Chapter 10

HEALTH

INTRODUCTION

Health is clearly stated as a priority, in the First Five Year Plan: 'nothing can be considered of higher importance than the health of the people which is a measure of their energy and capacity as well as of the potential of man-hour for productive work in relation to the total number of persons maintained by the nation. For the efficiency of industry and of agriculture, the health of the worker is an essential consideration'.[1] To define health is a complicated task. Medical professionals look at health as the absence of disease. The World Health Organization (WHO) defines health as a state of complete physical, mental and social well-being and not merely an absence of infirmity and disease. As reflected in many studies, the health of an individual does have a direct relationship with human resource development and economic development.

This chapter attempts to describe the development of health services, particularly after 1966. Starting from a historical perspective of health-planning in India and Punjab, it analyses various issues, mainly related to trends in outlays and expenditure during the different Five Year plans and the annual plans; availability of infrastructure facilities and other health services in Punjab during 1966-2001; morbidity and treatment pattern; health-seeking behaviour and utilization patterns of available health care facilities and services; health of the vulnerable population with special reference to maternal and child health services; status of nutrition; and the disabled population. An attempt has also been made to incorporate the health provider's perspective as to what needs to be done further for developing the health sector and services in Punjab. The last section describes the vision and works out some operational strategies to achieve the same.

A HISTORICAL PERSPECTIVE

Health Planning in India

Health Planning in India started, as early as in 1943, when the Bhore Committee was appointed to go into health and medical needs of India. The committee recommended the control of major communicable diseases, and development of health organizations for providing health services to the people. Its recommendations were given due importance during the subsequent five year plans. At the time of independence in 1947, the health infrastructure was mainly urban and clinic-based, providing only curative services. On 2 October 1952, rural health services were launched through a Primary Health Centre (PHC) in each block, covering a population of 66,000. Along with the establishment of health-centre complexes, a number of disease control programmes were taken up (vertical programmes), to be integrated with rural health services. They were malaria, filaria and goitre in the 1950s: leprosy, tuberculosis and small pox in the 1960s; and the expanded immunization programme (EPI) and National Programme for Control of Blindness in the 1970s. Thus, by the end of the Third Five Year Plan, India

[1] *The First Five Year Plan*, Planning Commission, Government of India, p. 488.

laid the foundation of basic health services, originally defined by the WHO as 'a network of coordinated, peripheral and intermediate health units with a central administration, capable of performing effectively a selected group of functions essential for the health of a nation, and assuring the availability of competent professional and auxiliary personnel to perform these functions'.[2] Subsequent five year plans focused on the need to integrate family planning with maternal and child health (MCH) and nutrition services, and to intensify control of communicable diseases, particularly malaria and small pox, and also the training programmes. The Sixth Five Year Plan (1980-85) adopted the goal of Health for All (HFA 2000 AD) and the net reproduction rate (NRR) of Unity by 2000 A.D. The plan provided for restructuring norms for rural health infrastructure and its vast expansion and development of promotive and preventive services along with curative facilities. In 1983, for the first time, a National Health Policy was formulated. It laid stress on preventive, promotive, public health and rehabilitative aspects of health care and pointed to the need for establishing comprehensive primary health care services to reach the population in the remotest areas of the country.

In the Seventh Five Year Plan (1985-90), the major thrust was laid on the consolidation of the health infrastructure already developed. The objectives of the Eighth Five Year Plan (1992-97) realized that the health facilities must reach the entire population by the end of the plan period. The HFA paradigm must take into account not only high-risk vulnerable groups, i.e., mothers and children, but also focus sharply on the underprivileged segments, and, therefore, within this strategy, 'Health for Underprivileged' would be promoted consciously and consistently. The Ninth Five Year Plan (1997-2002)[3] observed that inappropriate location, poor access, poor maintenance, gaps in critical manpower, mismatch between personnel and equipment, lack of essential drugs/diagnostics, poor referral linkages, are some of the factors responsible for sub-optimal functioning of primary health care institutions. The plan in general aims to improve the health-status of the population by optimizing coverage and quality of care by identifying and rectifying the critical gaps in infrastructure, manpower, equipment, essential diagnostic reagents and drugs.

Most recently, the Ministry of Health, Government of India has prepared the National Health Policy (NHP) 2002. The main objective of NHP-2002 is to achieve an acceptable standard of good health among the general population of the country.

Health Planning in Punjab

Punjab, as such, does not have any specific health policy of its own. Health programmes in the state, as in most of the other Indian States, have continued to pursue, the policies of the Union Government. Even though health is a state subject, the policies and programmes framed by the Central Government are top priorities, as they are usually accompanied by a grant component, sometimes up to 100 per cent.

Prior to the beginning of the Fourth Five Year Plan, efforts had already been made to expand the health services to meet the requirements of the people of the state,

---

2 Dutt, P.R., *Primary Health Care Rural Communities*, Vol. 1 (1993), Gandhigram Institute of Rural Health and Family Welfare Trust, Tamilnadu, India, p.4

3 *Ninth Five Year Plan (1997-2002), Thematic Issues and Sectoral Programmes*, Government of India, Planning Commission, New Delhi, p. 142.

according to the guidelines laid down by the Central Government. However, the problem of making these services adequate for the community was yet to be solved. The population served in 1966 was 2,758 per doctor, 8,119 per midwife, 7,797 per nurse and 1,384 per dai, which were grossly inadequate. The total numbers of beds available (8,737) in 1966 were much less, and on an average 72 beds were available per lakh of population. Moreover, there were large-scale disparities in the availability of beds. For example, three districts, namely, Amritsar, Ludhiana and Patiala had 57 per cent of the total beds available in the state. It was stated in the Draft Outline of Fourth Plan that 'there has been a steady increase in the health facilities available in the Punjab State but, unfortunately, the gains made had been absorbed by the growing population'[4]. It was further felt that 'there should also be qualitative improvements in the service rendered to the community. Whatever the deficiency in the registration of "vital statistics", the high death rate as well as high infant mortality rate are indicative as much of the inadequacy and the low quality of health services available to the population in general'[5]. It was felt that there is an urgent need to expand the health facilities at a faster rate than the rate of growth of population particularly in Sangrur, Bhatinda, Ferozepur, Rupnagar, Hoshiarpur and Gurdaspur districts.

Based on the above few priorities listed in the Fourth Plan, allocations were made to improve the quality of service, particularly in rural areas, and meet the need for special inducement and facilities provided to the medical and paramedical personnel. 'Thus, during the Fourth Five Year Plan, efforts were made to provide medical and health facilities to the people, both in urban as well as in rural areas of the State. Efforts were made to improve the hospitals in the matter of staff, equipment and physical facilities and the highest priority was assigned to the family planning programme to check the growth of population in the State'[6]. For the first time, Rupees 25 lakh were earmarked for 'Child Health Care Campaign' in the last year of the Fourth Plan (1973-74), out of which only Rupees 16.63 lakh were utilized.

The Fifth Five Year Plan laid emphasis on building the health infrastructure. It was proposed to establish health Sub-centres at the rate of one each for a population of 10,000. Provisions were incorporated for upgradation of 29 PHCs to 30-bedded rural hospitals. Proposals were made for opening 150 new dispensaries in rural areas and to establish dental clinics in each block. There were proposals to open new Ayurvedic/Unani dispensaries, and to establish common medical facilities in rural areas, including diagnostic facilities such as X-Ray, laboratory, operation theatre and library for doctors serving in these areas, and completion and improvement of existing district hospitals.

In the Sixth Five Year Plan, it was strongly felt that the existing number of medical institutions in the state was sufficient to meet the needs of the people. Simultaneously, it was also felt that the expansion of these institutions had not been brought to a reasonable norm of efficient functioning. A number of shortcomings, such as shortages of para-medical staff, buildings, modern machinery and equipment in the working of public health system were noticed. As a result, it was considered appropriate to go slow

---

4 *Draft Outline Fourth Five Year Plan Punjab State,* Planning Department, Government of Punjab, p. 75

5 . Ibid, p. 75

6 *Draft Fifth Five Year Plan (1974-79),* Planning Department, Government of Punjab, Chandigarh, p. 171.

with further expansion and concentrate on meeting existing deficiencies and improving operational efficiencies of medical institutions in the state. Thus, the Sixth Plan focused on improvement of infrastructure and provision of quality health services. Under public health, the Seventh Plan provided adequate outlays for purchasing essential machinery and equipment, replacement of obsolete equipment and for the completion of spill-over work, so as to optimally utilize the investment already made. During this plan, 330 Subsidiary Health Centres (SHCs), more commonly known as rural dispensaries, were upgraded to the level of Primary Health Centres (PHCs), raising the total to 460, i.e., one each for approximately 30,000 rural population. An additional community health officer, staff nurse, laboratory technician and two class IV employees were provided to PHCs. In tune with the earlier FYPs, the Eighth Five Year Plan aimed at strengthening the infrastructure, provision of equipments and manpower development. A section on state-specific strategies laid down that for 'States like Punjab and Haryana with above average level of infrastructure and below average performance in some health indices, specific efforts need be made to identify the factors responsible for the relatively poor performance and correct them'.[7] Punjab's, Ninth Plan highlighted the need to strengthen the existing health infrastructure. It was felt that despite rapid expansion, the majority of the institutions were without proper buildings. The main role of the Ninth Plan envisaged consolidation and strengthening of existing medical institutions (Allopathic, Ayurvedic and Homeopathic) in the state, by meeting the existing deficiencies in building, machinery and equipment, and provision of basic minimum services in the health sector. A proposal was also made to establish a four-bedded hospital each at 277 focal points in the state.

A Punjab Health System Corporation (PHSC) was set up in 1996-97 covering 150 hospitals at the level of Community Health Centres, sub-divisional hospitals and district hospitals. Among these, 86 medical institutions are situated in rural and 64 in urban areas. The corporation upgraded the facilities with the aid of a soft World Bank loan (70%), state government (20%) and other loans (10%). User charges in the 150 hospitals are levied at the same rate as in other hospitals in the state. Collections through user charges are retained entirely by the hospitals concerned, unlike the collections from hospitals not covered by the Corporation, which accrues to the state exchequer. Thus, the burden of servicing the World Bank loan (after a five year loan moratorium) will be borne by the state government, to which the charges levied on beneficiaries of the loan at present do not accrue. It is thought that five years hence, user charges on all improved facilities could be enhanced. At that stage, there could perhaps be an earmarking of a portion of the enhanced charge for servicing the loan.[8]

Most recently, the Tenth Five Year Plan of the Government of Punjab indicates that 70 per cent sub-centres, 67 per cent Subsidiary Health Centres (dispensaries), 62 per cent Primary Health Centres and 51 per cent Community Health Centres are without proper buildings. A total sum of Rupees 32,840 lakh would be needed to provide proper buildings for these institutions. Like the earlier plans, the major thrust of the Tenth Five Year Plan would be to consolidate and strengthen the existing medical institutions in the state in Allopathic, Ayurvedic and Homeopathic medicines, by removing the existing deficiencies in buildings, medicines, machinery and equipment and providing basic

---

7 *Ninth Five Year Plan (1997-2002), Volume II, Thematic Issues and Sectoral Programmes,* Government of India, Planning Commission, New Delhi, p. 148.

8 Indira Rajaraman, Hiranya Mukhopadhyay, H.K. Amar Nath *State Fiscal Studies: Punjab,* National Institute of Public Finance and Policy, New Delhi, 1999. p.26.

minimum services in the health sector. Besides extending the targets covered in the Ninth Plan, the Tenth Plan has emphasized mental health care, biomedical waste and diagnostic services in the state, setting up an institute of para-medical services, opening new dispensaries in urban slum areas, provision of toilets and attendants, accommodation in medical institutions, establishment of new PHCs/upgradation of existing SHCs to PHCs and completion of the provision for four-bedded hospitals at the remaining 197 focal points out of the 277 selected.[9]

From the above, it should be evident that during the formulation of all the Five Year Plans, the focus of the state government has largely remained on strengthening the health infrastructure in the form of buildings, machinery, equipment and manpower for primary health care. It did not realize the importance of having a proper health management information system, which would have helped in setting need-based priorities. Moreover, the state has not made many efforts to establish referral linkages, management of life-style diseases -- diabetes, cancer and cardiovascular diseases, regulation of private health care services, and involving the voluntary sector in different health programmes.

RESOURCE ALLOCATION AND EXPENDITURE

The major industrial countries of the world spend a substantial portion of government expenditure on health. For example, United States, Australia, Switzerland and United Kingdom spend between 14 to 20 per cent of their total expenditure on health. The Asian countries, such as Bhutan, Maldives, Thailand, Sri Lanka and Malaysia, spend six to ten per cent, while India spends a considerably low amount, at around 1.5 per cent of its total expenditure on health.[10]

Outlays and Expenditure during the Five-Year Plans

In Punjab, the percentage share of medical and public health sector in the total budget outlay has been fluctuating between 1.8 per cent and 4.5 per cent during the different Five Year Plans. Table 1 gives percentage shares in total outlay and total expenditure and proportion of total expenditure to total outlay for medical and public health (MPH), nutrition and social services[11] other than MPH and nutrition.

Table 1 indicates that during all these Five Year Plans, outlays on MPH have remained between 1.9 per cent and 4.5 per cent of the total outlay, nutrition between 0.04 to 0.5 per cent and other social services between 12.3 to 28.3 per cent. On the other hand, expenditure patterns indicate that in reality the percentage share of MPH had been between 1.5 and 2.5 up to the Eighth Plan and rose to 4.2 per cent during the Ninth

---

9 *Tenth Five Year Plan and Annual Plan*, Government of Punjab (2002-2003)

10 *Health Information of India, 1997-98,* Central Bureau of Health Intelligence, Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India, New Delhi

11 Most recently these include general education, technical education, sports and youth services, art and culture, medical and public health, water supply and sanitation, housing (including police housing), urban development (including state capital project), information and publicity, welfare of SCs, STs and other BCs, labour and labour welfare, social security and welfare, other social services, and defence services welfare.

Plan; for nutrition it was insignificantly low between 0.04 to 0.3 of the total expenditure during all the Five Year Plans. However, the share of expenditure on other social services (excluding MPH and nutrition) rose considerably during all the Plans from 10.8 per cent in the Fourth Plan to 24.0 per cent in the Ninth Plan, which indicate clearly that health and nutrition has been accorded a lower priority among the social services.

Table 1
Proportions of Outlays and Expenditure on Medical and Public Health, Nutrition, Social Services in Punjab (as percentage of total), 1969-2007

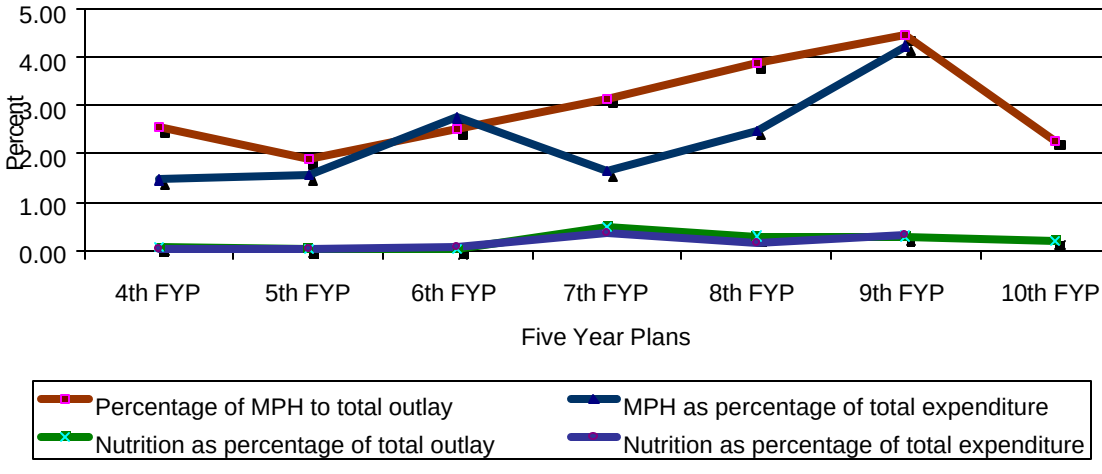
Five Year Plan (FYP)/ period	Percent share in total outlay			Percent share in total Expenditure			Proportion of total expenditure to total outlay		
	MPH	Nutrition	Social services (excluding MPH and nutrition)	MPH	Nutrition	Social services (excluding MPH and nutrition	MPH	Nutrition	Social services excluding MPH and nutrition
4th FYP (1969-74)	2.55	0.09	13.14	1.47	0.04	10.76	0.83	0.66	1.19
5th FYP (1974-78)	1.88	0.06	20.17	1.57	0.04	18.77	0.58	0.50	0.65
6th FYP (1980-85)	2.50	0.04	16.31	2.75	0.08	13.42	1.06	1.81	0.79
7th FYP (1985-90)	3.15	0.50	12.35	1.64	0.35	11.45	0.56	0.75	1.00
8th FYP (1992-97)	3.88	0.30	24.55	2.49	0.15	20.20	0.66	0.50	0.85
9th FYP (1997-02)	4.45	0.30	28.26	4.24*	0.31*	24.01*	0.74*	0.79*	0.66*
10th FYP (2002-07)	2.28	0.22	20.81	NA	NA	NA	NA	NA	NA

Source: Calculated on the basis of information provided in different issues of *Statistical Abstracts of Punjab/Annual Plans, Five Year Plan and Annual Plan Documents*

Note: * - Includes anticipated expenditure for the annual year 2001-2002.

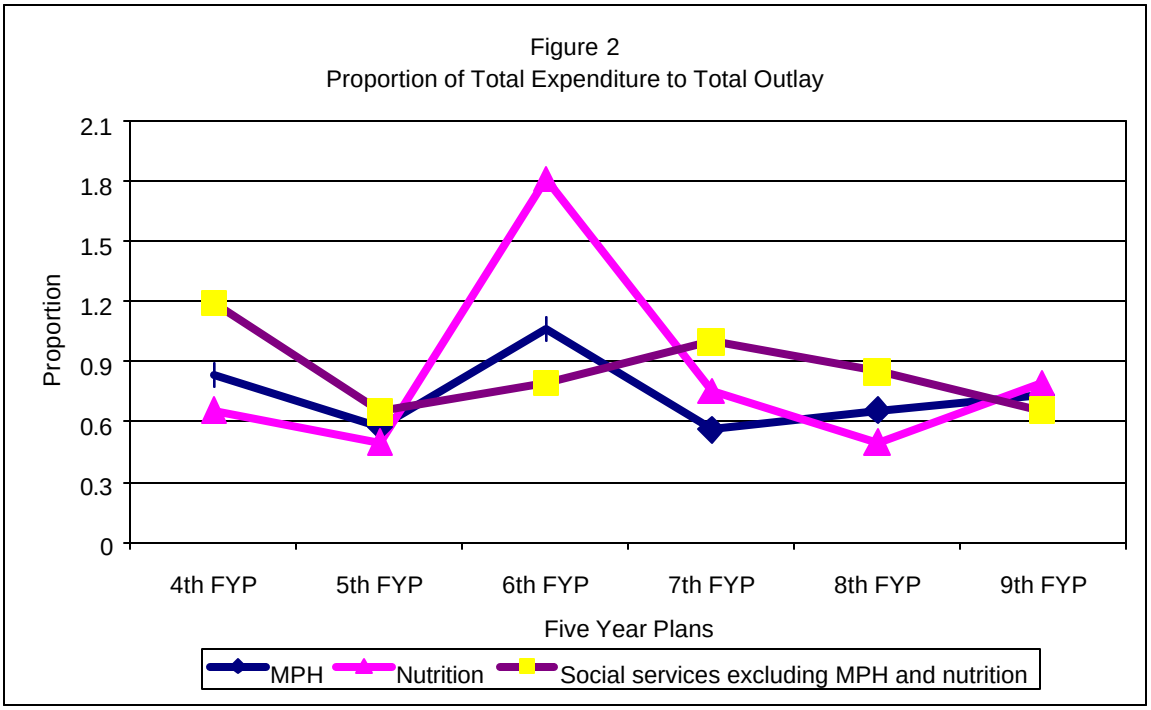
Figure 1 indicates the percentage of total outlays and expenditure on MPH and nutrition. It is evident that the total expenditure was minimum during the Fourth Plan and the maximum during the Ninth Plan. Except for the Sixth Plan, the expenditure has always been less than the total outlay, indicating a poor performance of the plan. The outlays for nutrition during the different five-year plans indicate that it has always had a very small share of the total budget (0.1-0.5%), and even that money was not spent fully.

Figure 1
Percentage of Total Outlays and Total Expenditure on Medical and Public Health, and Nutrition



Source: Various volumes of *Statistical Abstract, Punjab*

The proportions of total expenditure to total outlays indicate that MPH and nutrition were accorded less priority among the social services (Table 1 and Figure 2). If we examine the proportionate figures for total outlays and total expenditure, we find that except during for Sixth Plan and marginally during the Ninth Plan, when the proportion of actual expenditure to total outlay was more for MPH and nutrition, the expenditure on other social services has always been higher.



Source: Various volumes of *Statistical Abstract, Punjab*

Outlays and Expenditure during the Annual Plans (1980-2002)

Table 2 gives the percentage of annual share in total outlay and total expenditure on medical and public health and social services excluding MPH. These have increased over time for both the categories, i.e., MPH and social services excluding MPH. However, the increase in other social services expenditure is higher than that of MPH.

