Donated by Dr. C M Francis in Feb. 2010

DISPARATIES IN HEALTH AND HEALTH CARE SERVICES

KARNATAKA

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STUDY ON DISPARITIES IN HEALTH AND HEALTH CARE SERVICES:

Health Care is only one contributor to health. It can make a difference of life or death. Equitable availability of Health Care is a major value a society places on social cohesion and solidarity. Equity to access to health and health care is one of the corner stones of the principles of primary health care (PHC) defined at the Alma Ata Conference in 1978.

"Equity means that peoples needs, rather their social privileges, guide the distribution of opportunities for well being. In virtually every society in the world, social privileges is reflected by differences in socio economic status, gender, geographical location, ethnic/religious differences and age, other dimensions also can be important. Pursuing equity in health and health care means trying to reduce avoidable gaps in health status and health services between groups with different level of social privilege."

Karnataka State with 27 Administrative Districts has 527.34 lakhs population as per the 2001 Census. State has overall effective literacy rate 67.04%, for males 76.29% and for females 57.45%. Overall sex ratio has been 964, sex ratio for 0-6 populations is 949. It varies from 924 in Belgaum to 977 in Kodagu. The state of Karnataka ranks 131 on Human Development Index scale at Global level. It has 33.16% of the population below poverty level and 2 out of every 5 children with malnutrition. It has been observed that there exist disparities in health and health care facilities in between:

- Regions:- North & South Karnataka
- Districts : 27 Districts
- Disadvantaged:- Lower class and Caste
- Vulnerable groups: Age and sex.

This is unnecessary and unjust. Such issues should no longer be curiosities for mere speculation but demands close attention at the earliest for policy review and implementation.

The districts belonging to erstwhile Bombay Presidency, Hyderabad-Karnataka, Old Mysore, Kodagu and Madras Presidency have different levels of development. Within a region again there are inter-district, inter-taluk and inter-village disparities. Districts in Hyderabad-Karnataka region have the lowest HDI while district Kodagu, Bangalore Urban, Dakshina Kannada, Uttar Kannada and Chikkamagalur had the higher HDI.

However, developmental disparities within Karnataka are a part of its historical legacy. The new areas added to the princely state of Mysore in 1956 to form the united state of Karnataka were at different levels in the most areas of economic and social development. Before independence old Mysore enjoyed the reputation of being one of the progressive regions of the country. Basic health services were a priority of the princely state of Mysore. In 1806 it was perhaps the first state in the country to take the vaccination against small pox. A Government hospital was the first public health unit opened in Mandya in 1929. The state head established public health units as the principal units for basic health care and undertaking extensive measure to control communicable diseases like malaria well before independence.

In contrast to old Mysore considered as Karnataka's South Block, the northern region covering seven districts of Bombay-Karnataka or Belgaum division and five districts of Hyderabad-Karnataka or Gulbarga division had made little progress particularly in social sectors such as, drinking water, health and roads before the state's reorganization. Once again within the northern region Hyderabad-Karnataka was more backward than Bombay-Karnataka due to alleged neglect under the Nizam rule.

Health is a state subject, and it is the responsibility of Government to ensure an equitable distribution of minimum and adequate health care that is accessible to the whole population. Considering the inadequacies in terms of infrastructure and relatively poor health indicators, there is a need to understand the disparities in the health and health care services in the state.

OBJECTIVES:

The **goal** of this study is to highlight the extent of disparities that exist in health and health care facilities between districts in the state and within the districts and to suggest steps to be taken to reduce these disparities.

The **objectives** of the study therefore include:

1. To determine the disparities in Health determinants.
2. To determine the disparities in Health status
3. To determine the disparities in Health Care resources allocation.
4. To determine the disparities in Health Care utilization.
5. To determine the most disadvantaged districts in Karnataka in order to evolve and initiate more focussed projects in these districts.

METHODOLOGY

Given the constraints of time available only quantitative data that is available from the following secondary sources on various characteristics was collected.

1. Multi Indicator Cluster Survey – 1998 – UNICEF
2. Rapid Household survey under RCH project, Karnataka State – 1999
3. Human Development Report, Karnataka State – 1999
4. Directorate of Health and Family Welfare Services, Govt. of Karnataka Sept.2000
5. ICDS – Women and Child Development Department Report – Nov. 2000
6. Census of India 1991, Karnataka State District Profile 1991.
7. Rural Development Panchayati Raj Department, Statement on Below Poverty Line Families, Govt. of Karnataka

Data was checked for its quality and quantity and **regional disparities** were assessed on the basis of available data on indicators in following essential categories:

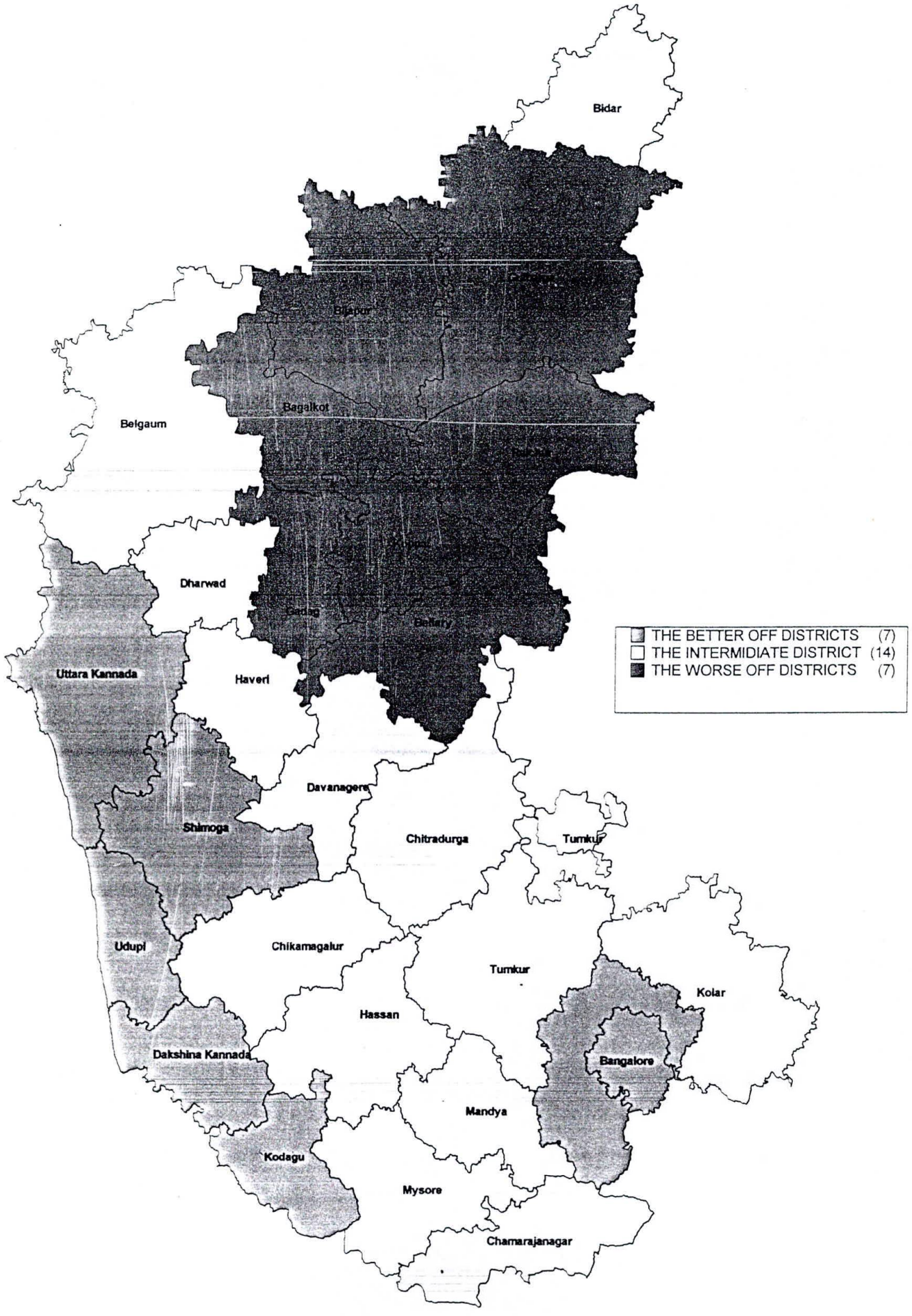
- Health Determinants
- Health Status
- Health Resource Allocation
- Health Care Utilization indicators and
- Over all indicators

