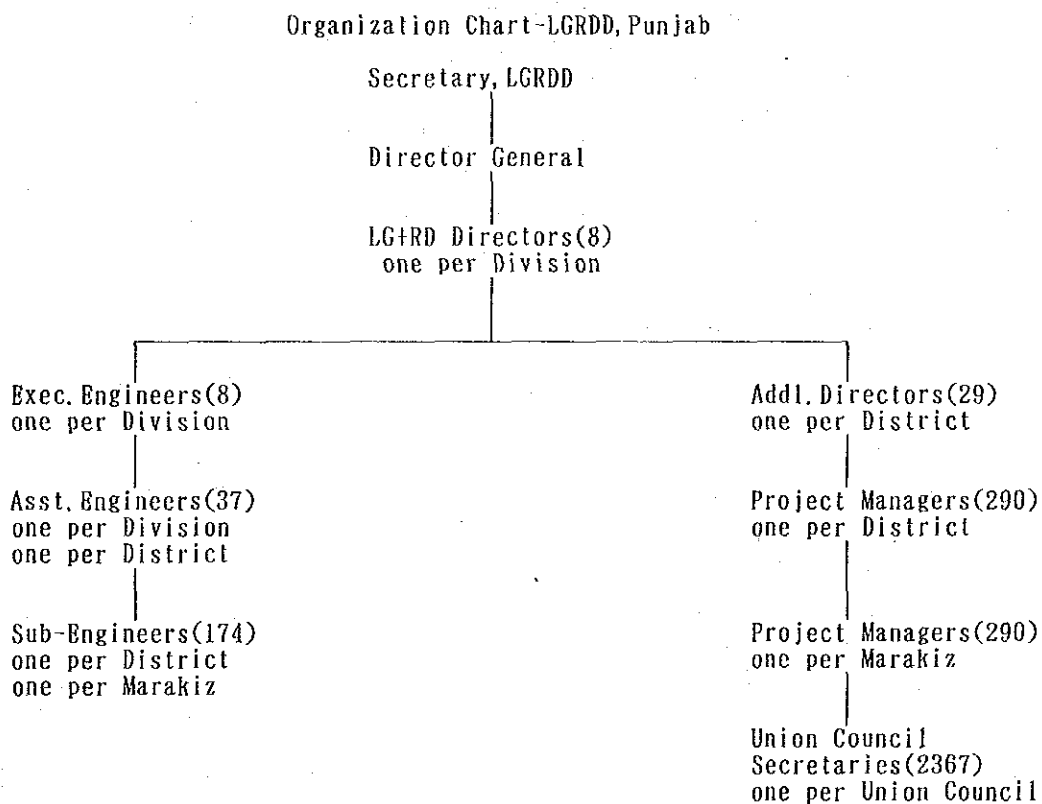


Table 4-1 Health Facilities in 1986

Category	Achievement
Primary Health Care facilities.	8,481
Rural Health Centres.	488
Basic Health Units.	2,500
Maternity Child Health Centers.	867
Dispensaries.	3,994
Sub-Centres.	632
Hospital beds.	61,690

Source : Rural Health Programme of Pakistan (MPD)

Table 4-2 Registered Doctors and Ratio per Population  
100,000 by Province(1988)

Province	n†	Ratio
Punjab	17719	30.0
Sind	15740	66.8
N. W. F. P	4374	32.3
Baluchistan	1253	23.4
A. J. K.	597	27.1
Total	39683	38.3
Dentists	1738	1.7
Foreigners	961	

Aug. 25, 1988

Table 4-3 Number of Auxillaries (1984)

Category	number
Lady Health Visitors :	2,562
Midwives :	5,275
Nurse midwives :	5,072
Sister Tutors :	290
Ward Administrators :	535
Medical Technologists :	115
Physiotherapists :	191
Dispensers :	17,370
Sanitary Inspectors :	1,974
Malaria Inspectors :	1,601
Pharmacy graduates :	1,743

Source : Annual Report of the Director  
General Health, 1984.