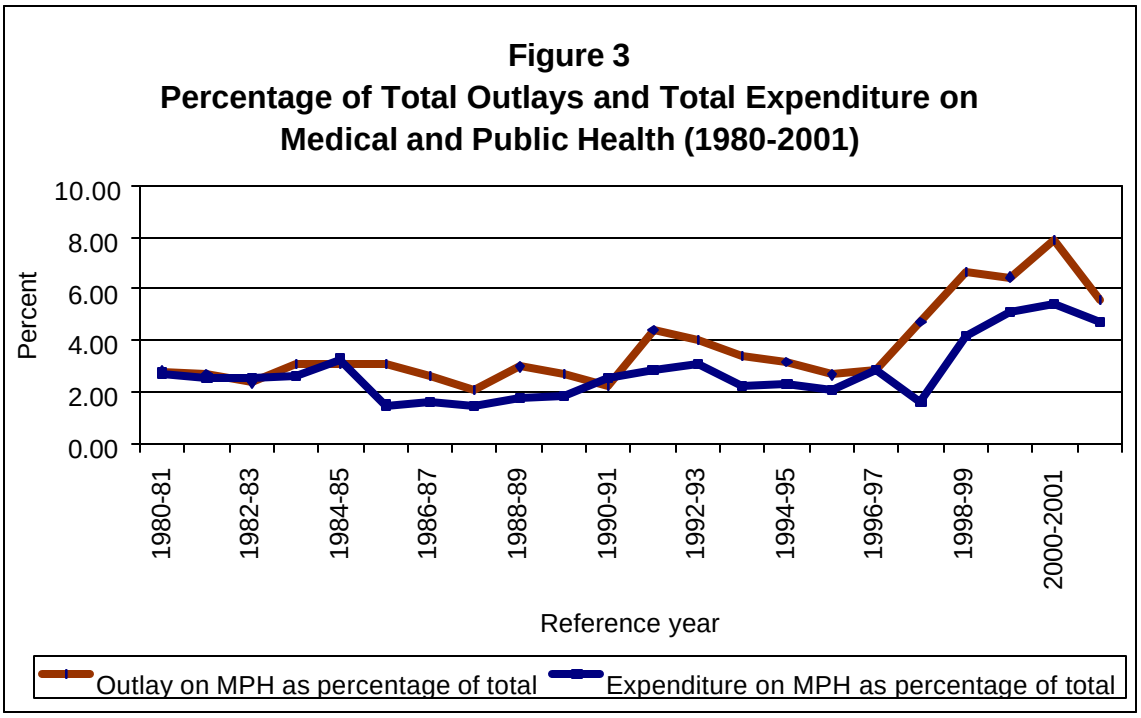
Table 2
Proportions of Outlays and Expenditure on Medical and Public Health, Social Services Excluding MPH in Punjab (as percentage of total), 1980-81 to 2001-2002

Annual Plan	Percent share in total outlay		Percent share in total Expenditure		Proportion of total expenditure to total outlay	
	MPH	Social services (excluding MPH)	MPH	Social services (excluding MPH and nutrition	MPH	Social services excluding MPH and Nutrition
1980-81	2.80	16.62	2.73	16.84	0.97	1.01
1981-82	2.64	16.29	2.51	14.25	0.95	0.88
1982-83	2.34	12.21	2.57	11.85	1.10	0.97
1983-84	3.07	12.04	2.63	11.39	0.83	0.92
1984-85	3.07	11.81	3.28	13.44	1.04	1.11
1985-86	3.11	12.25	1.49	9.94	0.47	0.80
1986-87	2.58	12.72	1.61	9.66	0.73	0.89
1987-88	2.04	10.52	1.43	8.81	0.74	0.88
1988-89	2.95	11.50	1.76	11.55	0.61	1.02
1989-90	2.66	22.83	1.85	17.09	0.76	0.82
1990-91	2.19	19.02	2.52	13.23	1.26	0.76
1991-92	4.40	21.81	2.85	19.05	0.68	0.92
1992-93	4.00	25.30	3.07	20.54	0.59	0.63
1993-94	3.40	22.64	2.21	24.54	0.59	0.99
1994-95	3.13	26.94	2.32	22.78	0.85	0.97
1995-96	2.65	21.19	2.09	18.30	0.86	0.94
1996-97	2.85	23.68	2.84	17.78	0.97	0.73
1997-98	4.73	25.69	1.58	19.00	0.32	0.71
1998-99	6.64	25.27	4.18	18.46	0.50	0.59
1999-2000	6.46	31.68	5.07	30.87	0.51	0.64
2000-01	7.93	27.22	5.40	22.31	0.56	0.67
2001-02	5.54	23.59	4.74*	28.73*	0.86*	1.22*
2002-03	3.33	20.41	NA	NA	NA	NA

Source: Calculated from the information provided in various issues of *Statistical Abstracts of Punjab/Annual Plans*

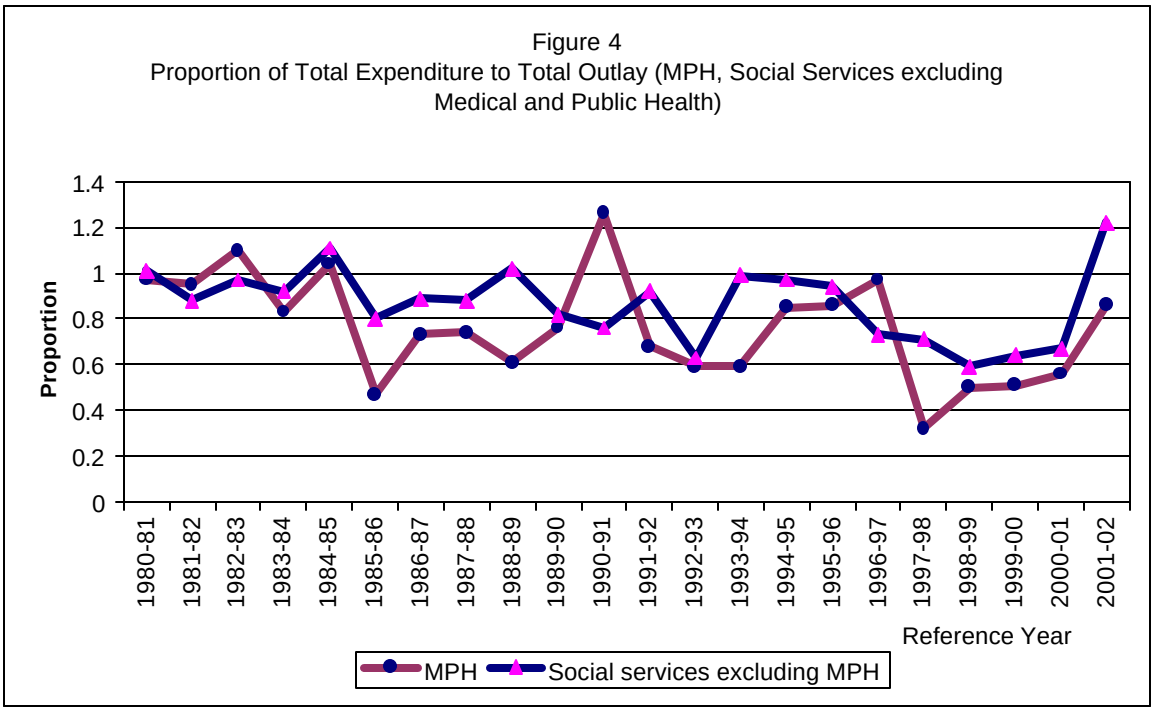
Note: * - Includes anticipated expenditure for the annual year 2001-2002.

Figure 3 shows that the share of the medical and public health sector in the total outlay during the annual plans has increased over a period of time. For example, it was 2.8 per cent in 1980-81, and increased to 7.9 per cent during 2000-2001 and 5.5 per cent during 2001-2002. Even though the share of medical and public health increased in the total outlay, in the total expenditure it remained static between 1.5 per cent and 3 per cent during 1980-81 to 1997-98. The recent period, particularly after 1998-99, has witnessed a slight increase in the percentage of spending on medical and public health, ranging between four to five per cent of the total expenditure.



Source: Various volumes of *Statistical Abstract, Punjab*

Figure 4 shows the proportions of total expenditure to total outlay during the different annual plans on MPH and Social Services other than MPH. Except during the three annual plans, i.e. 1982-83, 1990-91 and 1996-97, the proportion of expenditure to total outlay on MPH has always been less than that on social services other than MPH. This clearly shows that MPH was given a lesser priority than other social services.



Source: Various volumes of *Statistical Abstract*, Punjab

HEALTH INFRASTRUCTURE AND SERVICES

It is now well known that Punjab, like all other states, has made significant improvements in bringing down the crude death rate (CDR), infant mortality rate (IMR), and in bringing up the standard of living and expectancy of life at birth. Moreover, significant improvements in the control of various communicable and non-communicable diseases, such as diphtheria, poliomyelitis, tetanus (both neonatal and others), whooping cough, measles, leprosy, malaria, tuberculosis, goitre, blindness, etc., are well known.

In Punjab, health services (comprising of preventive, promotive and curative) are provided through the Department of Health and Family Welfare. Since primary health care is the first and the nearest contact between the individual and health care services, Punjab, like many other states of India, has made intensive provisions for primary health care services through a network of Sub-Centres (SC), Subsidiary Health Centres (SHCs), Primary Health Centres (PHCs) and Community Health Centres (CHCs). To support these primary health care services, provisions have been made for secondary-level health care facilities through sub-divisional and district hospitals. Further, tertiary-level health care facilities in the form of specialized hospitals and hospitals attached to the state medical colleges, have been provided for to support the secondary-level health care services. These institutions, besides extending support to secondary-level health care systems, are expected to carry out research and manpower development for the health services of the state.

Availability of Health Institutions

At the time of independence, there was only one medical college at Amritsar. A medical college was established during the First Plan at Patiala. In 1966, there were only 496 medical institutions and the average population served per institution improved only marginally from 24,729 in 1962 to 24,538 in 1966[12]. In 1966, Amritsar, Kapurthala, Ludhiana and Patiala districts were in the lead in the availability of medical facilities, whereas Gurdaspur, Ferozepur, Hoshiarpur, Bhatinda and Sangrur districts were backward. The average radius served per institution showed that the medical facilities were comparatively inadequate in Ferozepur, Bhatinda and Sangrur districts.[13]

Punjab has taken rapid strides in the promotion of health infrastructure services. Today, it has 2,852 Sub-Centres, 1,465 Subsidiary Health Centre (each having a medical officer and a pharmacist), 484 PHCs, 117 Community Health Centres, three medical and two dental colleges along with attached hospitals. In addition, 40 mobile dispensaries have been provided for intensive health care to serve the population living within 16 km of the international border. There are 230 Allopathic hospitals in the state. They range from 50-beds hospitals in smaller towns to larger hospitals attached to the five medical colleges, one each at Patiala, Faridkot and Amritsar and two at Ludhiana with facilities for dealing with complicated cases and acting as referral hospitals and teaching colleges. To promote the Indian system of medicines and homeopathy (ISM&H), there are 473 Ayurvedic dispensaries, 17 Ayurvedic Swasthya Kendras, five 10-bedded Ayurvedic hospitals (one each at Jalandhar, Bathinda, Ludhiana, Hoshiarpur and Amritsar), one government Ayurvedic college at Patiala, 105 Homeopathic dispensaries,

---

12 *Draft Outline Fourth Five Year Plan Punjab State,* Planning Department, Government of Punjab, p. 73

13 Ibid. p. 75.

and 34 Unani (Arab/Persian medical system) dispensaries in the state. The state has one doctor for every 1,470 of the population, and one hospital bed for every 864 people -- ratios that are probably the best in the country.

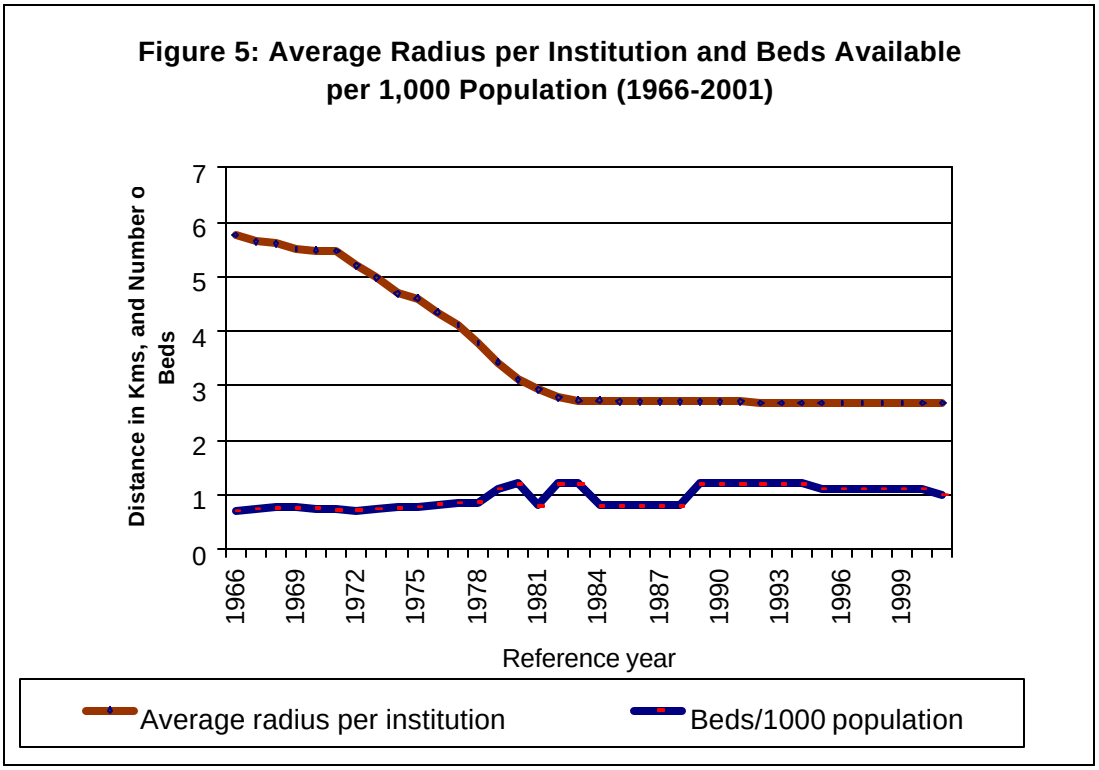
Development of Health Infrastructure (1966-2001)

The following figures highlight some of the significant changes that have occurred in the development of the health infrastructure in the state since 1966.

Radius covered per Institution/Beds Available per 1000 Population

There has been remarkable improvement in the availability of health institutions, number of beds, doctors, midwives and nurses during 1966 to 2000. As revealed in Figure 5, the average radius covered was 5.8 km per health institutions in 1966, which has been reduced to 2.7 km in 2001. Similarly, in 1966, beds available per 1,000 of population were 0.7, which increased to 1.1 during the year 2001. The numbers of additional beds provided in hospitals, however, were compensated by the increase in population during these years.

Figure 5: Average Radius per Institution and Beds Available per 1,000 Population (1966-2001)

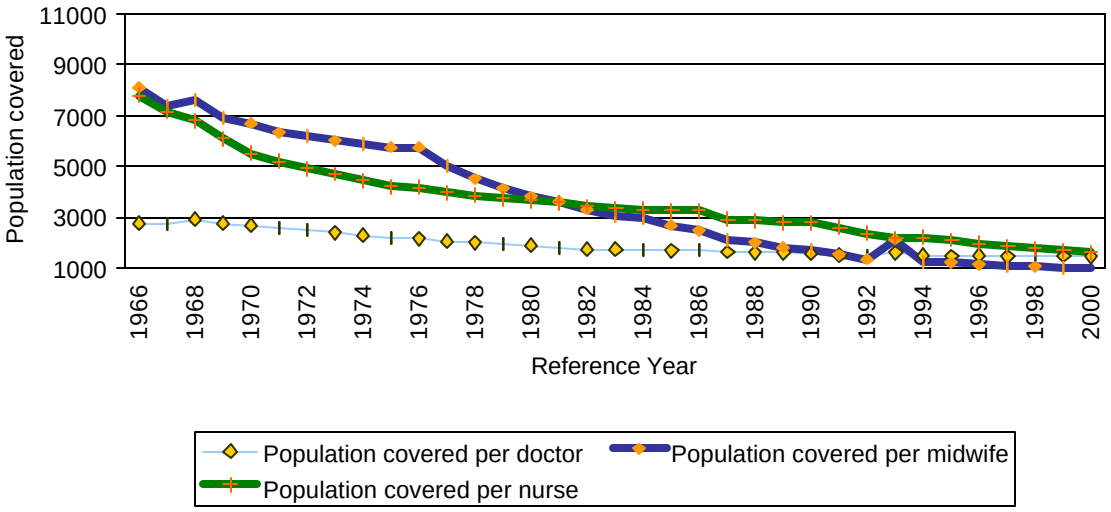


Source: Various volumes of *Statistical Abstract*, Punjab

Manpower Availability

Figure 6 shows that there has been a tremendous increase in the availability of medical and para-medical manpower during 1966-2001. For instance, in 1966, the population covered per doctor was 2,758, per midwife 8,119 and per nurse 7,797, which declined to 1,470, 982 and 1,636 respectively during 2001. In fact, there has been a consistent increase in the availability of manpower (both medical and para-medical) in the state.

Figure 6
Population Covered per Doctor, per Midwife, per Nurse, Punjab (1966-2000)

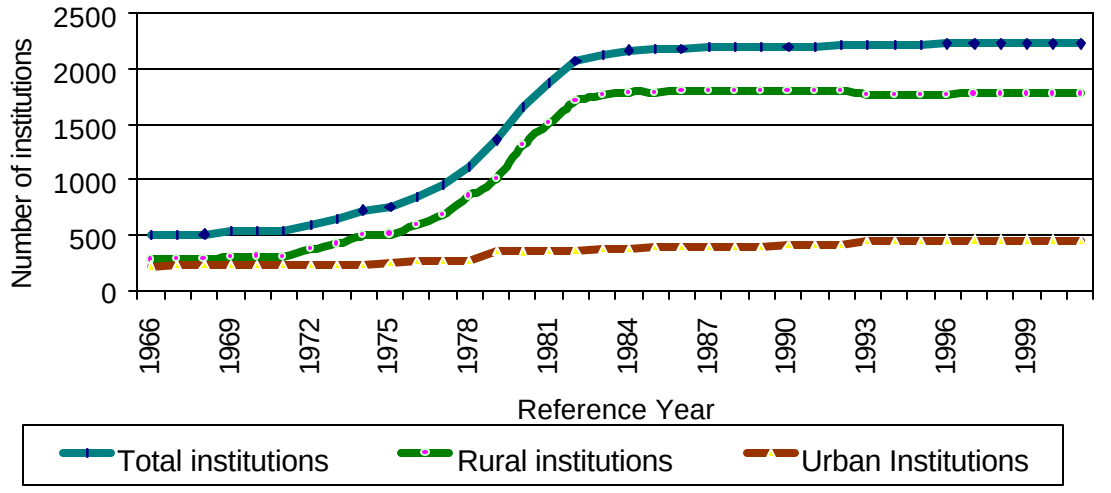


Source: Various volumes of *Statistical Abstract*, Punjab

Growth of Health Institutions

The availability of health institutions in the state increased 4.5 times (6.5 times in rural areas and two times in urban areas) between 1966 and 2001 (Figure 7). In absolute terms, the total number of institutions rose from 496 in 1966 to 2,229 in 2001, the rural health institutions in the state rose from 275 to 1,777 during the same period, and the urban health institutions from 221 to 452 during 1966-2001. There was considerable increase in the number of rural health institutions during 1973-83, the period during which Sub-Centres and SHCs were set-up by the Government of Punjab on the recommended of the Government of India. There has hardly been any increase in the number of health institutions since 1985.