Each indicator in the above-mentioned categories was standardized and algebraically added for each district. The total was re-standardized and a composite index as Standardized "Z" Score was obtained for each district, which gives the relative position of the districts on the scale in Karnataka State.

It has been observed in many studies that lower class and caste suffer with disproportionate burden of diseases and mortality. Different types of morbidity and mortality have different patterns with respect to the age, sex and social class. So to assess the equity with respect to these characteristics, it is necessary to get the primary data in disaggregated form at various levels right from taluk to state level.

However, disparities in health on the basis of class, caste, age, sex and the religion could not be assessed, as data does not exist in disaggregated form for districts of Karnataka.

DISPARITIES IN HEALTH DETERMINANTS OF DISTRICTS IN KARNATAKA



FINDINGS - A

DISTRICTS	Edn15+	HHP	Cwater	ELC98	ACClatrin	ABPL	TOTAL INDEX
Bangalore Urban	73.3	82.7	97.2	79.4	90	85	2.80
Bangalore Rural	41.8	38.4	98	96.3	26.4	66	0.55
Bagalkot	48.2	19.4	100	51.4	5	53	-1.12
Bellary	40.8	30.6	84.1	57.5	12.3	55	-1.21
Belgaum	46.8	46.1	73.7	66.7	18	77	-0.23
Bijapur	48.2	19.4	94.7	51.4	3.1	58	-1.14
Bidar	37.5	70.6	90.3	60.5	12.3	60	-0.30
Chamrajnagar	41.5	35.8	96	67.1	20	64	-0.29
Chitradurga	49.8	45.1	96.8	72.5	30	59	0.14
Chikkamagalur	55.3	32.8	88	74.4	40.5	72	0.37
Davengere	49	36.9	98.6	69.6	36.3	66	0.24
Dakshina Kannada	71	30.1	98.6	69	73.4	78	1.35
Dharwad	53.5	29.1	99.9	75.4	39	61	0.26
Gadag	53.5	29.1	67.9	75.4	6	55	-1.05
Gulbarga	33.2	55.6	63.1	54.5	15	66	-1.22
Hassan	50.1	19.2	86.8	78.3	14	79	-0.02
Haveri	53.5	29.1	99	75.4	16	69	0.19
Kodagu	64.4	36.3	84.5	56.5	44	82	0.47
Kolar	43.2	55.3	93.3	80.9	35.2	61	0.37
Koppal	32	17.4	83	54.3	5.3	57	-1.73
Mandya	39.9	41.5	95.5	85.9	19	70	0.30
Mysore	41.5	35.8	95.9	67.1	44	69	0.12
Raichur	32	17.4	76.6	54.3	20	57	-1.71
Shimoga	56.2	35.6	94.8	78.9	31.8	68	0.48
Tumkur	47.2	45.3	99	77.5	19	69	0.39
Uttar Kannada	62.2	34.1	97.1	79.4	38	70	0.78
Udupi	71	30.1	98	69	60	79	1.20

☹ Most of Northern Karnataka Districts (Bagalkote, Bijapur, Bellary, Gadag, Gulbarga, Koppal, Raichur, Belgaum, Bidar) and Chamrajnagar from south of Karnataka are poor in health determinants.

Disparities in Health Determinants have been assessed on:

Edn15+: Percentage of Literate in 15+ age group. It varies among the district from 32% in Raichur and Koppal to 73.3% in Bangalore Urban. Most of the North Karnataka District falls below the state average. Surprisingly Mysore, Mandya, Bangalore Rural also has 15+Education below the state average.

HPP: Percentage of Houses in which both wall and roof are made of permanent Materials. This varies from 17.4% in Koppal and Raichur to 82.7% in Bangalore Urban. Districts like Bagalkot, Bellary, Bijapur, Dakshina Kannada, Dharwad, Gadag, Hassan, Haveri, Koppal, Raichur and Udupi have the percentage of Pucca House below the state average.

Cwater: Percentage of households with access of clean water. Districts Bellary, Belgaum, Gadag, Bulbarga, Kodagu, Koppal, Raichur have the below state average. However, Bagalkot has 100% households with access of clean water.

Elc98: Percentage of households with Electricity taken as one of the amenities available in household varies from 51.4% in Bagalkote District to 96.3% in Bangalore Rural District. Most of the north districts and Kodagu in South falls below the state average.

ACClatrin: Percentage of households with Latrine. All Districts of state, percentage of household with access to latrine is very poor except Bangalore Urban, Dakshina Kannada and Udupi. Bijapur District has only 3.1% households with access to latrine while Bangalore urban has 90% households with access to Latrine.

