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**Andhra Pradesh Health Institutions Database (APHIDB) -
Private and Public: A Technical Note**

**The Institute of Health Systems
Hyderabad**

CONTENTS

		P.No.
1	Status Note on APHIDB	1
2	Technical Note on APHIDB on Fox Pro	12
3	APHIDB Datatbase Structure	13
4	Tables of APHIDB	15
5	Dictionaries of APHIDB	17
6	Physical Implementation of the Database Tables And Dictionaries and Indices	19
7	List of Reports Generated By the System	20
8	Technical Note of APHIDB on Unix	21
9	ANNEXURE - I APHIDB Survey Schedule	23
10	Menutree of APHIDB	25

Private Hospitals And Nursing Homes In Andhra Pradesh: A Status Note Based On Andhra Pradesh Health Institutions Database (APHIDB) As On 8 August 1996

We find that a large number of private hospitals and nursing homes (PVHI) in Andhra Pradesh - 49.93% are functioning in *mandal* headquarters which are essentially small towns. The average bed strength of PVHI's in mandal headquarters is only 14.24. Divisional (commonly referred to as sub-division in many other parts of India) headquarters account for 10.82% of PVHI's. Average size of PVHI's at these places is 16.68 beds.

The information on bed strength shows that while 41.19% PVHI's fall in the 1-10 bedded category, their percentage share in bed strength is only about half of this: 19.09%. A few (1.17%) PVHI's in the 100-249 bedded category account for 11.42% of the total bed strength (Table 2). About half (48.18%) of the bed strength in the PVHI's are in the 1-20 bedded ones.

Many (47.35%) of the PVHI's offer "all services" which include medical, surgical, obstetric, and "other" services. After this comes the category of medical, surgical and obstetrics (18.31%), medical (9.67%) and medical and surgery (6.47%). Obstetrics turns out to be one of the main services offered by the PVHI's. Among the various services of the PVHI's listed, obstetrics figures as a component in as many as 6 combinations, apart from being reported separately from some specialised obstetric care PVHI's (Table 3).

As per the CMIE index of socio economic development most of the coastal Andhra districts register a relatively higher score (Table 5). We find that the coastal Andhra region with 9 districts are having 1,920 PVHI's with 24,193 beds while the 14 less developed districts of Rayalseema (4 dists.) and Telangana (10 dists.), add up to only 1,231 PVHIs and 22,357 beds inspite of a much larger population. The population of costal Andhra districts is 29 million while that of the districts in Rayalseema and Telangana is 11 million and 26 million respectively. The spread of bed strength in Rayalseema and Telangana also does not seem to be as even as in Andhra region. It appears that the growth of small and medium PVHI's is largely determined by the presence of a better market for health care and the general socio-economic development (Table 4).

The concentration of private health institutions is also dependent on the general economic development of the respective districts. Private hospitals and nursing homes of the more developed coastal Andhra region constitutes 66% to 83% of all health institutions (HI's) in as many as 7 out of 9 districts of the region. Among the four districts of the less developed Rayalseema region only one among them have more than 50% PVHI component. In the Telangana region the PVHI component in 6 out of 10 districts fall between 53% in Nalgonda to the state capital district's 84%, which being the state capital, is an exception (Table 5).

In bed capacity also a some what similar picture emerges: in 6 out of 9 districts in the Andhra region PVHI's share in over all bed strength ranges between 61% - 87%. In Rayalseema, only in one district it crosses the 50% mark, while in 6 of the 10 districts of Telengana the PVHI component in bed strength ranges between a moderate 53% to 67% respectively (Table 6).

Most of the large 100 to 249 bedded PVHI's are in the 7 out of 9 districts of Andhra region, the state capital of Hyderabad. There aren't many PVHI's with 250 or more bed capacity. Of the four which exist, three are in Hyderabad itself. Among the small and medium hospitals also the districts of Andhra region have many more than the districts of Rayalseema and Telengana barring the exception of the State capital - Hyderabad (Table 7).

In rural as well as urban areas of A.P the coastal Andhra region is far ahead of the other two regions in both number of PVHI's and bed capacity (Table 8). While we analyse the data by place status which is a sharper indicator we find a substantial concentration of PVHI's in the mandal towns particularly in the four districts of East Godavari, Krishna and Guntur (Table 9).

The bed-population ratio in respect of PVHI's is 0.71 per 1000 as compared to the corresponding ratio for public hospitals of 0.43 per 1000. For rural areas the respective PVHI figure is 0.22 per thousand as aganist 0.08 per thousand of public hospitals. For urban areas the PVHI figure is 2 per thousand while the public hospitals figure is 1.34 per thousand (Table 10).

Note: Tables are provided towards the end of this status note.