Figure 7
Number of Health Institutions in Punjab (1966-2001)

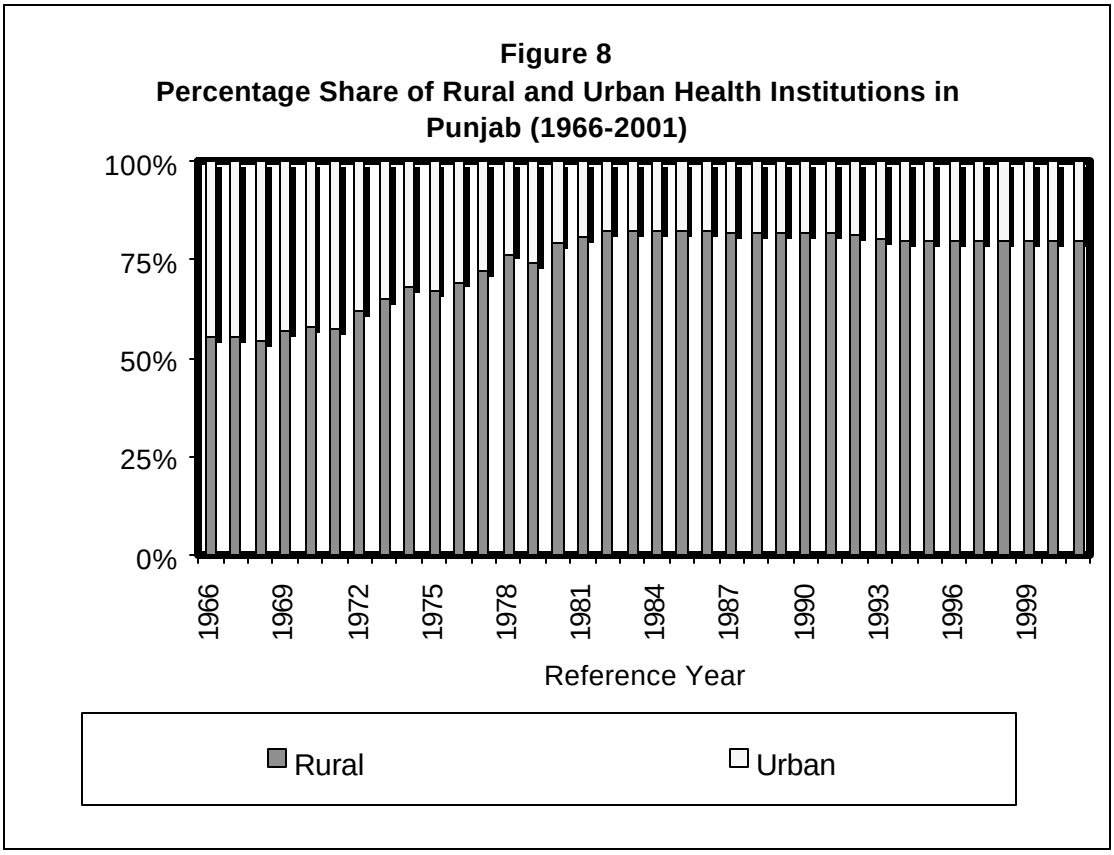


Source: Various volumes of *Statistical Abstract*, Punjab

Share of Rural and Urban Institutions

As revealed by Figure 8, the percentage share of rural health institutions was 55.4 per cent among total health institutions in 1966, increased to 64.9 per cent in 1973, 79.1 per cent in 1980, and 81.6 per cent by the year 1990. During the 1990s, there was some additional emphasis on urban infrastructure. As a result, the share of urban health institutions increased slightly from 18.4 per cent to 20.3 per cent.

Figure 8
Percentage Share of Rural and Urban Health Institutions in Punjab (1966-2001)

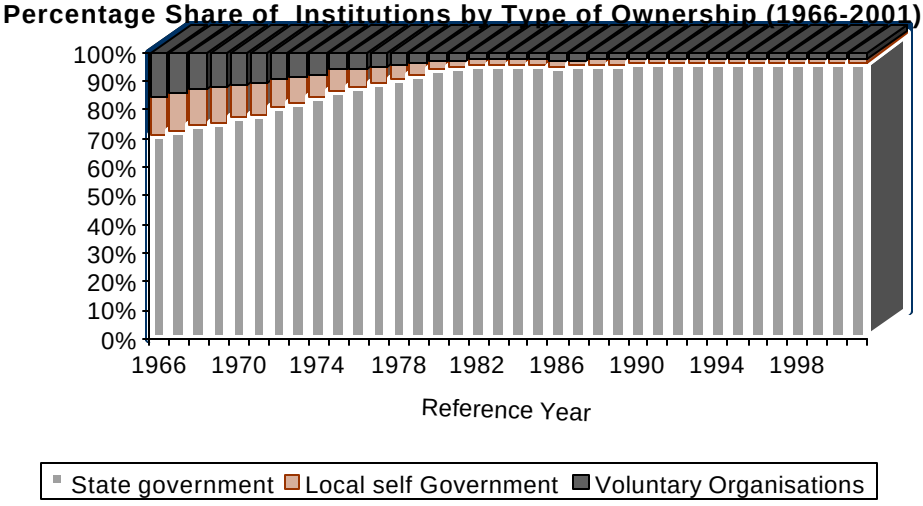


Source: Various volumes of *Statistical Abstract*, Punjab

Health Institutions by Ownership

The percentage share in the number of health institutions by ownership among the state government, local self-governments and voluntary organizations (Figure 9), decreased sharply for the last two categories. In fact, the local self-government has completely withdrawn from the health sector. For example, the respective shares of the three sectors were 71.6 per cent, 13.3 per cent and 15.1 per cent in 1966, which changed to 96.6 per cent, 1.1 per cent, and 2.3 per cent respectively in 2001. Thus, during the last 37 years, local self-government and voluntary organizations have withdrawn from the health sector.

Figure 9
Percentage Share of Institutions by Type of Ownership (1966-2001)

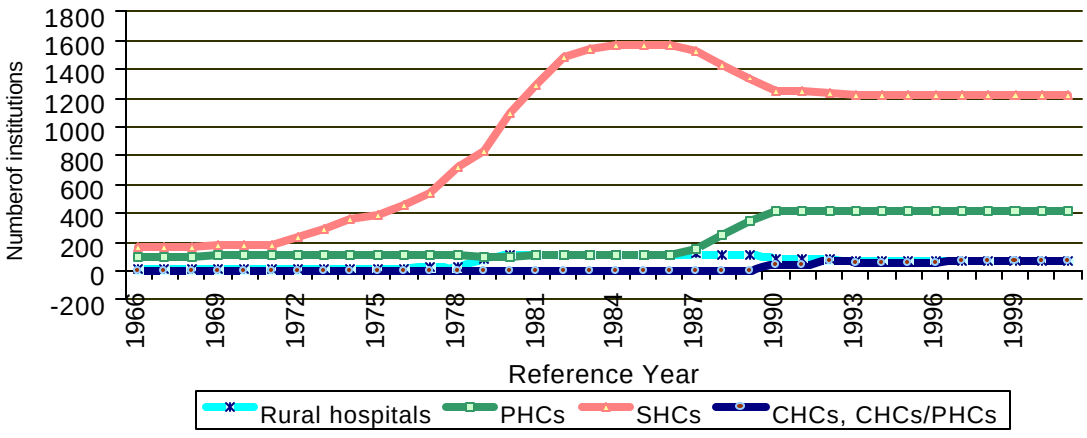


Source: Various issues of *Statistical Abstract*, Punjab

Growth of Rural Health Institutions

If we look at the growth of rural health institutions, it is clear that during all these years, there has been an emphasis on the opening up of newer dispensaries in the state (Figure 10). The growth of rural hospitals took place during 1978-80. Their number increased form 23 in 1978 to 79 in 1979 and to 111 in 1980. Their number remained more or less stagnant up to 1989, and then started decreasing, as many of them were accorded the status of Community Health Centres (CHCs), according to the revised guidelines of the Government of India. Likewise, earlier there was one PHC per block in Punjab, but in response to the revised criterion of one PHC per 30,000 population, many rural dispensaries have been given the status of PHCs since 1987. As a result, while the number of PHCs has increased, that of SHCs has decreased. Most of these PHCs continue to be known as Mini PHCs in Punjab, with inadequate infrastructure facilities and without drawing and disbursing powers (DDO) powers and operated by a single medical officer.

Figure 10
Rural Health Institutions in Punjab (1966-2001)

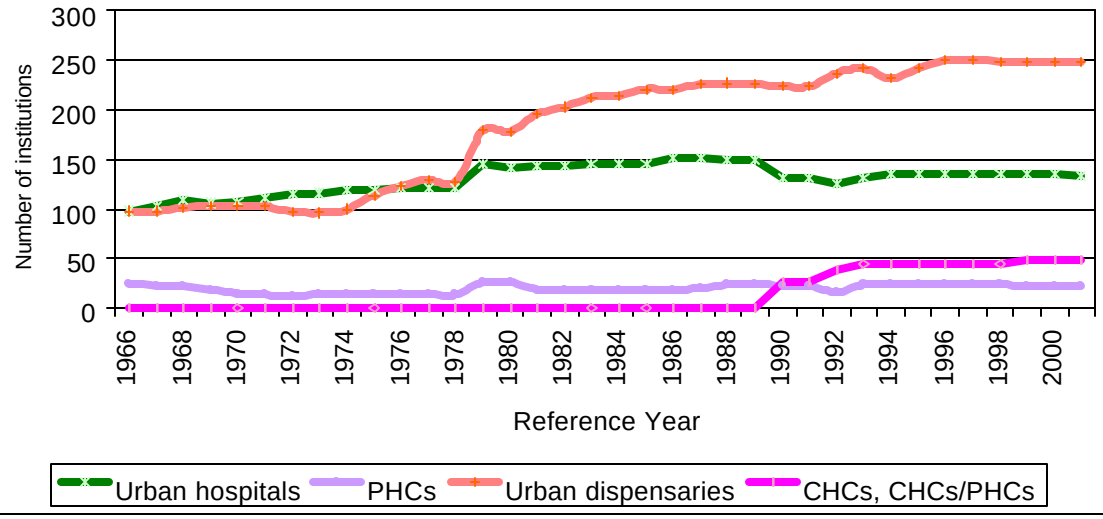


Source: Various volumes of *Statistical Abstract*, Punjab

Growth of Urban Health Institutions

Urban health institutions have not kept pace with the rising urbanization in the state. As regards the growth of urban health institutions, the number of urban hospitals has increased only slightly from 106 in 1970 to 134 in 2001. Urban PHCs too have remained more or less static during the recent years. The only significant increase has been in the number of urban dispensaries, which increased form 98 in 1966 to 248 in 2001, an increase of 2.5 times (Figure 11).

Figure 11
Urban Health Institutions in Punjab (1966-2001)

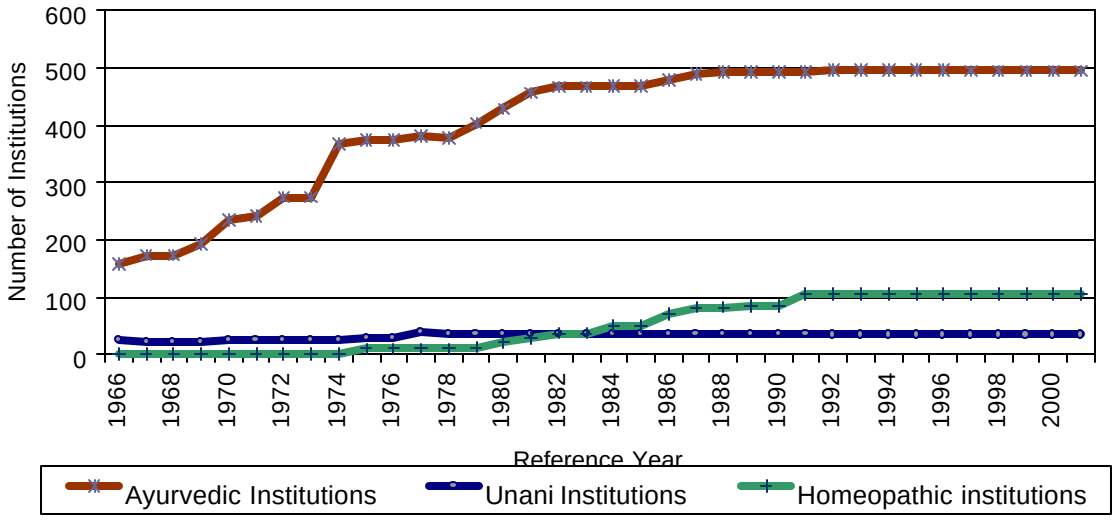


Source: Various volumes of *Statistical Abstract*, Punjab

Growth of Health Institutions under Indian System of Medicines and Homeopathy (ISM&H)

During 1966-2001, minor importance has been given to the development of health institutions under the alternative system of medicines, popularly known as Indian System of Medicines and Homeopathy (ISM&H). Figure 12 shows that the number of ayurvedic institutions increased from 157 in 1966 to 495 in 2001. The major growth of ayurvedic health institutions took place during 1970-1984. There has been no emphasis on the Unani system of medicines. Slightly more emphasis was given to homeopathy during 1986-1992. The data clearly reflect that the efforts to develop ISM&H have not been as focused as it should have been.

Figure 12
Number of Institutions under Indian System of Medicines and Homeopathy (ISM&H) (1966-2001)



Source: Various volumes of *Statistical Abstract*, Punjab

Private Health Institutions in the State

The private health sector plays a crucial role in the health delivery system. With a wide network of services, it caters to the needs of both rural and urban populations and has expanded considerably to meet increasing demands. The total health expenditure in India is estimated to be about six per cent of GDP, of which private health care expenditure is 75 per cent. About, one-third of this expenditure is on secondary and tertiary in-patient care, the rest meet the curative needs at the primary level. Insurance coverage mechanisms are negligible and most of this expenditure is out of pocket. For each one per cent increase in per capita income, private health care expenditure has increased by 1.47 per cent. About 57 per cent of hospitals and 32 per cent of hospital beds are in the private sector. At present, about 80 per cent of 3,90,000 allopathic doctors registered with medical councils in India are working in the private sector. Moreover, there are over 6,50,000 providers of other systems of medicines practicing in India and most of them come under the private sector. Utilization studies show that one third of the in-patients and three-quarters of out-patients utilize private health care facilities.[14] Punjab has an abundance of private health care institutions and practitioners, but despite playing such an important role, no information as to the actual number of private hospitals and clinics is available with the Government of Punjab, as there is no provision for it. Registration is not required for starting a hospital, a nursing home, or private practice.

[14] Ramesh Bhat, 'Characteristics of Private Medical Practice in India: A Provider Perspective', *Health Policy and Planning,* Volume 14 (1), Oxford University Press, 1999, p. 26-37.

Maternal and Child Health Referral Services

Efficient maternal and childcare services include immediate referral services to the first referral units, which can reduce infant mortality rate and maternal mortality rate considerably. The mid-term appraisal of the Ninth Five Year Plan (1997-2002) also iterates the need to obtain and analyze information on health care infrastructure and manpower.[15]

A perusal of Table 3 reveals that there is need for more specialized childcare hospitals in Punjab. The Ninth Plan suggested that in all government hospitals in urban areas in-patient facility for maternal care services should constitute four out of ten beds for maternity care.

Table 3
Institutions Providing Specialized Medical Services

Specialized services/Type of management	Total number of institutions		Number of beds	
	Hospital	Ward	Hospital	Ward
Pediatrics	1	115	100	1047
State public	0	108	100	817
Voluntary organizations	0	6	0	170
State special	0	1	0	6
Services available for deliveries, complications of pregnancy, child birth and puereperium	14	68	742	2063
State public	5	57	72	1632
Voluntary organizations	6	5	250	345
State special	0	6	0	86
Municipal	3	0	420	0

Source: *Directory of Medical Institutions in Punjab State as on 1-4-1995*, Series No. 8, Publication No. 26, Directorate of Health and Family Welfare, Punjab, Chandigarh.

MORBIDITY PATTERNS IN PUNJAB

Health experts find serious errors in the data recording information related to morbidity. Despite this limitation, this section attempts to highlight some of the morbidity patterns in Punjab as revealed by surveys undertaken during different rounds of the National Sample Survey Organization (NSSO), and the Health Care surveys undertaken by the National Council of Applied Economic Research (NCAER).

[15] *Mid-Term Appraisal of Ninth Five Year Plan (1997-2002)*, Planning Commission, Government of India, New Delhi, October 2000, p.247.

Incidence and Prevalence of Morbidity

NSS 28th Round (October 1973-1974) defines morbidity as sickness that includes injury and poisoning and means any deviation from the state of physical and mental well-being with a specific cause. The survey did not treat chronic events as morbidity. It estimated both the incidence rate[16] (frequency of morbidity commencing during the reference period, started and ended during the reference period) and prevalence rate[17] (frequency of morbidity prevailing in the reference period). Table 4 shows that Punjab had higher incidence and prevalence rates of morbidity than all-India for both rural and urban areas. No variations by residential status of households were reported in the incidence and prevalence rates of morbidity at the all-India level, but greater morbidity (both incidence and prevalence) was reported in rural than in urban areas of Punjab.

Table 4
Incidence and Prevalence Rates of Morbidity per thousand Persons

State/country	Incidence rate		Prevalence rate	
	Rural	Urban	Rural	Urban
Punjab	19.3	16.7	27.5	24.6
All India	12.6	13.5	22.5	22.8

Source: 'NSS 28th Round', *Sarvekshana*, Volume IV, No. 1& 2, 1980.

Household Survey of Medical Care (NCAER, May-June 1990) covered a sample of 8,417 households from 34 villages in 12 districts to study morbidity patterns in Punjab. It classified illnesses by various socio-economic characteristics of the households, such as sex, income, education and occupation. Classification of all household illness-episodes revealed that the prevalence rate was higher among males and boys than among females or girls in both rural and urban areas of Punjab and all-India. While all-India trends show a declining morbidity with increase in income, Punjab does not. Similarly, education has not had much impact on morbidity patterns, except that reporting of illnesses was less among the illiterates, or not formally educated, in both rural and urban areas of Punjab. In rural areas, businessmen, including petty shopkeepers, reported maximum morbidity than the other occupational groups. Urban areas did not show any such trend (Table 5).

16 Estimated number of spells (started and terminated during the reference period + started during the reference period and continued in the survey)/estimated population exposed to risk * 1000

17 Estimated number of spells (started before the first day of the reference period + started and terminated during the reference period + started during the reference period and continued in the survey + started before the first day of the reference period and continued on the last day of survey)/estimated population exposed to risk * 1000

Table 5
Prevalence Rate of Illnesses by Socio-economic Characteristics (per 1000 Persons)

Socio-economic characteristics	Rural areas		Urban areas	
	Punjab	India	Punjab	India
Sex				
Males	58.4	105.3	61.2	88.1
Females	23.9	59.8	34.0	46.6
Boys	47.4	93.9	79.4	90.8
Girls	7.1	45.7	33.4	40.5
Annual income				
Low income (< 12,000)	25.0	87.4	67.1	77.2
Middle income (12,500-56,000)	48.8	65.7	43.4	63.1
High income (> 56,000)	18.0	47.2	45.7	57.6
Education				
No formal education	27.8	74.9	25.9	69.7
Primary	25.2	84.8	50.1	65.4
Secondary	56.3	79.1	60.5	70.0
Graduate and others	52.3	78.6	53.2	66.6
Occupation of the head of household				
Cultivators	41.6	71.2	32.4	67.2
Wage earners	28.0	94.0	79.9	66.3
Salary earners	50.8	79.0	51.3	68.2
Professionals	40.3	73.7	55.5	69.3
Artisans	0.0	84.3	45.2	62.5
Petty shopkeepers	79.4	91.0	47.3	67.9
Businessmen	139.3	97.4	18.2	60.1
Others	0.0	73.1	6.3	78.0
Total	37.7	79.1	49.7	67.7

Source: NCAER, *Household Survey of Medical Care*, May-June 1990

NCAER (1993) survey of health care utilization and expenditure also measured the prevalence rate of illnesses. It pointed out that the prevalence rate of illnesses per 1,000 persons was much higher in Punjab than the national average (132.0 in rural areas in Punjab as compared to 106.7 in India, and 175.4 in urban areas of Punjab as compared to 103 in India). The survey also indicated some sex-wise rural-urban differentials. For instance, the prevalence rate of illnesses was much higher among rural males in Punjab than in India (155.8 per 1,000 as against 105.5 per 1,000). It was also much higher for both males and females in urban areas of Punjab than the national average. The percentage of illness episodes treated was also much higher in Punjab than in India (Table 6).

Table 6
Prevalence Rate and Treatment of Illness by Area and Sex (per 1000 Persons)

Sex	Rural areas				Urban areas			
	Punjab		India		Punjab		India	
	Preval-ence of illness	Percent treated	Preval-ence of illness	Percent treated	Preval-ence of illness	Percent treated	Preval-ence of illness	Percent treated
Males	155.8	100.0	105.5	88.1	120.6	95.0	98.2	92.4
Females	106.4	98.2	108.1	88.4	175.4	94.2	108.4	90.9
Total	132.0	99.3	106.7	88.2	175.4	92.3	103.0	91.7

Source: NCAER, *Household Survey of Health Care Utilization and Expenditure*, March 1995.

Classification of Illnesses

NSS 28th round survey revealed that more people suffered from chronic diseases with increase in age in both the rural and urban areas of Punjab. Such chronic morbidity was more prevalent among males in rural areas and among females in urban areas. Asthma, piles, rheumatism, bronchitis, tuberculosis, epilepsy, kidney stone or kidney trouble and high blood pressure were the common chronic diseases suffered by the people of Punjab in both rural and urban areas (Table 7).

Table 7
Number of Persons Suffering from Chronic Diseases in Punjab by Age, Sex and Residential Status (per 100000 Persons)

Characteristics	Punjab (Rural)			Punjab (Urban)		
	M	F	P	M	F	P
Age-group						
0-14	247	269	257	473	334	405
15-24	759	900	827	416	607	502
25-44	2459	3503	2970	1724	2342	1998
45-59	6689	5772	6238	4097	7042	5513
60+ above	9717	6708	8458	8036	7326	7718
Not recorded	-	-	-	-	-	-
All ages	2348	2197	2277	1621	1993	1794
By type of chronic disease						
Tuberculosis	102	130	115	75	107	90
Leprosy	-	-	-	56	65	60
Syphilis	45	22	34	19	21	20
Cancer	13	-	7	-	43	20
Thyroid trouble or Goiter	13	7	10	19	62	40
Diabetes	13	50	30	37	22	30
Mental illness	51	50	51	19	43	30
Epilepsy	70	58	65	37	21	30
Rheumatic fever	26	65	44	-	-	-
High blood pressure	45	123	81	130	215	169
Bronchitis	102	86	95	130	86	110
Asthma	774	468	630	391	407	398
Peptic ulcer	26	72	48	19	43	30
Kidney stone or Kidney trouble	96	72	85	56	-	30
Arthritis	6	14	10	-	22	10
Rheumatism	154	195	173	56	257	149
Stroke	26	14	20	-	-	-
Piles	204	86	149	37	107	70
Others	582	685	630	540	472	508
Not recorded	-	-	-	-	-	-
All types of ailments	2348	2197	2277	1621	1993	1794
No. of sample ailments	367	305	672	87	93	180

Source: 'NSS 28th Round', *Sarvekshana*, Volume IV, No. 1& 2, 1980.