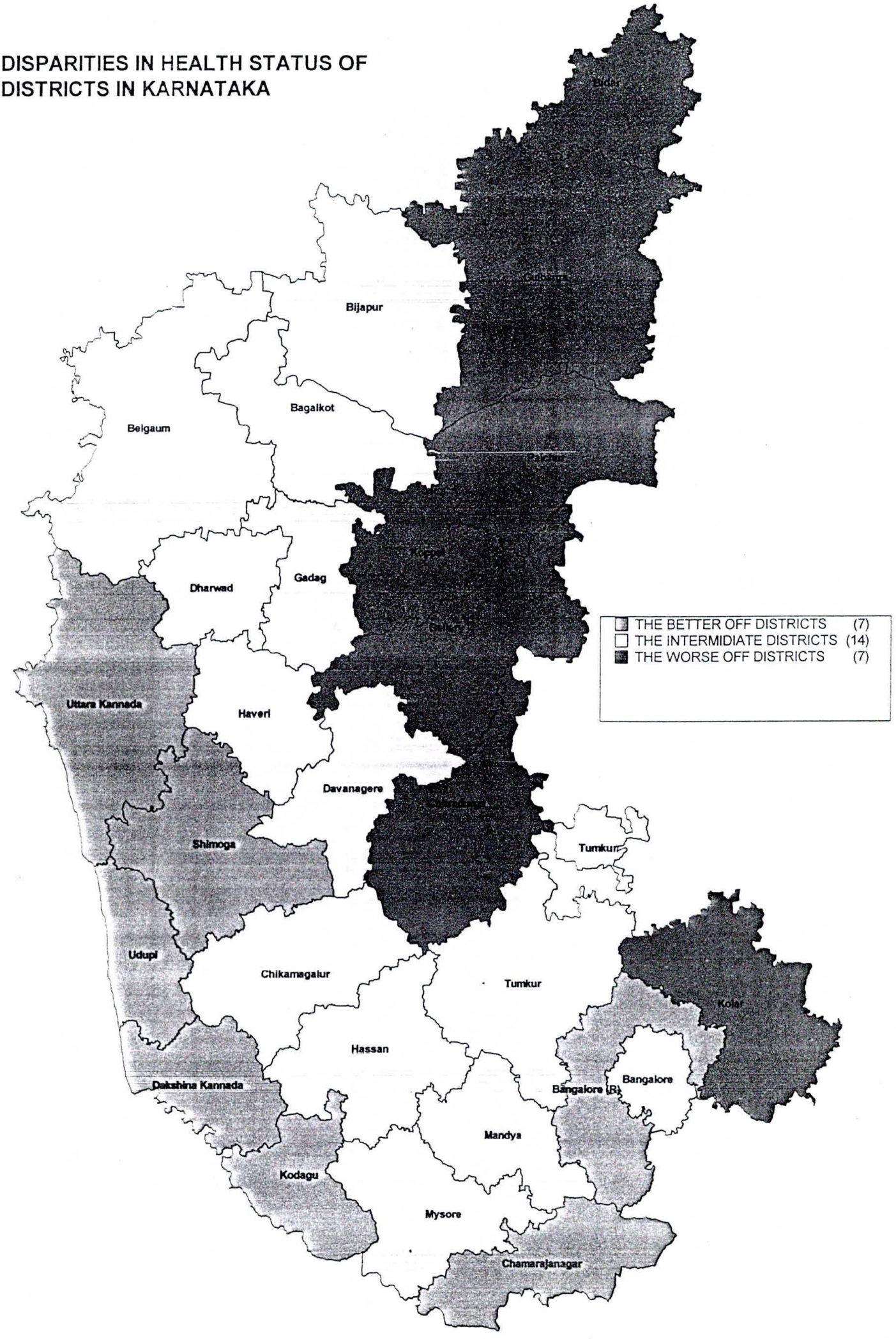
ABPL: Percentage of families above poverty line – as per BPL census for 9th Plan. Percentage of households in all northern districts of Karnataka, Chamrajnagar, Chitradurga, Dharwad and Kolar Districts falls bellow the state average.

It is an established fact that environment has direct impact on those living in it. Good housing, availability of safe water and sanitation facilities have positive fact on health which has been measured in the present study by HPP, Cwater, Elc98 and ACClatrin.

Studies have also indicated that education to some extent compensates the effect of poverty on health irrespective of availability of health facilities and in this study the literacy has been assessed by Edn15+.

Economic status determines the purchasing power, standard of living, quality of life and the pattern of disease in the community. This aspect has been assessed by ABPL i.e., families above the poverty line as per the BPL census for 9th Plan.

DISPARITIES IN HEALTH STATUS OF DISTRICTS IN KARNATAKA



FINDINGS - B

DISPARITIES IN HEALTH STATUS OF DISTRICTS IN KARNATAKA STATE

DISTRICTS	U5 MR	%Normal under 5	API Malaria	Pt. Prev TB	Incident DIARR	TOTAL INDEX
Bangalore Urban	67	45.34	1.06	1.88	5.8	0.05
Bangalore Rural	67	44.83	0.21	1.88	10.1	0.26
Bagalkot	88	34.56	3.3	1.37	7.1	-0.53
Bellary	119	26.51	3.71	1.72	17.1	-1.87
Belgaum	69	40.37	1.09	1.67	9.4	-0.19
Bijapur	88	36.41	4.95	1.37	7.3	-0.47
Bidar	85	28.94	1.05	2.08	4	-0.89
Chamrajnagar	89	44.5	0.12	1.66	4.9	0.52
Chitradurga	104	39.58	2.14	1.81	8.9	-1.00
Chikkamagalur	75	47.11	0.41	1.6	15.3	0.09
Davengere	104	34.61	0.12	1.52	11	-0.27
Dakshina Kannada	46	51.59	2.58	1.34	4.3	1.16
Dharwad	95	41.21	0.28	1.19	20.9	-0.05
Gadag	95	33.07	0.39	1.19	14.1	-0.43
Gulbarga	86	34.3	3.72	1.46	16.2	-0.74
Hassan	78	48.64	1.12	1.55	12.5	0.00
Haveri	95	35.42	0.15	1.19	14.5	0.07
Kodagu	66	54.61	0.1	0.94	16	2.11
Kolar	100	41.84	2.19	2.12	12.5	-1.05
Koppal	80	29.08	3.76	1.32	14.1	-0.68
Mandya	84	49.28	6.55	1.68	8.5	-0.18
Mysore	89	40.68	0.64	1.66	5.5	-0.34
Raichur	80	29.71	9.05	1.32	20	-0.71
Shimoga	88	39.25	0.12	1.03	13.1	0.77
Tumkur	102	47.37	1.62	1.17	10.9	-0.11
Uttar Kannada	69	45.22	0.13	0.86	11.9	1.68
Udupi	46	55.41	0.56	1.34	1.1	2.76

- *U5MR which is available only for 1991 has been extra polated for newly formed districts as they have been part of old districts.*

☺ Health status of Kodagu, UK, Udupi, DK, Chamrajnagar and Shimoga was found to be good and most of the North Hyderabad-Karnataka region districts have poor Health status.

Due to low API for malaria, low point prevalence of TB and low incidence of diarrhoea, Chamrajnagar has shown better health status.

Disparities in Health Status have been assessed on

U5MR: Under five Mortality Rate - probability of dying in between birth and age 5, expressed as number of deaths among children under the age of five per 1000 live births. Districts Bellary, Chitradurga, Davangere, Kolar, Tumkur have higher U5MR. Districts Bagalkote, Bijapur, Chamrajnagar, Dharwar, Gadag, Haveri, Mysore and Shimoga also have U5MR above the state level.

%Normal: Percentage under five children whose nutritional status is within normal limits based on weight for age. Two out of every five children in state suffered with malnutrition. Bellary district as low as 26.51% normal children compare to Udupi with 55.4% children the normal nutritional status. District Bagalkote, Bellary, Bijapur, Bidar, Davangere, Gadag, Gulbarga, Haveri, Koppal and Raichur have high percentage of under five children with malnutrition.

API MALARIA: Annual Parasite Incidence of malaria, which is number of confirmed cases of malaria per 1000 population under surveillance. API malaria varies from 0.12 in Chamrajnagar, Shimoga and Davengere as high as 9.05 in Raichur and 6.55 in Mandya. All northern districts, Bangalore urban, Chitradurga, Dakshina Kannada, Hassan , Kolar, and Tumkur also have higher API malaria.

