CH 17

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3 Health Systems & Services

1. INTRODUCTION

Karnataka Health System and Services need to be considered not only on their own, but also in relation to the neighbouring States that share its boundaries along with people and problems which are contiguous. Also, such a comparison would put in context any understanding of health in relative terms considering the better status of the Southern parts of our country.

Historically, Karnataka's Health System and Services evolved from an amalgamation of the different geographical areas and their services following re-organisation of States after India's Independence. Karnataka includes areas from the erstwhile princely Mysore state and adjacent Malabar areas along the west coast, parts of Bombay and Madras presidencies and Hyderabad from the Nizam's dominion prior to reorganisation.

Karnataka and its people suffer from most of the diseases in the country. In addition, Handigodu Syndrome and Kyasanur Forest disease are peculiar to this state.

2. FACTORS AFFECTING HEALTH

Some factors which are universally accepted as affecting health of people are reiterated to establish the setting in which Karnataka's Health Systems and Services operate. A comparison with the neighbouring states and national figures clarifies Karnataka's position better. These include population density, Decadal growth rates, Sex ratio, Literacy rates (especially female literacy), population below the poverty line, urbanisation and road communications to villages and some trends which have an impact on health. These provide the milieu in which the Health Care Services and System operate.

TABLE: 1 (Source 1)

State	Ranking by Population	Population Density		Decadal Growth Rate		Sex Ratio		Literacy	
		1981	1991	1971-81	1981-91	'81	'91	Total	Female
Karnataka	8	194	234	+26	+20	975	972	55.9	44.3
A. P.	5	195	241	+23	+23	963	960	45.1	33.7
Kerala	12	655	747	+19	+13	1,032	1,040	90.5	86.9
Maharashtra	3	204	256	+24	+25	937	936	63.0	53.5
Tamil Nadu	7	372	428	+17	+14	977	972	63.7	52.3
India		216	267	+24	+23	934	929	42.9	32.5

Karnataka is less dense in population than its neighbours with a fast declining decadal growth rate matched only by densely populated Kerala.

The sex ratio in Karnataka is adverse and worsening. Only Kerala shows positive improvement. Maharashtra shows a lesser decline.

Karnataka is better only than Andhra Pradesh in total and female literacy and far behind other neighbours, especially Kerala.

Karnataka is better than country wide figures on all counts.

How closely related are female literacy and an adverse and worsening sex ratio as opposed to an improving one is evident from the list below. Also, the regional differences within Karnataka itself in both these aspects is evident.

TABLE: 2 (Source 2)

DISTRICTS WITH WORSENING GENDER (SEX) RATIO AND FEMALE LITERACY LEVELS

Districts	Females per 1000 Males		Female Literacy Levels (%)	
	1981	1991	Rural	Urban
Bellary	973	957	19.50	42.13
Bidar	968	953	19.66	46.48
Bijapur	982	965	29.58	46.70
Gulbarga	981	978	12.94	43.05
Raichur	988	978	13.16	35.79

These districts are from Hyderabad-Karnataka area adjacent to Andhra Pradesh

TABLE: 3 (Source 2)

DISTRICTS WITH IMPROVING SEX RATIOS AND FEMALE LITERACY LEVELS (%)

Districts	Females per 1000 Males		Female Literacy Levels (%)	
	1981	1991	Rural	Urban
Chickmagalur	953	977	40.39	62.13
Kodagu	933	969	49.98	67.05
D. Kannada	1,059	1,063	55.45	68.84
Hassan	987	1,000	33.83	65.62
Shimoga	947	961	37.16	61.26
U. Kannada	958	967	42.27	63.42

These districts belong to the Malnad area along the coast and Western Ghats.

TABLE 4 (Source 3)

URBANISATION

Particulars	India	Karnataka	A. P.	Kerala	Maharastra	T. N.
Ratio of urban (1991) population to total (%)	25.70	30.90	26.80	26.40	38.70	34.20
Increase in% during 1981-1991	36.20	29.10	42.60	60.90	38.70	19.30
Population below poverty line in 1987-88 to total (%)	29.90	32.10	31.70	17.00	29.20	32.80
% villages (1987-88) connected by Fairweather Roads	40.70	32.90	43.00	100.00	52.90	63.20

Karnataka is less urbanised than Maharastra and Tamil Nadu. The increase in the past decade is less than all these except Tamil Nadu.

Almost a third of the people of Karnataka live below the poverty line, matched only by Tamil Nadu.

Karnataka is less well connected by fair weather roads (only one-third), compared to all neighbours and even by national standards.

Despite a slower rate of urbanisation overall, a few centres in Karnataka are growing very rapidly. Medical services tend to be concentrated in these areas.

TABLE: 5

POPULATION AND DECENNIAL GROWTH RATE

Place	Populations ('000)	Decennial Growth Rate
Bangalore	4,087	39.9%
Belgaum	402	33.7%
Mangalore	426	39.1%
Mysore	652	36.2%

TABLE: 6

VITAL STATISTICS AND TRENDS: SOURCE 4

Particulars		Karnataka	India
1. Expectation of life at birth (in years) 1991-96 projected	Male	64.15	60.60
	Female	65.30	61.70
2. Fertility			
a. Birth rates	Rural	28.80	31.50
	Urban	24.80	24.40
	Combined	27.80	29.90
b. Total Fertility Rates	Rural	3.70	4.50
	Urban	2.90	3.10
	Combined	3.50	4.20
c. Gross Reproduction Rate	Rural	2.10	2.20
	Urban	1.60	1.50
	Combined	2.00	2.00
3. Mortality			
a. Death rate	Rural	8.80	10.40
	Urban	6.10	6.70
	Combined	8.10	9.60
b. Infant Mortality Rate	Rural	81.00	86.00
	Urban	39.00	51.00
	Combined	71.00	80.00
c. Neonatal and Postnatal Mortality rates	Neonatal	54.40	59.80
	Postnatal	81.80	36.60

While there is a gradual declining trend in the Birth and Death rates in Karnataka between 1986 to 1989, a comparison with similar figures of surrounding states is useful.