Table 8 shows the prevalence rates of illnesses classified under serious communicable diseases[18], acute illness[19] and chronic diseases[20] in rural and urban areas in Punjab and India. The prevalence rate of communicable diseases was lower in rural areas and higher in urban areas of Punjab as compared to India. (Influx of migrants from backward states may be one possible explanation for higher prevalence of communicable diseases in urban areas). The prevalence rate of acute illness was higher in both the rural and urban areas of Punjab than in India. (Greater awareness and prompt reporting may be one explanation for this). There were fewer patients with chronic diseases in rural areas and additional patients with chronic diseases in urban areas of Punjab than in India. (Life-style and dietary patterns in urban areas might have contributed to this). The average duration of illness for communicable and acute illnesses in rural Punjab for both males and females was higher than in rural India. The duration in urban areas was somewhat same for Punjab and India. This seems to indicate that the rural people of Punjab are not getting proper treatment for their illnesses as compared to their counterparts in other rural areas of the country and the urban areas of the state.

Table 8
Prevalence Rate of Illness Classified by Type and Duration of Illness (per 1000 Persons)

Type and duration of illness	Rural		Urban	
	Punjab	India	Punjab	India
Type of illness				
Serious communicable diseases	12.9	15.6	18.1	14.0
Acute illnesses	111.1	77.9	105.6	70.6
Chronic diseases	7.9	13.2	22.2	18.4
Total	132.0	106.7	145.8	103.0
Average duration of illness (in days) (for communicable and acute illness only)				
Male	14.0	11.4	9.2	10.4
Female	12.2	10.1	9.5	9.8
Total	13.2	10.8	9.3	10.1

Source: NCAER, *Household Survey of Health Care Utilization and Expenditure*, March 1995.

The 52nd round of NSS on morbidity and treatment of ailments also showed that the prevalence of morbidity was higher in Punjab than in India. For instance, prevalence of acute illness was 56 per 1,000 in rural areas of Punjab against 42 per 1,000 in rural areas of India; figures for chronic illness were 20 per 1,000 as against 13 per 1,000 respectively. Similarly, prevalence of acute and chronic illnesses was higher in urban areas of Punjab than in India. The number of persons reporting ailments (acute or chronic) usually increases with the increase in age in Punjab as well as in India. Chronic illnesses are generally prevalent among persons who are 40 years or older. Classification of data by sex and residential status did not show much difference in the prevalence rate of acute or chronic diseases (Table 9).

[18] Communicable diseases include typhoid, malaria, cholera/acute gastro-enteritis, jaundice, chicken pox, measles, mumps and tuberculosis.

[19] Acute illnesses include diarrhoreal diseases, respiratory infections, non-specific fever, skin-diseases, eye/ear problem, headaches/bodyaches/backaches, stomach problems--indigestion, gas acidity and constipation.

[20] Chronic diseases include aches and pains (arthritis and reumatism), cardio-vascular diseases (heart-ailments/hypertension), diabetes, kidney problems, breathing problems, asthma, cancer, weakness/dizziness, anaemia, mental and psychological disorders, and others.

Table 9
Acute and Chronic Ailments Classified by Age and Sex (per 1000 Persons)

Age-Group	Rural areas						Urban areas					
	Punjab			All-India			Punjab			All-India		
	Acute	Chronic	Any	Acute	Chronic	Any	Acute	Chronic	Any	Acute	Chronic	Any
Male												
0-14	70	6	76	46	3	50	81	5	85	51	3	54
15-39	47	7	54	27	8	35	65	10	75	28	7	35
40-59	40	26	66	42	22	64	44	33	77	36	24	61
60+	73	97	171	95	86	178	71	123	194	65	85	148
All	55	15	71	41	13	54	67	17	84	39	13	51
Female												
0-14	46	4	50	43	3	45	57	6	**64**	47	3	49
15-39	55	16	69	36	9	45	47	25	72	37	9	45
40-59	73	53	126	48	27	75	46	75	120	42	31	73
60& above	74	107	181	90	73	161	96	153	242	73	94	166
All	57	25	81	44	14	57	52	34	86	43	15	58
All												
0-14	59	5	64	45	3	48	71	6	76	49	3	52
15-39	51	11	61	32	9	40	57	17	73	32	8	40
40-59	56	39	95	45	24	69	45	52	96	39	27	66
60+	73	102	176	93	80	170	83	137	217	69	89	157
All	56	20	76	42	13	55	60	25	85	41	14	54
No. of ailing persons												
Estimated (00)	7716	2755	10406	269773	84301	352625	3778	1572	5331	82712	28141	110527
Sample	748	294	1038	16511	5321	21732	494	270	763	9855	3862	13675

Source: 'NSS, 52nd Round (July 1995-June 1996)", *Morbidity and Treatment of Ailments* , NSSO, Department of Statistics, Government of India, November 1998.

Morbidity, Level of Living and Social Groups

Table 10 shows the relationship between reporting of morbidity and level of living as measured by monthly per capita consumption expenditure (MPCE). A positive association between MPCE and PAP (proportion of ailing persons) is observed in both rural and urban areas of India, PAP being higher in rural than in urban areas. In Punjab, no such relationship was observed. Reporting of ailments was generally higher for general castes than Scheduled Castes.

Table 10
Number of Persons Reporting Ailments During a Period of 15 Days per 1,000 Persons by Fractile Groups of MPCE and Social Groups: Type of Ailment: Any

Mpce and social groups	Rural areas						Urban areas					
	Punjab			All-India			Punjab			All-India		
	Male	Female	Persons	Male	Female	Persons	Male	Female	Persons	Male	Female	Persons
Mpce fractile groups												
0-10	87	58	73	44	40	42	26	33	29	42	40	41
10-20	93	45	62	40	39	40	44	41	42	42	47	45
20-40	83	53	68	45	49	47	82	85	84	47	55	51
40-60	58	48	54	50	55	52	55	58	56	50	55	52
60-80	67	80	73	56	62	59	82	92	87	51	65	57
80-90	65	78	71	66	72	69	70	100	83	58	76	66
90-100	76	93	84	83	91	86	158	136	149	71	71	71
All	71	81	76	54	57	55	84	86	85	51	58	54
Social groups												
ST	-	129	72	42	43	42	266	146	227	42	47	45
SC	71	71	71	52	55	54	81	51	67	49	57	53
Others	71	88	79	56	60	58	81	98	89	52	59	55
No. of ailing persons												
Estima-Ted (00)	5139	5267	10406	175224	177401	352625	2858	2473	5331	54264	56263	110527
Sample	515	523	1038	10832	10900	21732	383	380	763	6767	6908	13675

Source: 'NSS, 52nd Round (July 1995-June 1996)', *Morbidity and Treatment of Ailments*, NSSO, Department of Statistics, Government of India, November 1998.

Table 11 shows the number of persons who reportedly received medical treatment for ailments. It is evident that medical treatment of ailments was much higher in Punjab in both rural and urban areas than in India among all the age groups. While figures for treated episodes was higher for males, the picture in Punjab was much better than in India in terms of different age groups and sex. In most of the categories, a direct relationship exists between the MPCE and number of episodes receiving treatment. No such trend is noticeable in Punjab. Among the social groups, the Scheduled Caste population was slightly less active in availing treatment for ailments in rural areas, and vice versa for general population in urban areas.

Table 11
Number of Persons Classified by Age, Sex, MPCE and Social Groups Reportedly Receiving Some Medical Treatment for Ailments (Per 1000 Ailing Persons) (type of ailment: any)

Socio-economic characteristics	Rural areas						Urban areas					
	Punjab			All-India			Punjab			All-India		
	M	F	P	M	F	P	M	F	P	M	F	P
Age-groups												
0-14	996	980	990	850	832	842	942	938	940	934	910	903
15-39	998	995	996	861	839	849	964	977	970	903	919	927
40-59	999	999	999	831	813	822	1000	975	986	897	905	904
60+	976	943	959	788	748	769	990	964	976	891	915	872
All	994	986	990	838	816	827	965	965	965	910	855	907
Mpce fractile group												
0-10	1000	1000	1000	724	759	741	1000	1000	1000	820	807	813
10-20	1000	1000	1000	790	755	773	1000	634	820	878	863	870
20-40	916	1000	949	825	783	803	993	934	964	909	895	902
40-60	1000	931	972	830	794	812	959	982	970	920	905	912
60-80	998	993	995	838	823	830	944	978	960	928	918	923
80-90	997	989	993	868	852	860	994	1000	997	962	946	954
90-100	997	986	992	915	894	905	963	956	961	898	933	914
All	994	986	990	838	816	827	965	965	965	910	903	907
Social groups												
ST	-	1000	1000	801	766	784	1000	940	988	878	925	902
SC	988	985	987	837	827	832	978	954	969	939	895	916
Others	998	987	992	842	818	830	958	968	963	907	904	905
No. of ailing persons												
Estimated(00)	5109	5194	10303	146793	144753	291546	2759	2387	5147	49405	50820	100525
Sample	506	510	1016	8960	8807	17767	371	371	743	6138	6211	12349

Source: 'NSS, 52nd Round (July 1995-June 1996)', Morbidity and treatment of ailments, NSSO, Department of Statistics, Government of India, November 1998.
Note: M- Males, F-Females, P-Persons

Reasons for Untreated Episodes of Illness

Table 12 shows the percentage distribution of untreated episodes of sickness classified by reasons for non-treatment. A large majority of households (83% in rural areas and 93% in urban areas) reported that treatment was not sought since the ailments were not considered serious. Financial reasons were cited by very few (6% in rural areas and 2% in urban areas in Punjab as compared to 15% and 10% respectively at the all-India level).

Table 12
Distribution of Untreated Spells of Sickness Classified by Reasons for Non-Treatment (in Percent)

Reasons for no treatment	Rural		Urban	
	Punjab	India	Punjab	India
No medical facility	1.29	2.86	-	0.13
Lack of faith in system of medicines	3.09	1.93	1.96	1.81
Long waiting	-	0.33	-	1.05
Financial reasons	6.24	15.27	2.09	9.57
Ailments not considered serious	82.66	74.61	93.18	81.13
Other reasons	6.72	5.00	2.77	6.31
All	100.0	100.0	100.0	100.0

Source: 'NSS, 42nd Round', *Morbidity and Utilization of Medical Services,* July 1986-June 1987

HEALTH-SEEKING BEHAVIOUR/UTILIZATION OF HEALTH CARE SERVICES

Health-seeking behaviour or utilization of health care services is influenced largely by the access to health facilities, individual and family beliefs and attitudes related to illness and the system of medicines, cost of treatment and individual capacity to pay. The following section is an attempt to analyze the health-seeking behaviour in the context of preventive and curative health care services for non-hospitalized (outdoor) and hospitalized (indoor) episodes of illnesses and the related behavioral aspects grouped by socio-economic factors, type of treatment preferred, choice of public/private or voluntary sector, and the cost of treatment.

Preventive and Curative Services by Source of Treatment

Table 13 sums up the role of public and private sector for the provision of contraceptive, preventive and curative services. It clearly shows that public sector essentially plays a crucial role in providing preventive services for contraception and immunization, but the private sector dominates in provision of curative services or institutional deliveries. The table clearly shows that the private sector caters more to the urban population than to the rural population. It shows that 88 per cent of all children (93% in rural areas) received vaccinations from the public sector. The survey revealed that the share of the private health sector in immunization has a direct relationship with urbanization, mother's education (at least high school), caste (higher share in general caste), and households with a high standard of living. As for curative services, the table shows that a large majority of households (86%) in Punjab normally visits the private medical sector. Its use is much higher in Punjab (86%) than in the country as a whole (69%). Overall, three types of health providers are generally used as a source of treatment by almost all the households. Forty-seven per cent households preferred treatment from private doctors, 38 per cent from private hospitals and clinics, and nine per cent from government/municipality hospitals. Moreover, the pattern of service utilization is similar for both rural and urban areas. The type of health care services used is influenced only slightly by the standard of living of the households concerned. The private sector is the dominant health care service provider for households of all standards of living, with 81 per cent of even households with a low standard of living usually relying on this sector for health care when a household member falls ill. Use of government dispensaries as a source of care declines sharply form nine per cent among households with a low standard of living to only two per cent among households with a high standard of living. Likewise, more people visit private nursing homes than government hospitals for institutional deliveries (29.6% as against 7.6% of the total deliveries).

Table 13
Share of Public and Private Sector in Contraceptive, Preventive, and Curative Services
(in Percent)

Type of service	Share of public sector			Share of private sector		
	Rural	Urban	Total	Rural	Urban	Total
All contraception	**75.2**	**40.3**	**64.3**	**18.5**	**45.4**	**26.9**
Male sterilization	100.0	100.0	100.0	0.0	0.0	0.0
Female sterilization	98.0	88.2	96.1	1.8	11.2	3.6
IUD	53.0	35.5	45.3	47.0	64.5	54.7
Oral Pills	28.1	16.7	24.5	62.6	69.8	64.9
Condoms	14.6	5.9	10.0	53.4	63.0	58.5
Childhood vaccination	**92.7**	**72.3**	**87.5**	**6.7**	**27.7**	**12.0**
Percent share in institutional delivery	**7.1**	**9.3**	**7.6**	**24.5**	**46.8**	**29.6**
Usual source of Health care	**14.2**	**13.0**	**13.8**	**85.5**	**86.6**	**85.9**

Source: *National Family Health Survey-2, Punjab* , India 1998-99
Note: The totals will not add up to 100 due to the presence of other categories

Type of Treatment Preferred for Hon-Hospitalized Illnesses

The household survey of health care utilization and expenditure (NCAER, 1993) points out that for non-hospitalized illness episodes, Allopathic treatment is the most preferred form of treatment in both rural and urban areas of Punjab. Table 14 highlights the fact that the allopathic system of medicine is preferred more in Punjab than in the country as a whole. For instance, Ayurvedic/Siddha, Unani methods are preferred by none in rural Punjab, but at the all-India level nearly four per cent households prefer such methods. The reason for not preferring the Indian system of medicine and Homeopathy (ISM&H) is probably the lack of importance attributed to it or its inadequate health infrastructure.

Table 14
Non-hospitalized Illness Episodes by Type of Treatment (in per cent)

System of medicines	Rural areas		Urban areas	
	Punjab	India	Punjab	India
Allopathic	97.3	90.9	94.9	93.2
Homeopathic	1.4	2.0	0.7	2.9
Ayurveda/Siddha	0.0	3.8	2.3	2.2
Unani	0.0	0.2	0.0	0.1
Any combination	1.4	2.0	2.	1.2
Rituals	0.0	0.6	0.0	0.3
Others	0.0	0.5	0.0	0.2
Total	100.0	100.0	100.0	100.0

Source: NCAER, *Household Survey of Health Care Utilization and Expenditure*, March 1995

Non-hospitalized Illnesses, Source of Treatment and Payment Mechanism

Table 15 shows the distribution of non-hospitalized illness episodes by type of treatment. This is slightly more favourable to the private sector in rural areas both in Punjab and at the all-India level. However, if we look at the health-seeking behaviour of the urban population, the share of public sector in Punjab is much less (18.2% males and 28.8% females) than in India (34.7% males and 33.2% females). People in Punjab believe less in obtaining treatment from a medical shop or store in the adjoining area, which is the usual practice in other parts of India. Moreover, households in Punjab do not believe in going to faith healers or religious persons for treatment.

Table 15
Non-hospitalized Illness Episodes Classified by Type of Treatment (in Percent)

Type of facility	Rural areas				Urban areas			
	Punjab		India		Punjab		India	
	Male	Female	Male	Female	Male	Female	Male	Female
Public facility	42.2	42.6	40.2	43.3	18.2	28.8	34.7	33.2
Private facility	57.8	57.4	54.5	50.8	78.5	69.8	58.9	60.9
Medical shop	0.0	0.0	2.6	3.7	1.5	1.4	5.5	5.0
Faith/healer/ religious person	0.0	0.0	0.7	0.3	0.0	0.0	0.3	0.2
Home remedies	0.0	0.0	2.0	2.0	1.7	0.0	0.7	0.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: NCAER, *Household Survey of Health Care Utilization and Expenditure,* March 1995.

The 52nd round (1995-96) of NSSO collected data on the curative aspects of health care system in India and the MCH programme. For Punjab, these are based on a sample survey of 4,216 (2,227 rural and 1,989 urban) households. When compared to the 42nd round data (1986-87), the share of the government sector has fallen drastically during

the two rounds from 12% to 7% and 11% to 6% in rural and urban areas respectively. Though trends at the all-India level too indicate a fall in the share of the government sector, the gap is not as wide as in Punjab (Table 16). The trend is similar at the all-India level, with the exception of rural and urban areas of Andhra Pradesh, urban Bihar and urban Maharashtra. The share of the government sector for management of non-hospitalized illness episodes at all-India level was 2.7 times higher in rural areas and 3.3 times higher in urban areas compared to Punjab according to the recent round. These findings are comparable to NFHS data.

Table 16
Non-hospitalized Ailments Treated by Government Sources (in Percent)

State/Country	Rural		Urban	
	52nd Round	42nd Round	52nd Round	42nd Round
Punjab	7	12	6	11
India	19	21	20	24

Source: 'NSS, 52nd Round (July 1995-June 1996)', *Morbidity and Treatment of Ailments*, NSSO, Department of Statistics, Government of India, November 1998.

NSS 42nd round data also collected information on the payment mechanism. Table 17 shows that less people obtained no-payment treatment or free treatment in both the rural and urban areas of Punjab than in India. Payment was made to government or private institutions by 66 per cent of the households in rural areas in Punjab compared to 46 per cent in India, and by 65 per cent of the households in urban Punjab as compared to 44 per cent in India. From the above data, it can be easily inferred that in Punjab people are willing to pay for the treatment received. The average duration of treatment per episode by source of treatment indicates that the treatment span was a little longer in the rest of India than in Punjab and slightly less in urban areas and in the private sector than in the government sector. (Table 20)

Table 17
Distribution of Treatments (not as an in-patient) Classified by Type of Institution and Payment Category (in Percent)

Payment category/institution	Rural		Urban	
	Punjab	All-India	Punjab	All-India
Payment category				
No payment	29.19	49.14	20.79	42.26
Under employer's medical welfare scheme	4.47	5.21	13.99	13.74
Percent reportedly made payment to institutions				
Government institutions	24.94	12.42	24.66	12.65
Private institutions	41.40	33.23	40.56	31.35
All (Government and Private)	66.34	45.65	65.22	44.00
Total	100.0	100.0	100.0	100.0

Source: 'NSS, 42nd Round', *Morbidity and Utilization of Medical Services,* July 1986-June 1987

Table 18 illustrates the distribution of non-hospitalized cases by the type of treatment and type of medical services (medicines, X-ray, ECG, other diagnostic test, surgery and other treatment). It clearly shows that the distribution was more in favour of the private than the public sector. Less people availed free services from government or other sources in Punjab than in India in all the categories stated above.

Table 18
Distribution of Non-hospitalized Cases (Not treated as In-patients) during the last 15 days by Type of Medical Service and Type of Ward of Government and Other Institution (per 1000 ailments)

Type of medical service	Government				Other				No. of cases treated
	Free	Partly free	Paying	All	Free	Partly free	Paying	All	
Medicines									
Punjab (rural)	6	11	53	70	0	3	927	930	986
India (rural)	60	26	96	182	17	6	796	819	15949
Punjab (urban)	15	3	54	72	8	20	899	927	730
India (urban)	73	20	81	174	20	7	799	826	11472
X-ray, ECG, Scan etc.									
Punjab (rural)	9	-	58	67	12	-	921	933	24
India (rural)	48	9	128	185	39	6	770	815	654
Punjab (urban)	43	-	225	268	3	-	729	732	26
India (urban)	137	11	99	247	42	11	699	752	777
Other Diagnostic Tests									
Punjab (rural)	43	-	20	63	4	-	933	937	47
India (rural)	129	7	66	202	56	38	705	799	1606
Punjab (urban)	77	-	31	108	71	-	821	892	58
India (urban)	138	7	66	211	55	4	731	790	1704
Surgery									
Punjab (rural)	17	-	95	112	21	-	866	887	7
India (rural)	75	1	72	148	77	3	772	852	225
Punjab (urban)	-	-	-	-	5	-	995	1000	7
India (urban)	128	4	51	181	126	6	685	817	211
Other treatments									
Punjab (rural)	149	-	34	183	8	-	809	817	21
India (rural)	165	9	102	276	64	26	635	725	1237
Punjab (urban)	25	-	-	25	5	-	971	976	17
India (urban)	136	11	74	221	72	14	694	780	1041

Source: 'NSS, 52nd Round (July 1995-June 1996)', *Morbidity and Treatment of Ailments*, NSSO, Department of Statistics, Government of India, November 1998

Hospitalized Illnesses, Source of Treatment and Payment Mechanism

Table 19 shows the distribution of hospitalized cases by type of treatment and payment category. It clearly indicates that lesser number of people visit government sector hospitals both in India and Punjab. Only 26 per cent hospitalized cases in urban areas and 37 per cent in rural areas visited government hospitals in Punjab as compared to 42 and 44 per cent respectively in India. The data also reveals that more people were willing to pay in both rural and urban areas of Punjab than in India.