Pt.Prv.TB: Point Prevalence of Tuberculosis includes pulmonary and extra pulmonary tuberculosis cases per 1000 population. Pt. Tuberculosis varies from 0.86 in Uttar Kannada to 2.12 in Kolar. Bangalore Urban, Bangalore Rural, Bellary, Belgaum, Bidar, Chamrajnagar, Chitradurga, Chikkamagalur, Davengere, Hassan, Kolar, Mandya and Mysore districts also have the higher prevalence of Tuberculosis

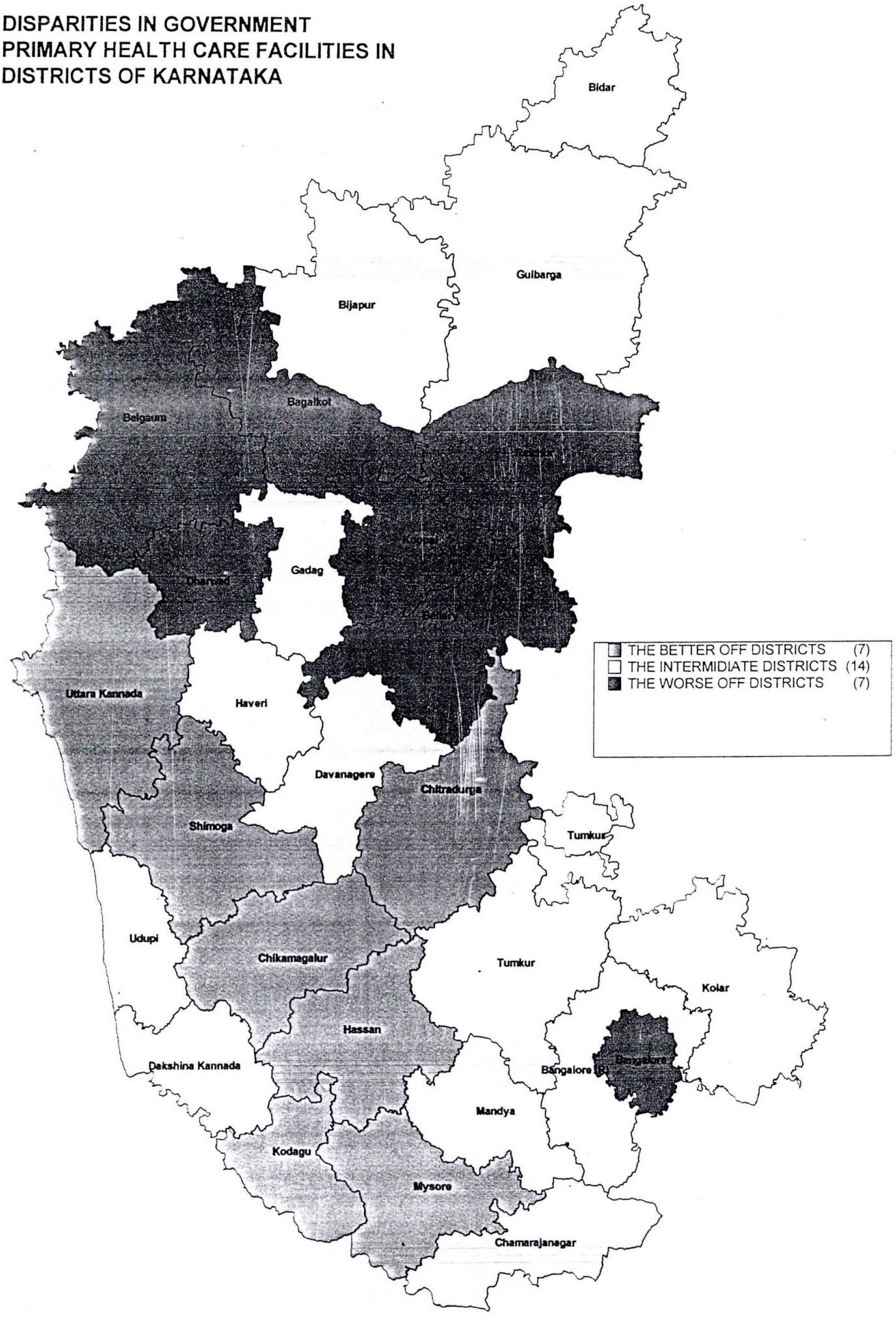
Incident diarrhoea: Percentage of children below the age of five reporting current diarrhoea or diarrhoea during the last two weeks. Incidence of diarrhoea during last weeks varies from 1.1% in Udupi to 20% under fives in Raichur and 20.9% in Dharwad. Under five in 5 out of 27 districts in state have the diarrhoea incidence more than 10%.

Disparities in health status means the denial of the highest possible level of physical, psychological and social well being that biological limitations permit.

As no single indicator can adequately describe the situation it is desirable to concentrate on limited number of specific indicators. Child health indicators are more sensitive to Socio-economic differentials, and investment in child health has long term impact on equity. Therefore under-five mortality, incidence of diarrhoea and percentage of normal children have been used for assessing the health status. These indicators also reflect the nutritional health and health knowledge of mother, availability of maternal and child services including prenatal care, income and food availability in the family, the availability of clean water and safe sanitation and overall safety of the child's environment. These measures are also sensitive measures of the gap in health status that are generally judged to be avoidable, unnecessary and unfair.

Other indicators of health status included are API malaria and point prevalence rate of tuberculosis including extra pulmonary TB, which are the leading causes of deaths among communicable diseases.

DISPARITIES IN GOVERNMENT PRIMARY HEALTH CARE FACILITIES IN DISTRICTS OF KARNATAKA



FINDINGS - C

DISPARITIES IN GOVT. PRIMARY HEALTH CARE FACILITIES IN DISTRICTS OF KARNATAKA STATE

DISTRICTS	PHC/LAKH POPULATION	MOW/LAKH POPULATION	PARA/10,000 POPULATION	TOTAL INDEX
Bangalore Urban	2.59	3.31	2.01	-1.55
Bangalore Rural	5.27	6.62	3.33	0.16
Bagalkot	3.02	2.20	3.03	-1.30
Bellary	3.48	5.05	2.42	-0.88
Belgaum	3.62	4.93	2.74	-0.76
Bijapur	3.80	5.11	3.51	-0.44
Bidar	3.78	6.80	3.61	-0.12
Chamrajnagar	4.60	5.86	2.85	-0.30
Chitradurga	5.58	7.84	4.81	0.93
Chikkamagalur	7.69	10.62	4.89	2.01
Davengere	5.44	6.02	2.71	-0.09
Dakshina Kannada	3.72	4.95	3.62	-0.45
Dharwad	1.97	2.58	2.53	-1.68
Gadag	3.61	5.16	3.25	-0.56
Gulbarga	4.34	5.72	3.23	-0.27
Hassan	7.29	9.09	3.95	1.34
Haveri	4.77	5.68	3.28	-0.15
Kodagu	5.90	10.55	7.60	2.38
Kolar	4.63	6.14	3.34	-0.09
Koppal	3.91	5.47	2.72	-0.60
Mandya	5.59	8.41	3.46	0.60
Mysore	5.79	8.28	4.46	0.95
Raichur	3.23	4.70	2.34	-1.03
Shimoga	5.30	7.64	4.27	0.65
Tumkur	5.14	6.88	3.33	0.17
Uttar Kannada	5.57	8.40	5.20	1.15
Udupi	5.71	5.24	3.02	-0.06

☺ Kodabu. Chikkamagalur, Hassan, UK, Mysore Chitradurga and Shimoga had good Primary Health Care Facilities

☹ Many North Karnataka districts and even Bangalore Urban lack in Primary Health Care facilities.