Table - 1**DISTRIBUTION OF PHI's AND No. OF BEDS BY PLACES STATUS**

Place Status	P.H.I.'s		Beds	
	No.	%	No.	%
District Headquarter	994	29.95	18264	39.23
Subdivisional Headquarter	320	10.51	4838	10.39
Mandal Headquarter	1533	48.65	19057	40.93
Village Headquarter	354	11.23	4391	9.43
Total	3151	100	46550	100

Table-2**PHI DISTRIBUTION BY BED STRENGTH**

Bed Size	P.H.I.'s		Beds	
	No.	%	No.	%
0	471	14.94	0	0
1-10	1,298	41.19	8891	19.09
11-20	842	26.72	13543	29.09
21-30	307	9.74	8231	17.68
31-50	140	4.44	5855	12.58
51-99	52	1.66	3553	7.64
100-249	37	1.18	5319	11.43
=>250	4	0.13	1158	2.49
Total	3151	100	46550	100

Table-3**SERVICES OFFERED BY PHI's**

Service	P.H.I.'s		Beds	
	No.	%	No.	%
Obs	49	1.55	590	1.26
Sur	40	1.27	527	1.13
Med	305	9.68	1914	4.13
Others	68	2.15	412	0.89
Obs & Sur	36	1.15	565	1.21
Obs & Med	105	3.33	774	1.67
Med & Sur	204	6.48	2902	6.24
Obs & Oth	33	1.04	449	0.96
Sur & Oth	9	0.29	17	0.03
Med & Oth	90	2.85	472	1.01
Med, Sur & Obs	577	18.32	9664	20.77
Med, Obs & Oth	64	2.03	470	1
Med, Sur & Oth	74	2.35	1211	2.6
Obs, Sur & Oth	5	0.16	79	0.16
All Types	1492	47.35	26504	56.94
Total	3151	100	46550	100

Table-4**Abstract Table on share of Pub/Pri/Vol HI's in different geo-regions of A.P.**

Geographic Region	Public Hosp.		Private Hosp.		Voluntary		Total	
	Inst.	Beds	Inst.	Beds	Inst.	Beds	Inst.	Beds
Coastal Andhra	698	10244	1920	24193	26	2787	2644	37224
Rayalaseema	336	4389	229	3145	13	973	578	8507
Telangana	657	13307	1002	19212	15	738	1674	33257
Total	1691	27940	3151	46550	54	4498	4896	78988

Table from APHIDB prepared at IHS as on 24/08/94

Table 5

District-wise Index of Socio-economic development and Share of Public / Private / Voluntary Health Institutions

S. No.	District	ISED*	Public Hosp.		Private Hosp.		Voluntary		Total
			Inst.	%	Inst.	%	Inst.	%	Inst.
COASTAL ANDHRA									
1	SRIKAKULAM	56	67	53.60	57	45.60	1	0.80	125
2	VIZIANAGARAM	65	65	78.31	18	21.69	0	0.00	83
3	VISAKHAPATNAM	92	53	32.92	106	65.84	2	1.24	161
4	EAST GODAVARI	93	111	25.17	327	74.15	3	0.68	441
5	WEST GODAVARI	115	78	17.93	357	82.07	0	0.00	435
6	KRISHNA	119	80	15.36	433	83.11	8	1.54	521
7	GUNTUR	114	78	21.67	274	76.11	8	2.22	360
8	PRAKASAM	86	84	34.43	159	65.16	1	0.41	244
9	NELLORE	96	82	29.93	189	68.98	3	1.09	274
RAYALASEEMA									
10	CHITTOOR	84	88	46.07	98	51.31	5	2.62	191
11	CUDDAPAH	88	68	51.91	60	45.80	3	2.29	131
12	ANANTAPUR	92	91	70.00	38	29.23	1	0.77	130
13	KURNOOL	83	89	70.63	33	26.19	4	0.17	126
TELANGANA									
14	MAHABUBNAGAR	53	85	54.84	68	43.87	2	1.29	155
15	RANGAREDDY	75	48	60.00	111	69.38	1	0.63	160
16	HYDERABAD	299	50	16.50	253	83.50	0	0.00	303
17	MEDAK	86	63	54.78	52	45.22	0	0.00	115
18	NIZAMABAD	104	49	40.83	69	57.50	2	1.67	120
19	ADILABAD	66	73	73.00	26	26.00	1	1.00	100
20	KARIMNAGAR	97	77	33.05	153	65.67	3	1.29	233
21	WARANGAL	80	69	56.56	51	41.80	2	1.64	122
22	KHAMMAM	76	68	33.83	132	65.67	1	0.54	201
23	NALGONDA	71	75	45.45	87	52.73	3	1.82	165
TOTAL			1691	34.54	3151	64.36	54	1.10	4896

Table form APHIDB prepared at IHS as on 24/08/94

* ISED (Index of Socio-economic development)

Source: **Profile of districts, Nov. 1993** . Centre for Monitoring Indian Economy, Bombay. Dec 1993 pp 1-23.