Table 4-4 Institutions for Medical Education in 1986

Category	No. of insti- tutions	Present output per annum	Output in 1970
Graduate doctors	17	4000	800
Postgraduate doctors.	4	150	70
Nurses.	47*	850	300
Nurse Teachers	1**	60	20
Midwives.	58	675	200
Lady Health Visitors	10	600	200
Dispensers.	50	1500	500
Medical Technicians	26	600	Nil
Sanitary Inspectors	1	100	100

Source : Annual Reports of the Director General  
Health and Five Year and Annual Plans  
of Planning Commission.

Table 5-1 The Functions and Powers of PMRC

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The functions and powers of the Council are :-	
(A)	To organise, coordinate and promote scientific research in various disciplines of medical sciences.
(B)	To establish its own institutions for undertaking medical research.
(C)	To ensure that medical research activity is linked with the national socio-economic development plans.
(D)	To arrange for the utilization of the results of research conducted under its auspices.
(E)	To publish and otherwise disseminate technical and general information on scientific matters relating to the research work of the Council.
(F)	To make grants and award fellowships and scholarships for medical research.
(G)	To hold seminars and meetings on different aspects of medical research.
(H)	To establish scientific liaison with other national and international organizations connected with the scientific activities of the Council.
(I)	To advise the Federal Government and Provincial Government on all matters related to medical research.
(J)	To constitute adhoc and standing panels to advice the Council on scientific matters.
(K)	To carry out, when called upon, evaluation of different health programmes in the country.
(L)	To establish a non-lapsable medical research fund for carrying out research activities.

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PMRC, A Profile 1986



Table 5-2 Research Centres of PMRC

Centre	Full time staff		Research work
	Gazetted	Non-gazetted	
1. Jinnah Postgraduate Medical Centre, Karachi(1968)	16	13	gastroenterology, hepatology, community studies on nutrition,
2. Fatima Jinnah Medical College, Lahore(1961)	14	21	diabetes, hypertension, coronary heart disease, liver disease, lipid and calcium metabolism, iron deficiency anaemia.
3. Khyber Medical College, Peshawar(1973)	10	16	infantile gastroenteritis, incidence of anaemia & hemoglobinopathies, cerebrovascular accidents, acute myocardial infarction.
4. National Institute of Health, Islamabad(1974-75)	8	17	This centre has been redesignated as a PMRC Central Research Centre to undertake research in infectious and communicable diseases, community health and indigenous drugs
5. Nishtar Medical College, Multan(1979-80)	5	9	hemo-globinopathy, cirrhosis of liver, pulmonary tuberculosis, growth norms for the children and cancer.
6. Liaquat Medical College, Jamshoro(1979-80)	4	9	tuberculosis, uraemia, liver disease, malabsorption, mycosis and rural ophthalmology.
7. Boran Medical College, Quetta(1979-80)	4	9	diseases relevant to the area, such as cutaneous leishmaniasis
8. Department of T.B. & Chest Diseases, K.E. Medical College & Mayo Hospital, Lahore(1973)	5	9	clinical and microbiological aspects of tuberculosis
9. Ayub Medical College, Abbottabad(1982-83)	4	9	community studies, hospital based clinical studies.
10. Quaid-e-Azam Medical College, Bahawalpur(1982-83)	4	9	indigenous drugs, diabetes, anaemia.
11. Chandka Medical College, Larkana(1982-83)	4	9	
12. Army Medical College, Rawalpindi(1982-83)	4	9	
13. Punjab Medical College, Faisalabad(1983-84)	4	9	

( ) : established year  
Source : PMRC, A Profile 1986

Table 5-3 Cumulative Number of Pathogens Isolated from Differential Specimens  
Since July 1, 1987 to June 30, 1988  
Department of Pathology, Islamabad Hospital,  
Pakistan Institute of Medical Sciences

Specimens	Urinary tract	Upper respiratory tract		Lower respiratory tract		Septicaemia	Wound	Meningitis	G. I. T.
		respiratory tract	tract	respiratory tract	tract				
Staphylococcus	127	51	66	21	244	3	-	-	-
Streptococcus	10	22	14	3	13	-	-	-	-
Pneumococcus	-	2	2	1	-	-	-	-	-
Escherichia coli	227	-	2	2	39	1	-	-	-
Klebsiella	154	-	29	4	76	3	-	-	-
Proteus	152	-	19	2	68	2	-	-	-
Enterobacter	176	-	-	-	-	-	-	-	-
Pseudomonas	101	-	21	6	72	1	-	-	-
Candida	11	-	3	-	2	-	-	-	-
Others	17	-	-	7	23	1	7	1	7