Table 19
Distribution of Hospitalized Cases (Treated as an In-patient) during Last 365 Days Classified by Type of Ward of Government and Other Hospital and Residential Status of the Household (per 1000 ailments)

Area	Government				Other				No. of cases treated
	Free	Paying General	Paying Special	All	Free	Paying General	Paying Special	All	
Medicines									
Punjab (rural)	235	135	7	377	33	529	17	579	542
India (rural)	388	41	8	438	28	411	91	529	14029
Punjab (urban)	159	102	5	265	28	608	61	696	504
India (urban)	347	55	16	419	35	372	146	553	12497

Source: 'NSS, 52nd Round (July 1995-June 1996)', *Morbidity and Treatment of Ailments*, NSSO, Department of Statistics, Government of India, November 1998.

COST OF TREATMENT

It is well established that cost of treatment is an important determinant for the choice of health care. The following section attempts to show the differences in cost of treatment by type of illness (non-hospitalized or hospitalized), system of treatment (allopathic or other) and the socio-economic characteristics of the households.

For Non-hospitalized Illness Episodes

The NSS 42nd round (1986-87) suggests that for non-hospitalized illnesses, the cost of treatment was much less in the private sector than the public sector in both rural and urban areas of Punjab and all-India (Table 20). Outdoor treatment being cheaper in the private sector than in the public sector clearly implies that private sector as such is striving to provide curative services at lesser cost than the public sector. Another possible reason for lesser cost per episode in private sector may be the lesser treatment span in private sector as revealed in the table.

Table 20
Average Total Expenditure Per Treatment by Source of Treatment

Expenditure/duration	Rural areas		Urban areas	
	Punjab	India	Punjab	India
Average total expenditure (in rupees)				
Government	99.09	114.75	92.90	103.39
Private	83.05	84.93	76.61	91.30
Average total duration of illness (in days)				
Government	11.9	13.2	11.8	13.3
Private	10.1	12.2	9.3	11.5

Source: 'NSS 42nd Round', *Morbidity and Utilization of Medical Services*, July 1986-June 1987

NCAER (1990) indicates that the cost of medical treatment was the highest for the Allopathic system of medicines in both India and Punjab (Table 21). However, it was less for Punjab than for India. One surprising factor emerging from this table is that the private sector provides services at a competitive price compared to the public sector. The cost of treatment in the private sector is, however, much higher in both rural and urban areas of India than in Punjab. The table also indicates that the cost of medical treatment increases with the distance covered by the patient. It is usually higher for males and boys than for females and girls in Punjab as well as in India. At least two-thirds of the cost of medical treatment is towards fees and medicines. The costs of clinical tests in rural areas are higher than in urban areas.

Table 21
Average Cost of Treatment per Illness Episode Classified by System of Medical Treatment, Type of Treatment, Distance, Sex (in Rupees), and Break-up of the Medical Expenses (in Percent)

Characteristics	Rural areas		Urban areas	
	Punjab	India	Punjab	India
System of medical treatment				
Allopathic	133.27	167.04	142.53	150.87
Homeopathic	75.41	125.03	108.40	136.26
Ayurvedic	30.69	91.10	74.19	104.16
Rituals	0.00	165.94	0.00	118.09
Self-medication	0.00	18.98	46.99	48.22
Source of medical care				
Government hospitals	119.12	187.32	124.45	123.79
ESI hospitals	-	161.11	140.00	94.88
Private hospitals and clinics	142.28	154.31	131.23	175.21
PHC	37.69	119.38	80.48	120.82
Charitable dispensaries	-	81.82	-	204.99
Medical stores	50.69	130.43	168.73	97.99
Others	6.80	71.13	87.32	115.17
Distance (in Kilometres)				
< 1	77.57	87.05	93.27	111.75
1-2	132.33	98.81	103.57	131.78
3-5	81.83	130.96	236.89	172.47
6-10	78.39	171.71	145.59	288.46
10+	-	274.70	1017.12	421.02
Sex				
Males	114.43	151.79	161.67	159.02
Females	77.27	212.26	121.13	161.00
Boys	78.64	96.59	74.15	99.02
Girls	33.19	87.23	64.43	82.56
Total	98.44	151.81	128.72	142.60
Percent break-up of medical expenses				
Fees and medicines	65.29	65.74	71.02	64.75
Clinical tests	13.14	4.28	3.92	5.79
Surgery	0.00	2.79	0.00	3.01
Hospitalization	5.12	4.45	5.11	4.64
Special diet	9.04	6.42	11.05	7.40
Rituals	0.25	2.27	1.46	1.47
Transport	3.61	6.76	5.36	4.98
Bribes and tips	0.55	1.47	2.19	1.86
Others	3.00	5.82	11.10	6.10
Total	100.00	100.00	100.00	100.00

Source: NCAER, *Household Survey of Medical Care*, May-June 1990.

The NCAER data (Table 22) show the average cost of treatment for non-hospitalized illnesses by systems of and type of medical treatment, distance, sex and per cent break-up of medical expenses. It is evident that the treatment cost for non-hospitalized illness-episodes was slightly higher in a private medical facility than in a public facility. One surprising factor that emerges is that the cost of treatment through a public facility is much higher in Punjab than in India, but through a private facility, it is the other way round. The cost of treatment increases with the increase in distance from the place of treatment in India but it is not so in the rural areas of Punjab. It is higher for males and boys than females and girls in Punjab as well as in India. The table also indicates that fees and medicines alone account for at least two-thirds of the total cost of treatment. Clinical tests are more expensive in both rural and urban areas of Punjab than in India.

Table 22
Average Cost of Treatment per Illness Episode for Non-hospitalized Illnesses Classified by System of Medical Treatment, Type of Treatment, Distance, Sex (in Rupees), and Break-up of the Medical Expenses (in Percent)

Characteristics	Rural areas		Urban areas	
	Punjab	India	Punjab	India
Average expenditure per illness episode for non-hospitalized illnesses				
Males adult	79.75	113.65	91.11	134.08
Females adult	46.91	101.43	143.34	126.40
Male children	85.51	60.06	116.95	77.18
Female children	76.36	44.79	19.74	60.71
Total	70.46	90.48	116.84	113.93
Source of medical care				
Public facility	62.42	49.08	92.23	62.90
Private facility	76.37	130.06	125.27	152.19
Medical shop	-	21.24	89.91	23.02
Faith/healer/religious person	-	65.82	-	77.21
Home remedy	-	8.00	-	14.95
Duration of illness (in days)				
< 5	40.01	32.71	43.21	45.27
6-10	44.57	56.59	49.98	81.62
11-20	86.96	109.95	138.66	163.18
21-30	233.59	176.02	416.46	217.34
>30	125.54	346.93	632.96	385.45
Total	64.58	79.32	110.58	102.51
Distance (in Kilometres)				
< 1	77.57	87.05	93.27	111.75
1-2	132.33	98.81	103.57	131.78
3-5	81.83	130.96	236.89	172.47
6-10	78.39	171.71	145.59	288.46
10+	-	274.70	1017.12	421.02
Percent break-up of medical expenses				
Fees and medicines	66.1	71.3	69.3	77.6
Clinical tests	13.7	4.4	14.0	6.9
Special diet	3.2	8.1	5.7	8.2
Rituals	2.8	0.9	2.2	0.5
Transport	10.4	14.5	6.8	6.5
Bribes, tips and miscellaneous	3.8	0.8	1.0	0.3
Total	100.00	100.00	100.00	100.00

Source: NCAER, *Household Survey of Health Care Utilization and Expenditure*, March 1995.

The survey conducted during the 52nd Round of NSS reveals that the cost of treatment has gone up in the private sector in Punjab as compared to the government sector for non-hospitalized illness-episodes in rural areas, but is still lower than in India. In urban areas of Punjab, the cost of treatment in the government sector is much higher than in India. Some sort of malpractices cannot be ruled out in this regard (Table 23).

Table 23
Average Medical and Other Related Expenditure (for Non-hospitalized illness Episodes) per Treated Illness during the Last 15 Days Classified by Source of Treatment (in Rupees)

Source of treatment	Rural areas		Urban areas	
	Punjab	India	Punjab	India
Government	153	129	205	166
Other	179	186	160	200
All	175	176	162	194

Source: 'NSS, 52nd Round (July 1995-June 1996)', *Morbidity and Treatment of Ailments*, NSSO, Department of Statistics, Government of India, November 1998

For Hospitalized Illness Episodes

Table 24 clearly indicates that the share of the private sector in hospitalized cases in both rural and urban areas of Punjab is much higher than the all-India figures (47% as against 32% in rural areas and 43% as against 30% in urban areas). Charitable institutions, nursing homes and other non-specified institutions treat five per cent and eight per cent of the hospitalized cases in rural and urban areas of Punjab respectively compared to eight per cent and ten per cent respectively at the all-India level. In Punjab, lesser people avail a free ward for hospitalization. People in Punjab prefer to pay. Ninety-two per cent of the people paid for hospitalization expenses in Punjab in both rural and urban areas as compared to 71 per cent and 67 per cent respectively in India. While 23 per cent and 20 per cent indoor patients in rural and urban areas respectively in India did not pay, only three per cent and one per cent respectively in Punjab did not do so. Data on the average number of days stayed in hospital indicate that rural people stay much longer than their counterparts in urban areas of Punjab. The private sector takes less number of days for treatment than the public sector.

Table 24
Percentage Distribution of Hospitalized Cases by Type of Hospital, Type of Ward for Punjab, All-India

Characteristics	Rural		Urban	
	Punjab	All-India	Punjab	All-India
Type of hospital				
Public hospital	45.46	55.40	48.37	59.51
PHC	2.03	4.34	0.40	0.75
Private hospital	47.14	31.99	43.21	29.55
Charitable institutions run by public trust	1.97	1.71	3.22	1.91
Nursing home	1.66	4.86	2.01	7.04
Others	1.74	1.70	2.79	1.24
Type of ward				
Free	46.30	60.71	46.10	55.22
Paying general	47.55	32.46	41.24	31.79
Paying special	6.15	6.83	12.66	12.99
System of medicines				
Allopathic	99.22	98.50	97.81	98.52
Homeopathic	0.23	0.30	-	0.25
Ayurvedic	-	0.51	1.64	0.42
Unani/Hakimi	0.10	0.22	-	0.28
Any combination of these	-	0.11	-	0.10
Others	0.45	0.36	0.55	0.43
Payment category				
No payment	2.66	23.16	1.02	19.61
Employer's Medical Welfare Scheme	4.95	6.18	7.41	12.95
Reporting payment to institutions	92.39	70.66	91.58	67.44
Average number of days stayed in the hospital by type of hospital and ward				
Government hospitals				
Free Ward	19.78	17.30	17.63	17.49
Paying General Ward	24.29	19.37	16.11	17.03
Paying Special Ward	23.29	22.66	10.52	17.07
Private hospitals				
Free Ward	9.61	11.12	8.30	16.46
Paying General Ward	10.74	12.49	9.22	10.39
Paying Special Ward	15.00	12.98	14.93	13.60
Total	100.0	100.0	100.0	100.0

Source: 'NSS 42nd Round', *Morbidity and Utilization of Medical Services*, July 1986-June 1987.

As against the NSS 42nd round, NCEAR indicates that the distribution of hospitalized cases is more in public facility than in private in both the rural and urban areas of Punjab and India (Table 25). The survey points out that almost the entire rural population (95%) of Punjab is dependent on public facilities for treatment of hospitalized illness-episodes.

Table 25
Percent Distribution of Hospitalized Illness Episodes by Type of Treatment

Type of facility, treatment and distance	Rural areas		Urban areas	
	Punjab	India	Punjab	India
Reported number of hospitalized cases by sex (per '000 persons)				
Male	22.2	8.4	12.4	10.9
Female	5.7	5.5	16.6	8.4
Total	14.2	7.1	14.3	9.7
Distribution of hospitalized cases by type of treatment				
Public facility	95.3	62.0	67.2	60.1
Private facility	4.7	38.0	32.8	39.9
Total	100.0	100.0	100.0	100.0
Average distance traveled for seeking in-patients (in kilometers)				
Public sector facility	9.0	18.6	3.5	5.7
Private sector facility	15.0	18.7	5.4	6.2
All	9.3	18.7	4.1	5.9

Source: NCAER, *Household Survey of Health Care Utilization and Expenditure,* March 1995

NSS 52nd round data (Table 26) indicate that the percentage of beds available in government hospitals is higher than the number of patients treated.

Table 26
Number of Hospitalized Treatment Received from Public Providers per 1000 Episodes

State/Country	Rural	Urban	Percentage of beds in government hospitals
Punjab	394	276	74
India	453	431	65

Source: 'NSS, 52nd Round (July 1995-June 1996)', *Morbidity and Treatment of Ailments*, NSSO, Department of Statistics, Government of India, November 1998.

The cost of treatment for hospitalized or indoor patients in the private sector is nearly three times higher in rural Punjab and 5.4 times in urban Punjab as against 2.3 times and 3.1 times in rural and urban areas respectively in India (Table 27). The data further reveal that the General Ward in a private hospital would cost slightly higher than in a government hospital.

Table 27
Average Total Expenditure (in Rupees) per Hospitalized Episode Classified by Type of Hospital

Type of hospital/ward/duration/expenditure	Rural areas		Urban areas	
	Punjab	India	Punjab	India
Type of treatment				
Government	409.75	320.34	277.86	385.02
Private	1212.17	733.38	1497.34	1206.01
All	896.80	597.06	977.79	933.33
Average total expenditure (in rupees) per hospitalized case by type of hospital				
Government hospitals				
Free Ward	1088.76	630.40	880.38	582.12
Paying General Ward	1303.19	1040.21	1682.51	1412.11
Paying Special Ward	2471.15	1482.62	1326.64	1268.08
Private Hospitals				
Free Ward	1750.16	665.65	1058.46	975.21
Paying General Ward	1407.42	1031.15	1948.85	1393.26
Paying Special Ward	3575.16	1637.85	3001.23	2862.86
Average no. of days in the hospital	**15.4**	**15.5**	**13.7**	**15.2**
Average total expenditure	**1402.01**	**853.23**	**1599.84**	**1182.95**

Source: ' NSS, 42nd Round', *Morbidity and Utilization of Medical Services* , July 1986-June 1987.

Household survey of health care utilization and expenditure (1995) also collected information on the breakdown of expenditure. If we look at the average cost of treatment per illness-episode for hospitalized illness by type of treatment (Table 28), we find that it is generally lower in Punjab than in India in both rural and urban areas. The difference is lower, when one compares the average cost of treatment in the private sector in Punjab with that of India. For example, the difference in cost of treatment between public and private sector is 1.8 times and 3.6 times in rural and urban areas of Punjab respectively against 3.5 times and 5.1 times in rural and urban areas at the all-India level.

Table 28
Average Cost of Treatment Per Illness Episode for Hospitalized Illness by Type of Treatment

Type of treatment	Rural areas		Urban areas	
	Punjab	India	Punjab	India
Public	434.21	535.20	372.81	452.55
Private	762.50	1877.21	1357.31	2318.84
Total	449.62	1044.49	696.03	1196.87

Source: NCAER, *Household Survey of Health care Utilization and Expenditure*, March 1995.

Table 29 describes the health-seeking behaviour across different social groups. It classifies the type of services, viz., free, paying general and paying special, by social groups and adult education. The share of the three services (free, paying general and paying special) start decreasing in urban and rural areas of Punjab, but the share of general cases keeps on rising with higher paying capacity.

Table 29
Percentage Distribution of Hospitalized Cases Defined by Social Groups and Adult Education Classes by Type of Hospital and Type of Ward for Rural and Urban Sectors in Punjab

Social group/ education	Rural				Urban			
	Type of ward				Type of ward			
	Free	Paying general	Paying special	All	Free	Paying general	Paying special	All
Social Group								
ST	-	-	-	-	-	11.65	-	2.15
SC	37.53	30.63	3.45	35.42	32.51	24.58	3.98	30.37
Neo-Buddhist	1.03	-	-	0.86	-	-	-	-
Others	61.44	65.05	96.55	63.14	67.49	63.77	96.02	67.48
Adult Education								
Illiterate	24.15	29.43	7.29	24.27	14.28	16.74	-	14.39
>1<5	3.99	2.68	34.54	33.85	16.74	9.11	12.59	61.56
5<10	36.67	34.54	14.90	35.63	38.70	12.59	9.03	33.17
10+	35.19	33.85	77.81	36.43	37.81	61.56	90.97	43.47
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: 'NSS 42nd Round', *Morbidity and Utilization of Medical Services*, July 1986-June 1987.

The survey conducted during the 52nd Round of NSS reveals that the cost of treatment in government hospitals is much higher in Punjab than in the rest of India and vice versa for hospitals other than government. In absolute terms, the cost of hospitalized

treatment in the private sector is higher than in the rest of India. However, in relative terms the difference between the cost of treatment in private hospitals is 2.1 times and 2.4 times higher in rural and urban areas of India compared to public hospitals, the difference at 1.7 times and 1.1 times is much less in rural and urban areas of Punjab respectively (Table 30). Given the relative efficiency and better care, people are no doubt shifting towards the private sector.

Table 30
Average Medical and Other Related Expenditure (for Hospitalized Illness Episodes) per Treated illness during Last 365 Days Classified by Source of Treatment (in Rupees)

Source of treatment	Rural areas		Urban areas	
	Punjab	India	Punjab	India
Government	3645	2080	5436	2195
Other	6171	4300	6130	5344
All	4988	3200	5712	3921

Source: 'NSS, 52nd Round (July 1995-June 1996)', *Morbidity and Treatment of Ailments, NSSO*, Department of Statistics, Government of India, November 1998.

HEALTH OF VULNERABLE POPULATION

The mother and the child constitute the vulnerable sections of our society due to their heavy dependence on others for getting health care. Mothers in the state are burdened with the responsibility of adopting family planning methods. Of the total sterilizations performed in 1999-2000, the share of female sterilizations was 99 per cent. Lack of availability of the right kind of health care and of awareness about upbringing of children can lead to high morbidities and mortalities among them.

Realizing the importance of the mother and the child towards the overall future development of the state, concrete steps have been taken in a planned manner through different Five Year plans. The Family Planning Board was established in the state as early as 1958. However, a focused approach was taken up during the Fifth Plan (1974-79), when mother and child health, nutrition and family planning were introduced in an integrated manner. The beginning of the nineties brought about a change towards improving the quality of individuals, particularly women and children. In 1992-93, the state government adopted the child-survival and safe-motherhood programme. In 1994, during the ICPD conference at Cairo, major emphasis was laid on social development beyond family planning. The major goal was to provide health care to the mother and the child through the Reproductive and Child Health Programme. The Cairo conference stated the reproductive health care as 'a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity, in all matters related to the reproductive system…'. India being a signatory to this conference also implemented the Cairo Declaration with complete earnestness.

In 1996, the Child Survival and Safe Motherhood Programme was incorporated into the Reproductive and Child Health Programme. During this period, the focus was shifted to providing quality health services. Numerical targets for sterilization and immunization were given up and provision of quality services was stressed under the Target Free Approach (renamed as Community Needs Assessment Approach). In the absence of its own policy for taking care of the mother and the child, the state government is following the guidelines set by the Ministry of Health and Family Welfare, Government of India in the form of policies or programmes.

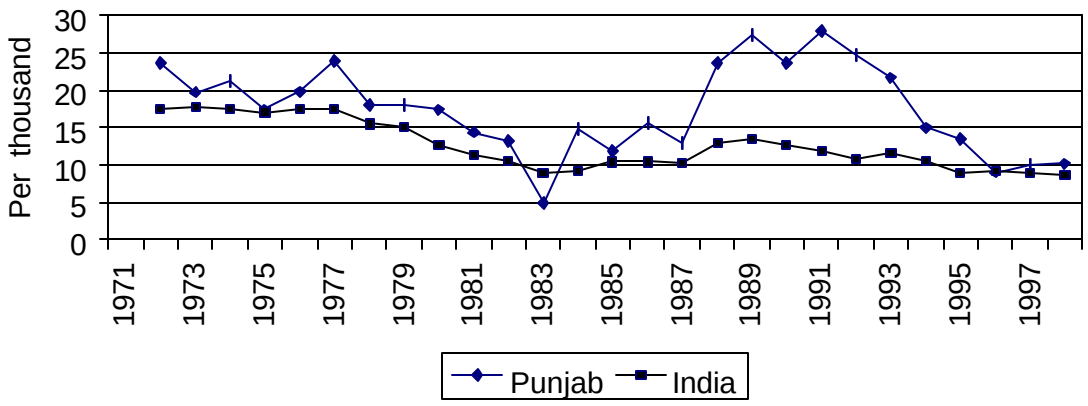
Maternal Care and Management

The declining sex ratio, especially in the 0-6 years age group (793 per 1000 live births), high maternal mortality rate and a large section of anaemic women (41%) indicate the poor condition of women in the state. Sex-selective abortions in the state, which have picked up during the last decade, will further deteriorate the health of women. Even though estimates of the repeated abortions that a woman undergoes are not available, its high prevalence in the state cannot be denied. Besides the psychological trauma the woman undergoes, her physical health also deteriorates. This could result in higher maternal mortality rates. The National Population Policy 2000 has set a target of reducing the MMR to below 100 by the year 2010, which the state aspires to achieve. This reinforces the urgency of ensuring that all pregnant women receive adequate antenatal care and deliveries take place under hygienic conditions with the assistance of trained medical practitioners. Further, meticulous post-partum care needs to be imparted to the mother and the child to help them to recoup and adjust to the new environment.