TABLE: 7 (SOURCE 5)

COMPARATIVE TABLE OF BIRTH RATES IN 1986 AND 1989

	Year	India	Karnataka	A. P.	Kerala	Maharashtra	T. N.
Combined	1986	32.6	29.0	31.6	22.5	30.1	23.8
	1989	30.5	27.9	25.6	19.8	28.3	23.1
Rural	1986	34.2	29.9	32.4	22.4	31.7	24.1
	1989	32.0	28.9	26.0	19.7	30.4	23.5
Urban	1986	27.1	26.8	28.7	23.0	27.4	23.1
	1989	25.0	25.0	24.1	20.2	24.4	22.2

The decline in Birth rates is less than in neighbouring states and national figures, except for Tamil Nadu, which has a lower birth rate as such. This is both for urban and rural areas, with the latter showing a lesser decline. Neighbouring Andhra Pradesh shows more dramatic fall in birth rates in urban and rural areas. The urban birth rates are the highest in 1989, on par with national figures.

TABLE: 8 (SOURCE 5)

COMPARATIVE TABLE OF DEATH RATES IN 1986 AND 1989

	Year	India	Karnataka	A. P.	Kerala	Maharashtra	T. N.
Combined	1986	11.1	8.7	9.9	6.1	8.4	9.5
	1989	10.2	8.7	9.3	5.9	7.9	8.6
Rural	1986	12.2	9.4	10.7	6.0	9.7	10.7
	1989	11.1	9.5	10.0	5.9	8.9	9.7
Urban	1986	7.6	6.8	7.1	6.9	6.1	7.1
	1989	7.1	6.5	6.5	6.0	6.1	6.6

The death rates in Karnataka have not fallen either in percentage or in comparison with our neighbours or even national averages. The rural areas have a worsening situation.

TABLE: 9 (SOURCE 5)

COMPARATIVE TABLE OF IMR'S (1989)

Particulars	India	Karnataka	A. P.	Kerala	Maharashtra	T.N
Combined	91	80	81	22	59	68
Rural	98	89	87	23	66	80
Urban	58	53	53	15	44	43

The Infant Mortality Rate in Karnataka is below national average and comparable to Andhra Pradesh. The rest of our neighbours have less infant mortality.

HEALTH MANPOWER WORKING IN RURAL AREAS OF KARNATAKA (31.12.1991)
MEDICAL SPECIALISTS

	Sanctioned	Present	Vacant
Surgeons	66	59	7
Obstetricians	45	37	8
Physicians	70	68	2
Pediatricians	33	27	6

TOTAL SPECIALISTS (REQUIREMENT: 4 SPECIALISTS IN ONE CHC)

	Karnataka	India
Requirements	772	9188
Sanctioned	214	3896
In position	191	2450
Vacant	23	1446

DOCTORS AT PHCS

	Karnataka	Kerala	T.N.	A. P.	Maharashtra
Requirements	1312	908	1436	1283	1683
Sanctioned	1290	1189	2728	1916	3257
In position	1104	1189	2789	1555	2534

Karnataka is the only State which did not have the number of doctors required at the PHCs. All the other neighbouring states had more than the required number (both sanctioned and in position).

HEALTH ASSISTANTS (MALE)

	Karnataka	Kerala	T.N.	A. P.	Maharashtra
Requirements	1312	908	1436	1283	1683
Sanctioned	862	1171	4418	1610	4055
In Position	689	1039	4120	1610	3450

Karnataka did not have the required number of Health Assistants (Male). All the other neighbouring states had more Health Assistants (Male), both sanctioned and in position.

HEALTH ASSISTANTS (FEMALE)

	Karnataka	Kerala	T.N.	A. P.	Maharashtra
Requirements	1312	908	1436	1283	1683
Sanctioned	2091	1094	2245	1872	4652
In position	1910	1772	1947	1732	4156

Sanctioned posts of HA (F) in PHC not included.

All the states had more health assistants (female) compared to the calculated requirement. Maharashtra had 250% of the requirements.

TABLE: 10 (Source 5)

NUMBER OF DOCTORS AND AVERAGE POPULATION SERVED (1990)

DATE RELATES TO 31.12.1990

Particulars	Karnataka	A. P.	Maharashtra	Tamil Nadu
Total Doctors	31,028	33,283	62,770	48,291
Pop. Served	1:1,457	1:1,924	1:1,179	1:1,165

Each of our doctors serves a larger population than in Maharashtra and Tamil Nadu and less than in Andhra Pradesh.

TABLE: 11 (Source 5)

NUMBER OF HOSPITALS AND BEDS AS ON 01.01.1991 ACCORDING TO RURAL / URBAN AREAS

Particulars		Karnataka	A. P.	Kerala	Maharashtra	T.N.
Hospital	Rural	25	165	2,328	345	89
	Urban	263	450	596	1,759	319
	Total	288	615	2,924	2,104	408
Beds	Rural	2,526	3,716	37,859	12,120	4,235
	Urban	31,951	32,648	32,490	99,300	44,545
	Total	34,477	36,400	70,349	1,11,420	48,780

Karnataka has less number of hospitals, especially in the rural areas than any of its neighbouring states.

TABLE: 12 (SOURCE 5)

NUMBER OF DISPENSARIES AND BEDS ACCORDING TO RURAL / URBAN AS ON 01/01/1991

Particulars		Karnataka	A. P.	Kerala	Maharashtra	T.N.
Dispensaries	Rural	610	549	1,243	796	147
	Urban	232	244	509	8,406	365
	Total	842	793	1,752	9,202	512
Beds	Rural	355	171	95	452	138
	Urban	242	106	64	1,966	140
	Total	597	277	159	2,418	278

Karnataka's rural areas are better served in terms of Dispensaries and beds than its neighbours Andhra Pradesh and Tamil Nadu. We do not match with Kerala in terms of dispensaries, while Maharashtra is better with a predominance of urban service.

TABLE: 13 (SOURCE 5)

NUMBER OF HOSPITALS AND BEDS ACCORDING TO OWNERSHIP AS ON 01.01.91

Particulars		Karnataka	A. P.	Kerala	Maharashtra	T.N.
Hospital	Government	209	345	137	693	282
	Local	28	4	0	92	0
	Pvt. & Vol.	51	256	2,787	1,319	119
	Total	288	615	2,924	2,104	408
Beds	Government	26,424	25,251	26,474	62,684	37,935
	Local	714	46	0	10,955	479
	Pvt. & Vol.	7,339	11,103	43,875	37,781	10,366
	Total	34,477	36,400	70,349	1,11,420	48,780
Pop. Served Per Hospital		1,57,000	95,416	10,269	35,184	1,36,159
Pop. Served per Bed		1,311	1,612	427	664	1,139

Karnataka has the least number of Govt. Hospitals (except Kerala) among the southern states. The bed strength is comparable to Kerala and Andhra Pradesh, but less than Maharashtra and Tamil Nadu.