** IESD A. P. State Average.

Table 6

District wise Share of bed strength of Pub / Pvt / Vol Health Institutions								
S.No.	District	Public Hosp.		Private Hosp.		Voluntary		Total
		Beds.	%	Beds.	%	Beds.	%	Beds
Coastal Andhra								
1	Srikakulam	552	50.09	510	46.20	40	3.63	1102
2	Vizianagaram	321	79.46	83	20.54	0	0.00	404
3	Visakahapatnam	2418	57.85	1602	38.33	160	3.83	4180
4	East Godavari	1624	23.91	4765	70.15	404	5.95	6793
5	West Godavari	638	12.93	4297	87.07	0	0.00	4935
6	Krishna	1463	26.74	3182	50.16	826	15.10	5471
7	Guntur	1764	25.56	4196	60.79	942	13.65	6902
8	Prakasam	456	14.44	2601	82.39	100	3.17	3157
9	Nellore	1008	23.55	2957	69.09	315	7.36	4280
Rayalaseema								
10	Chittoor	1351	40.11	932	33.19	525	18.70	2808
11	Cuddapah	573	31.40	939	51.45	313	17.15	1825
12	Ananthapur	1085	69.37	479	30.63	0	0.00	1564
13	Kurnool	1380	59.74	795	34.42	135	5.84	2310
Telangana								
14	Mahabubnagar	736	41.03	968	53.96	90	5.02	1794
15	Rangareddy	709	31.43	1505	66.71	42	1.86	2256
16	Hyderabad	6946	43.15	9153	56.85	0	0.00	16099
17	Medak	578	47.11	649	52.89	0	0.00	1227
18	Nizamabad	642	35.65	1119	62.13	40	2.22	1801
19	Adilabad	688	59.36	446	38.48	25	2.16	1159
20	Karimnagar	641	25.97	1617	65.52	210	8.51	2468
21	Warangal	1287	52.33	1077	43.73	97	3.94	2463
22	Khammam	521	24.44	1501	70.40	110	5.16	2132
23	Nalgonda	557	29.78	1177	63.35	124	6.67	1858
Total		27940	35.37	46550	58.93	4498	5.69	78988

Table from APHIDB prepared at IHS as on 24/08/94

Table 6

District wise Share of bed strength of Pub / Pvt / Vol Health Institutions								
S.No.	District	Public Hosp.		Private Hosp.		Voluntary		Total
		Beds.	%	Beds.	%	Beds.	%	Beds
Coastal Andhra								
1	Srikakulam	552	50.09	510	46.20	40	3.63	1102
2	Vizianagaram	321	79.46	83	20.54	0	0.00	404
3	Visakahapatnam	2418	57.85	1602	38.33	160	3.83	4180
4	East Godavari	1624	23.91	4765	70.15	404	5.95	6793
5	West Godavari	638	12.93	4297	87.07	0	0.00	4935
6	Krishna	1463	26.74	3182	50.16	826	15.10	5471
7	Guntur	1764	25.56	4196	60.79	942	13.65	6902
8	Prakasam	456	14.44	2601	82.39	100	3.17	3157
9	Nellore	1008	23.55	2957	69.09	315	7.36	4280
Rayalaseema								
10	Chittoor	1351	40.11	932	33.19	525	18.70	2808
11	Cuddapah	573	31.40	939	51.45	313	17.15	1825
12	Ananthapur	1085	69.37	479	30.63	0	0.00	1564
13	Kurnool	1380	59.74	795	34.42	135	5.84	2310
Telangana								
14	Mahabubnagar	736	41.03	968	53.96	90	5.02	1794
15	Rangareddy	709	31.43	1505	66.71	42	1.86	2256
16	Hyderabad	6946	43.15	9153	56.85	0	0.00	16099
17	Medak	578	47.11	649	52.89	0	0.00	1227
18	Nizamabad	642	35.65	1119	62.13	40	2.22	1801
19	Adilabad	688	59.36	446	38.48	25	2.16	1159
20	Karimnagar	641	25.97	1617	65.52	210	8.51	2468
21	Warangal	1287	52.33	1077	43.73	97	3.94	2463
22	Khammam	521	24.44	1501	70.40	110	5.16	2132
23	Nalgonda	557	29.78	1177	63.35	124	6.67	1858
Total		27940	35.37	46550	58.93	4498	5.69	78988

Table from APHIDB prepared at IHS as on 24/08/94

Table 7**District wise distribution of PHIs by bed strength**

S.No.	District	Bed Strength (in private health institutions)												
		'0' Beds	1 to 9		10 to 19		20 to 29		30 to 99		100 to 249		250 & above	
		Inst.	Inst.	Beds	Inst.	Beds	Inst.	Beds	Inst.	Beds	Inst.	Beds	Inst.	Beds
Coastal Andhra														
1	Srikakulam	13	20	104	16	176	5	110	3	120	0	0	0	0
2	Vizianagaram	7	6	30	5	53	0	0	0	0	0	0	0	0
3	Visakahapatnam	0	43	232	37	474	14	320	11	476	1	100	0	0
4	East Godavari	22	100	511	131	1628	46	1008	26	1268	2	350	0	0
5	West Godavari	70	116	570	111	1365	40	866	15	680	4	520	1	296
6	Krishna	194	89	490	94	1122	43	926	11	424	2	220	0	0
7	Guntur	22	72	385	105	1325	49	1009	23	985	3	492	0	0
8	Prakasam	24	29	140	56	721	23	514	25	976	2	250	0	0
9	Nellore	30	54	289	68	834	17	375	15	654	5	805	0	0
Rayalaseema														
10	Chittoor	19	44	208	26	309	6	125	2	70	1	220	0	0
11	Cuddapah	7	22	123	12	160	7	159	11	397	1	100	0	0
12	Ananthapur	3	12	67	12	135	10	227	1	50	0	0	0	0
13	Kurnool	0	4	23	13	164	5	103	10	405	1	100	0	0
Telangana														
14	Mahabubnagar	2	31	184	25	309	5	115	4	160	1	200	0	0
15	Rangareddy	6	46	284	36	486	10	220	13	515	0	0	0	0
16	Hyderabad	2	13	78	43	549	74	1671	107	4425	11	1568	3	862
17	Medak	0	17	99	24	308	11	242	0	0	0	0	0	0
18	Nizamabad	1	14	92	35	456	11	245	7	226	1	100	0	0
19	Adilabad	0	10	54	11	135	4	83	0	0	1	174	0	0
20	Karimnagar	31	36	190	54	674	26	558	6	195	0	0	0	0
21	Warangal	0	8	43	23	277	10	217	9	420	1	120	0	0
22	Khammam	13	56	276	33	393	20	440	10	392	0	0	0	0
23	Nalgonda	5	29	149	29	360	17	378	7	290	0	0	0	0
Total		471	871	4621	999	12413	453	9911	316	13128	37	5319	4	1158

