

Prevalence of Hepatitis B and C in General Population of Pakistan

**By Pakistan Medical Research Council, Islamabad
in the Year 2007-08**

Partners of Survey

- Ministry of Health
- Statistics Division
- Federal Bureau of Statistics
- Pakistan Medical Research Council

Sampling

- Sample size determined by Federal Bureau of Statistics using a 5% disease frequency for B and 5% for C
- Taking population size in each province, rural/urban proportion, 350 PSUs with 20 houses in each PSU were pre selected, making 7000 houses.
- With average 6.7 subjects per house a sample size of 46,900 individuals (47,000) was calculated

Hepatitis Prevalence Results

- Total houses visited - 7000
- Performa filled - 48445
- Blood Collected - 47043

PSU distribution

- Punjab = $175 \times 20 = 3500$ houses
- Sindh = $78 \times 20 = 1560$ houses
- NWFP = $55 \times 20 = 1100$ houses
- Balochistan = $42 \times 20 = 840$ houses
- Total = $350 \times 20 = 7000$ houses

Tests and Kits

- HbsAg and Anti HCV were done through whole blood samples
- Rapid diagnostic kits were used
- Before procurement the kits were compared with known positive and negative samples and kits with comparative results were procured

Overall HBV, HCV positivity

Test Results	Prevalence		
	No	%	95% Confidence Interval
HBsAg Positive	1156	2.5	2.3 – 2.6
Anti HCV Positive	2294	4.9	4.7 – 5.1
overall Positive		7.4	11.84 million

Prevalence of HBV/HCV according to Provinces

	SINDH	PUNJAB	NWFP	BALOCHISTAN
HBsAg +ve	2.5%	2.4%	1.3%	4.3%
HCV +ve	5.0%	6.7%	1.1%	1.5%
Both +ve	0.2%	0.2%	0.1%	0.1%
All Negative	8212 (92.2%)	22857 (90.7%)	7446 (97.5%)	4981 (94.1%)

High prevalence districts

- For the sake of differentiating low prevalence districts from high prevalence districts any figures which were higher than the present national figures of 2.5% for HBV and 5% for HCV were taken as high prevalence areas

Prevalence of Hepatitis B in Districts of Sindh

10 districts have more than 2.5 prevalence

Province Sindh	No. of persons Screened	HBV		Total Population (2004)	Affected Population (Approximately)
		No	%		
Khairpur	479	30	6.3	1,773,000	112,000
Ghotki	205	12	5.9	1,112,000	66,000
Larkana	421	18	4.3	2,209,000	95,000
Nosheroferoz	225	9	4.0	1,247,000	50,000
Shikarpur	300	10	3.3	1,009,000	33,000
Jacobabad	396	13	3.3	1,634,000	54,000
Thatta	392	12	3.1	1,276,000	40,000
Mirpur Khas	569	17	3.0	1,039,000	31,000
Sanghar	653	18	2.8	1,666,000	47,000
Hyderabad	1084	28	2.6	3,315,000	86,000
Dadu	511	11	2.2	1,936,000	43,000
Badin	356	6	1.7	1,302,000	22,000
Nawabshah	364	6	1.6	1,228,000	20,000
Sukkur	456	7	1.5	1,041,000	16,000
Karachi	2190	30	1.4	11,296,000	158,000
Tharparkar	308	0	0.0	1,808,000	0000
Total	8909	227	2.5	34,891,000	872,000

Prevalence of Hepatitis B in Districts of Punjab

14 districts have more than 2.5 prevalence

District of Punjab Province	No. of persons Screened	HBV		Total Population (2004)	Affected Population (Approximately)
		No	%		
DG Khan	577	33	5.7	1,865,000	106,000
Islamabad	591	33	5.6	1,025,000	57,000
R Y Khan	773	36	4.7	3,565,000	168,000
Jhang	885	36	4.1	3,217,000	132,000
Rajanpur	423	17	4.0	1,253,000	50,000
M. Bahauddin	396	15	3.8	1,317,000	50,000
Layyah	432	16	3.7	1,272,000	47,000
T.T. Singh	718	23	3.2	1,841,000	59,000
Gujranwala	926	27	2.9	3,860,000	112,000
Okara	844	24	2.8	2,534,000	71,000
Attock	529	15	2.8	1,447,000	41,000
Mianwali	425	12	2.8	1,199,000	34,000
Vehari	428	12	2.8	2,373,000	66,000
Chakwal	414	11	2.7	1,230,000	33,000
Muzaffargarh	872	22	2.5	2,992,000	75,000
Jehlam	414	10	2.4	1,064,000	26,000
Sahiwal	424	10	2.4	2,092,000	50,000
Bahawalnagar	723	17	2.4	2,340,000	56,000