Local bodies running hospitals are few in the southern states. There are more local hospital beds in Karnataka than the neighbouring states of A. P., Kerala and T.N. Maharashtra is very much ahead.

We have least number of Voluntary agencies and Private Hospitals/beds compared to neighbouring states. Both Kerala and Maharashtra are way ahead.

The Population served per hospital is the maximum in Karnataka, while a higher bed strength makes the population per bed ratio better than Andhra Pradesh.

Bed Capacity in taluks
(norm: 1679 persons per bed *)
Percentage of taluks satisfying the norm
1,679 persons per bed or better: 18%
1,700-5,000 persons per bed : 35%
5,000-10,000 persons per bed: 29%
In excess of 10,000 persons per bed: 18%

* Planning Commission had suggested a norm of 1 bed per 1,000 population.

There is wide disparity between the various taluks as regards the availability of inpatient beds.

TABLE: 14 (Source 5)

ESTABLISHMENT OF PHC'S, SUB-CENTRES AND COMMUNITY HEALTH CENTRES PROGRESS BETWEEN 1985 TO 1990.

Type of Centre	As of	Karnataka	A. P.	Kerala	Maharashtra	T.N
Primary Health	1.4.1985	365	555	199	1,539	436
Centres	1.4.1990	1,133	1,283	886	1,646	1,386
Sub Centres	1.4.1985	4,964	6,129	2,270	6,391	5,860
	1.4.1990	7,793	7,894	5,094	9,248	8,681
Community Health	1.4.1985	98	27	4	147	30
Centres	1.4.1990	146	46	54	283	72

The progress is comparable to nieghbouring states. Maharashtra remains ahead, with a better coverage since the beginning of six year period.

Distribution of beds in Government Sector by district shows wide variations.

Districts having better off ratio with respect to population per bed.

Bangalore (Urban)	:	1015
Bellary	:	1181
Chickmagalur	:	1100
Chitradurga	:	1111
Dakshina Kannada	:	1142
Kodagu	:	330
Mysore	:	935

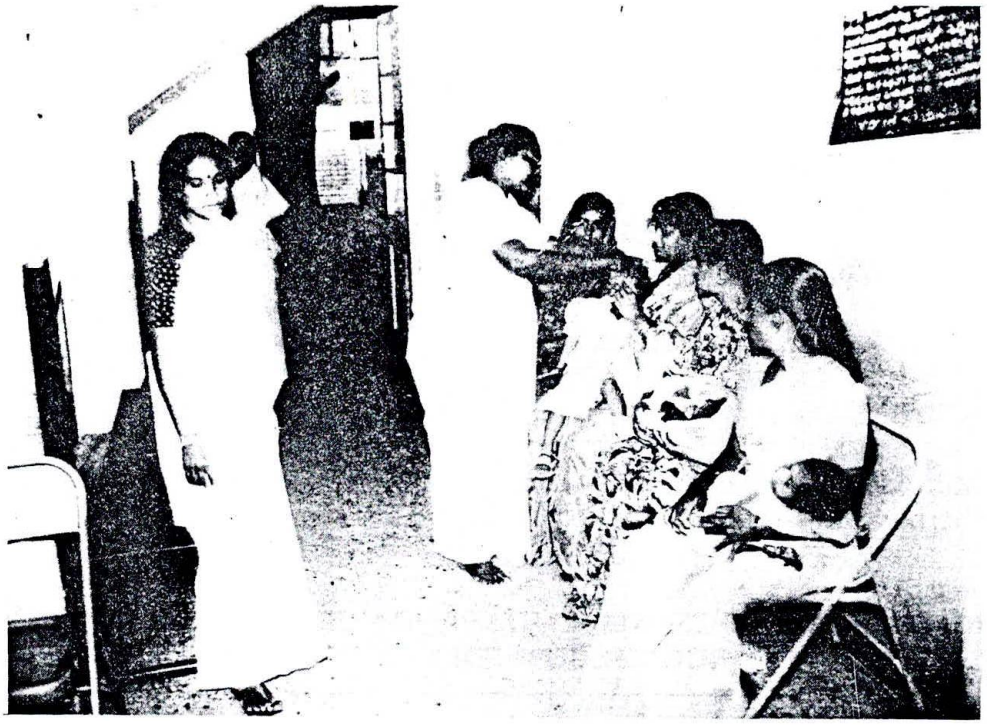
Districts having poor ratio

Bangalore (Rural)	:	2915
Belgaum	:	2226
Bijapur	:	2265
Raichur	:	2552
Tumkur	:	2450

Institutions for Primary Health Care (as on 31 March 1994)

Primary Health Centres	:	1253
Sub Centres	:	7793
Primary Health Units	:	621

PRIMARY HEALTH CENTRE



3. COMMUNICABLE DISEASES

Communicable disease being a major cause of morbidity and mortality, the ability of the medical/ health services to tackle these are important.

Among the vaccine preventable diseases under the Universal Immunisation Programme, we have the least problem of Measles and comparatively better off than only Andhra Pradesh. Maharashtra is worse off in mortality due to Diphtheria and Neonatal tetanus. Morbidity due to polio is more than in Kerala and mortality more than in Kerala and Tamil Nadu.

In Respiratory infections, (ARI and Pneumonia), we have less morbidity than Andhra Pradesh and Kerala while mortality is less than in Kerala and Tamil Nadu.

In Gastro-intestinal infections (Enteric Fever & Viral Hepatitis), we have least morbidity but greater mortality than Tamil Nadu and Kerala.

We have the highest morbidity due to Rabies, but less mortality than in Andhra Pradesh and Maharashtra.

Among Sexually transmitted diseases like Syphilis and Gonococcal infections, we have less morbidity than only Andhra Pradesh. The mortality is less than in Andhra Pradesh and Maharashtra.

The morbidity in tuberculosis is comparable to Tamil Nadu and Maharashtra, though less tahn in A.P. The mortality is less than in A.P. and Maharashtra.

Karnataka has the highest morbidity due to guineaworm infection with Andhra Pradesh and Maharashtra reporting only a third of cases each and Kerala and Tamil Nadu not reporting this problem at all.

Data from "SURVEY OF CAUSES OF DEATH (Rural)"

The office of the Registrar General of India has evolved a process of collecting reliable mortality data from rural areas all over the country, started as the "Model Registration Scheme" in the sixties and renamed as "Survey of causes of death (rural), since 1982.