Table from APHIDB prepared at IHS as on 24/08/94

Table 8

District wise Rural - Urban Distribution of Health care institutions and Bed Strength

S. No.	District	Private Hosp.				Public Hosp.				Voluntary Hosp				Total			
		Rural		Urban		Rural		Urban		Rural		Urban		Rural		Urban	
		Inst.	Beds	Inst.	Beds	Inst.	Beds	Inst.	Beds	Inst.	Beds	Inst.	Beds	Inst.	Beds	Inst.	Beds
COASTAL ANDHRA																	
1	SRIKAKULAM	2	6	55	504	58	108	9	444	0	0	1	40	60	114	65	988
2	VIZIANAGARAM	0	0	10	83	58	80	7	241	0	0	0	0	58	80	25	324
3	VISAKHAPATNAM	4	47	102	1,555	39	146	14	2,272	0	0	2	160	43	193	118	3,987
4	EAST GODAVARI	110	1,354	217	3,411	92	107	19	1,517	1	24	2	380	203	1,485	238	5,308
5	WEST GODAVARI	155	1,622	202	2,675	76	622	2	16	0	0	0	0	231	2,244	204	2,691
6	KRISHNA	107	1,066	326	2,116	67	140	13	1,323	1	25	7	801	175	1,231	346	4,240
7	GUNTUR	79	1,070	195	3,126	65	92	13	1,672	1	110	7	832	145	1,272	215	5,630
8	PRAKASAM	65	672	94	1,929	76	69	8	387	0	0	1	100	141	741	103	2,416
9	NELLORE	58	682	131	2,275	71	156	11	852	1	45	2	270	130	883	144	3,397
RAYALSEEEMA																	
10	CHITTOOR	28	165	70	767	78	120	10	1,231	1	20	4	505	107	305	84	2,503
11	CUDDAPAH	6	37	54	902	59	40	9	533	2	43	1	270	67	120	64	1,705
12	ANANTAPUR	12	126	26	353	77	127	14	958	0	0	1	0	89	253	41	1,311
13	KURNOOL	33	795	0	0	77	161	12	1,219	1	0	3	135	111	956	15	1,354
TELANGANA																	
14	MAHABUBNAGAR	46	686	22	282	73	196	12	540	0	0	2	90	119	882	36	912
15	RANGAREDDY	26	255	85	1,250	35	611	13	98	0	0	1	42	61	866	99	1,390
16	HYDERABAD	0	0	253	9,153	0	0	50	6,946	0	0	0	0	0	0	303	16,099
17	MEDAK	20	204	32	445	56	145	7	433	0	0	0	0	76	349	39	878
18	NIZAMABAD	34	466	35	653	41	130	8	512	1	0	1	40	76	596	44	1,205
19	ADILABAD	0	0	26	446	63	184	10	504	0	0	1	25	63	184	37	975
20	KARIMNAGAR	67	416	86	1,201	68	215	9	426	0	0	3	210	135	631	98	1,837
21	WARANGAL	24	626	27	451	61	178	8	1,111	0	0	2	97	85	804	37	1,659
22	KHAMMAM	19	123	113	1,378	61	193	7	328	0	0	1	110	80	316	121	1,816
23	NALGONDA	27	304	60	873	67	80	8	477	1	58	2	66	95	442	70	1,416
TOTAL		922	10,722	2,229	35,823	1,418	3,900	273	24,040	10	325	44	4,173	2,350	14,947	2,546	64,041