Antenatal Care

Antenatal care monitors the progress of pregnancy, identifies, and treats maternal complications. It also helps in identifying high-risk pregnancies reflected in imbalances in height, weight, immunization patterns, anaemia levels and age at the time of giving birth. In Punjab, 2.5 per cent females are susceptible to high-risk pregnancies as they get married before the age of 18 years. One out of every four women in Firozpur and Muktsar districts marries before 18 years of age.[21] Among other high risk factors such diseases as tuberculosis, measles, and hypertension at the time of pregnancy, can result in various deformities, premature births and still-births.

Figure 13
Still-birth Rate in Punjab and India 1971-1999



Source: Registrar General, India, *Compendium of India's Fertility and Mortality Indicators (1971-1997) based on Sample Registration System (SRS), 1999*.

[21] *Sample Registration System Statistical Report, 1998*. Registrar General, India, New Delhi, 1998 and *District Wise Social Economic Demographic Indicators,* National Commission on Population, New Delhi, 11th July 2001, p. 26.

The inadequacy of antenatal care services provided to women, besides other factors, is reflected in the generally higher still-birth rate in Punjab, than the national average. During 1986-1991, the still-birth rate almost doubled, from 12.9 to 24.7 per 1,000. Inadequate antenatal care is evident also from the NSS 42nd round, wherein just one-fourth of the women in rural and urban Punjab were receiving antenatal care.[22] Antenatal care also plays a significant role in reducing premature births. Three per cent of the women in the state with no antenatal care reported premature births as against 2.7 per cent with antenatal care of one to three visits (NFHS, 1998-99). In South Indian states antenatal care is higher than in the North Indian states.

Utilization of antenatal care services in Punjab has declined from 88 per cent to 74 per cent during 1992-93 and 1998-99 (Table 31). The decline in the number of women receiving at least one antenatal check-up needs immediate intervention, to reduce still-births, underweight births and other complications leading to increased maternal mortality rates. The use of tetanus toxoid increased from 83 per cent to 90 per cent and of iron and folic acid tablets from 74 per cent to 80 per cent during 1992-93 to 1998-99.

Table 31
Antenatal Care Indicators, Punjab and India (per cent)

Antenatal care indicators	1992-93		1998-99	
	Punjab	India	Punjab	India
Percentage of women receiving ANC	87.9	62.3	74.0	65.4
Percentage receiving two doses of tetanus toxoid vaccine	82.7I	53.8	89.9	66.8
Percentage receiving iron/folic tablets	73.6	50.5	79.6	57.6

Source: *National Family Health Survey*-1 and 2, Punjab, India, 1992-93 and 1998-99

One out of every four women did not avail antenatal care services in Punjab as against one out of three at the national level in 1998-99 (Table 32). Differences in rural-urban bias in the utilization of antenatal care services are evident at both state and national levels. Non-utilization of antenatal care services in rural areas is three times higher than in urban areas at the state level as well as at the national level. Absenteeism of medical/paramedical staff from duty at the primary health centre and below is a matter of concern and a major cause for lack of adequate antenatal care services being provided to pregnant women, as observed during field studies carried out by the Population Research Centre, CRRID, in different districts of Punjab. Further, with the ANM's manifold duty chart, with particular emphasis on promoting family planning acceptance to bring down the birth rate, antenatal care services have become secondary. There is need to redefine her job responsibilities and to increase the involvement of the multipurpose health worker (male) in the sub-centre's duties.

22. NSS, 42nd Round (1986-87), *Sarvekshana*, issue No. 432, Volume XIII, NO. 4, April-June 1990, p. S-99.

Table 32
Antenatal Care Check-ups and Stage of Pregnancy, Punjab and India (per cent)

Number and timing of check-ups	Punjab			India		
	Urban	Rural	Total	Urban	Rural	Total
0	9.7	30.8	26.0	13.6	39.8	34.0
1	0.8	2.8	2.3	6.0	8.8	8.2
2	6.7	17.0	14.7	10.5	14.1	13.3
3	13.9	15.9	15.4	14.5	14.2	14.3
4+	68.9	33.5	41.6	54.7	22.4	29.5
Not know/missing				0.7	0.8	0.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
Median number of check-ups (for those who received at least one antenatal check-up	4.8	2.9	3.5	4.2	2.5	2.8
Stage of pregnancy at the time of the first antenatal check-up						
No antenatal check-up	9.7	30.8	26.0	13.6	39.8	34.0
First trimester	67.7	35.1	42.6	55.1	26.6	33.0
Second trimester	20.1	31.4	28.8	24.2	25.5	25.2
Third trimester	2.5	2.6	2.6	6.9	7.6	7.4
Not know/missing				0.2	0.4	0.4
Total	100.0	100.0	100.0	100.0	100.0	100.0
Median months pregnant at first antenatal check-up (for those who received at least one antenatal check-up)	2.7	3.5	3.2	3.0	3.9	3.5
Number of births	207	693	900	7191	25202	32393

Source: *National Family Health Survey*-2, Punjab, India 1998-99
Note: Table includes only the two most recent births during the three years preceding the survey

The preferred place for availing antenatal care services in the state is a doctor or other professional outside the home. At the national level, 15.4 per cent of rural women availed antenatal care services at home as against 1.9 per cent in the state, in 1992-93 (Table 33). However, by 1998-99 the percentage of women availing antenatal services at home, both in rural and urban areas, had drastically declined. Outside home, a higher proportion of Scheduled Caste women avail services of other health professionals, while other caste women avail those of a doctor. Among women in rural Punjab, a trend of not availing antenatal care is emerging, besides a decline in the share of women seeking care from trained personnel. This is an area of concern for the improvement of the health status of females.

Table 33
Sources of Antenatal Care during Pregnancy, Punjab and India (per cent)

Sources	Punjab				India			
	1992-93		1998-99		1992-93		1998-99	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Antenatal check-up only at home from health worker	1.9	1.5	0.8	0.0	15.4	3.9	6.6	2.0
Antenatal check-up outside home from								
Doctor	29.4	50.3	34.8	63.1	31.1	69.6	41.2	74.8
Other health professionals	55.0	40.4	33.6	27.2	10.0	7.2	11.5	8.8
Trained birth attendant	0.2	0.6	-	-	0.3	0.4	0.3	0.2
No antenatal care Checkup	13.6	7.2	30.8	9.7	42.4	17.8	39.8	13.6

Source: *National Family Health Survey*-1 and 2, Punjab, India 1992-93 and 1998-99

Availability of the various testing instruments, such as weight, height, blood pressure and urine at the rural health centres can further promote utilization of antenatal services in the state. It is imperative to upgrade the skill of the para-medical staff through training programmes, during which specific counselling techniques can be discussed for further dissemination among the community.

Natal Care

Natal care determines the quality of care in providing women a safe, clean, hygienic environment and services of trained personnel who can efficiently cut the umbilical cord, for the safe delivery of the child. This period is extremely vital and protection against sepsis in the mother and neonatal tetanus in the infant is crucial and needs to be taken care of, as it has a direct bearing on maternal and infant health. In the state, 46.7 per cent infant deaths are due to birth injury.[23] This reinforces the view that it is important to have skilled attendance and preferably institutional deliveries, which reduce many risks associated with the process of delivery and thereafter.

Three out of every five women in the state give birth to a child at home. Traditionally, the first delivery of the woman is conducted at her parent's house. This seems to be followed more strictly in rural than in urban areas. The share of home deliveries in rural and urban areas of the state have declined by 10 and 19 per cent respectively, during 1992-93 to 1998-99. The shift towards delivery in medical institutions is a healthy trend (Table 34), but there is a long way to go to get the desired results. Besides rural-urban differentials in deliveries, caste-wise differences are also evident. A higher proportion of Scheduled Caste women deliver their babies at home (78%) followed by Other Backward Class women (67.2%) and other caste women (47.5%) (NFHS, 1998-99).

Table 34
Place of Delivery by Residence, Punjab and India (per cent)

Place of delivery	Rural				Urban			
	Punjab	Punjab	India	India	Punjab	Punjab	India	India
	NFHS-1	NFHS-2	NFHS-1	NFHS-2	NFHS-1	NFHS-2	NFHS-1	NFHS-2
Public institution	10.2	7.1	10.0	12.5	8.1	9.3	30.2	29.1
NGO/Trust	-	0.3	-	0.5	-	0.0	-	1.5
Private institution	11.1	24.5	6.0	11.6	28.1	46.8	27.4	34.5
Own home	64.2	59.4	69.5	60.5	56.0	42.3	34.6	27.6
Parents' home	14.0	8.7	13.4	13.8	7.2	1.7	6.9	6.3
Other	0.4	-	0.5	1.0	0.6	-	0.5	1.0
Do not know	-	-	0.5	-	-	-	0.4	-
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: *National Family Health Survey*-1 and 2, Punjab, India 1992-93 and 1998-99

Traditionally, childbirth has been viewed as a regular physiological process not requiring any medical intervention. Thus, the dais or traditional birth attendants were not expected to have any training besides experience. Though they have never been a formal part of the public health delivery system, they have now been trained to perform deliveries under hygienic conditions. To ensure hygiene and avoid any complications of infections, the health department in the state has equipped dais with disposable delivery kits. The proportion of institutional deliveries is still very low and faith in dais is still very strong in rural areas (42%). In contrast, doctors are preferred in urban areas (48.4%); ANM/LHV is the next preferred attendant assisting during delivery in urban and rural areas (NFHS 1998-99).

[23] Registrar General, India, 1995, *Family Welfare Programme in India, Year Book, 1997-98*, Department of Health and Family Welfare, Government of India, New Delhi

The SRS 1995 figures show a low proportion of institutional births and a high proportion of births being attended by trained personnel. The recent NFHS surveys revealed that one-fourth of the total deliveries (25.0%) were conducted in medical institutions in 1992-93, which by 1998-99 had increased to a little less than two-fifths (37.5 %) (Table 35). Similar results were reported by the National Sample Survey's 42nd round. According to it, four-fifths of the deliveries were being conducted at home in both rural and urban Punjab. The proportion of home deliveries declined to 77.5 per cent in rural and to 60.6 per cent in urban areas as reported by the NSS 52nd round.

Table 35
Natal Care Indicators in Punjab and India (per cent)

Natal care indicators	1992-93		1998-99	
	Punjab	India	Punjab	India
Percentage of births delivered in medical institutions	24.8	25.5	37.5	33.6
Percentage of deliveries assisted by health professionals	48.3	34.2	62.6	42.3

Source: *National Family Health Survey*- 1 and 2, Punjab, India 1992-93 and 1998-99

District-level variations in the type of assistance at the time of delivery are evident; Kapurthala, Ludhiana and Jalandhar districts had a higher proportion of women receiving skilled attention (Table 36) at the time of delivery (87.6%, 85.9% and 84.4% respectively) as compared to Nawanshahar, Muktsar and Mansa districts (68.5%, 57.7% and 57.7% respectively). This can be attributed to differences in the availability of improved health facilities and the paying capacity of the population in these districts.

Table 36
Women Receiving Skilled Attention during Pregnancy (per cent)

Name of the district	Per cent safe Delivery	Name of the district	Percent safe delivery
Kapurthala	87.60	Sangrur	72.3
Ludhiana	85.90	Firozpur	72.0
Jalandhar	84.40	Moga	70.0
Rupnagar	83.8	Gurdaspur	69.50
Patiala	83.60	Hoshiarpur	69.5
Faridkot	83.30	Nawanshahr	68.5
Fatehgarh	78.7	Muktsar	67.7
Bathinda	74.40	Mansa	57.6
Amritsar	73.10		

Source: District Household Survey: *Reproductive and Child Health Survey*, 1998-99, IIPS, Mumbai.
National Commission on Population, *District Wise Data*, Government of India, 2001

The target of achieving 80 per cent institutional deliveries and 100 per cent deliveries by trained personnel set by the NPP-2000 is still a distant dream for Punjab.

With the increasing impact of urbanization and the level of standard of living, privatization of maternity care, both in rural and urban areas, is evident in the state. A narrowing of the public sector and widening of the private sector for deliveries is emerging even among Scheduled Caste women. In 1992-93, one out of every ten Scheduled Caste women gave birth in a private institution as against one in every six in 1998-99.

During 1992-93 to 1998-99, the number of caesarian section deliveries doubled from 4.1 per cent to 8.2 per cent (NFHS I and II). According to the NSS 52nd round, deliveries through operations were more in urban (8.3 per cent) than in rural (5.7 per cent) areas of the state. Inadequate antenatal care and non-identification of high-risk pregnancies, coupled with vested economic interests of private practitioners, are some of the reasons for the promotion of caesarian section births in the state.

The Ninth Plan was particularly committed towards providing essential primary health care and emergency life-saving services. The 'maternity benefit scheme for women below poverty line up to two child norm', under the National Social Assistance Programme, was also initiated during this period in an attempt to take care of pregnant women. Thus, care during domiciliary delivery can be further enhanced to achieve our goal of reducing MMR to 20 per 1,000 live births by the year 2007. Considering the target of the Tenth Five Year Plan (2002-2007) to reduce the MMR to 20 per 1,000 by 2007 and to 10 per 1,000 by 2012, it is important to prioritize medical attention at birth, inadequacy of which contributes to high MMR.

Post-natal Care

Post-natal care for the mother and the child has far-reaching consequences on the former's health. Post-natal care must ensure a total state of physiological and psychological well-being of the mother. This is the period when she is recouping her health, while the child is adjusting from a protected to an exposed environment and hence, chances of occurrence of reproductive health problems among women are high.

NSSO 42nd round reveals that of the one-fourth women registering for prenatal check-up, both in rural and urban Punjab, less than one-fifth registered for post-natal care, while NSS 52nd round reported that there were 24.3 per cent women in rural and 33.5 per cent in urban Punjab registering for post-natal care (Table 37), with the public dispensary as the preferred place for rural mothers and public hospital for urban mothers. This clearly reveals that if the facilities are further improved and provided round the clock, attendance to these institutions will increase and in turn improve maternal and child health.

Table 37
Percentage of Mothers Registered for Post-natal Care by Type of Medical Institutions in Punjab and India

Percentage of mothers registered/type of institutions	Punjab (42nd round)		Punjab (52nd round)		India (42nd round)		India (52nd round)	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Percentage of mothers registered	11.58	13.11	24.3	33.5	12.60	23.76	24.2	39.9
Public hospital	29.84	25.13	17.6	44.5	20.51	39.37	32.5	42.1
Primary health Center	-	1.98	18.8	2.5	10.44	3.30	33.5	6.5
Public dispensary	-	-	41.2	17.5	1.16	0.53	4.5	2.1
Primary/private hospital	8.32	18.92	10.6	23.5	16.44	22.95	12.5	22.9
Nursing home	-	9.87	6.2	5.8	0.92	7.68	4.5	14.6
Charitable institution	-	-	-	2.7	0.34	0.73	0.5	1.4
ESI doctor/AMA	-	-	-	-	-	-	0.8	0.5
Private doctor	5.05	4.19	4.3	2.8	9.97	9.88	8.6	7.8
Lady Health Visitor	38.70	20.26		-	21.85	4.40	-	-
Others	12.58	12.80	0.6	-	1.71	1.92	0.7	0.9
Total	100	100	100	100	100	100	100	100

Sources: 'NSS 42nd Round (July 1986-June 1987)', Survey on Maternity and Child Health Care, *Sarvekshana*, Issue no. 47, Vol. XIV (April-June, 1991)
NSS 52nd round, July 1995-June 1996, *Maternal and Child Health Care in India,* NSSO, Department of Statistics, Government of India, December 1998.

Literacy level of women plays a vital role in their availing and comprehending the value of post-partum services. Women belonging to other castes have availed such services more often (24.3%) than Scheduled Caste women (17.3%) [24].

Coordinated efforts by health providers and policy-makers are essential to provide maximum medical and paramedical staff to ensure antenatal, natal and post-natal care to the community at large, to improve the health status of the mother and the child.

Underweight Children: The impact of lower antenatal care in the state is reflected in the number of underweight children. Punjab ranks 14th and Bihar 1st with 62.2 per cent underweight children.[25] This reflects on the nature of health and nutritional care being provided to the mother during pregnancy. In 1992-93, little less than one-third of the children, who were weighed, were born underweight. By 1998-99, this figure came down to little less than one-fourth (Table 38). In both rounds of NFHS surveys, children in rural areas were more prone to be born underweight than their counterparts in urban areas. The all-India pattern was more or less the same as in Punjab. This can be attributed to the availability of weighing machines at the time of birth. This can be further achieved by promoting institutional deliveries, in which newborn babies would be weighed, besides creating awareness of getting the children weighed at the time of birth.

Table 38
Under-weight Children at the Time of Birth, Punjab and India (per cent)

State	Less than 2.5 kg.	2.5 Kg. Or more
1992-93		
Punjab	28.6	71.4
Rural	31.0	69.0
Urban	25.4	74.6
1998-99		
Punjab	23.8	76.2
Rural	25.3	74.7
Urban	21.6	78.4
1992-93		
India	26.0	74.0
Rural	24.7	75.3
Urban	26.3	73.7
1998-99		
India	22.7	77.3
Rural	23.9	76.1
Urban	21.1	78.9

Source: Calculated from NFHS 1 and 2

Reproductive Health Problems: Reproductive health problems are those inhibiting the ability of men and women to achieve their reproductive goals. Among all the states of India, in Punjab, 28.3 per cent of women have reproductive health problems as against 19 per cent in Karnataka and 28 per cent in Tamil Nadu. Women rely more on private health care services (46.5%) than the public health sector (17.6%) (NFHS 1998-99) for the treatment of such problems. Considering the confidential nature of the problem,

---

24 *National Family Health Survey-2*, *Punjab*, India 1998-99

25 Gopal, Krishan, (1997) `Spatial Contrasts in Socio-demographic Profiles of India', *Population Geography*, Volume, 19, No.,1 & 2, June-December 1997.

possibilities of under-reporting seem to exist. Levels of literacy and awareness and non-availability of medical and para-medical staff according to women's convenience could be attributing factors to under- or non-reporting of such problems. Punjab has an existing staff of 105 gynecologists in rural areas, but their availability seems to be sparse, hence, the need to reshuffle them, keeping the real needs of the people in mind. This will prove beneficial not only to the women but also for the achievement of the health goals of the state.

Infertility: Infertility among women is another vital problem, which has a very profound social and psychological impact on the psyche of the women in particular. Treatment facilities for infertility are available only at tertiary-care public units, though the private sector in Punjab is playing a very strategic role in providing treatment for this problem. A need to undertake systematic studies and research on infertility is imperative**.**

Child Health Status

A child is not just a component of a large population, rather it is a component of development. Investments in the improvement of the health status of children would determine the future workforce and quality of life of Punjab. Child health and survival are the most important aspects of the Family Welfare Programme in the state. Every effort is being made to prevent childhood morbidity and mortality by providing different kinds of immunization.

The Infant Mortality Rate (IMR) is an indicator of the status of infant-health and the quality of care being provided in the state. The IMR shows the level of social development and the state of physical quality of life in a particular area. It is also a reflection of the nutrition level of the mother and the child, health-care facilities available in the area, and the level of economic development. Besides other factors, advancement in health services, comprising of preventive care -- immunization services -- and promotive care, in terms of distribution of iron and folic acid tablets and cotrimoxazole, have also played an important role in bringing down the IMR in the state. A constant decline from 1971 to 2000 is evident in Punjab and at the national level, though the decline in the state is slower than the national average. The state's IMR at 52 in 2000 is significantly lower than 68 at the national level. Economic prosperity of the state is not reflected in its IMR level. In comparison with Kerala, the IMR in Punjab is four times higher. This is an expression of the better-health care system in Kerala, besides the high status allocated to women and a higher literacy rate.

Mortality among infants and children, classified as infant mortality, neonatal, post-natal and peri-natal mortality levels have also declined during 1971-1997. This is an indicator of increased child survival rates (Figure 14[26]). Further, according to the National Population Policy 2000, neonatal care has been identified as a priority area and its implementation should be intensified with the help of pediatricians, gynecologists, anesthetists and other public health specialists.