Karnataka has participated in this process since 1967, with the Bureau of Economic and Statistics as the implementing agency. The Southern States have provided more than 95% returns. Karnataka has provided 100% reports from 52 sample PHC's out of 1133 (30.06.90) during 1990 and 1991, reporting 872 and 916 deaths in these areas during 1990 and 1991 respectively.

Deaths being a definitive event vis-a-vis morbidity, an analysis of these data and in comparison with our neighbouring states will be revealing exercise to understand the State's Health Profile.

TABLE : 15

REPORTED CASES AND DEATHS DUE TO COMMUNICABLE DISEASE DURING 1990

Disease	Karnataka		A.P		Kerala		Maharashtra		T.N		Karnataka 1993	
	Cases	Death	Cases	Death	Cases	Death	Cases	Death	Cases	Death	Cases	Death
Diphtheria	460	7	1,515	24	66	4	219	11	22	1	317	6
Polio	204	8	1,987	23	68	1	413	11	730	4	216	-
Tetanus (Neonatal)	393	54	814	61	41	8	259	65	102	25	761	64
Tetanus (Others)	499	104	1,081	123	37	11	968	167	473	54	952	110
Whooping Cough	3,906	1	11,966	17	3,648	3	257	0	311	0		
Measles	2,230	3	6,377	36	13,400	4	2,110	3	9,818	74	2,845	10
A.R.I	4,23,803	186	8,64,618	253	18,94,788	98	2,76,790	54	1,63,400	157	8,96,076	147
Pneumonia	4,369	59	20,923	105	8,661	33	5,745	253	7,359	17	16,574	68
Enteric Fever	8,062	15	48,019	46	6,092	9	8,368	55	11,500	34	33,451	22
Viral Hepatitis	2,441	89	15,433	120	9,010	16	10,750	510	232	3	2,629	58
Rabies	1,345	40	680	91	46,933	96	80	255	18	1424	34	
Syphilis	7,439	2	20,465	3	480	0	3,066	0	2,271	0	5,597	-
Gonococcal Infection	8,085	6	59,939	20	1,986	0	1,753	36	-	-	6,352	9
Tuberculosis	79,459	821	2,16,192	1,250	49,288	236	79,363	905	75,796	649	43,786	537

TABLE: 16 (Source 6)

PERCENTAGE DISTRIBUTION OF DEATHS BY MAJOR GROUPS

Cause	India	Karnataka	A. P.	Kerala	Maharashtra	T.N.
1. Senility	23.80	25.30	22.10	7.20	31.30	20.90
2. Coughs	18.90	19.70	16.30	17.30	17.70	13.10
3. Diseases of circulatory system	11.10	12.30	12.30	22.10	8.80	21.20
4. Causes peculiar to infancy	10.20	11.20	9.80	4.20	13.30	7.10
5. Accidents & injures	8.50	6.50	9.50	11.40	9.20	7.70
6. Other clear symptoms	8.39	10.60	10.10	12.80	8.80	9.60
7. Fevers	7.30	3.70	4.90	0.60	2.60	6.00
8. Digestive disorders	6.40	5.00	6.40	9.20	3.30	6.90
9. Disorder of CNS	4.40	5.40	7.70	14.60	3.90	7.00
10. Child birth & Pregnancy	1.10	0.30	0.90	0.60	1.10	0.50
	100.00	100.00	100.00	100.00	100.00	100.00

Deaths due to "Senility" where an individual is over sixty years of age with no apparent sickness otherwise account for a quarter of deaths in Karnataka, next only to Maharashtra and above national figures.

The percentage of deaths due to "Cough" is maximum in Karnataka, compared to other states and national figures.

A less percentage of people die in Karnataka due to circulatory diseases than in Kerala and Tamil Nadu. It is equal to Andhra Pradesh percentages but higher than national figures.

'Causes peculiar to infancy' account for more deaths than Karnataka's neighbours and Indian average except Maharashtra.

Deaths (Percentage) due to "Accidents and injuries" are less in Karnataka.

"Other clear symptoms" are recorded less than only Kerala.

"Fever" accounts for less deaths than in Andhra Pradesh and Tamil Nadu.

"Digestive disorders" are the least, except in Maharashtra.

"Disorders of CNS" account for more deaths than in Maharashtra and national average and less than other neighbours.

"Child birth & pregnancy" account for the least percentage of deaths.

An analysis of the classification of the causes of death from the above listing makes clear the reasons for mortality, as in the next table.

TABLE: 17 a (Source 6)

PERCENTAGE DISTRIBUTION OF DEATHS UNDER THE CAUSE GROUP OF "COUGHS" (1991)

Cause	India	Karnataka	A. P.	Kerala	Maharashtra	T.N
1. Asthma & Bronchitis	43.50	58.90	49.80	72.00	41.50	58.40
2. T. B. of lungs	28.10	29.40	43.90	19.50	24.50	35.10
3. Pneumonia	24.60	8.90	1.80	3.70	31.60	5.40
4. Whooping Cough	1.00	1.10	0.40	0.00	0.00	0.00
5. Not classifiable	2.70	1.70	4.20	4.90	2.40	0.00

Asthma and Bronchitis take a high toll, less than only Kerala and comparable with Andhra Pradesh. All southern states except Maharashtra show a higher percentage than national figures.

Death due to T. B of lungs is higher than national figures, though less than in Andhra Pradesh and Tamil Nadu.

Pneumonia is more in Karnataka than in Andhra Pradesh, Kerala and Tamil Nadu; less than in Maharashtra and much below national figures.

Whooping cough deaths still occur in Karnataka and Andhra Pradesh.

TABLE: 17 b (Source 6)

PERCENTAGE DISTRIBUTION OF DEATHS UNDER "DISEASES OF CIRCULATORY SYSTEM-1991

Cause	India	Karnataka	A. P.	Kerala	Maharashtra	T.N
1. Heart attacks	52.20	58.40	64.40	75.20	52.00	62.70
2. Anaemia	26.90	30.10	13.40	6.70	16.70	14.40
3. Other Heart Diseases	20.90	11.50	22.20	17.10	31.30	22.90

"Heart attacks " take a big toll, though less than in Kerala, Andhra Pradesh and Tamil Nadu. It is above National and Maharashtra figures.

More people die of Anaemia by percentage, than in all the neighbours and even above national averages.

' Other Heart Diseases ' have a lesser percentage of toll.