Table form APHIDB prepared at IHS as on 06/08/94

Table 9

District Wise Distribution of PHIs and Bed strength by Place status

S. No	District	District Hqrs.		Division Hqrs.		Mandal Hqrs.		Village Hqrs.		Total	
		Insti.	Beds	Insti.	Beds	Insti.	Beds	Insti.	Beds	Insti.	Beds
COASTAL ANDHRA											
1	SRIKAKULAM	14	257	11	128	16	107	3	18	44	510
2	VIZIANAGARAM	10	73	0	0	0	0	1	10	11	83
3	VISAKHAPATNAM	45	745	1	8	47	702	13	147	106	1602
4	EAST GODAVARI	49	652	89	1561	126	2072	41	480	305	4765
5	WEST GODAVARI	33	372	6	181	226	3426	22	318	287	4297
6	KRISHNA	32	410	40	659	138	1707	29	406	239	3102
7	GUNTUR	0	0	39	628	192	3161	21	407	252	4196
8	PRAKASAM	29	689	13	273	63	1164	30	475	135	2601
9	NELLORE	54	1576	16	229	84	1122	5	30	159	2957
RAYALASEEMA											
10	CHITTOOR	27	268	10	361	40	253	2	50	79	932
11	CUDDAPAH	12	242	5	52	35	639	1	6	53	939
12	ANANTAPUR	11	189	0	0	23	268	1	22	35	479
13	KURNOOL	8	366	13	219	12	210	0	0	33	795
TELANGANA											
14	MAHABUBNAGAR	12	195	21	221	31	347	2	205	66	968
15	RANGAREDDY	0	0	3	29	34	417	68	1059	105	1505
16	HYDERABAD	251	9153	0	0	0	0	0	0	251	9153
17	MEDAK	2	25	4	33	42	538	4	53	52	649
18	NIZAMABAD	28	560	0	0	36	508	4	51	68	1119
19	ADILABAD	6	53	0	0	19	383	1	10	26	446
20	KARIMNAGAR	38	658	8	98	49	612	27	249	122	1617
21	WARANGAL	22	594	9	134	20	349	0	0	51	1077
22	KHAMMAM	52	912	1	22	66	567	0	0	119	1501
23	NALGONDA	11	275	1	2	39	505	31	395	82	1177
TOTAL		746	18264	290	4838	1338	19057	306	4391	2680	46550

Table From APHIDB prepared at IHS as on 24/08/94

Note: Division in A. P. is an administrative unit under a district into which mandals are grouped

Table 10
District Wise Bed population for Private, Public & Voluntary Health Care Sector

District wise PHI bed population ratio = Beds / 1000 population

S. No.	District	Population 1,991 Census	Pvt. Hosp.		Ratio Per 1000	Pub. Hosp.		Ratio Per 1000	Vol. Hosp.		Ratio Per 1000	Total		Ratio Per 1000
			Inst.	Beds		Inst.	Beds		Inst.	Beds		Inst.	Beds	
COASTAL ANDHRA														
1	SRIKAKULAM	2322778	57	510	0.22	67	552	0.24	1	40	0.02	125	1102	0.47
2	VIZIANAGARAM	2110943	18	83	0.04	65	321	0.15	0	0	0.00	83	404	0.19
3	VISAKHAPATNAM	3280936	106	1602	0.49	53	2418	0.74	2	160	0.05	161	4180	1.27
4	EAST GODAVARI	4541222	327	4765	1.05	111	1624	0.36	3	404	0.09	441	6793	1.50
5	WEST GODAVARI	3450160	357	4297	1.25	78	638	0.18	0	0	0.00	435	4935	1.43
6	KRISHNA	3698833	433	3182	0.06	80	1463	0.40	8	826	0.22	521	5471	1.48
7	GUNTUR	4106999	274	4196	1.02	78	1764	0.43	8	942	0.23	360	6902	1.68
8	PRAKASAM	2759166	159	2601	0.94	84	456	0.17	1	100	0.04	244	3157	1.14
9	NELLORE	2392260	189	2957	1.24	82	1008	0.42	3	315	0.13	274	4280	1.79
RAYALASEEMA														
10	CHITTOOR	3193699	98	932	0.29	88	1351	0.42	5	525	0.16	191	2808	0.88
11	CUDDAPAH	2267769	60	939	0.41	68	573	0.25	3	313	0.14	131	1825	0.80
12	ANANTAPUR	3183814	38	479	0.15	91	1085	0.34	1	0	0.00	130	1564	0.49
13	KURNOOL	2204924	33	795	0.36	89	1380	0.63	4	135	0.06	126	2310	1.05
TELANGANA														
14	MAHABUBNAGAR	3034945	68	968	0.32	85	736	0.24	2	90	0.03	155	1794	0.59
15	RANGAREDDY	2551966	111	1505	0.59	48	709	0.28	1	42	0.02	160	2256	0.88
16	HYDERABAD	3145939	253	9153	2.91	50	6946	2.21	0	0	0.00	303	16099	5.12
17	MEDAK	2269800	52	649	0.29	63	578	0.25	0	0	0.00	115	1227	0.54
18	NIZAMABAD	1987251	69	1119	0.56	49	642	0.32	2	40	0.02	120	1801	0.91
19	ADILABAD	2039461	26	446	0.22	73	688	0.34	1	25	0.01	100	1159	0.57
20	KARIMNAGAR	3037486	153	1617	0.53	77	641	0.21	3	210	0.07	233	2468	0.81
21	WARANGAL	2313352	51	1077	0.38	69	1289	0.46	2	97	0.03	122	2463	0.87
22	KHAMMAM	2170969	132	1501	0.69	68	521	0.24	1	110	0.05	201	2132	0.98
23	NALGONDA	2052092	87	1177	0.41	75	557	0.20	3	124	0.04	165	1858	0.65
TOTAL		65422244	3151	46550	0.71	1691	27940	0.43	54	4498	0.07	4896	78988	1.21

Table from APHIDB prepared at IHS as on 24/08/94

Note: T= Total, U = Urban, R = Rural

TECHNICAL NOTE ON APHIDB ON FOXPRO

Andhra Pradesh Health Institutions Database (APHIDB) is a full-fledged database with a sophisticated query & retrieval system.