Disparities in Health Care Facilities have been assessed on

PHC: Number of Primary Health Care Centres per lakh population. Chikkamagalur district has the highest number of PHC per lakh population. 11 out of 27 districts of state, i.e. Bangalore Urban, Bagalkot, Belgaum, Bijapur, Bidar, Dharwad, Dakshina Kannada, Gadag, Gulbarga, Koppal and Raichur lag behind in Govt. Primary Health Care institutions.

MOW: Medical Officers working per lakh population. Chikkamagalur district has the highest number of medical officers per lakh population while Bagalkote has the least number of medical officers per lakh population. District Bangalore urban, Bellary, Belgaum, Bijapur, Davengere, Dakshina Kannada, Dharwad, Gadag, Gulbarga, Haveri, Koppal, Raichur and Udupi also have the less number of medical officers per lakh population.

Para: Para Medical (Staff Nurse, BHE, Lab. Techn., ANM and Male workers) working per 10000 population. 16 out of 27 districts have less para medical worker per 10000 population. Kodagu has the highest para medical workers per 10,000 population and Bangalore Urban has the least number of PMWs per 10,000 population.

These indicators refer to how resources actually are allocated. Primary health care provided by network of PHC and sub-centres with community participation is first level of contact between the individual and health system. Majority of prevailing health complaints and problems can be satisfactorily dealt with at this level.

These indicators reflect the distribution of Government health care resources in different districts of the state and of the provision of health care. The purpose of health services is to improve the health status of people.

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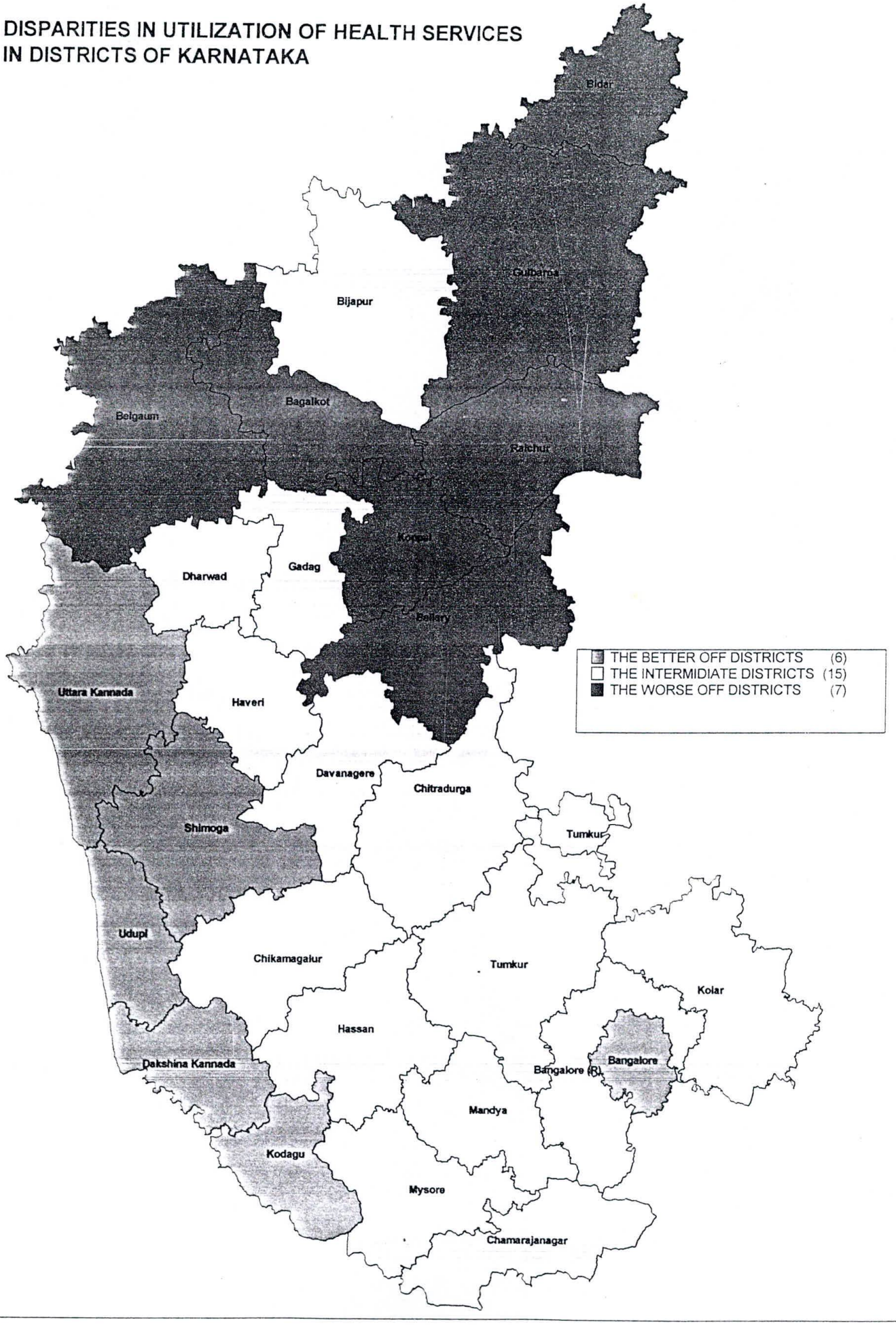
Disparities in health care means that health care resources are not allocated according to needs, health services are not received according to the need. Disparities in health care implies not ensuring high standard of real (not only theoretical) access, quality and acceptability in health services for all. Real access requires active efforts to remove range of important obstacles - financial, geographical or physical, or other logistic barriers or a perception of low quality of services that prevent certain groups from receiving the services available to others.

DISPARITIES IN UTILIZATION OF HEALTH SERVICES IN DISTRICTS OF KARNATAKA



FINDINGS: D

DISPARITIES IN UTILIZATION PATTERN OF HEALTH SERVICES IN DISTRICTS OF KARNATAKA

DISTRICTS	Immunization	ANC3	TT 2	Safe DEL.	CFPU	TOTAL INDEX
Bangalore Urban	77.7	86.9	85.8	92.9	60.1	0.75
Bangalore Rural	83.7	80.7	85.9	77.6	63	0.56
Bagalkot	53.2	42.3	80.7	45.3	47.1	-1.44
Bellary	52.6	63.9	79.4	46.6	50.4	-1.02
Belgaum	64.8	68	42.1	63.1	61.8	-0.72
Bijapur	53.2	94	83.9	60.4	47.1	-0.35
Bidar	50.3	61.8	72.4	58.3	50.6	-0.98
Chamrajnagar	92.7	70.3	43.4	57.8	65.4	-0.31
Chitradurga	88.4	94.9	75.1	90.7	59.9	0.82
Chikkamagalur	83.5	91.6	93.4	97.5	71.4	1.38
Davengere	88.4	92.2	75.9	61.3	59.9	0.32
Dakshina Kannada	86.0	89.1	94.5	91.5	63.7	1.08
Dharwad	74.8	72	80.1	80.4	61.2	0.23
Gadag	74.8	66.5	78.3	56.2	61.2	-0.27
Gulbarga	25.3	41.9	35.9	53.5	39.2	-2.48
Hassan	92.8	75.1	38.3	75	75.1	0.24
Haveri	74.8	80.5	84.2	60.6	61.2	0.10
Kodagu	94.8	83.6	85.6	85.4	70.6	1.07
Kolar	90.6	56.1	94.3	78.2	57.1	0.22
Koppal	37.2	35	68.5	48.9	45.4	-1.91
Mandya	88	80.2	37.6	73.3	71.7	0.13
Mysore	92.7	83.3	83.3	77.5	65.4	0.74
Raichur	37.2	70.5	52.9	59.1	45.4	-1.40
Shimoga	92.9	90.9	72.3	83.9	69.3	0.92
Tumkur	88	67.6	92.1	77.8	61.3	0.45
Uttar Kannada	89.9	81.2	84.9	88.6	66	0.89
Udupi	86	85.9	93.9	89.5	63.7	0.99