Table 5-4 Number of Bacteriological Examinations at Laboratory of  
Islamabad Children Hospital, PIMS

Specimen	1987.												1988.				Total	Ave/M
	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	August	Sep.	Oct.	Nov.	Dec.		
Urine Culture	115	98	100	101	128	126	138	128	179	140	117		1,370				1,370	124.5
Identification	35	32	37	28	31	27	41	37	46	35	25		374				374	34.0
T/swab Culture	33	40	39	26	30	64	38	62	61	44	31		468				468	42.5
Ident.	11	4	4	3	8	18	5	11	8	16	3		91				91	8.3
Sputum Culture	1	0	3	3	4	4	3	14	2	10	2		46				46	4.2
Ident.	0	0	0	0	0	1	0	2	0	2	0		5				5	0.5
Stool Culture	34	30	19	40	22	21	45	111	170	84	70		646				646	58.7
Ident.	16	17	9	26	10	5	3	0	26	11	8		131				131	11.9
E/Swab Culture	9	10	9	8	6	20	25	10	16	19	2		134				134	12.2
Ident.	6	10	7	7	2	18	15	6	13	19	2		105				105	9.5
PUS Culture	29	43	29	27	25	70	64	69	78	75	90		599				599	54.5
Ident.	20	30	24	16	10	37	34	31	39	48	50		339				339	30.8
CSF Culture	23	17	13	27	50	67	65	95	135	186	159		837				837	76.1
Ident.	0	1	0	4	4	5	4	12	29	22	26		107				107	9.7
Blood Culture	23	30	46	80	56	61	93	75	97	122	104		787				787	71.5
Ident.	3	10	16	30	11	15	17	18	17	28	19		184				184	16.7
Total Culture	267	268	249	312	321	433	479	564	738	680	575		4,886				4,886	444.2
Ident.	91	104	90	114	76	126	119	117	178	181	133		1,329				1,329	120.8

Table 5-5 Isolation Rate of Different Microorganisms  
Islamabad Children Hospital, PIMS

Enterobacter cloacae	21.1% (48/227)
E. coli	18.1% (41/227)
Enterobacter aerogenes	9.7% (22/227)
Pseudomonas aeruginosa	9.3% (21/227)
Staphylococcus aureus	7.0% (16/227)
Coagulase(-) Staphylococcus	7.0% (16/227)
Salmonella typhi	4.4% (10/227)
Serratia marcescens	4.0% ( 9/227)
Citrobacter freundii	2.6% ( 6/227)
Enterococcus faecalis	2.6% ( 6/227)
Pseudomonas Sp.	1.8% ( 4/227)
Streptococcus pneumoniae	1.8% ( 4/227)
Genus Micrococcus	1.3% ( 3/227)
Salmonella paratyphi B	0.9% ( 2/227)
Acinetobacter calcoaceticus	0.9% ( 2/227)
Streptococcus pyogenes	0.9% ( 2/227)
Enterobacter Sp.	0.9% ( 2/227)
Proteus vulgaris	0.9% ( 2/227)
Proteus mirabilis	0.9% ( 2/227)
Salmonella paratyphi A	0.4% ( 1/227)
Shigella dysenteriae	0.4% ( 1/227)
Clostridium perfringens	0.4% ( 1/227)
Citrobacter diversus	0.4% ( 1/227)
Corynebacterium Sp.	0.4% ( 1/227)
Gram positive cocci Anaerobes	0.4% ( 1/227)
Gram positive bacilli Aerobes	0.4% ( 1/227)
Specimen ; Blood	