Prevalence of Hepatitis HBV in District of Punjab

District of Punjab Province	No. of persons Screened	HBV		Total Population (2004)	Affected Population (Approximately)
		No	%		
Caser	535	12	2.2	2,696,000	59,000
Sialkot	1143	25	2.2	3,091,000	68,000
Hafizabad	511	11	2.2	945,000	21,000
Sargodha	1129	24	2.1	3,026,000	64,000
Bahawalpur	942	20	2.1	2,761,000	58,000
Narowal	472	10	2.1	1,436,000	30,000
Khoshab	561	11	2.0	1,028,000	21,000
Rawalpindi	1012	18	1.8	3,818,000	69,000
Lodhran	284	5	1.8	1,330,000	24,000
Shekhupura	1172	19	1.6	3,769,000	60,000
Multan	1019	16	1.6	3,537,000	57,000
Lahore	1984	28	1.4	7,171,000	100,000
Bhakkar	589	7	1.2	1,193,000	14,000
Faisalabad	1616	19	1.2	6,162,000	74,000
Khanewal	423	4	0.9	2,348,000	21,000
Gujrat	616	5	0.8	2,325,000	19,000
Pakpattan	404	3	0.7	1,460,000	10,000
Total	25206	606	2.4	84,582,000	2,030,000

Prevalence of HBV in NWFP Districts

3 districts have more than 2.5 prevalence

District of NWFP Province	No. of persons Screened	HBV		Total Population (2004)	Affected Population (Approximately)
		No	%		
Upper Dir	181	9	5.0	664,000	33,000
Lower Dir	187	6	3.2	828,000	26,000
Bannu	401	11	2.7	781,000	21,000
Charsadda	313	7	2.2	1,179,000	26,000
Hango	283	6	2.1	363,000	8,000
Malakand	384	8	2.1	522,000	11,000
Tank	251	5	2.0	275,000	6,000
Dera Ismail Khan	449	8	1.8	983,000	18,000
Karak	362	6	1.6	497,000	8,000
Mardan	467	7	1.5	1,684,000	25,000
Laki Marwat	268	4	1.5	565,000	8,000
Noshera	484	7	1.4	1,008,000	14,000
Peshawar	864	8	0.9	2,328,000	21,000

Prevalence of HBV in NWFP Districts (Continued)

Province NWFP	No. of persons Screened	HCV		Total Population (2004)	Affected Population (Approximately)
		No	%		
Chitral	283	2	0.7	368,000	3,000
Swat	329	2	0.6	1,450,000	9,000
Mansehra	357	1	0.3	1,330,000	4,000
Batagram	111	0	0.0	354,000	000
Kohistan	105	0	0.0	545,000	000
Swabi	539	0	0.0	1,184,000	000
Kohat	357	0	0.0	649,000	000
Abbottabad	231	0	0.0	1,016,000	000
Haripur	227	0	0.0	798,000	000
Shangla	204	0	0.0	501,000	000
Total	7637	97	1.3	19,863,000	258,000

Prevalence of HBV in Balochistan Districts

16 districts have more than 2.5 prevalence

BALOCHISTAN	No. of persons Screened	HBV		Total Population (2004)	Affected Population (Approximately)
		No	%		
MusaKhel	95	14	14.7	155,000	23,000
Loralai	244	18	7.4	344,000	25,000
Sibi	248	18	7.3	209,000	15,000
Kohlu	180	12	6.7	115,000	8,000
Khuzdar	342	20	5.8	483,000	28,000
Jaffarabad	385	21	5.5	501,000	28,000
Zhob	219	12	5.5	318,000	17,000
Kalat	279	15	5.4	275,000	15,000
Barkhan	133	7	5.3	120,000	6,000
Kharan	145	7	4.8	239,000	11,000
Nasirabad/Tamboo	326	15	4.6	285,000	13,000
Chagi	153	7	4.6	234,000	11,000
Ziarat	201	7	3.5	39,000	1,000
Awaran	148	5	3.4	137,000	5,000
Lasbela	242	8	3.3	362,000	12,000
Turbat	277	9	3.2	478,000	15,000

Prevalence of HBV in Balochistan Districts (continued)

BALOCHISTAN	No. of persons Screened	HBV		Total Population (2004)	Affected Population (Approximately)
		No	%		
Qila Saifullah	304	7	2.3	224,000	5,000
Quetta	451	10	2.2	879,000	19,000
Pishin	329	7	2.1	425,000	9,000
Mastung	158	3	1.9	191,000	4,000
Gawadar	190	2	1.1	215,000	2,000
Panjoor	115	1	0.9	271,000	2,000
Bolankachi	127	1	0.8	333,000	3,000
BALOCHISTAN	5291	226	4.3	6,832,000	294,000