☹ Most of North Karnataka Districts have poor utilization pattern of existing Health services

Disparities in Utilization of Health Services have been assessed on

Immunization: Percentage of 12-23 months children completely immunized with BCG, DPT-3/OPV-3 and Measles. Immunization coverage varies from 92.9% in Shimoga to 25.3% in Gulbarga. All districts in North Karnataka had immunization coverage below the expected level.

ANC3: Percentage of pregnant women who have received 3 or more ANC visits received during recent pregnancy. Coverage ANC3 varies from 35% in Koppal to 94.9% in Chitradurga. All the in North Karnataka districts have the coverage below the expected level. Districts Tumkur with 67.6%, and Kolar 56.1% also have low ANC3 coverage.

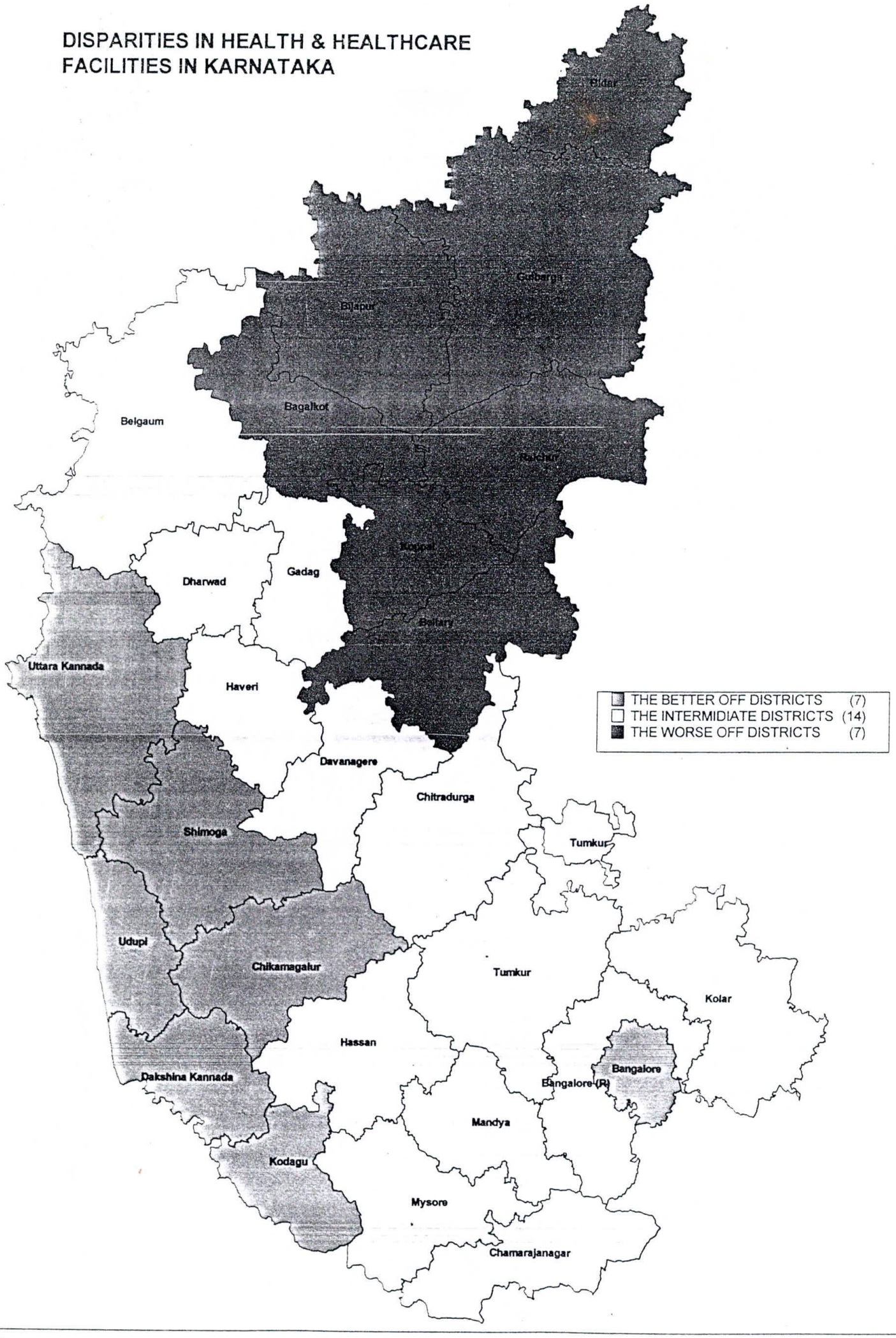
TT2: Percentage of ANC received TT2/Booster during recent pregnancy. TT2 coverage varies from 35.9% in Gulbarga to 94.5% in Dakshina Kannada. Districts Belgaum, Chamrajnagar, Hassan, Raichur have also shown the very low level coverage of TT2.

Safe Del.: Percentage of deliveries conducted by Trained Health personnel during the most recent delivery. Safe delivery coverage varies 48.9% in Koppal to 92.9% in Bangalore Urban. Districts Bagalkot, Bellary, Bidar, Bijapur, Chamrajnagar, Gadag, Gulbarga and Raichur also have a low coverage of Safe Delivery.

CFPU: Percentage of current users of any Family Planning methods Utilization of Primary Health Services included the utilization of Public and Private health services. CFPU also varies from 39.2% in Gulbarga to 69.3% in Shimoga. Districts Bagalkot, Gulbarga, Belgaum, Bidar, Gadag, Koppal, Raichur and Kolar also have low current users of Family Planning.

Utilization of services is expressed as the proportion of people in need of a service who actually receive it in given period. A relationship exists between utilization of health care services and health needs and status. Health care utilization is also affected by factors such as availability and accessibility of health services and the attitude of an individual towards his health and the health care system.
Utilization of public health services is often inequitable with the higher quality, more expensive services disproportionately used by more privileged segments of society.