TABLE: 18 (Source 6)

PERCENTAGE DISTRIBUTION OF INFANT DEATHS-1991

Causes	India	Karnataka	A. P.	Maharashtra	T.N
1. Causes peculiar to Infancy	68.00	76.90	100.00	80.60	85.80
2. Coughs	15.00	6.00	0.00	14.90	6.30
3. Fevers	5.40	6.70	0.00	0.30	1.60
4. Disgestive Diseases	3.50	3.00	0.00	0.90	1.60
5. Diseases of Circulatory Systems	3.00	2.20	0.00	0.30	1.60
6. Other Clear Symptoms	2.40	2.20	0.00	0.00	0.00
7. Disorder of CNS	1.60	0.70	0.00	2.00	0.80
8. Accidents & Injuries	1.10	2.20	0.00	1.10	1.60

TABLE: 19 (Source: 6)

PERCENTAGE DISTRIBUTION OF INFANT DEATHS-1991

Causes	India	Karnataka	A. P.	Maharashtra	T. N.
1. Prematurity	48.20	41.70	32.00	73.40	28.40
2. Respiratory infection of new born	15.40	24.30	15.70	6.40	48.60
3. Diarrhoea of new born	6.80	9.70	7.00	0.50	9.20
4. Cord infection (including tetanus)	5.00	3.90	2.30	0.50	19.80
5. Congenital malformation	4.30	1.90	2.30	2.50	4.60
6. Birth injury	1.30	2.90	0.00	0.00	2.60
7. Not classifiable	18.90	15.50	10.70	16.80	4.60

Prematurity and respiratory diseases of the new born are the two largest contributions to death in infancy.

During infancy more children die in Karnataka due to "Prematurity" than in Tamil Nadu and Andhra Pradesh. It is less than Maharashtra figures.

Respiratory infections take the next largest toll; it is less than in Tamil Nadu.

Diarrhoeas account for more deaths in comparison to all neighbours and all India figures. So does "Birth injuries".

"Cord infection" in Karnataka is less than the Tamil Nadu figures.

Congenital malformation deaths are least in Karnataka.

TABLE: 20a

TRENDS IN MORBIDITY PATTERN, MAJOR CAUSES (GOVERNMENT HOSPITAL BASED)

	Per thousand population			
	Out patient		Inpatient	
	1982	1992	1981	1992
1. Injury poisoning	32.83	44.92	1.93	2.83
2. Diseases of respiratory system	27.30	33.64	1.53	1.23
3. Infectious and Parasitic diseases	26.73	24.16	1.37	2.35
4. Diseases of blood & blood forming organs	12.57	14.77	0.40	0.51
5. Diseases of the digestive system	7.99	11.32	0.62	0.49
6. Diseases of the skin	6.70	13.27	0.06	0.22
7. Endocrine and metabolic disorders	5.24	6.30	0.28	0.48

'Injury and poisoning' is in the first place both with respect to out patients and inpatients and the increase over the decade is significant.

Diseases of the respiratory system requiring out patient treatment are on the increase but they seem to require less inpatient treatment.

There is a decrease in infectious and parasitic diseases requiring out patient attention but there was significant increase in hospital admission.

The number of patients with diseases of the digestive system attending outpatients showed an increase but the increased number did not appear to need important care.

Endocrine and metabolic disorders showed smaller increases.

TABLE: 20 b (Source 6)

PERCENTAGE DISTRIBUTION OF DEATHS UNDER " ACCIDENTS & INJURIES"

Causes	India	Karnataka	A.P.	Kerala	Maharashtra	T.N.
1. Vehicular Accidents	22.60	8.50	14.40	24.10	25.00	18.50
2. Suicides	16.60	32.20	27.50	53.70	9.50	52.10
3. Burns	14.10	6.80	13.20	0.00	32.70	1.70
4. Drowning	11.60	22.00	14.40	11.10	14.50	6.70
5. Snake bite	7.50	6.80	7.20	5.60	4.50	8.40
6. Natural Calamity	5.60	1.70	0.60	0.00	0.90	2.50
7. Fall from height	5.50	6.80	6.00	3.70	3.60	4.20
8. Homicide	4.90	5.10	1.20	0.00	0.70	5.00
9. Rabies	1.90	0.00	4.80	0.00	1.10	0.00
10. Scorpion bite	1.10	5.10	1.80	0.00	0.70	0.00
11. Excessive heat/cold	0.80	1.70	0.00	0.00	0.00	0.00
12. Not Classifiable	7.80	3.40	9.00	1.90	6.60	0.80

Karnataka has the least percentage of mortality compared to its neighbours of "vehicular accidents".

"Suicides" in Karnataka rank below Kerala and Tamil Nadu, though above national figures.

"Burns" account for least percentage of deaths in Karnataka in comparison to all states and national figures.

"Snake bites" in Karnataka rank below Andhra Pradesh, Tamil Nadu and all India figures.

Deaths due to homicide rank above all the neighbouring states.

TABLE: 21 (Source 6)

PERCENTAGE DISTRIBUTION OF DEATHS UNDER OTHER CLEAR SYMPTOMS

Causes	India	Karnataka	A.P.	Kerala	Maharashtra	T.N.
1 Cancers	37.60	47.40	43.80	61.80	33.80	40.80
2 Jaundice	12.00	10.30	21.60	1.10	6.90	17.00
3. Cirrhosis & Chronic liver diseases	9.50	6.20	7.40	11.20	16.30	5.40
4. Diabetes	7.80	19.60	7.40	3.40	6.10	5.40
5. Tetanus	4.80	2.10	7.40	3.40	6.10	10.90
6. Uraemia	4.80	2.10	7.40	3.40	6.10	10.90
7. Measles	3.50	2.10	2.30	0.00	0.20	0.00
8. Mental diseases	3.20	2.10	1.70	3.40	2.80	2.00
9. Hyperplasia of prostate	1.70	1.00	0.60	2.20	0.50	0.00
10. Leprosy	1.40	5.20	2.30	1.10	0.50	2.70
11. Poliomyelitis	1.20	0.00	0.60	0.00	0.00	1.40
12. Chicken pox	0.30	0.00	0.00	2.20	0.00	0.00
13. Obstructed hernia	0.20	0.00	0.00	0.00	0.20	0.60
14. Other medically certified diseases	12.10	1.00	4.00	1.10	24.60	2.70

Death (Percentage) for

Cancers	:	Less than Kerala; more than others
Jaundice	:	Less than Andhra Pradesh, Tamil Nadu and India
Cirrhosis	:	Less than all except Tamil Nadu
Diabetes	:	Maximum in Karnataka
Tetanus	:	Less than India; more than others
Uraemia, Polio, Chicken Pox, Obstructed hernia	:	Least in Karnataka
Measles	:	Less than India & Andhra Pradesh
Mental diseases	:	Less than Kerala, Maharashtra & more than others
Prostate	:	Less than India & Kerala figures