Prevalence of Hepatitis C in Districts of Sindh

7 districts have more than 4.9 prevalence

District of Sindh Province	No. of persons Screened	HCV		Total Population (2004)	Affected Population (Approximately)
		No	%		
Ghotki	205	26	12.7	1,112,000	141,000
Sanghar	653	51	7.8	1,666,000	130,000
Dadu	511	37	7.2	1,936,000	139,000
Hyderabad	1084	62	5.7	3,315,000	189,000
Thatta	392	21	5.4	1,276,000	689,000
Shikarpur	300	16	5.3	1,009,000	53,000
Jacobabad	396	21	5.3	1,634,000	87,000
Nawabshah	364	18	4.9	1,228,000	60,000
Mirpur Khas	569	28	4.9	1,039,000	51,000
Badin	356	16	4.5	1,302,000	59,000
Karachi	2190	91	4.2	11,296,000	474,000
Tharparkar	308	12	3.9	1,808,000	71,000
Sukkur	456	17	3.7	1,041,000	39,000
Khairpur	479	16	3.3	1,773,000	59,000
Nosheroferoz	225	7	3.1	1,247,000	39,000
Larkana	421	9	2.1	2,209,000	46,000
Total	8909	448	5.0	34,891,000	1,745,000

Prevalence of Hepatitis C in Districts of Punjab

23 have more than 4.9 prevalence

Province Punjab	No. of persons Screened	HCV		Total Population (2004)	Affected Population (Approximately)
		No	%		
Vehari	428	56	13.1	2,373,000	311,000
Hafizabad	511	66	12.9	945,000	122,000
Pakpattan	404	43	10.6	1,460,000	155,000
Bahawalnagar	723	73	10.1	2,340,000	236,000
Bahawalpur	942	93	9.9	2,761,000	273,000
Okara	844	80	9.5	2,534,000	241,000
Shekhupura	1172	102	8.7	3,769,000	328,000
Jhang	885	77	8.7	3,217,000	280,000
Faisalabad	1616	137	8.5	6,162,000	524,000
Multan	1019	75	7.4	3,537,000	262,000
Rawalpindi	1012	74	7.3	3,818,000	279,000
T.T. Singh	718	52	7.2	1,841,000	133,000
Sahiwal	424	30	7.1	2,092,000	149,000
Sialkot	1143	80	7.0	3,091,000	216,000
Lahore	1984	134	6.8	7,171,000	488,000
Lodhran	284	19	6.7	1,330,000	89,000
Attock	529	35	6.6	1,447,000	96,000

Prevalence of Hepatitis C in Districts of Punjab (continued)

Province Punjab	No. of persons Screened	HCV		Total Population (2004)	Affected Population (Approximately)
		No	%		
R Y Khan	773	51	6.6	3,565,000	235,000
M. Bahauddin	396	26	6.6	1,317,000	87,000
Gujranwala	926	58	6.3	3,860,000	243,000
Mianwali	425	23	5.4	1,199,000	65,000
Gujrat	616	33	5.4	2,325,000	126,000
Kasur	535	28	5.2	2,696,000	140,000
Sargodha	1129	55	4.9	3,026,000	148,000
Khanewal	423	19	4.5	2,348,000	106,000
DG Khan	577	25	4.3	1,865,000	80,000
Islamabad	591	24	4.1	1,025,000	42,000
Narowal	472	19	4.0	1,436,000	57,000
Layyah	432	16	3.7	1,272,000	47,000
Jehlam	414	13	3.1	1,064,000	33,000
Khoshab	561	16	2.9	1,028,000	30,000
Bhakkar	589	15	2.5	1,193,000	30,000
Rajanpur	423	10	2.4	1,253,000	30,000
Chakwal	414	9	2.2	1,230,000	27,000
Muzaffargarh	872	17	1.9	2,992,000	57,000
Punjab	25206	1683	6.7	83,637,000	5,604,000

Prevalence of HCV in NWFP Districts

1 has more than 4.9 prevalence

Province NWFP	No. of persons Screened	HCV		Total Population (2004)	Affected Population (Approximately)
		No	%		
Hango	283	18	6.4	363,000	23,000
Swat	329	10	3.0	1,450,000	43,000
Batagram	111	3	2.7	354,000	10,000
Mardan	467	10	2.1	1,684,000	35,000
Malakand	384	6	1.6	522,000	8,000
Bannu	401	6	1.5	781,000	12,000
Peshawar	864	10	1.2	2,328,000	28,000
Charsadda	313	3	1.0	1,179,000	12,000
Kohistan	105	1	1.0	545,000	5,000
Noshera	484	4	0.8	1,008,000	8,000
Laki Marwat	268	2	0.7	565,000	4,000
Swabi	539	4	0.7	1,184,000	8,000
Kohat	357	2	0.6	649,000	4,000
Mansehra	357	2	0.6	1,330,000	8,000
Lower Dir	187	1	0.5	828,000	4,000