Table 5-6 Development Through Years  
National Institute of Health, Islamabad

年	内 容
1960	National Health Laboratory Project Office established.
1962	Land acquired.
1967	Inauguration of National Health Laboratories by Field Marshal Mohammad Ayub Khan(Late).
1972	Construction of Hostel Accommodation.
1973	Integration of different independent Departments working at National Health Laboratories's campus.
1979	Polio Vaccine Processing Laboratory. Expanded Programme on Immunization.
1980	Establishment of NHL as National Institute of Health(NIH) an Autonomous Organization.
1981	Functioning of Nimkol Processing.
1981	Scheme for Establishment of Measles Vaccine Production Laboratory.
-1984	Scheme for construction of Building for H.D.C. Rabies Vaccine.
1985	Scheme for Dialysis and Special Fluid Preparation Laboratory.
1986	Establishment of Immuology Tissue Typing Laboratory. Scheme for Establishment of Quality Control Laboratory. Scheme for Establishment of D.P.T Vaccine. Scheme for Strengthening of Drugs Control and Reserach Division. Scheme for Joint Nutrition Support Programme.

Source : NIH, Islamabad.

Table 5-7 Total Number of Virological Examination  
Virology Section, NIH

S. NO.	Nature of Specimen	Total specimens
1.	Blood for viral culture	70
2.	Blood for viral antibody titre	75
3.	Blood for rabies antibodies titre	192
4.	C.S.F. for viral culture	27
5.	Stool for viral culture	10
6.	Urine for viral culture	2
7.	Throat/Nasal swab for viral culture	217
8.	Throat/Nasal swab for influenza	178
10.	Animal brain for rabies diagnosis	9
11.	Miscellaneous tests	8
Total		788

Source : NIH, Annual Report 1985

Table 5-8 Total Number of Different Serological Tests  
Serology Section, NIH

Nature of Test Performed	Total	Negative	Positive
Widal . . . . .	1045	605	440
Brucella . . . . .	84	57	27
V. D. R. L. . . . .	900	812	88
Gonococcus . . . . .	35	30	5
A. S. O. Titre . . . . .	1130	550	580
C. R. O. . . . .	540	315	225
R. A. Factor . . . . .	660	310	350
Toxoplasma . . . . .	96	66	30
Monospot . . . . .	26	23	3
Echinococcus . . . . .	48	33	15
Total . . . . .	4,564	2801	1763

Source ; NIH, Annual Report 1985

Table 5-9 Total Number of Bacteriological Examinations  
Bacteriology Section, NIH

S. No.	Nature of specimen	Total specimens
1.	Urine . . . . .	2990
2.	Throat swab . . . . .	2182
3.	Ear Swab . . . . .	486
4.	Wound Pus . . . . .	475
5.	Blood . . . . .	456
6.	Sputum . . . . .	438
7.	Nasal Swab . . . . .	259
8.	Stool . . . . .	182
9.	Semen . . . . .	90
10.	High vaginal swab . . . . .	72
11.	Cerebro spinal fluid . . . . .	43
12.	Pleural/Ascitic fluid . . . . .	41
13.	Urethral discharge . . . . .	32
14.	Eye swab . . . . .	03
15.	Fungal microscopy/culture . . . . .	135
Total . . . . .		7884

Source ; NIH, Annual Report 1985

Table 5-10 Results of Diarrhoea Project, NIH

PATIENT GROUP n=454					
Aetiological Agent					Number (%)
EPEC	.	.	.	.	155 (33%)
ETEC	.	.	.	.	71 (15.6%)
Salmonella	.	.	.	.	13 (2.9%)
Shigella	.	.	.	.	7 (1.5%)
Campylobacter Jejuni	.	.	.	.	5 (1.1%)
V. cholerae (Eltor Ogawa)	.	.	.	.	1 (0.2%)
Viruses	.	.	.	.	59 (13%)
Parasite	.	.	.	.	11 (2.5%)
Total Positive					317 (69.8%)

CONTROL GROUP n=370					
Organism					Number (%)
EPEC	.	.	.	.	22 (5.9%)
Campylobacter Sp.	.	.	.	.	2 (0.5%)
Viruses	.	.	.	.	7 (7.2%)
EPEC + Rota virus	.	.	.	.	13 (3.5%)
Total Positive					64

Source ; NIH, Annual Report 1985



Table 5-11 Results of ARI Project, NIH

Aetiological Agent	PATIENT GROUP			CONTROL GROUP
Streptococcus viridans	415	.	.	466
Streptococcus pneumoniae	24	.	.	20
Staph aureus	1	.	.	9
Streptococcus pyogenes group A	3	.	.	.
B-streptococcus group "G"	3	.	.	.
B-streptococcus group "G"	1	.	.	.
Klebsiella pneumoniae	70	.	.	13
Escherichia coli	15	.	.	2
Citrobacter freundii	3	.	.	.
Enterobacter gergoviae	8	.	.	.
Proteus mirabilis	2	.	.	.
Pseudomonas	6	.	.	.
Haemophilus influenzae	1	.	.	1
Corynebacterium Sp	1	.	.	.
Neisseria Sp				5
Total	583			516

Source ; NIH, Annual Report 1985

ARI:Acute Respiratory Infection.