TABLE: 22 (Source 6)

PERCENTAGE DISTRIBUTION OF DEATHS DUE TO TEN SELECTED IMPORTANT DISEASES -1991

Causes	India	Karnataka	A.P.	Kerala	Maharashtra	T.N.
1. Bronchitis & Asthma	8.20	11.60	8.10	12.40	7.40	7.70
2. Heart attack	5.80	7.20	7.90	16.70	4.60	13.30
3. T B of Lungs	5.30	5.80	7.10	3.40	4.30	4.60
4. Prematurity	4.90	4.70	3.10	0.80	9.80	2.00
5. Pneumonia	4.60	1.70	0.30	0.60	5.60	0.70
6. Cancer	3.10	5.00	4.40	11.60	3.00	3.90
7. Anaemia	3.00	4.40	6.10	13.70	2.10	5.70
8. Paralysis	3.00	4.40	6.10	13.70	2.10	5.70
9. Vehicular Accidents	1.90	0.50	1.40	2.70	2.30	1.40
10. Gastroenteritis	1.90	0.90	1.30	1.30	0.60	0.90

3. NATIONAL HEALTH PROGRAMMES

1. NATIONAL LEPROSY ERADICATION PROGRAMME (NLEP)

Karnataka has a moderate presence of Leprosy as a health problem falling below 5 per 1000 population; though pockets of Karnataka have a higher incidence.

To estimate the population at risk and compare with the surrounding states, the table below could help.

TABLE: 1 (Source 5)

Prevalence rate of leprosy per 1000 population

	1981	1991
All India	5.70	2.50
Karnataka	5.98	1.88
Andhra Pradesh	11.72	4.00
Kerala	2.95	2.15
Maharashtra	6.37	2.21
Tamil Nadu	15.14	3.56

Leprosy being a social disease, many Voluntary agencies have been part of the effort in N.L.E.P. The involvement of Voluntary agencies with support from Government has paid high dividends.

The progress under NLEP has been showing a good improvement in recent years.

TABLE: 2 (Source 7)

Year	New cases detected			No. of Cases Discarded as Diseases Arrested/Cured		
	Target	Achievement	%	Target	Achievement	%
1990-91	18,000	25,668	142.6	60,000	35,662	59.4
1991-92	22,000	25,796	117.2	46,000	43,443	94.4
1992-93	25,000	19,065	76.3	46,000	26,259	57.1
1993-94	20,000	26,465	132.3	40,000	30,462	76.1

A doubt has been expressed whether, in the enthusiasm to report a higher percentage of patients in whom the disease has been arrested / cured, there has been over-reporting and under treatment.

The physical components of the programme in comparison with surrounding states is listed below.

TABLE: 3

NLEP -ACHIEVEMENT OF PHYSICAL COMPONENT TILL MARCH 1990

Particulars	LCU/MLU	ULC	SET	THW	RSU	DLO	LTC	LRPU	SSAU
India	719	948	6097	291	75	244	45	13	39
Karnataka	41	52	673	22	6	20	5	2	3
Andhra Pradesh	94	93	164	53	14	31	7	1	3
Kerala	16	45	254	5	2	7	1	1	3
Maharashtra	42	281	970	23	11	24	7	2	1
Tamil Nadu	102	83	24	52	9	20	6	1	5

LCU : Leprosy Control unit
MLU : Modified Leprosy Control Unit
ULC : Urban Leprosy Centre
SET : Survey, Education, Treatment Centre
THW : Temporary Hospital Ward
RSU : Reconstruction Surgery Unit
DLO : District Leprosy Officer
LTC : Leprosy Training Centre
LRPU : Leprosy Rehabilitation Promotion Unit
SSAU : Sample Survey and Assessment Unit

2. NATIONAL TUBERCULOSIS CONTROL PROGRAMME

National Tuberculosis Control Programme is implemented through 22 Tuberculosis centres providing Institutional and domiciliary treatment. There are 10 Government T. B. Hospitals with a total bed strength of 3,545 for the treatment of complicated cases (1993-94).

TABLE: 4 (Source 7)

PROGRESS UNDER NTCP

Year	T. B. Cases detected			BCG Vaccination		
	Target	Achievement	%	Target	Achievement	%
1990-91	85,000	77,437	91.1	12,01,700	12,25,048	101.9
1991-92	83,000	75,740	91.3	11,48,400	11,33,730	98.7
1992-93	85,200	68,109	79.9	11,85,800	10,03,186	84.6
1993-94	88,080	67,790	77.0	12,29,367	12,54,385	102.0

Karnataka has the National Tuberculosis Institute at Bangalore, whose initial surveys helped evolve the National programme (See box for N.T.I)

A comparison of facilities for tackling tuberculosis among the Southern States is given below:

TABLE: 5 (Source 5)

Particulars	No. of Dists	T B Demo Centres	Dist. T B Centres	Total other T B Clinics	No. of Beds for T B
India	443	16	378	338	46,984
Karnataka	20	1	20	6	3,545
Andhra Pradesh	23	1	23	26	2,559
Kerala	14	1	10	9	2,283
Maharashtra	30	1	28	19	8,207
Tamil Nadu	21	1	16	40	3,630

3. NATIONAL PROGRAMME FOR CONTROL OF BLINDNESS

Karnataka has the Regional Institute of Opthalmology located at Bangalore. Eye camps are periodically conducted through 11 mobile ophthalmic units.

TABLE: 6 (Source 7)

PROGRESS UNDER NATIONAL PROGRAMME FOR CONTROL OF BLINDNESS

Year	Target	Achievement	Percentage
1990-91	54,000	43,863	81.2
1991-92	90,000	65,078	72.3
1992-93	90,000	77,760	86.4
1993-94	1,40,000	93,359	66.7

Vitamin 'A' prophylaxis is implemented under the Nutrition programme

TABLE: 7

Year	First Dose			Second Dose		
	Target	Achievement	%	Target	Achievement	%
1990-91	2,000,000	1,909,054	95.5	2,000,000	1,815,433	90.8
1991-92	3,000,000	2,023,847	67.5	3,000,000	2,527,346	84.2
1992-93	2,725,000	2,264,462	83.0	2,725,000	741,055	27.2

4. NATIONAL MALARIA ERADICATION PROGRAMME

This programme is implemented on a 50:50 sharing basis between the Centre and State on certain components, in all districts as per modified plan of operation guidelines. The integrated vector control programme adds to the other remedial measures.