Prevalence of HCV in NWFP Districts (Continued)

Province NWFP	No. of persons Screened	HCV		Total Population (2004)	Affected Population (Approximately)
		No	%		
Tank	251	1	0.4	275,000	1,000
Chitral	283	1	0.4	368,000	1,000
Abbottabad	231	0	0.0	1,016,000	000
Dera Ismail Khan	449	0	0.0	983,000	000
Haripur	227	0	0.0	798,000	000
Shangla	204	0	0.0	501,000	000
Karak	362	0	0.0	497,000	000
Upper Dir	181	0	0.0	664,000	000
NWFP	7637	84	1.1	19,872,000	219,000

Prevalence of Hepatitis HCV in District of Balochistan

2 have more than 4.9 prevalence

District of Balochistan Province	No. of persons Screened	HCV		Total Population (2004)	Affected Population (Approximately)
		No	%		
Musa Khel	95	5	5.3	155,000	8,000
Jaffarabad	385	20	5.2	501,000	26,000
Barkhan	133	5	3.8	120,000	5,000
Zhob	219	8	3.7	318,000	12,000
Loralai	244	8	3.3	344,000	11,000
Nasirabad/Tambooo	326	9	2.8	285,000	8,000
Mastung	158	3	1.9	191,000	4,000
Quetta	451	7	1.6	879,000	14,000
Awaran	148	2	1.4	137,000	2,000
Lasbela	242	3	1.2	362,000	4,000
Khuzdar	342	4	1.2	483,000	6,000
Pishin	329	2	0.6	425,000	3,000
Kohlu	180	1	0.6	115,000	1,000

Prevalence of Hepatitis HCV in District of Balochistan (continued)

District of Balochistan Province	No. of persons Screened	HCV		Total Population (2004)	Affected Population (Approximately)
		No	%		
Turbat/Kech	277	1	0.4	478,000	2,000
Qila Saifullah	304	1	0.3	224,000	1,000
Sibi	248	0	0.0	209,000	000
Kalat	279	0	0.0	275,000	000
Kharan	145	0	0.0	239,000	000
Chagi	153	0	0.0	234,000	000
Ziarat	201	0	0.0	39,000	000
Gawadar	190	0	0.0	215,000	000
Panjgoor	115	0	0.0	271,000	000
Bolankachi	127	0	0.0	333,000	000
BALUCHISTAN	5291	79	1.5	6,832,000	102,000

Prevalence of HCV according to use of IM Injections

Use of IM Injection	No. of Subjects	Prevalence of HCV		
		No	%	95% C.I.
None	10987	402	3.7	3.3 – 4.0
2- 4	22623	1007	4.5	4.2 – 4.7
5-10	10492	641	6.1	5.7 – 6.6
> 10	2941	244	8.3	7.3 – 9.3
Total	47043	2294	4.9	4.7 – 5.1

Prevalence of HCV according to type of Syringes

Syringes	No. of Subjects	Prevalence of HCV		
		No	%	95% C.I.
None	10987	402	3.7	3.3 – 4.0
New disposable	15563	552	3.5	3.3 – 3.8
Re-used syringe	17696	198	6.8	6.4 – 7.1
Don't Know	2797	42	5.1	4.3 – 5.9
Total	47043	2294	4.9	4.7 – 5.1

Number of injections in each provinces

Province	No. of Subject	Number of Injections		
		<5	5-10	More than 10
Sindh	8909	59.7%	34.4%	5.9%
Punjab	25206	77.1%	17.8%	5.1%
NWFP	7637	65.0%	25.0%	10.0%
Balochistan	5291	71.3%	21.8%	6.9%
Total	47043	71.2%	22.6%	6.2%

Injection practices

- WHO allows 3.5 injections/person/year
- WHO study showed Pakistan has 13.6 injection/person/year
- AKU and PMRC studies showed 13&14 inj
- Pakistan has the highest therapeutic use of injection world wide
- The higher is the injection use the higher is chance of blood born infections

Prevalence of HBV/HCV according to Provinces

	SINDH	PUNJAB	NWFP	BALOCH
HBsAg +ve	2.5% 0.87 mill	2.4% 0.20 mill	1.3% 0.23 mill	4.3% 0.3 mill
HCV +ve	5.0% 1.7 mill	6.7% 5.6 mill	1.1% 0.22 mill	1.5% 0.1 mill
Both +ve	0.2%	0.2%	0.1%	0.1%
All Negative	8212 (92.2%)	22857 (90.7%)	7446 (97.5%)	4981 (94.1%)

Conclusions

- For HBV control more active vaccination program needs to be launched especially in the high prevalence districts
- For HCV control use of therapeutic injections needs to be curtailed and syringe disposal/cutting to be practised