This database comprises of :

- **Public sector health care delivery institutions** in the state of Andhra Pradesh, upto the level of PHCs / Sub-centres and with linkage to 1991 primary census abstract.
- **Private Sector health care delivery institutions** in the state of Andhra Pradesh, with a linkage to 1991 primary census abstract.

The database stores information regarding:

1. Address with phone, fax & telex details
2. Tier classification as Primary, Secondary & Tertiary etc.
3. Location of the place where located (place status)
4. Management, Ownership & Category
5. Bed capacity Services (type & no. of cases in a year), Clientele Served

The retrieval system offers reports, abstracts, summaries & queries with respect to the above mentioned information classes, with analysis reports & census details. Efforts are underway to develop graphical outputs. Also plans are underway for a true PC Geographical mapping of the available information.

Plans for further development:

Graphic data representation & analysis charts generation will be undertaken.

List of appendix.

- I. Data dictionary of APHIDB system of programmes developed by IHS.
- II. Sample reports of APHIDB system of programmes developed by IHS.

APHIDB DATA BASE STRUCTURE

Andhra Pradesh Health Institutions Database (APHIDB) data structure consists of a set of tables and dictionaries. The definitions of which are given as:

Tables: Each table is an actual representation of one table in the relational database, and will have both key field(s) and data fields.

Dictionaries: Dictionaries can be viewed logically as a table containing a definition field and a code field. This is used to standardise definitions through use of codes.

DATA STRUCTURE

The following describes the tables and their relationship in detail. The name of the dictionary used within the table is also given. The database consists of 6 tables.

- Health institutions table
- Health institutions additional information table
- Census table
- Validation table
- Validation additional information table
- On-line help table

1. **Health institutions table:** Standard information pertaining to health institutions (HIs) is stored in this table. Each HIs is given a unique code called HOSP_CODE, which is the key field to this table. A HOSP_CODE is made up of 3 parts:
 - a. Two character code representing the type of management to which the HI belongs.
 - b. Two character code representing the revenue district to which the HIs belongs.
 - c. Two character code representing the serial number to the HI.

2. **Health institutions additional information table:** Any other relevant, additional and non standard information regarding an HIs is stored in this table. The key to this table is also the HOSP_CODE.
3. **Census table:** Contains the population details of each of the revenue districts.
4. **Validation table:** Validation campaign details are stored in this table. Each HIs for which validation is under validation is given a code called VALICODE, which is the key field to this table. It is made up of (i) the year of validation & (ii) the HIs code.
5. **Validation additional information table:** Any other relevant additional information regarding HIs under validation is stored in this table in the form of standard remarks. The key to this table is also the VALICODE.
6. **On-line help table:** Details of using the query module, and each procedure are stored for providing on-line help.

HEALTH INSTITUTIONS TABLE

FIELD NAME	FIELD DESCRIPTION	FIELD TYPE	FIELD LENGTH	DICTIONARY
HOSP_CODE	Unique key code assigned to a HIs	C	7	
NAME	Name of the health institution	C	25	
ADDRESS1	Address of the health institution	C	25	
ADDRESS2	Address of the health institution	C	20	
CITY	City where the HIs are located	C	16	
PHONE	Phone number of the HIs, if any	N	7	
DISTRICT	Revenue district code	C	2	DIST
PIN	Pin code of the location	C	6	
ESTA_YEAR	Year of establishment of the HIs	N	4	
BEDS	Number of beds in the HIs	N	4	
MGMT	Code for type of management to which the HIs belongs to	C	2	MGMT
TC_CLASS	Code for the Tier class the HI belongs to	C	2	TIER
OWNER_TYPE	Type of owner- ship to which the His belongs, only for private HIs	C	2	
CATG	Code for primary category of diseases handled by the HIs	C	2	CATG
CLIENT	Code for the type of clientele being catered to by the HIs	C	2	CLIENT
PL_STAT	Code designating the revenue status of the place, where His is located	C	2	PLSTAT
MED	No. Of medical cases handled in a year	N	5	
MED1	% of medical cases handled in a year	N	3	
SUR	No. Of surgical cases handled in a year	N	4	
SUR1	% of surgical cases handled in a year	N	3	

OBS	No. of obstetric cases handled in a year	N	4	
OBS1	% of obstetric cases handled in a year	N	3	
OTHER	No. of general cases handled in a year	N	4	
OTHER1	% of general cases handled in a year	N	3	
TOTAL	Total no of cases handled in a year	N	6	
SINSTI	Name of the surveying institutions	C	30	
SURVEYOR	Name of the surveyor	C	25	
PHASE	The phase of development of HIs	N	1	
LAND	The land under the HIs	N	7.3	
RES_LAND	Residential land under the HIs	N	7.3	
BLDG	The building area of the HIs	N	9.3	
RES_BLDG	The residential building area of the HIs	N	9.3	
CENCODE	The census code of the location of HIs	C	18	
URBANCODE	The urban code of the location of HIs	C	16	
STAT	The urban/rural status of His location	C	1	

HEALTH INSTITUTIONS ADDITIONAL INFORMATION TABLE

FIELD NAME	FIELD DESCRIPTION	FIELD TYPE	FIELD LENGTH
HOSP_CODE	Key code assigned to a HIs	C	7
ADDINFO	Relevant, additional and non standard information regarding an HIs	C	250