Prevention of childhood mortality was one aim of starting a Universal Immunization Programme in 1985-86 in the state. Immunization trends in Punjab are encouraging. Pulse Polio was given the shape of a drive in 1995 with the 'Pulse Polio Campaign' all over India. Trends, subsequent to that, in Punjab have been continuously upward. In the

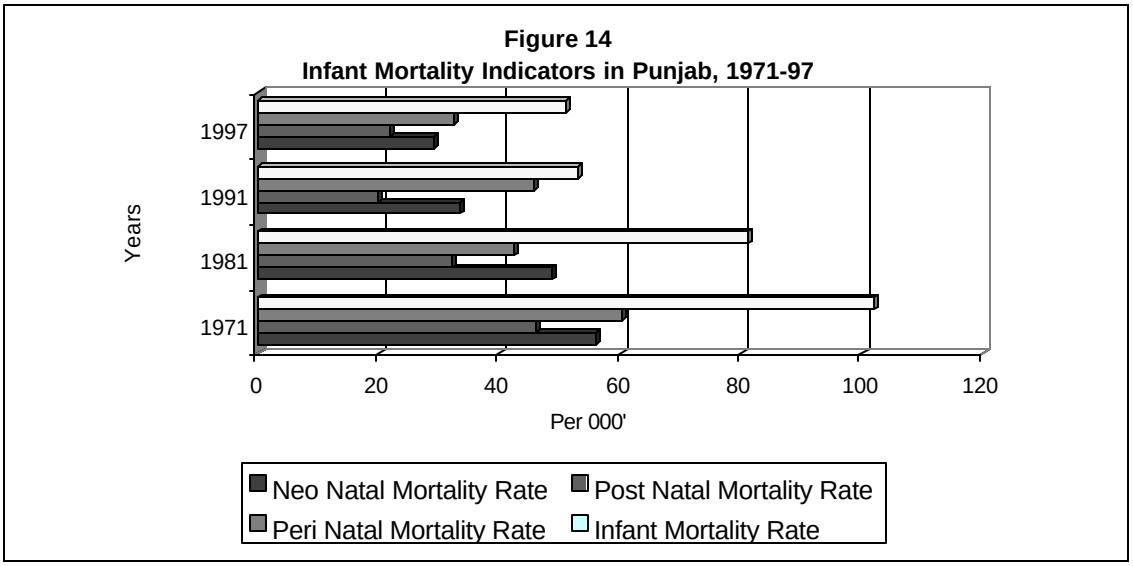
[26] Registrar General, India, *Compendium of India's Fertility and Mortality Indicators (1971-1997) based on Sample Registration System (SRS), 1999.*

Eighth Plan, the Government of India had provided cold-chain equipment and the state government was made responsible for maintaining its requisite temperature, so that the vaccines did not lose their potency. Special grants were allocated subsequently for provision of independent feeder/generator for uninterrupted power supply/solar water heating panels in the hospitals. Subsequent assistance has been sought from the World Bank to further strengthen the immunization project.[27]

Improvement in the vaccination coverage has been confirmed by two National Family Health surveys conducted in Punjab. More than four-fifths of the children have been vaccinated against tuberculosis, diphtheria, pertussis, tetanus and polio by 12 months of age. A higher proportion of urban than rural children have been vaccinated before one year of age. However, a stringent drive against measles is required both in urban and rural health centres to achieve an upward trend. A clear-cut gender bias towards the male child has emerged in the immunization trends in Punjab. Elamon[28] (1998) worked out the gender differentials in child immunization on the data of NFHS (1992-93) and confirmed these results. Gender bias towards the male child is evident from the possession and presentation of immunization cards (NFHS I & II) (Table 39). At the district level, Hoshiarpur and Rupnagar have achieved 90 per cent immunization of children, while Firozpur and Moga districts are lagging far behind.[29]

Caste-wise differential in the immunization services are evident. Four out of every five children belonging to the other category were immunized as against little more than one out of two among Scheduled Castes. A smaller proportion of Scheduled Caste children were immunized against measles (61.1%) and BCG (77.1%) than those belonging to the other category (NFHS, 1998-99).

Figure 14
Infant Mortality Indicators in Punjab, 1971-97



Source: Source: Registrar General, India, *Compendium of India's Fertility and Mortality Indicators (1971-1997) based on Sample Registration System (SRS), 1999*.

27. *Annual Plan, 2001-02*, Ministry of Health and Family Welfare, Government of India, New Delhi

28 Joy, Elamon, (1998), 'Gender Differentials in Child Immunization: A Study Based on NFHS Data', *Journal of Family Welfare,* Vol. 44, No. 3, September 1998)

29. *District Wise Social Economic Demographic Indicators*, National Commission on Population, New Delhi, 11th July 2001, p. 50

Table 39
Vaccination Coverage in Punjab and India (per cent)

Vaccines	Coverage in Punjab		Coverage in India	
	1992-93	1998-99	1992-93	1998-99
B.C.G	77.4	88.7	62.2	71.6
Polio 0	1.7	11.2	4.6	13.1
DPT 1	81.9	88.4	66.3	71.4
DPT 2	78.5	87.3	59.2	65.0
DPT 3	73.6	82.0	51.7	55.1
Polio 1	82.2	90.5	67.0	83.6
Polio 2	78.2	88.5	61.2	78.2
Polio 3	73.4	83.6	53.4	62.8
Measles	64.8	76.5	42.2	50.7
All	61.9	72.1	35.4	42.0
None	17.5	8.7	30.0	14.4
Percentage showing vaccination card	37.8	43.0	30.6	33.7

Source: *National Family Health Survey-1 and 2, Punjab,* India, 1992-93 and 1998-99

Though immunization trends of most of the vaccine-preventable diseases seem optimistic, concerted efforts are necessary to maintain the existing trends, improve on gray areas and aim to achieve 100 per cent immunization for all the vaccines as is the state target.

Acute respiratory infection and diarrhoea: To combat such fatal diseases as Acute Respiratory Infection and diarrhoea among children, the Government of India has initiated such intervention strategies as the ARI to combat pneumonia and Oral Rehydration Therapy to combat diarrhoea. The state government has followed, too. The Oral Rehydration Therapy Programme was started in 1986-87 and is continuing at present Strategies for ARI were developed during 1989, under which health workers were trained in ARI management and cotrimoxazole is being supplied to health worker through the CSSM drug kit.

NFHS II reports that the incidence of ARI and diarrhoea was more in the urban areas of Punjab, while fever and diarrhoea with blood was more in the rural areas. Nine out of every ten children in rural areas and all in urban areas sought treatment for ARI as against three out of every five in rural areas and three out of four in urban areas at the national level (Table 40).

Table 40
Prevalence of Acute Respiratory Infection (ARI), Fever and Diarrhoea among Children under Age Three Years in Punjab and India (per cent)

Percentage of children suffering in the past two weeks from:	Punjab		India	
	Rural	Urban	Rural	Urban
Cough accompanied by fast breathing (ARI)	14.0	15.9	20.3	16.2
Fever	25.8	21.6	29.7	28.8
Any diarrhoea	9.4	11.0	19.0	19.6
Diarrhoea with blood	0.7	0.4	2.9	1.6
Percentage with ARI taken to a health facility or provider	91.6	100.0	61.4	75.1

Source: *National Family Health Survey* 2, Punjab, India, 1998-99.

Children from families with a low standard of living suffer more from diarrhoea and those with a medium standard of living from fever. As far as the knowledge of Oral Rehydration Therapy is concerned 78.1 per cent mothers in rural and 93.3 per cent in urban areas are aware of it. The private medical sector (60.1%) is preferred rather than the public medical sector (36.9%) for procurement of ORS.

Child and adolescent health are areas of vital concern, and has very far-reaching repercussions. The School Health Check-up Programme, as a national programme, can prove to be a major success if its implementation and evaluation is a regular feature at the state level. The School Health Check-up Programme (1996) evaluation conducted in Patiala and Rupnagar districts by the Population Research Centre, CRRID, reveals differential morbidity patterns among rural and urban areas. Children in rural areas suffer from worm-infestation and pyoderma, while in the urban areas anaemia and teeth cavities are more prevalent. To provide comprehensive oral health care, the Intensive Dental Health Programme for school children, teachers and the public was launched in the state in 1989-90. Inter-linkages, developed between the health and education departments, can strengthen the programme and our concern for future development.

Adolescent health care: Adolescence is a period of turmoil and thus requires much more care. The National Population Policy 2000 has highlighted the significance of this age group and their priorities. The NFHS- 1998-99 reveals that adolescent girls (15-19 years) are most anaemic. They are likely to carry this problem into their reproductive age as well. As a result of which they could give birth to anaemic and underweight children. In fact, this becomes a life-cycle disease. Further, very positive figures of reaching targets of immunization against tetanus toxoid of children at 16 years are not available. This indicates lack of initiative among medical staff as well as the community in this area, with respect to this vulnerable section of society, particularly girls who are getting ready for motherhood. A specific programme for provision of access to information and counselling services, pertaining to their health, nutritional and reproductive needs and problems, is an urgent need for adolescents in Punjab. Age at menarche' is a less researched area and a major determinant of the nutritional status of adolescents which calls for indepth research. Adolescent services cells could be made accessible at the primary health centres, to ensure adequate dissemination of information, optimal utilization of services available and guidance.

In all there has been considerable progress in the status of health of children in Punjab, even though scope for further improvements exist. Gender biases are evident in the kind of treatment being provided to the female child. This is an urgent area of intervention. A healthy child is the end-goal of development and thus medical and social programmes need to be considered together.

Role of medical/paramedical staff for MCH services

Centrally sponsored schemes, such as Village Health Guides, are being implemented in the state. The Ministry of Health and Family Welfare, Government of India, has discarded the sponsorship of the VHG scheme, it has been left to the state government to carry it forward if such a need is felt. The Mahila Swasthya Sangha Scheme, with women and childcare as one of its objectives, is currently being implemented in the state.

In Punjab, there are eleven multipurpose health worker (male and female) training schools, but their syllabus and education need immediate and closer attention. There is an imbalance between their education and the real need of the community. Further,

trained manpower is being underutilized by not being absorbed in the government/private medical mainstream.

A wide network of multipurpose health workers is in position in the state, but what is lacking is their qualitative utilization through enforcement, inspection and mobilization. Even though there has been progress in many economic and social spheres, basic services, such as sanitation, cleanliness, adequate water supply and hygiene- are inadequate in Punjab and these are basic requirements for keeping good health. There has been progress on many fronts; nevertheless, the profound changes called for will take some time to accomplish. Along the bumpy road of implementation, doubts about the appropriateness of some of the proposed actions are likely to surface. Yet, political will, dedication and accountability of medical and paramedical staff and the community at large can lead Punjab to success.

NUTRITION AND RELATED ISSUES

Nutrition affects development as much as development affects nutrition (*National Nutrition Policy 1993*). The Constitution of India, Article 47, states that the `State shall regard the raising of the level of the nutrition and the standard of living of its people and the improvement of public health among its primary duties…' The NNP 1993, further advocates a comprehensive, integrated and inter-sectoral strategy for alleviating the multi-faceted problem of malnutrition and achieving the optimal state of nutrition for the people. The policy includes short-term as well as long-term interventions. The direct short-term interventions include:

- Expanding the nutrition intervention net (ICDS,ORT,UIP).
- Empowering mothers with nutrition and health education.
- Reaching adolescent girls.
- Ensuring better coverage of expectant women.
- Controlling micronutrient deficiencies.
- Fortifying essential foods with nutrition.
- Universal coverage of iron and folic acid tablets, vitamin A and iodine deficiency control programme.

From a food-deficit state Punjab has become a food-surplus state, thanks to the green revolution. However, the Nutrition Policy 1993 maintains that increased food production does not necessarily ensure nutrition for all. It is awareness about the `right' kind and `amount' of food intake, which determines the nutritional status of an individual. The major issues of concern about the nutritional status of the people of a state are chronic energy-deficiency and under-nutrition, chronic energy-excess and obesity, micronutrient deficiencies (anaemia, vitamin-A, iodine and fluoride).

Nutritional Status of Adults

Chronic energy-deficiency (CED) grades in adults reflect their nutritional status, and is determined by Body Mass Index (BMI), based on height and body-weight - wt (kg)/ht (mt) 2. Chronic Energy Deficiency is classified as CED-I (BMI range of 17.0 -18.5), CED-II (BMI 16 -17) and CED-III (BMI <16). Low normal-status adults (BMI 18.5 -20), normal-status adults have (BMI 20-25), Obese-I (BMI 25-30) and Obese-II (BMI>30). Little less than one-fourth of the adult population in Punjab suffer from chronic energy-deficiency, of whom a large proportion suffer from mild forms of CED. Obesity is emerging as a

major problem in Punjab, with nearly 15 per cent adults suffering from obesity, which leads to such `major killers' as non-insulin dependent diabetes, coronary artery diseases, cardiovascular diseases and malignancy (Table 41). The National Family Health Survey (1998-99) reported that Punjab has the highest proportion of obese women in India.

Table 41
Distribution of Adults according to Body Mass Index (in per cent)

State	Area	CED III	CED II	CED I	CED Total	Low Normal	Normal	Normal Total	Obese I	Obese II	Obese Total
Punjab	Rural	4.1	5.2	13.7	23.0	19.0	43.2	62.2	12.2	2.6	14.8
India	Rural	8.6	7.8	18.2	34.6	20.9	40.5	61.4	4.1	0.7	4.1
	Urban	6.8	6.1	14.7	27.7	18.4	47.9	66.3	5.4	0.6	6.0
	Total	8.2	7.4	17.3	32.9	20.4	42.1	62.5	3.8	0.7	4.5

Source: *India Nutrition Profile*, Department of Women and Child Development, Ministry of Human Resource Development, Government of India. (1998)

One-third of the adults in Bathinda suffer from CED as against 28 per cent in Sangrur. Adults in Kapurthala, Jalandhar, Faridkot and Amritsar are reported to be relatively more obese than in the other districts (Table 42). Factors responsible are low awareness about the kind of food to consume and faulty eating habits. Thus, improvement in the situation is possible by checking food consumption patterns of the people of Punjab.

Table 42
Prevalence of CED, Normal and Obese at District Level, Punjab (Rural) (in per cent)

District	CED III	CED II	CED I	CED (T)	Low normal	Normal	Normal (T)	OBESE I	OBESE II	OBESE (T)
Amritsar	3.1	4.3	11.9	19.3	20.4	42	62.4	14.3	4	18.3
Bhatinda	6.9	6.6	18.8	32.3	18.4	34.4	52.8	11.8	3.1	14.9
Faridkot	5.2	6.4	14	25.6	15	37.9	52.9	16.9	4.6	21.5
Ferozpur	5	6	14.3	25.3	20.3	40.4	60.7	11.7	2.3	14
Gurdaspur	6.6	6	16.1	28.7	21.2	38.5	59.7	10.1	1.5	11.6
Hoshiarpur	0.8	3.2	8	12	15.5	61.3	76.8	10.8	0.4	11.2
Jalandhar	2.6	5.1	13.4	21.1	16.5	40.8	57.3	18.2	3.4	21.6
Kapurthala	2.2	2.6	10.7	15.5	15.4	45	60.4	20.1	4	24.1
Ludhiana	2	5.5	11.7	19.2	24.6	53.7	78.3	2.4	0.1	2.5
Patiala	5.8	6.1	14.9	26.8	17	41.1	58.1	11.5	3.6	15.1
Rupnagar	4.2	4.7	15.3	24.2	25.9	47.6	73.5	1.9	0.4	2.3
Sangrur	6.1	6.1	16	28.2	18	35.7	53.7	14.8	3.3	18.1
Punjab	4.1	5.2	13.7	23	19	43.2	62.2	12.2	2.6	14.8

Source: India Nutrition Profile, 1998, *Ministry of Human Resource Development*, Department of Women and Child development, Government of India, New Delhi

Nutritional Status of Women

Maternal nutrition lays the foundation of future child-health. In Punjab, the mean height of women (154.5 cm) is the tallest among all the states in India. As compared to the other states of India the lowest number of women in Punjab (16.9%) suffer from Chronic Energy Deficiency, just after Delhi (12.0%). However, the worrisome factor is that women, susceptible to chronic energy deficiency, fall in the 15-19 age group and they are illiterate and live in rural areas. Scheduled Caste women, with a low standard of living, are more prone to such deficiencies. Among all the states in India, Punjab has the highest proportion of obese women (30.2%) just after Delhi (33.8%) (NFHS, 1998-99). This makes them prone to high-risk pregnancies.

Nutritional Status of Children

Anthropometric data (weight and height) for children under four years are used to classify them as under-nourished. The indices used are weight for age, height for age and weight for height. The current nutritional status of children under four years in the state indicates that less than one-third (28.7%) are underweight, nearly two-fifths (39.2%) stunted in height and less than one-tenth (7.1%) are too thin or wasted (Table 43). Percentage of severe forms of underweight are 8.8, stunted 17.2 and too thin or wasted 0.8**.**

Table 43
Nutritional Status of Children

State	Weight for age				Height for age				Weight for height			
	% below –3SD		% below –2SD[1]		% below -3SD		% below -2SD[1]		% below -3SD		% below –2SD[1]	
	1992-93	1998-99	1992-93	1998-99	1992-93	1998-99	1992-93	1998-99	1992-93	1998-99	1992-93	1998-99
India	20.6	18	53.4	47	28.9	23	52	45.5	3.2	2.8	17.5	15.5
Punjab	14.2	8.8	45.9	28.7	15.7	17.2	40	39.2	2.8	0.8	19.9	7.1

Source: *National Family Health Survey-1 and 2.*

Note : 1 Also includes the children who are below –3 Standard deviations from the International reference population median

Though the nutritional status of children has improved since the last NFHS, conducted in 1992-93, except for the height for age wherein children are more stunted than in 1992-93. Female children were found to be more under weight, stunted and thin than male children. At the national level, more females were underweight and stunted and male children too thin or wasted. The problem was more profound in rural than in urban areas in the state as well as at the national level.

Table 44
District Level Prevalence of Underweight, Stunting and Wasting among Children (1-5 years), Punjab (rural), 1998

District	Underweight			Stunting			Wasting		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Amritsar	46.7	47.5	47.1	61.5	60.8	61.2	5.1	5	5.1
Bhatinda	52.9	60.3	56.1	57.9	63	60	6.9	12.3	9.1
Faridkot	49.2	46.3	47.9	63.9	53.8	59.5	1.6	6.5	3.8
Ferozpur	52	58.5	54.8	65.6	78.2	71.3	10.7	3.8	7.6
Gurdaspur	51.9	68.6	59.5	61.8	65.1	63.3	12.8	16.3	14.1
Hoshiarpur	18.6	18.9	18.7	48.5	41.5	45.5	4.3	5.7	4.9
Jalandhar	39.3	36.3	37.9	66.4	66.7	66.5	2.4	2.9	2.6
Kapurthala	38.5	35.3	37.1	58.1	59	58.5	6	7.9	6.9
Ludhiana	62.9	62.7	62.8	33.4	48.1	40.9	49.4	38.5	43.9
Patiala	54.9	52.2	54	60.4	41.3	54	17.6	17.4	17.5
Rupnagar	87.1	78.9	83.2	74.4	50.7	63.1	32	40.8	36.3
Sangrur	46.7	43.3	45.1	58.6	59.7	59.1	2.7	13.4	7.7
Punjab	49.6	51	50.3	60	59.2	59.7	11.4	13.1	12.1

Source: *India Nutrition Profile*, 1998, Ministry of Human Resource Development, Department of Women and Child Development, Government of India, New Delhi

Among the districts of Punjab, rural Rupnagar reported the highest percentage of underweight children, while Firozpur the highest percentage of stunted (short for their ages) children and Ludhiana the maximum percentage of wasted children (Table 44).

Micronutrient Deficiencies

Anaemia: Anaemia or iron and folic acid deficiency is one of the micronutrient deficiencies, which needs constant vigil and special mention. Its consequences are very far-reaching, particularly among children. Anaemia in a child leads to impaired cognitive performance and behavioural and motor development and ultimately affects his academic performance. Anaemia also leads to reduced immunity and increased morbidity of children.[30] NFHS-II reported that in Punjab 80.0 per cent of the children in the age group 6-35 months were anaemic of which 5.9 per cent were severely anaemic, while the corresponding percentages at the all-India level were 74.3 and 5.4 respectively. Children in the age group 24-35 months reported the highest level of anaemia (79.3%) in the state. Anaemia levels were also higher among the rural (80.9 %) and Scheduled Caste (86.1%) children in Punjab.