Table 5-12 Current Research on Infectious Diseases at NIH

- 
1. WHO "Multicentre Hospital Based Control Study of the Aetiology of Diarrhoea in First Three Years of Life".
  2. BOSTID (Washington) sponsored project of the aetiology of Acute Respiratory Infections (ARI) in children (under 5 years of age) - clinical and epidemiological study.
  3. Mother infant transmission of HBsAg in Pakistan.
  4. Frequency of various types of Viral Hepatitis in acute phase illness.
  5. Delta association Hepatitis in Pakistan.
  6. Malaria: a) Establishment of *P. falciparum* culture.  
b) Study of Immune responses in both *P. falciparum* and *P. vivax* infection in endemic zones.
  7. Leishmaniasis:  
a) Epidemiology of visceral Leishmaniasis in Northern region of Pakistan.  
b) Study of Sand fly vector in foci of visceral and cutaneous Leishmaniasis.
  8. Maintenance of Giardial culture in vitro and titration of Giardial antibodies in serum using IFAT and ELISA
  9. Prevalence of Trichomomiasis in females of various age group and development of a rapid assay for immunological detection *T-vaginalis*
- 

Source : Dr. Mohammad Abdur Rab ; Public Health Division, NIH.

Table 5-13 Number of Staffs in Hospital Laboratory

(a) Jinnah Hospital, Jinnah Postgraduate Medical Centre, Karachi				
Section	Medical doctor	Medical technologist	Assistant	Total
	4	—	—	4
Microbiology		2	3	5
Serology		1	1	2
Haematology		3	5	8
Bio-chemistry		2	5	7
Pathology		2	1	3
Parasitology		1	0	1
Others		—	2	2
TOTAL	4	11	17	32

(b) National Institute of Child Health, Jinnah Postgraduate Medical Centre, Karachi			
Section	Medical technologist	Assistant	Total
Microbiology	1		1
Serology & Bio-chemistry	2	2	4
Haematology	2	3	5
Pathology	1		1
O. P. D. Lab.	2		2
Others		3	3
TOTAL	8	8	16

Table 5-14 Number of Bacteriological Examinations from  
Different Specimens  
Department of Pathology, NICH

Section : Microbiology.						(1988年)	
Specimen	Jan.	Feb.	Mar.	Apr.	May	Total	(Ave/M)
Urine	57	58	115	76	50	356	71.2
T/S	31	28	126	82	50	317	63.4
Sputum	2	2	90	28	20	142	28.4
Stool	10	18	28	41	31	128	25.6
E/S	-	7	38	44	22	111	22.2
PUS	6	21	40	43	32	142	28.4
CSF	190	67	215	181	191	844	168.8
Blood	48	25	55	52	31	211	42.2
Total	344	226	707	547	427	2,251	450.2
Gram-Stain	73	51	97	118	93	432	86.4
Ziel-Nielson	11	28	40	68	54	201	40.2

Ave/M: Average/Month

Table 5-15 Number of Different Bio-chemical Tests  
Department of Pathology, NICH

Section : Biochemistry			(1988, Jan ~Feb )	
Test	Jan.	Feb.	Total	Ave/month
Bilirubin	145	168	313	156.5
GPT	90	95	185	92.5
G6PD	12	10	22	11.0
Electrolytes	81	93	174	87.0
HCO <sub>3</sub>	20	53	73	36.5
ASOT	30	25	55	27.5
RA-test	25	11	36	18.0
PT	22	30	52	26.0
T. G.	1	6	7	3.5
L. E cell	4	1	5	2.5
T <sub>a</sub> T <sub>i</sub>	4	9	13	6.5
LDH	4	7	11	5.5
CPU	4	3	7	3.5
APTT	1	2	3	1.5
Widal	3	1	4	2.0
HBs -Ag	10	26	36	18.0
Total	456	540	996	498.0