CENSUS TABLE

FIELD NAME	FIELD DESCRIPTION	FIELD TYPE	FIELD LENGTH
DIST_CODE	Code for revenue district	N	2
POPL	Population of the revenue district	N	12

VALIDATION TABLE

FIELD NAME	FIELD DESCRIPTION	FIELD TYPE	FIELD LENGTH
VALICODE	HI's validation campaign code	N	19
DISPATCH	Date of dispatch of validation request	D	8
RECEIVED	Date of receipt of validation request letter	D	8

VALIDATION ADDITIONAL INFORMATION TABLE

FIELD NAME	FIELD DESCRIPTION	FIELD TYPE	FIELD LENGTH	DICTIONARY
VALICODE	HI's validation campaign code	C	19	
REMCODE	Standard codified remarks	C	2	REMDICT

ON-LINE HELP TABLE

FIELD NAME	FIELD DESCRIPTION	FIELD TYPE	FIELD LENGTH
TEXT	Text of on-line help	C	70

DICTIONARIES IN APHIDB

APHIDB database implementation owes its compactness and flexibility to the extensive use of the dictionaries. These dictionaries code various descriptions to allow standardisation and ensure compatibility. The dictionaries assign code for common descriptions, thereby reducing data entry errors as well as making it compact. The other advantage of dictionaries is on-line addition of new categories into the database. The following are the dictionaries in APHIDB:

1. District
2. Management
3. Tier class
4. Clientele
5. Place status
6. Disease category, and,
7. Remarks

DISTRICT DICTIONARY

FIELD NAME	FIELD DESCRIPTION	FIELD TYPE	FIELD LENGTH
DIST_CODE	Code for revenue district	C	2
DIST_NAME	Descriptive name of the revenue district	C	20

MANAGEMENT DICTIONARY

FIELD NAME	FIELD DESCRIPTION	FIELD TYPE	FIELD LENGTH
MGMT.	Code for type of management of HI's	C	2
DESCR	Management description	C	25

TIER CLASS DICTIONARY

FIELD NAME	FIELD DESCRIPTION	FIELD TYPE	FIELD LENGTH
TC_CLASS	Code for tier class to which HI's belongs	C	2
DESCR	Tier class description	C	25

CLIENTELE DICTIONARY

FIELD NAME	FIELD DESCRIPTION	FIELD TYPE	FIELD LENGTH
CLIENT	Code for clientele being catered to by HIs	C	1
DESCR	Clientele description	C	25

PLACE STATUS DICTIONARY

FIELD NAME	FIELD DESCRIPTION	FIELD TYPE	FIELD LENGTH
PL_STAT	Code for location status of HIs	C	2
DESCR	Place status description	C	25

DISEASE CATEGORY DICTIONARY

FIELD NAME	FIELD DESCRIPTION	FIELD TYPE	FIELD LENGTH
CATG	Code for type of disease specialisation of HIs	C	2
DESCR	Disease category description	C	25

REMARKS DICTIONARY

FIELD NAME	FIELD DESCRIPTION	FIELD TYPE	FIELD LENGTH
REMCODE	Code for remark	C	2
DESCR	Remark text/description	C	50

**PHYSICAL IMPLEMENTATION OF THE DATA BASE TABLES AND
DICTIONARIES AND INDICES**

NAME	PHYSICAL NAME	INDEX NAME	INDEX EXPRESSION
TABLES			
Health Institutions	APHIDB.DBF	APHCODE.IDX	HOSP_CODE
		APHI.IDX	val(DISTRICT)
		APHDS.IDX	DISTRICT + SUR_BY
		APUSORT.IDX	URBANCODE
		APCT.IDX	CITY
Health institutions additional information	COMMINFO.DBF		
Census	CENSUS91.DBF	CENSUS91.IDX	DIST_CODE
Validation	VALICAMP.DBF	VALICAMP.IDX	VALICODE
Validation additional information	VALINFO.DBF	VALINFO.IDX	VALICODE
On-line help	HELP.DBF		
DICTIONARIES			
District	DIST.DBF	DNAME.IDX	DIST_NAME
		DIST.IDX	DIST_CODE
Management	MGMT.DBF	MGMT.IDX	MGMT
Tier class	TIER.DBF	TIER.IDX	TC_CLASS
Client	CLIENT.DBF	CLIENT.IDX	CLIENT
Place status	PLSTAT.DBF	PLSTAT.IDX	PL_STAT
Disease category	CATG.DBF	CATG.IDX	CATG
Remarks	REMDICT.DBF	REMDICT.IDX	REMCODE

LIST OF REPORTS GENERATED BY THE SYSTEM

List dictionary standards [*for all dictionaries*]

Progress of private hospital survey

List by services

<i>Obsterics services only,</i>	<i>Surgical services only,</i>
<i>Medical services only,</i>	<i>Other services only,</i>
<i>Obsterics & surgical services only,</i>	<i>Obsterics & medical services only,</i>
<i>Surgical & medical services only,</i>	<i>Medical, surgical & obsterics,</i>
<i>Medical, obsterics & others,</i>	<i>Obsterics, surgical & others</i>
<i>All types of services</i>	

List by selected criteria

<i>Management,</i>	<i>Revenue district,</i>
<i>Tier class,</i>	<i>Clientele,</i>
<i>Place status,</i>	<i>Disease category</i>

Query by health instution code

List by place status

Public/Private/voluntary abstract

Abstract by size / class [beds]

Bed population ratio.