DISPARITIES IN HEALTH & HEALTHCARE FACILITIES IN KARNATAKA



FINDINGS - E

DISTRIBUTION OF DISTRICTS ON THE BASIS OF VARIOUS CHARACTERISTICS OF KARNATAKA STATE:

DISTRICTS	HEALTH DET.	HEALTH UTILIZ.	HEALTH FACILITY	HEALTH STATUS	TOTAL
Bangalore Urban	2.80	0.75	-1.55	0.05	0.92
Bangalore Rural	0.55	0.56	0.16	0.26	0.54
Bagalkot	-1.12	-1.44	-1.30	-0.53	-1.42
Bellary	-1.21	-1.02	-0.88	-1.87	-1.53
Belgaum	-0.23	-0.72	-0.76	-0.19	-0.57
Bijapur	-1.14	-0.35	-0.44	-0.47	-0.79
Bidar	-0.30	-0.98	0.12	-0.89	-0.81
Chamrajnagar	-0.29	-0.31	-0.30	0.52	-0.18
Chitradurga	0.14	0.82	0.93	-1.00	0.31
Chikkamagalur	0.37	1.38	2.01	0.09	1.20
Davengere	0.24	0.32	-0.09	-0.27	0.13
Dakshina Kannada	1.35	1.08	-0.45	1.16	1.06
Dharwad	0.26	0.23	-1.68	-0.05	-0.20
Gadag	-1.05	-0.27	-0.56	-0.43	-0.71
Gulbarga	-1.22	-2.48	-0.27	-0.74	-1.58
Hassan	-0.02	0.24	1.34	0.00	0.45
Haveri	0.19	0.10	-0.15	0.07	0.13
Kodagu	0.47	1.07	2.38	2.11	1.80
Kolar	0.37	0.22	-0.09	-1.05	-0.07
Koppal	-1.73	-1.91	-0.60	-0.68	-1.64
Mandya	0.30	0.13	0.60	-0.18	0.27
Mysore	0.12	0.74	0.95	-0.34	0.43
Raichur	-1.71	-1.40	-1.03	-0.71	-1.56
Shimoga	0.48	0.92	0.65	0.77	0.93
Tumkur	0.39	0.45	0.17	-0.11	0.35
Uttar Kannada	0.78	0.89	1.15	1.68	1.41
Udupi	1.20	0.99	-0.06	2.76	1.15

☹ Complete Hyderabad-Karnataka region including districts of Bidar, Gulbarga, Raichur, Koppal, Bellary, Bijapur and Bagalkot lack in Health Determinants, Health Status and Health Utilization including availability of Government Primary Health Care services.

☹ Districts like Belgaum, Gadag also have negative indices but at low level.

☹ Chamaraja nagar district has negative value of indices except on health status. This may be due to few indicators on health status have been taken from Mysore.

☹ Dharwad and Bangalore Urban were also lacking in Government Primary Health Care services.

☺ Kodagu, UK, Chikkamagalur, Udupi, DK, Shimoga and Bangalore Urban districts have good Health Determinants, Health Status, and Health Utilization of existing Health Services.

LAST 7 DISTRICTS ON THE BASIS OF VARIOUS INDICES

OVERALL	HEALTH DET.	HEALTH STATUS	HEALTH UTILIZATION	GOVT.HEALTH PRIMARY
Koppal (95)	Koppal(96)	Bellary(97)	Gulbarga (99)	Dharwad (95)
Gulbarga (94)	Raichur (96)	Kolar (85)	Koppal (97)	Bangalore (U) (94)
Raichur (94)	Gulbarga (89)	Chitradurga (84)	Bagalkot (93)	Bagalkot (90)
Bellary (94)	Bellary (89)	Bidar (81)	Raichur (92)	Raichur (85)
Bagalkot (94)	Bijapur (87)	Gulbaga (77)	Bellary (85)	Bellary (81)
Bidar (79)	Bagalkot (87)	Raichur (76)	Bidar (84)	Belgaum (78)
Bijapur (79)	Gadag (85)	Koppal (75)	Belgaum (76)	Koppal (73)

Figure in brackets indicates the position on 100 point scale

TOP 7 DISTRICTS ON THE BASIS OF VARIOUS INDICES

OVERALL	HEALTH DET.	HEALTH STATUS	HEALTH UTILIZATION	GOVT.HEALTH PRIMARY
Kodagu (4)	Bangalore (U)(1)	Udupi (1)	Chikkamagalur (8)	Kodagu (1)
Uttar Kannada (8)	Dakshina Kannada (9)	Kodagu (2)	Dakshina Kannada (14)	Chikkamagalur (2)
Chikkamagalur (12	Udupi (12)	Uttar Kannada (5)	Kodagu (14)	Hassan (9)
Udupi (13)	Uttara Kannada (22)	Dakshina Kannada (12)	Udupi (16)	Uttar Kannada (13)
Dakshina Kannada(15)	Bangalore (R) 29)	Shimoga (22)	Shimoga (18)	Mysore (17)
Shimoga (18)	Shimoga (32)	Chamrajnagar (30)	Uttar Kannada (19)	Chitradurga (18)
Bangalore-U(18)	Kodagu (32)	Bangalore–R (40)	Bangalore U (23)	Shimoga (26)

Figure in brackets indicates the position on 100 point scale

⊗However, disparities in health on class, caste, age, sex and the religion could not be assessed, as data does not exist in disintegrated form for districts of Karnataka.

Relationship in between Health Status and Health Determinants among the Districts of Karnataka State:

HEALTH STATUS	HEALTH DETERMINANTS		
	LOW	MODERATE	HIGH
LOW	BELLARY GULBARGA KOPPAL RAICHUR	CHITRADURGA KOLAR BIDAR	
MODERATE	BAGALKOT BIJAPUR GADAG	DAVANGERE BELGAUM CHIKKAMAGALUR DHARWAD, HASSAN, HAVERI MANDYA,MYSORE TUMKUR	BANGALORE (U)
HIGH		CHAMARAJNAGAR	DAKSHINA KANNADA UTTAR KANNADA UDUPI, KODAGU SHIMOGA, BANGALORE (R)

Observed Agreement 19/27 - 70.4%

Kappa Coefficient: 0.532, P = 0.000059

It is obvious from the above table that the districts with the low value on health determinants have low health status and districts with high value of health determinants have the high value of health status with an agreement of 70.4% and Kappa Coefficient 0.532, which is significant.

Relationship in between Health Status and Primary Health Care Facilities among the Districts of Karnataka State:

HEALTH STATUS	PRIMARY HEALTH CARE FACILITIES		
	LOW	MODERATE	HIGH
LOW	BELLARY KOPPAL, RAICHUR	GULBARGA KOLAR BIDAR	CHITRADURGA
MODERATE	BAGALKOT BANGALORE (U) BELGAUM DHARWAD	BIJAPUR DAVANGERE, GADAG, HAVERI MANDYA,TUMKUR	CHIKKAMAGALUR HASSAN MYSORE
HIGH		DAKSHINA KANNADA UDUPI, BANGALORE (R) CHAMRAJNAGAR	KODAGU UTTAR KANNADA SHIMOGA

Observed Agreement 12/27 - 44.44%

Kappa Coefficient: 0.1234, P = 0.1862

Government Primary Health Care services and health status are not very much related with observed agreement of 44.44% and Kappa Coefficient 0.1234 which is not significant. This may be due to the utilization and availability of private health services.

Chitradurga district has low Health status even though it has good Government Primary Health Care services.