Table 5-16 Hospital Activity Report  
 Sept. 8 1986 Till June 30, 1987  
 Work Load Dept. of Pathology  
 Sahak Zayed Hospital

Section	1986						1987					
	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	TOTAL	Ave/month
Bio-Chemistry	1,764	4,735	4,659	4,228	5,891	6,300	4,109	4,914	5,281	6,399	48,280	4,828.0
Haematology	5,303	2,283	4,186	4,652	5,844	5,726	6,181	8,022	6,214	8,068	56,479	5,647.9
Microbiology	2,645	1,030	2,391	2,875	3,406	2,459	3,179	3,403	2,525	3,000	26,913	2,691.3
Histopathology	230	54	260	204	244	459	207	1,005	945	159	3,767	376.7
Emergency	-	-	-	3,971	4,112	5,789	3,212	-	-	-	17,084	1,708.4
Total : -	9,942	8,102	11,496	15,930	19,497	20,733	16,888	17,344	14,965	17,626	152,523	15,252.3

Table 5-17 Growth Indicators of Quaid-i-Azam University

	1972	1988
Student enrolment(number)		
M. Sc.	164	1071
M. Phil.	39	242
Ph. D.	14	144
Faculty(number):		
Lecturers	5	43
Assistant Professors	20	73
Associate Professors	22	37
Professors	9	24
Professors Emeritus	-	2
Places in hostels(number)		
Boys	250	700
Girls	150	200
Staff residences(number)	72	177
Budget(Rs.)		
Recurring	1,900,000	46,182,000
Non-recurring	7,000,000	7,495,000
Departments(number)	4	14
Amount of Scholarships	300,000	3,000,000
Teaching Research Associates	-	10
Post-Doctoral Fellows(number)	0	3
Faculty Research(Rs.)	-	1,000,000

## APPENDIX





Table-1 Vital Statistics

	Bangladesh	Indonesia	Japan	Malaysia	Nepal	Pakistan	Philippines	Singapore	Sri Lanka	Thailand
	1982	1986	1986	1986	1984	1988	1984	1986	1981	1986
Mid-year Population (×1,000)	92,616	168,662	121,492	16,109	16,268	107,079	56,004 (1986)	2,586	14,850	50,396
Population Density/km <sup>2</sup>	626	86	326	49	102	120	187 (1986)	4,158	230	98
Urban Population (%)	10	26	76 (1980)	34 (1980)	7	29.5 (1986)	37.3		21.5	17 (1980)
Crude Birth Rate	35.8	32.2	11.6	31.7	41.6	42.0 (1982)	27.8	14.8	26.2	18.0
Crude Death Rate	14.2	10.9	6.2	5.0	16.6	15.3 (1982)	5.9	5.0	6.1	4.1
Natural Increase (%)	2.2	2.1	0.52	2.67	2.7	3.0(1981-85) 4.2(1985-88)	2.2	1.2	2.2	1.4
Infant Mortality	121.9	84.2	5.2	16.5 (1978:26.7)	112	80.0 (1987/88)	38.5 (1978:53.1)	9.4	23.1 (1984)	9.5
Life Expectancy at Birth										
M	55.3	58.8	75.2	67.9 <sup>1)</sup>	52.9	61.0	61.6	70.3	67.0	61.75
F	54.4	62.5	80.9	73.0	50.1	(1987/88)	65.2 (1986)	75.7	71.0	67.50

Sources SEMIC Health Statistics 1987; Philippines Statistical Yearbook, 1986 ;Health Profile, 1985, Thailand ;  
Public Health Statistics, 1985, Thailand  
Observation Report on Infectious Diseases : Bangladesh(1984), Nepal(1987), Pakistan(1989), Sri Lanka(1985);  
Note Peninsular Malaysia