Share of public, private & Voluntary Institutions.

Share of public, private & Voluntary beds.

Secondary general hospital for 3 selected managements.

Secondary general hospital for 6 selected managements.

Rural - Urban Abstract

Geographical regions abstract.

Mandal wise list of health instutions.

District summary.

Location wise summary.

Hospital name wise query.

Network of instutions by management.

Self query.

TECHNICAL NOTE ON APHIDB ON UNIX

The Andhra Pradesh Health Institution Database on Unix is at present being developed using the 'C' Language. To reduce development time, the table structure of the APH Database developed by the APVVP was followed. The APHIDB on Unix is also linked with the Primary Census Abstract '91'.

The development of the APHIDB on Unix can be demarcated into 3 phases:

Phase 1: Study of the existing database and tables of the AP Hospitals database.

Phase 2: Design of the Data Structure, particularly keeping in view for its utility under a Multi-User concurrent environment. The datastructure and the data tables used is enclosed in Annexure -1.

Phase 3: Program Design and Development.

Under this phase the task of creating necessary indexes which forms the backbone for further development also called the BACKEND was taken up.

The presentation of the data is done through a set of screen libraries which are used by the Menu utilities was developed for the DOS environment and at present is being developed for the UNIX environment. The advantage of such a design is that the 'BACKEND' remains the same and only the FRONT END needs to be changed for incorporating the software in different environments. The software developed was first implemented on the LAN environment and certain changes were made into the program designed to use the Multi-user capability of the LAN environment.

The APHIDB on UNIX is necessiated by the following :

1. Memory limitations in the DOS/LAN environment. The Unix OS offers Virtual Memory.
2. Ease of Wide Area Networking with the Unix OS. This will help in data dessimation and wide spread use of data.
3. Multi user capability and concurrency associated with the Unix System.

SUMMARY

The AP Health Institutions Database on UNIX in 'C' Language consists of 10 data files, 3 program files, 7 sub program files. The total program code is 1406 lines and 7 graphics drawing functions. The present APHIDB in 'C' runs on MS DOS 3.1 or above with atleast 640 KB of RAM and in Unix. Adaptation for Multi user query is also provided. The data base is projected to grow at a very fast rate and the no. of records estimated is 40,000. Such database will cover atleast 40MB of disk space apart from the maintenance and reporting and query software.

USAGE

The program was used to generate a list of mandals where no health institutions data was recorded / found. This list was used to validate the extent of coverage of the database mandal wise.

ANNEXURE I

Andhra Pradesh Health Institutions Database

Health care delivery institutions survey

Date of survey:

Name of Health Institution:			
Address:			
Phone:			
Village/City:	Mandal:		Pin
	District:		
	Location Code:		
Year Established:			
Bed capacity when established:		Present bed capacity:	
Type of Ownership	Type of cases handled during a year¹	No.	%
Private Proprietary:	Medical:		
Private Partnership:	Surgical:		
Private Corporate:	Obstetric/Maternity:		
Voluntary/Charitable:	Others:		
	Total:		
Tier Class:			
Category:			
Remarks if any:			
Names of villages / areas from where most of your patients come?:			
Name of the surveyor:		Signature:	

¹ Approximate numbers may be furnished

ENCOUNTER NOTE

Owner / Manager:

Other functionary:

Observations:

ANDHRA PRADESH HEALTH INSTITUTIONS DATABASE

Setup	Data Entry	List by services	List by selected Criteria	Query	Abstracts	Analysis	Quit
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

SETUP

(1)

Add	Modify	Delete	View	List (Print)	Variables	Exit
-----	--------	--------	------	--------------	-----------	------

DATA ENTRY

(2)

Add(PV)	Modify (PV)	Delete (PV)	Add (PB)	Modify (PB)	Delete (PB)	Encounters to DE	Exit
---------	-------------	-------------	----------	-------------	-------------	------------------	------

LIST BY SERVICES

(3)

|

Obst	Sur	Med	Others	Obs&Sur	Obs&Med	Obs&Other	Sur&Other	Med&Other	Med, Sur&Oth	Med, Sur&Obs	Med, Sur&Oth	
				Med, Obs&Oth		Obs, Sur&Oth	All types of Services		Districtwise abstract		Exit	

LIST BY SELECTED CRITERIA

(4)

|

Management		Revenue District	Tier Class		Clientele	Place Status		Disease category	Exit

QUERY

(5)

|

By Health Institution Code	Place Abstract	Abst.by size or Class	Bed Population Ratio	Bed Population Ratio (Rural-Urban)	Share of Pri/Pub/Vol (Inst)	Share of 2ndry Pri/Pub/Vol (beds)	Gen.Hos.2ndry for 3 selected managements	Gen.Hosp.Urban f or 6 selected managements	Exit Rural Abstract	

ABSTRACTS

(6)

|

Mandal wise	District	Location wise	Hospital name	Network insti-	Tier Class	Build your own	Exit
List of His	Summary		wise	tutions by Mgmt	Abstract	specific query	

ANALYSIS

(7)

|

State	Exit
Abstract	

QUIT

(8)

|

Quit from the APHIDB Menu