Relationship between Health Status and Utilization of Primary Health Care services among the Districts of Karnataka State:

HEALTH STATUS	UTILIZATION OF PRIMARY HEALTH SERVICES		
	LOW	MODERATE	HIGH
LOW	BELLARY, GULBARGA, BIDAR KOPPAL, RAICHUR	KOLAR CHITRADURGA	
MODERATE	BAGALKOT BELGAUM	BIJAPUR DHARWAD, DAVANGERE HASSAN, HAVERI MANDYA, GADAG TUMKUR, MYSORE	BANGALORE (U) CHIKKAMAGALUR
HIGH		BANGALORE (R) CHAMRAJNAGAR	DAKSHINA KANNADA UTTAR KANNADA UDUPI, KODAGU SHIMOGA

Observed Agreement 19/27 - 70.4%

Kappa Coefficient: 0.532, P = 0.000059

All districts with high health status continue to use Primary Health Care services and the districts with low health status have low utilization of primary health care services. The above table, observed agreement and kappa coefficient denotes that the health status is more related to the utilisation rather than the availability of services.

Relationship in between Primary Health Care Facilities and Health Facilities Utilization among the Districts of Karnataka State

HEALTH FACILITIES UTILIZATION	PRIMARY HEALTH CARE FACILITIES		
	LOW	MODERATE	HIGH
LOW	BELLARY BAGALKOT BELGAUM RAICHUR KOPPAL	GULBARGA BIDAR	
MODERATE	DHARWAD	BANGALORE (R) BIJAPUR CHAMRAJNAGAR DAVANGERE, GADAG, HAVERI MANDYA,KOLAR TUMKUR	HASSAN CHITRADURGA MYSORE
HIGH	BANGALORE (U)	DAKSHINA KANNADA UDUPI	CHIKKAMAGALUR KODAGU UTTAR KANNADA SHIMOGA

Observed Agreement 18/27 - 66.7%

Kappa Coefficient: 0.474, P = 0.00031

It is clear from the above table the relationship between Primary Health Care utilisation and Primary Health Care facilities is significant where observed agreement is 66.7% and Kappa Coefficient is 0.474. This shows the availability of health services leads to utilization of the health services.

In case of Bangalore Urban though the availability of government primary health care facilities is low, the utilization of health services is high. This may be due to availability of health care services in the private sector.

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Conclusion:

From the findings it is clear that the Hyderabad - Karnataka region (Bidar, Gulbarga, Raichur, Koppal and Bellary), Bijapur and Bagalkote lack on all indicators in the essential categories. The utilization of health services, availability of functional government primary health care services holds the key to overcome the disparities. Utilization of government health care services had been very poor through out the North Karnataka. This may be due to lack of physical accessibility of services or non-availability of functional government primary health care services.

As reported in the study on "*Redressal of Regional Imbalances in Development*", there exists excellent network of good roads in south block of Karnataka as compared to north block of Karnataka. This is an important factor to improve the accessibility to primary care services. The bad roads and poor public transport badly affects the accessibility of primary health cares services.

Supportive supervision by medical officers and DHO to field staff will enhance the efficiency and effectiveness of staff.

The equity in Health requires equity in the distribution of the determinants, availability of primary health care services and the utilization of health care services.

There exists a good relationship in between the Health determinants and Health status with Kappa Coefficient 0.532, $p<0.001$. Districts have shown the observed agreement of 70.4%. The districts, which have a high Z score of Health determinants, have a high score on health status.

The observed agreement on Government Primary Health Care facilities and Health status had been 44.4% with Kappa Coefficient 0.1234, $p = 0.1862$. This shows that in some of the districts health status has been very poor though Government Primary Health Care services were satisfactorily available. In addition, utilization and availability of private health care facilities was also satisfactory.

The relationship in between health status and utilization of Primary Health Care services is fairly good with Kappa Coefficient 0.532, $p<0.0001$. All the districts with good health status continued to use Primary Health care services. It seems that accessibility to Health care services has been good in the districts with high health status.

The observed agreement in between Primary Health care facilities and utilization of health facility has been of 66.7% with Kappa Coefficient 0.474, $p<0.001$. Primary Health Care facilities have been made use of in the districts with moderate and high availability of Primary Health care facilities.

The map enclosed indicates the districts, which require top priority (red), moderate attention (yellow) and districts where existing facilities, utilization and health status must be maintained at an acceptable level (green).

RECOMMENDATIONS

- Environment Sanitation including availability of clean water, housing and access to latrine and amenities like electricity should be improved in entire Hyderabad-Karnataka region, Bijapur, Bagalkote, Gadag, Hassan and Haveri districts. For this scheme like Nirmal Karnataka Program under Rural Development and Panchayat Raj should be implemented with creating awareness on sanitation and provision of facilities simultaneously.
- Literacy Status 15+ should be improved in Hyderabad-Karnataka region, Bijapur, Bagalkote, Chamrajnagar, Mandya and Bangalore Rural districts.
- Efforts to be made to improve the economic status of household in Hyderabad-Karnataka region, Bijapur, Bagalkote, Chamrajnagar, Chitradurga, Dharwad, Gadag and Kolar districts.
- Nutrition status of under five should be improved in entire Hyderabad-Karnataka region, Bijapur, Bagalkote, Davengere, Gadag and Haveri District.
- Malaria incidence to be reduced in Hyderabad-Karnataka region, Bijapur, Bagalkote, Chitradurga, Dakshina Kannada, Hassan, Kolar and Mandya districts by implementing National Anti Malaria Program aggressively.
- Prevalence of TB should reduced in Hyderabad-Karnataka region, Bijapur, Bagalkote Chamrajnagar, Chitradurga, Kolar, Mandya, Mysore and Bangalore Urban and Rural districts by extending RNTCP to these districts on priority basis.
- Primary Health Care facilities to be improved in Hyderabad-Karnataka region, Bijapur, Bagalkote Bangalore Urban, Dharwad and Gadag districts.
- More than establishing new primary health care facilities the utilization of existing primary health care services should be encouraged. This could be done by making existing primary health care facilities functional in real sense through monitoring of availability of staff including MOH and drugs.

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ANNEXURE – 1

I. HEALTH DETERMINANTS INDICATOR

a. Prevalence and level of poverty * - 1998
b. Educational levels * - 1991
c. Adequate sanitation and Safe water coverage * - 1998
d. Housing * - 1991

II. HEALTH STATUS INDICATORS

a. Under five year mortality rate * - 1991
b. Nutrition of children * - Nov. 2000
c. Maternal mortality ratio: Not Available
d. Life expectancy at birth: Not Available
e. Incidence & Prevalence of relevant infectious diseases * - 1999
f. Infant mortality ratio: Not Available
g. Child mortality (1-4 years) : Not Available

III. HEALTH CARE RESOURCES ALLOCATION INDICATORS

a. Per capita distribution of qualified personnel in selected categories eg., medical officers: physician, obstetrician, paediatrician, surgeons & paramedical workers. * - Sept. 2000

b. Per capita distribution of services facilities at Primary, Secondary and Tertiary levels. * - 1999

h. Per capita distribution of total health allocation and expenditure on personnel and supplies as well as facilities: Not Available

IV. HEALTH CARE UTILIZATION INDICATORS

a. Immunization coverage * - 1998
b. Antenatal Coverage * - 1998
c. Percentage of births attended by qualified attendant * - 1998
d. Current use of contraception * - 1998

*** Indicators used in the present report**