Table-2 Change in Infant Mortality by Year<sup>1)</sup>

Country	1970	1975	1980	1983	1986('85)
Bangladesh		153	97.4	128	
Indonesia	137 (mean of 1961-1971)	110 (1976)	90	89.9 (1984)	84.2
Japan	10.8	10.0	7.5	6.2	5.2
Malaysia <sup>2)</sup>		33.2	26.7 (1978)	20.3	17.0
Nepal			152.0 (1981)	112 (1984)	
Pakistan				124	95~115
Philippines	58.7	53.3	45.1	42.7	38.5
Singapore		12.4	10.7 (1981)		9.3 (1985)
Srilanka	47.5 (140 in 1945)	45.1	34.4 (1981)	23.1 (1984)	a) 11.3('84)
Thailand <sup>3)</sup>	26.1	26.0	13.3	12.4	b) 41.3 c) 9.5('86)

Sources: Refer to the Legend to Table 1.

Note 1) Infant Mortality Per 1,000 live birth

2) Peninsula Malaysia

3) a) Public Health Statistics, 1985

b) Survey Report by the Village Health Volunteer (Refer to a) )

c) SEAMIC Health Statistics 1987

Table-3 Ten Leading Causes of Death

	Indonesia 1986	Japan 1986	Malaysia 1985	Nepal 1988	Pakistan	Philippines 1987	Singapore 1986	Sri Lanka 1983	Thailand 1986
1	Pneumonia 16.8	Malignant Neoplasms 23.54	Diseases of Heart 16.77	Infectious Diseases 21.3	Accidents	Pneumonia 20.6	Malignant Neoplasms 22.51	Cardiovascu- lar Diseases 21.7	Diseases of Heart 9.03
2	Diarrhoea 14.8	Diseases of Heart 19.0	Perinatal Death 13.44	Respiratory Diseases 10.8	Infectious Diseases	Diseases of Heart 11.94	Diseases of Heart 21.54	Injury, Poisoning 14.4	Malignant Neoplasms 6.76
3	Cardiovascu- lar Diseases 8.7	Cardiovascu- lar Diseases 17.22	Accidents 11.47	Injury, Poisoning 10.7	Malignant Neoplasms	Tuberculosis 10.47	Cerebrovascu- lar Diseases 10.57	Infectious Diseases 14.2	Accidents 5.99
4	Tuberculosis 8.6	Pneumonia Bronchitis 7.07	Cerebrovascu- lar Diseases 8.71	Cardiovascu- lar Diseases 8.72	Perinatal, Congenital Diseases	Cardiovascu- lar Diseases 5.70	Pneumonia 8.43	Respiratory Diseases 11.6	Diseases of Digestive System 4.49
5	Measles 6.7	Accidents Poisoning 8.82	Malignant Neoplasms 8.08	Pregnancy, Childbirth 8.27	Cardiovascu- lar Diseases	Accidents 5.23	Accidents 3.81	Perinatal Death 8.9	Respiratory Diseases 2.73
6	Tetanus 6.7	Suicide 3.42	Septicaemia 6.41	Diseases of Nervous System 6.36	Malnutrition	Malignant Neoplasms 4.94	Diabetes Mellitus 3.73	Diseases of Digestive System 5.2	Violence 2.49
7	Malaria 6.7	Cirrhosis of Liver 2.58	Pneumonia 3.31	Diseases of Digestive System 5.97	Diarrhoea	Diarrhoea 2.68	Hypertensive Diseases 2.08	Malignant Neoplasms 4.4	Tuberculosis 2.37
8	Diseases of Nervous System 6.0	Renal Diseases 1.87	Renal Diseases 2.72	Diseases of Genitourinary 3.66		Prematurity 1.26	Renal Diseases 1.98	Diseases of Nervous System 4.1	Cardiovascu- lar Diseases 2.22
9	Perinatal Death 5.3	Hypertensive Diseases 1.56	Tuberculosis 2.16	Endocrine, Metabolic Diseases 2.70		Senility 1.16	Congenital Anomalies 1.59	Endocrine Diseases 2.4	Diseases of Nervous System 2.17
10	Bronchitis etc. 5.1	Diabetes Mellitus 1.22	Diseases of Liver 1.44	Diseases of Blood, Bloodforming Organs 2.4		Malnutrition 0.44	Bronchitis etc. 1.45	Diseases of Genito-urinary System 2.1	Diseases of Genito-urinary System 1.50
								Senility 27.6	
								Signs, Symptoms etc. 23.0	

Sources : Survei Kesehatan Rumah Tangga, 1986, Indonesia ; Indonesia Annual Report, 1987;

Others : Refer to the Legend to Table 1.