TABLE: 8 (Source 7)

PERFORMANCE UNDER NMEP

Year	Blood Smears Collected	Blood Smears Examined	Total +ve Cases	P. F. Cases	Radical Treatment Given	ABER	SPR	API
1990	6601484	6601484	70,012	23,209	71,9051	17.50	1.10	1.90
1991	6646213	6646213	44,565	10,135	43,430	17.20	0.60	1.10
1992	6913592		81,057	16,826	78,702	17.70	1.10	2.00
1993	7098519		1,96,466	49,246	1,90,644	17.70	1.10	2.00

PF : Plasmodium Falcipuram
ABER : Annual Blood Examination Rate
SPR : Slide Positive Rate
API : Annual Parasite Index

An idea of trends between 1987 to 1990 in comparison to neighbouring states can be had from table below:

TABLE: 9 (Source 5)

CASES/DEATHS

Particulars	1987	1988	1989	1990
India	1,663,284/188	1,854,830/209	2,017,830/268	1,777,248/222
Karnataka	88,505/000	127,008/008	106,683/000	56,980/000
A. Pradesh	53,010/001	62,535/001	82,510/002	81,366/005
Kerala	3,772/001	5,147/001	82,510/002	81,366/005
Maharashtra	60,557/002	84,030/005	122,314/008	109,806/006
Tamil Nadu	55,523/000	75,953/000	90,478/000	117,428/000

5. NATIONAL GOITRE CONTROL PROGRAMME

Preliminary surveys show the following districts as Goitre endemic areas-Uttara Kannada, Kodagu, Dakshina Kannada and Chickmagalur.

TABLE: 9 (SOURCE: 7)

PROGRESS ACHIEVED

Year	No. of persons examined	No. of Goitre cases detected
1990-91	86,811	1,901
1991-92	25,655	6,034
1992-93	16,895	5,237

6. NATIONAL FILARIA CONTROL PROGRAMME

Filariasis is prevalent in the districts of Uttara Kannada, Dakshina Kannada, Gulbarga, Bidar, Bijapur and Raichur. Control measures are taken up through 6 Filaria control units and 16 Filaria night clinics in all endemic areas.

7. GUINEA WORM ERADICATION PROGRAMME

The endemic districts are Bijapur, Raichur and Gulbarga where action is being taken for eradication.

TABLE: 10 (Source 7)

INCIDENCE OF GUINEA WORM DISEASE

Year	Cases
1990	634
1991	226
1992	167

8. DIARRHOEAL AND COMMUNICABLE DISEASES CONTROL PROGRAMME

TABLE: 11 (Source 7)

CASES/DEATHS

Disease	1990	1991	1992	1993
Gastroenteritis	8565/391	17455/691	14088/561	36,206/855
Cholera	448/15	747/15	388/14	424/13
Viral Hepatitis	1807/30	659/17	270/9	
Japanese 'B' Encephalitis	138/47	302/114	46/11	287/67
Kyasanur Forest Disease	1309/31	967/16	1183/11	699/3
AIDS (HIV +ve/deaths)	58/1	86/1	168/1	868/9

There has been deterioration in the control of these communicable diseases.

The acute diarrhoeal diseases accounted for 5,71,863 cases and 343 deaths in 1993. Acute respiratory diseases had 8,96,076 cases and 147 deaths.

The total number of cases and deaths due to commnicable during 1993 were 83,16,349 and 8,946 respectively, far too high as most of them are preventable.

9. IMMUNISATION UNDER I.C.D.S PROGRAMME

TABLE 12 (Source 7)

PERCENTAGE ACHIEVEMENT AGAINST TARGET

Vaccine	1990-91	1991-92	1992-93	1993-94
B.C.G.	64.9	70.4	51.6	71.2
D.P.T	57.4	70.5	45.7	67.3
Oral Polio	58.5	70.5	45.7	67.6
Measles	50.6	63.8	40.9	63.6
Tetanus (Mother)	44.7	63.9	47.2	65.6

ERADICATE POLIO

The World Health Day Slogan for 1995 is "Eradicate Polio". We are supposed to be on our way to eradicate this disease, the second one after small pox.

What is the situation in Karnataka?

In Bijapur district alone, there were 230 paralytic polio cases during 1994! It is highest in the country. There were a total of 648 cases in Karnataka. Other districts which showed large numbers are Belgaum (125) and Dharwad (123).

The government is taking up a Supplementary Mass Immunization Programme in 11 districts.

FLUOROSIS

FLUOROSIS

Karnataka is affected by excess fluoride (more than 1.5 ppm) in drinking water in 952 villages, distributed in 17 districts. It is more in districts adjoining Andhra Pradesh and where there is less rain.

Fluoride ingested with water is almost completely absorbed. It is retained mainly in the skeleton and the teeth. Excess fluoride can cause mottling of enamel of teeth in children, osteosclerosis and crippling skeleton fluorosis. When the level is very high other organs like thyroid and kidney may be affected. Fluoride upto 1 mg/L may be beneficial in reducing dental caries.

Attempts at defluorination of drinking water have been partially successful. The Water Technology Mission has a sub Mission on control of fluorosis, epidemiological surveys and taking preventive measures.

Under the Sub Mission, a multidisciplinary trainers programme was held at Mysore during January 1994. These trained teachers were to conduct State Level Awareness camps.

HIV and AIDS

Karnataka has its share of HIV infection and AIDS. Between Jan. and Sept., 1993, of the 64000 blood samples from high risk groups, 700 had tested HIV positive in the State. Bangalore Urban and Rural districts alone accounted for 470 positive cases. Dakshina Kannada came next with 99. Cases were detected in Belgaum, Dharwad and Bijapur.

Sri B.S. Patil Sasnur, as reported in Indian Express, Nov 19,1993.

The actual numbers for 1993 were 76,237 tested among high risk groups; 868 were HIV +ve and 9 died from AIDS

HANDIGODU SYNDROME

Handigodu Syndrome is a permanently crippling disease which affects the spine, hips and knee joints. It was first reported from Handigodu village and is endemic in parts of Shimoga and Chickmagalur districts, mainly among the low-income group agricultural labourers.

Handigodu Syndrome is a genetic disease, determined by a single gene. The disease affects mostly the Chenangi and Chaluvadi communities (Adi Karnataka) of harijans.

The initial symptoms are pain in the lower back and hip regions. There is difficulty in running and walking long distances. Flexion deformity is seen at the hips with compensatory lumbar lardosis, stature is short, dwarfism may be seen in some. Deficiency of dietary calcium may be seen. It may be a much as 700-900 mg per day. It is seen in all age groups.

Radiological changes are first seen around 8-10 years of age. The disease progresses slowly over several years.

A multicentric and multidisciplinary study (1992) was undertaken by the Indian Council of Medical Research and the Government of Karnataka.

KYASANOOR FOREST DISEASE (KFD)

Seen in Shimoga and Dakshina Kannada districts. In common language, it is known as monkey disease. It is due to a virus, transmitted through ticks from infected monkeys to children. It is contracted while working barefoot in the forest by the bite of the tick. There is hemorrhage and fever. No specific treatment has been found as yet. A vaccine has been developed. In 1993, there were 83 confirmed cases and 3 deaths.

IODINE DEFICIENCY DISEASES

(Goitre prevalence in Karnataka-A base survey (1988-91)-Bureau of nutrition, directorate of Health & F. W. Services, Bangalore.)

Random sampling

1% of the village population of all ages and 5% of all categories of school, both boys and girls in each taluk.

Village Survey

235 villages were randomly selected from 144 taluks of 20 districts to cover 1% of the village population in each taluk.

1,25,740 individuals : 56,731 males
69,009 females

School Survey

169 villages were randomly selected from 144 taluks of 20 districts to cover 5% of school children. Pre-Primary to X standard (4-18 years)

No. of Children: 1,11,593 Boys = 65,427
Girls = 46,166

IODINE DEFICIENCY (MENTALLY RETARDED)

Enlargement of gland was present in

11,650 individuals out of 2,37,333 individuals surveyed

3,997 males (1.68%)
7,652 females (3.22%)
Overall: 4.9%

4 districts had more than 10% of goitre

Chickmagalur	:	41.1%
Kodagu	:	23.18%
Dakshina Kannada	:	14.18%
Uttara Kannada	:	10.67%

In addition, the following taluks had 10% or more:

Humnabad in Bidar Dt.	:	(9.87%)
Chincholi Gulbarga Dt.	:	(12.97%)
Hosnagar in Shimoga Dt.	:	(18.07%)
Sagar in Shimoga Dt.	:	(10.93%)
Soraba in Shimoga Dt.	:	(11.60%)
Thirthahalli in Shimoga Dt.	:	(12.22%)

In school children

Khanapur taluk in Belgaum Dt.	:	15.0%
Aurad taluk in Bidar Dt.	:	13.0%
Jewargi taluk in Gulbarga Dt.	:	12.1%
Sakleshpur taluk in Hassan Dt.	:	11.4%

Chickmagalur Dt.: Goitre prevalence taluks having more than 10%

Koppa	:	26.91%
Mudigere	:	42.77%
Sringeri	:	57.61%

Kodagu Dt.

Madikeri	:	27.88%
Somvarpet	:	25.25%

SCARCITY OF ESSENTIAL DRUGS

Drugs play an important role in the management of ill health. Essential drugs must be available at all times. They must be affordable also.

Anti-T. B. drugs scarcity

The supply of anti-tuberculosis drugs is often erratic posing a dangerous situation. The nonavailability of the firstline drugs, namely Rifampicin, Thiacetazone and Pyrazinamide under District Tuberculosis Programme meant that even sputum positive patients cannot be treated, Non-treatment of infectious patients (open cases of tuberculosis) means spread of infection in the community.

The prices of drugs in the open market have shot up. They have become non-affordable to the large majority of patients with tuberculosis.

The supply of anti-tuberculosis drugs is to be shared between the centre and state; when there is shortage, the blame is placed on each other.

The net result of non-availability and non-affordability of anti-T. B. drugs is manifold.

1. More people die of tuberculosis
2. It induces drug resistance
3. Relapses are common

The situation is similar with many other diseases, the essential drugs being not available.

CHINTAMANI EYE CAMP

The Division Mobile Opthalmic Unit, Bangalore Division, conducted an Eye Camp, organised by the Lions Club of Chintamani at Vasavi Kalyan Mandir, from 27 Jan, to 2 Feb. '88. On 28 Jan, and next day 54 patients were operated upon.

Infection was noticed during the second dressings. Treatment was given after admitting the patients into Minto Hospital, Bangalore. In all 59 patients are affected. 17 patients lost their vision in the operated eye.

Excerpts from the Report of the One Man Commission.

GOVERNMENT MEDICAL STORES

All drugs, accessories, instruments and equipment required by the Government Health Care Institutions (except the drugs against malaria, leprosy and tuberculosis supplied by the Centre) are procured and supplied by the Government Medical stores. There are expert and high power committees who decide what drugs to purchase and finalise the rate contract.

The Government Medical Stores is under the control of a Joint Director (in the Directorate of Health Services). There are two medical officers, four graduate pharmacists and other staff (total: 130).

The budget allocation for Drugs and chemicals is totally inadequate considering the needs. It is necessary to at least double the budget for drugs immediately and thereafter increase the allocation progressively.

There have been considerable complaints from the public regarding the non-availability of drugs. Often prescriptions are given for several essential drugs. The poor do not have the purchasing power to obtain the vital drugs. Complaints have also been voiced by the Health care institutions regarding the unsatisfactory supply of drugs, both with respect to quantity and quality.

The preparation of the list of drugs and the quantities needed leaves a lot to be desired. There is need for a formulary of essential drugs for use at various levels (PHC, CHC, district and teaching hospitals). The levels of supply of drugs (items and quantities) and the budgets should be determined and the purchases and supplies effected accordingly.

What are the essential drugs? Essential drugs are those that satisfy the health care needs of the large majority of the population. They should be available at all atimes in dequate amounts and in appropriate dosage forms. The choice of such drugs depends on

- pattern of prevalent diseases in the area
- treatment facilities
- training and expertise of the health personnel
- financial resources and
- genetic and environmental factors

It is understood that the Directorates of Health and F. W. and Medical Education are in the process of preparing essential drug lists. The process must be expedited to have an accepted formulary which can then be updated annually. Hazardous drugs like analgin should not find a place in the formulary.

The Government Medical Stores needs to follow all principles of materials management to improve efficiency and reduce wastage. Simple procedures like ABC and VED classification, determining maximum, minimum and re-order levels, procedures for emergency purchases and physical verification of stock must be followed. This would need training of all persons concerned in the procurement and supply of drugs.

Part of the purchases is made at the District level. There is need for proper systems of purchase, supply and accounting at the district also.

The International Bill of Human Rights, United Nations 1985

"Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services".