Figures show percentages to deaths of all causes.

Table-4 Case Fatality Rates of Infectious Diseases

Disease	Bangladesh (1981 ~83)	Indonesia (1981)	Nepal (1983)	Philippines (1983)	Srilanka (1982)	Thailand <sup>2)</sup> (1983)
Cholera		2.5	2.6	4.3	5.6	2.7
Acute Diarrhea	0.38~0.96	2.6	1.8	4.0	1.1	0.07
Dysentery			3.2	3.8('81)	1.4	0.03
Food poisoning				23.0('81)	1.1	0.03
Enteric Fever		3.4	1.4	2.9	0.5	0.14
Hepatitis		3.4	12.2	4.4	1.1	0.57
Influenza				2.1	0.01	
Pneumonia				26.5	5.2	0.56
Diphtheria	5~16.4	12.1	16.7	8.7	13.6	7.1
Whooping Cough	0.09	4.7		1.4	0.3	0.1
Tetanus <sup>1)</sup>	9.7~18.8 (90.8)	19.1 (51.2)	24.1	33.8	22.8	14.5 (21.9)
Measles	0.1	2.7	2.5	7.8	0.17	a) 0.68 b) 0.08
Poliomyelitis		3.6		10.9	5.3	1.4
Dengue Fever		3.4		3.5		0.77
Encephalitis		41.5	35.3	1.6('81)	11.6	17.8
Tuberculosis		10.4	7.2	19.8	5.5	a) 19.5 b) 1.3
Malaria		1.5		0.59	0.07	a) 1.2 b) 0.22
Others	3.25	3.9	14.2			

Sources: Refer to the Legend to Table 1.

Note 1) Figures in Parenthesis Show "Neonatal Tetanus."

2) (a) Health Profile(1985), (b) Public Health Statistics(1985)

Table-5 Coverage of Immunization

Country		B C G	D P T	P O V	Measles	T T
Indonesia	1984	67	16	14	15	25
	1986	62.5	26.4 <sup>2)</sup> (2nd;49.8)	24.6		24.4
Nepal	1985	117	58.2	9.9	123.5	40.1
Philippines	1981	71	62	53		35
	1986	76 B:81.8 <sup>1)</sup>	59	61	55.2	55.3
Sri Lanka	1985	65	64	65	18	36
Thailand	1985	79.6	62	62.7	29.1	47.9
	1986	80.5 B:53.8	62.9 B:75.2	63.6	29.5	48.7
Pakistan	1987	89	77	77	76	25
Ghana	1985	55.2	29.7 (2nd41.8)	23.8 (2nd41.8)	84.7	10.3 (1st • 52.5)
Paraguay	1984	80	66.5	67.8	61.8	70.9

Sources: Refer to the Legend to Table 1.

Note 1) B : Booster immunization

2) In addition DT : 41.9(1986)

Table-6 Water Supply and Toilet Facilities

		Pipe Water	Toilet Facilities		
			Flushwater	Pit or Moulded Bucket	Others
Bangladesh	(1983)	27.2% of Target	← About 4 % →		
Indonesia	(1985)	10.8	14.9	19.7	65.3
Japan	(1983)	94.0	58.5	41.5	
Malaysia	(1980)	65.0	56.4	22.7	4.4
Nepal	(1986)	U: 70 R: 24	← U: 73 R: < 5 →		
Pakistan	(1980)	U: 78	← U: 53 →		
	(1986)	R: 16.1	R: 0.9	9.7	6.7
Philippines	(1985)	71.4	67.9	16.7	
Singapore	(1983)	99	85	1.5	
Sri Lanka	(1984)	17(Well:52)	4.8	62.0	
Thailand	(1980)	18.9	4.2	50.3	44.1

Sources: Refer to the Legend to Table 1.

Table-7 Medical Facilities and Health Manpower

[illegible]

Sources : Refer to the Legerd to Table 1.

Note 1) : Peninsula Malaysia







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