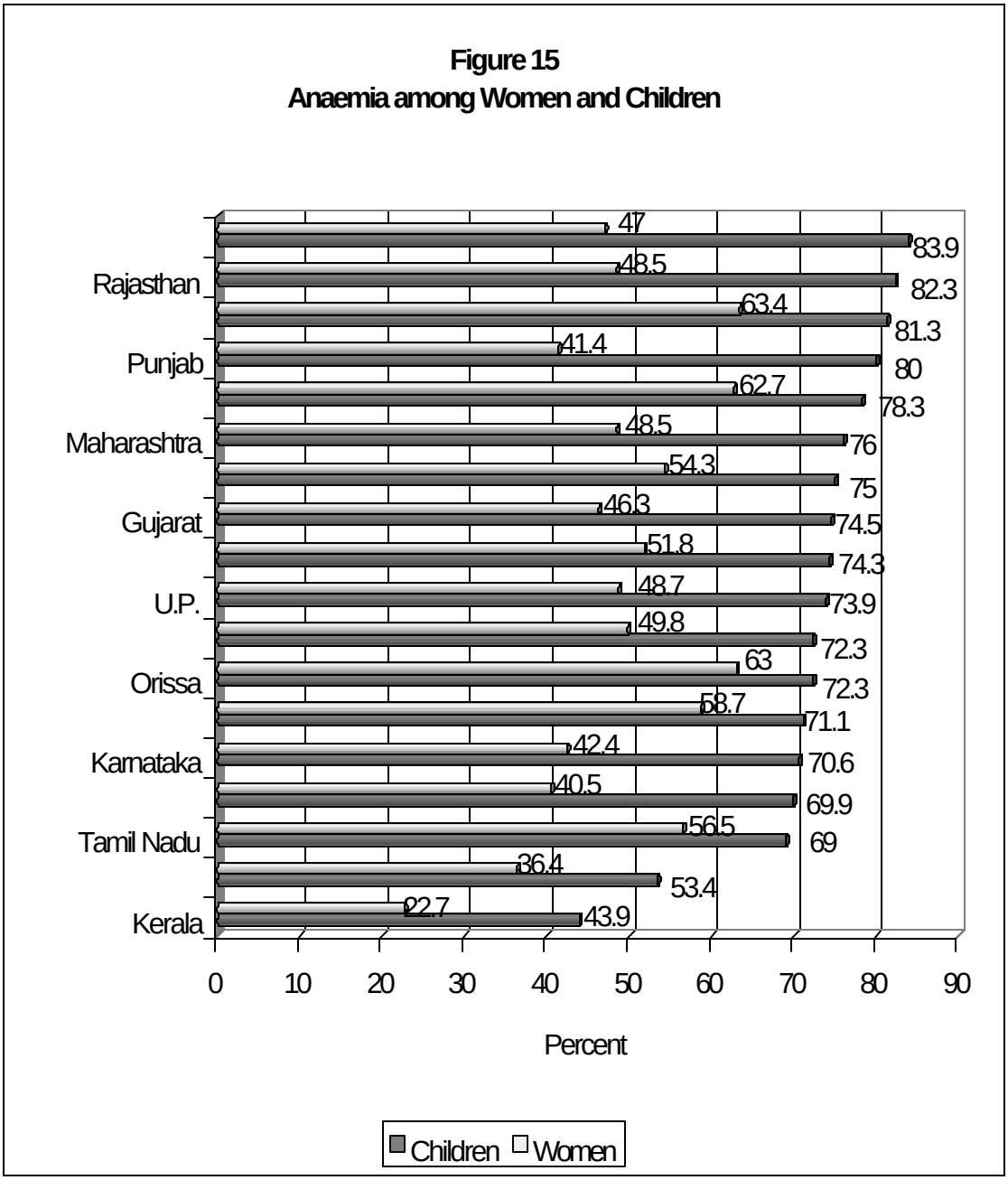
Anaemia among pregnant women leads to maternal mortality, risk of premature delivery and low birth-weight. In Punjab 41.4 per cent women suffer from anaemia, of whom 0.7 per cent are severely anaemic. At the national level the corresponding percentages are 52 and 1.9. A high percentage of women in the 15-19 age group are anaemic (56.0%). A higher percentage of anaemic women are illiterate (55.8%) and live in rural areas (53.9%).[31] To combat nutritional anaemia, prophylaxis distributed among pregnant women has surpassed the set target since 1980-81. However, the provision of prophylaxis against nutritional anaemia for children of 1-3 years has reached 62.3 per cent of the target set by the Directorate of Health, Government of Punjab (2000-01). There has been a continuous decline in the provision of prophylaxis against anaemia for children since 1980-81.

---

30. Subadra Seshadri (1997) `Nutritional Anaemia in South Asia', In Stuart Gillespie (ed.), M*alnutrition in South Asia: A Regional Profile*. Kathmandu: Regional Office for South Asia, UNICEF.

31 *National Family Health Survey-2, Punjab*, India 1998-99

Figure 15
Anaemia among Women and Children



Source: *National Family Health Survey-2*, Punjab, India, 1998-99

Fluoride deficiency: Prolonged intake of water containing excess fluoride causes the crippling disease called fluorosis. Prolonged ingestion manifests itself as dental, skeletal and non-skeletal fluorosis. Malnourished children, pregnant women and lactating mothers are especially vulnerable to fluorosis. In Punjab 8.9 per cent of the population are at risk (21 lakh) as against 6.9 per cent population (6.66 crore) at the national level.[32] The INP[33] revealed that in rural Punjab there were 2.8 per cent persons suffering from

[32] *Mitigating Fluorosis Through Safe Drinking Water*, Data sheets, UNICEF

[33] *India Nutrition Profile*, Ministry of Human Resource Development, Department of Women and Child Development, Government of India, New Delhi, 1998.

dental fluorosis. Interventions include a diet rich in calcium, Vitamins C, E and antioxidants.

Iodine deficiency: Iodine is a vital micronutrient. Iodine-deficiency disorders have been identified as a public health issue and accorded importance since the mid-twenties. The National Iodine Deficiency Disorders Control Programme has concentrated on ensuring the consumption of iodized salt. NFHS-II (1998-99) reports that in Punjab three-fifths of the households use iodized salt. Scheduled Castes and persons living in rural areas with a low standard of living do not use iodized salt.

Vitamin-A deficiency: Vitamin-A deficiency can lead to blindness. Hence, its prevention and control is being carried out by administering doses of the vitamin-A to children under three years of age. Provision of Vitamin-A solution to children is a shared responsibility of the health department of the state and the ICDS staff. The achievement of Punjab's health department on administering Vitamin-A drops to children in 1998-99 was 96.97 per cent.

Food Consumption Patterns

A study of the food consumption patterns of a community is imperative to ascertain its nutritional status. The NSSO carried out sample surveys in 1971-73 (27th round), 1981 (38th round) and 1991-94 (50th round) to assess the consumption of calories, proteins and fats. According to these surveys, consumption of calories and proteins declined in both rural and urban areas of Punjab during 1971-1994 (Table 45). But the consumption of fats in rural Punjab increased from 50 kcal in 1971-73 to 52 kcal in 1981 and then to 59.8 kcal in 1993-94.

Table 45
Per Capita Intake of Calorie, Protein and Fat per Diem in Punjab and India (NSS rounds)

Area	Calorie according to			Protein according to			Fat according to		
	27th round	38th round	50th round	27th round	38th round	50th round	27th round	38th round	50th round
	1972-73	1983	1993-94	1972-73	1983	1993-94	1972-73	1983	1993-94
	(Kcal)	(Kcal)	(Kcal)	(0.0Gm)	(0.0Gm)	(0.0Gm)	(0.0Gm)	(0.0Gm)	(0.0Gm)
Punjab									
Rural	3493	2677	2418	85	79	74.7	50	52	59.8
Urban	2783	2100	2089	70	63	61.8	52	49	53.7
India									
Rural	2266	2221	2153	62	62	60.2	24	27	31.4
Urban	2107	2089	2071	56	57	57.2	36	37	42

Source: *Sarvekshana*, Volume 21, No. 2, 73rd Issue, October-December 1997, NSSO, Department of Statistics, Government of India, p.45

In a urban areas of Punjab, the fat intake was more or less the same during the 1972-94. A positive correlation between per capita expenditure and per capita per diem intake of calorie, protein and fats was seen in both rural and urban Punjab (NSSO 50th round, 1993-94). The per capita consumption of milk is 875 grams per day in Punjab.[34] In rural

[34] *Statistical Abstract of Punjab*, Government of Punjab, 2000

Punjab the consumption of milk and its products is much higher than at the national level. Consumption of roots and tubers is higher than that of other vegetables and cereals in rural Punjab, according to the RDA.[35] Thus, the food consumption pattern has very strong social, cultural and economic dimensions.

In spite of the rich dietary pattern and availability of iron and folic acid tablets at the grassroots level, a large proportion of women and children in Punjab suffer from anaemia. Intervention exists today only for pregnant women and children up to six years of age. Inadequate institutional deliveries result in low awareness-levels among women, which indirectly affects infant-feeding practices. Faulty eating habits, type of food consumed (usually fat-rich and high-caloric), overeating and urbanism (the diet remaining unchanged despite work-culture having undergone drastic changes), can result in obesity, which, in turn, leads to various health problems. Obesity may not be perceived as a disease but it lead to hypertension, heart disease, diabetes and cancer and other chronic diseases in women. Hence it needs intervention.[36]

Food consumption pattern among women: As far as the food consumption pattern of women in Punjab is concerned nearly all consume pulses or beans, green leafy vegetables and other vegetables. More than 90 per cent of them consume milk or curd,. though the consumption of fruits, eggs and chicken, meat or fish is a little low. More than two-fifths of the women (41.4%) of Punjab suffer from anaemia. Caste does not seen to determine the pattern of consumption of food. The high standard of living is reflected in increased consumption of pulses, leafy vegetables and other vegetables, roots and tubers, fruits, milk and its products and sugar.[37]

Infant feeding practices: The right kind of infant feeding practices are essential for child health. To monitor nutritional deficiencies in children and to improve their nutritional status, it is necessary to explain the importance of breast-feeding to mothers. The UNICEF recommends breast-feeding immediately after birth. In Punjab six out of hundred mothers breast-feed their child within one hour of birth, while at the national level 15.8 per cent do so. Lack of awareness about the right kind of practices are evident: 87.3 per cent of the mothers in Punjab squeeze out the first milk from their breast, without any knowledge of the value of colustrum in the first milk. Less than two-fifths of the children (36.3%) in the 0-3 months are exclusively breast-fed. In Punjab, 14.2 per cent women, who had their delivery in public hospitals, started breast-feeding within six hours. Breast-feeding within six hours is prevalent among women in urban areas and those belonging to middle and high standards of living.[38] This again reinforces the issue of the advantages of institutional deliveries. This is one area where interventions need to be made in Punjab.

---

35 *India Nutrition Profile*, Department of Women and Child Development, MOHRD, GOI, 1998

36 Meena Kaila (1999) `Health and Lifestyle-- The Veritable Linkage' *Health for the Millions*, Vol., 25, no. 3, May-June 1999.

37 *National Family Health Survey-2, Punjab*, India 1998-99

38 Ibid, p. 255

Government Initiatives

The government has initiated the ICDS to combat malnutrition and other health problems. This scheme provides supplementary nutrition to children below six years of age and to nursing and expectant mothers. Kishori Shakti Yojana for adolescent girls was initiated in three blocks of Punjab in 1999-2000 to help adolescent girls understand and learn the significance of personal hygiene, sanitation, nutrition, first aid, health and nutrition education, family life, child care and development, etc., and to prepare for future healthy motherhood (Tenth Five Year Plan, 2002-07 and Annual Plan 2002-03, Government of Punjab, Department of Planning). The Food and Nutrition Board has been assigned the task of formulating cost-effective recipes that could be sent to all the *Anganwadi* workers, who could disseminate these in the community at large.

The Public Distribution System (PDS) was initiated during the Seventh Plan to ensure food security and equitable distribution of essential goods at subsidized rates. Wheat and rice are being distributed to families below poverty level since 1998-99. The distribution of such essential commodities as wheat flour, rice, levy sugar through fair price shops decreased in 1999-2000 as compared to 1998-99, due to the narrowing of the price-difference gap between the PDS and the market.[39] The state has a network of 14,787 fair price shops as in March 2001.[40]

Prophylaxis against nutritional deficiencies of iron and vitamin-A is provided through the Directorate of Health and Family Welfare and the partly through the ICDS. Iodine deficiency is being monitored by the iodine deficiency cell and by marketing iodized salt.

DISABLED POPULATION

Disability is an impairment, which makes an individual incapable of performing an activity as per the desired norms of normal individuals. Disabled persons are also termed as handicapped, challenged, invalid or sick. Disability not only leaves a deep impact on the psychological state of an individual- but also has very intense social and economic implications associated with it. The disabled have to be given equal rights with the rest of the people. Schemes for them should be such as to enable them play a productive role in the development of the state.

This empathetic view has been evident among the planners right from the Second Five Year Plan onwards. Special allocations have been made for the disabled population in the Five Year Plans for the country as well as for the state. The Sixth Five Year Plan (1980-85) allocated special scholarships ranging from Rs 15 to Rs. 100 per month for persons in the 6-30 years age group who were orthopaedically handicapped, or were deaf and dumb, or blind, and whose parents' or guardians' income was less than Rs 500 per month. A new scheme, Assistance to Disabled Persons- was introduced in the Seventh Plan (1985-90), which further strengthened the existing scheme by providing Rs. 50 per month per beneficiary. Subsequently it was during the Ninth Plan (1997-02) that disabled persons in the age group 16-55 years, who had no means of sustaining themselves, were given an amount of Rs 200 per month each.

---

39 *Economic Survey of Punjab, 2000-2001*.

40 *Economic Survey of Punjab*, 2001-2002.

The 1981 Census had collected information on the disabled population of India, which revealed that 1.2 persons per 1,000 population were disabled in Punjab as against 1.7 at the national level (Table 46). The 1991 Census did not collect any information on the disabled. The 2001 Census has made an endeavour once again to collect such information but the data are still awaited. The Persons With Disability Act 1995 has been introduced since 1 February 1996 to provide social security to the disabled persons. The Act envisages all-round welfare of disabled persons by providing them jobs, right to better living, rehabilitation services and also ensure that they have full protection of their rights and representation at all levels.

Prevalence of disability in Punjab: Figures reveal that Punjab with 1.2 persons per 1,000 population disabled was ranked 28th, while the neighboring state of Himachal Pradesh with a figure of 2.6 was ranked sixth as against the national figure of 1.7 according to the 1981 Census.

Table 46
Disability in Punjab and India

State/Country	Number of disabled per 1000 population	Totally blind	Totally crippled	Totally dumb
Punjab	1.176	46.81	33.05	20.14
Rural	1.376	47.77	32.29	19.94
Urban	0.644	41.32	37.40	21.28
India	1.709	42.78	32.49	24.73
Rural	1.933	43.77	31.43	24.80
Urban	0.977	36.34	39.43	24.23

Source: Census of India, 1981, *The Physically Handicapped, Report & Tables, Series-1, India, Part VII-B*.

The proportion of totally blind among the disabled was higher (48%) than the totally crippled (32%) and totally dumb (19.9%) in the rural areas of Punjab. This was true for urban areas as well. At the district level, in Patiala and Rupnagar, two out of every five disabled were blind as against three out of every five in Kapurthala (Table 47).

Table 47
District-wise Handicapped Population by Type of Disability (1981 Census)

District	Percent Blind	Percent Crippled	Percent Dumb
Gurdaspur	42.33	32.76	24.91
Amritsar	46.86	33.89	19.24
Firozpur	44.21	34.39	21.40
Ludhiana	44.39	34.25	21.36
Jalandhar	52.41	27.18	20.41
Kapurthala	59.68	25.77	14.55
Hoshiarpur	45.32	28.20	25.26
Rupnagar	41.33	31.34	27.32
Patiala	41.29	34.48	24.23
Sangrur	50.26	34.57	15.17
Bhatinda	49.80	33.02	17.18
Faridkot	46.29	40.18	13.53
Punjab	46.80	33.05	20.13

Source: *The Physically Handicapped*, Report & Tables. Census of India, 1981, Series-1, India, Part VII-B.

Measures to control trachoma began from the Fourth Five Year Plan (1969-74) onwards, when it was proposed that the Trachoma Control Programme would be started in Punjab on the recommendation of an ICMR study which had reported that 80 per cent of the

disabled suffered from trachoma in the state. Measures at the state level achieved 90.1 per cent of the target for administering prophylaxis against blindness due to Vitamin-A deficiency in 1982-83 (*Year Book*, 1983-84). This went up to 97 per cent in 1998-99 (Department of Health, Government of Punjab). Cataract surgery to combat blindness had been consistently exceeding the target between 1984 and 1997. An inter-state comparison shows that Punjab tops the list in the percentage of cataract operations conducted. Likewise, cataract surgery rate per lakh population has also been the highest in Punjab (*Health Information: Punjab (1991) and India (1997 and 1998).*

The proportion of disabled population in rural Punjab was the highest among all the states of India as reported by the 36th and 47th rounds of National Sample Survey. It was among the top five states in the number of disabled in urban areas. The NSSO 1991 data reveal that hearing, speech and locomotor disabilities were prevalent more among males in both rural and urban areas of the state, while the proportion of blind females was more in urban Punjab.

During 1999-2000, the Department of Health and Family Welfare, Punjab Government, carried out a door-to-door survey to ascertain the exact number of disabled persons in all the districts of Punjab. It was found that of the total population of the state 1.1 per cent were disabled, 0.1 per cent mentally handicapped, 0.23 per cent visually handicapped (low and blind), 0.10 per cent hearing and speech handicapped and 0.61 per cent suffered from locomotor disability (Table 48). The National Sample Survey (1983 & 1994) has confirmed these findings on locomotor disability, particularly among males and in rural Punjab. The National Family Health Survey (1992-93) too has confirmed the findings that locomotor disability was the highest among males in rural Punjab. Thus, a need to formulate more effective strategies to cope with locomotor disability is imperative.

Table 48
District-wise Disabled Persons in Punjab, 1999-2000

District	Mentally Handicapped	Blindness	Hearing & Speech	Locomotor	Total
Amritsar	0.30	0.56	0.18	0.42	1.48
Bathinda	0.18	0.39	0.08	0.48	1.15
Fatehgarh Sahib	0.07	0.14	0.17	0.79	1.19
Faridkot	0.02	0.03	0.02	0.56	0.64
Ferozpur	0.00	0.00	0.00	0.36	0.36
Gurdaspur	0.01	0.00	0.01	0.34	0.37
Hoshiarpur	0.01	0.10	0.00	0.02	0.15
Jalandhar	0.03	0.05	0.03	0.32	0.44
Kapurthala	0.07	0.35	0.11	3.29	3.82
Ludhiana	0.10	0.20	0.21	0.77	1.30
Mansa	0.24	0.95	0.50	1.21	2.92
Moga	0.06	0.14	0.08	1.06	1.36
Muktsar	0.11	0.74	0.20	0.66	1.72
Nawanshahr	0.03	0.05	0.02	0.45	0.57
Patiala	0.09	0.10	0.07	0.80	1.03
Rupnagar	0.05	0.03	0.05	0.32	0.47
Sangrur	0.09	0.33	0.08	0.51	1.02
Punjab	0.09	0.23	0.10	0.61	1.05

Source: Department of Social Security and Women and Children Welfare, Government of Punjab (1999-2000)

District-wise state of disability reveals that Amritsar has the highest percentage of persons suffering from mental disability. It has the only mental hospital in Punjab, opened in 1947. Mansa district reported the highest number of visually and hearing/speech disabled persons (Table 48). Kapurthala district reported the highest percentage of locomotor disability. There are a number of voluntary organizations and NGOs working for the welfare of the disabled in different districts of Punjab, but none of them is listed from Mansa with the Department of Social Welfare, Punjab.

Government Initiatives

Schemes being implemented in Punjab for the disabled include assistance for educational support materials, disability pensions, grant to government institutions, transport subsidies and miscellaneous expenses. According to the guidelines of the Government of India, the Red Cross Society, Rupnagar, has been declared as the state resource centre (SRC) for the purpose of implementation of the National Programme for Rehabilitation of Persons with Disabilities Scheme. Aid and distribution of appliances to patients suffering from different type of disabilities is being undertaken through the District Disability Rehabilitation Centres at Patiala, Ferozpur and Sangrur districts of Punjab

In addition, the Ministry of Social Justice & Empowerment, Government of India, has sanctioned the National Programme for Rehabilitation of Persons with Disabilities in districts Rupnagar and Sangrur. It aims to provide comprehensive services, which include prevention and early intervention by providing medical care, aids and appliances, education, non-vocational and vocational training, economic rehabilitation and integration of persons with disabilities in rural areas in the society. The Ministry of Social Justice & Empowerment, Government of India, has sanctioned a Regional Spinal Injuries Centre in Punjab.

The National Mental Health Programme was initiated in 1982 in an effort to help the mentally challenged population in the state. There have been continuing efforts through the Five Year Plans to upgrade the Mental Hospital at Amritsar. Efforts to take care of the mentally disabled, according to the Mental Health Act, 1987, are the thrust areas of the Tenth Five Year Plan in Punjab too.

The National Programme for the control of blindness was launched as a 100 per cent centrally sponsored programme in 1976, addressed to nutritional blindness due to vitamin-A deficiency and cataract-related blindness. This programme has been carried forward in the same spirit by the Health Department and with due support from private, voluntary and NGO sectors. The Government, Lions and Rotary Clubs and Medical Colleges, such as CMC, Ludhiana, organize free eye camps to conduct eye check-ups and perform cataract operations.

There are 30 homes/schools for blind, deaf and dumb and mentally retarded persons in Punjab run by the state government and NGOs. In all, 33 voluntary organizations are working for the welfare of the handicapped under the PWD Act 1995 (Department of Social Welfare, Government of Punjab). The role of NGOs, especially in performing cataract operations in the state is an encouraging sign.

HEALTH CARE PROVIDERS' PERSPECTIVE

To understand the specific health needs of Punjab, and to improve its health status, in-depth interviews were conducted with some of the Civil Surgeons, District Immunization Officers, District Family Welfare Officers and District Health Officers. A few suggestions that emerged from the discussion are as follows:

- Most of the health care providers feel that the existing infrastructure is sufficient to provide the best of MCH and EPI services. What is lacking is the work culture. Often there is no accountability for failures. The reason for non-performance is lack of political and administrative will. Strict action should e taken against the defaulters to curb such practices as absenteeism. Usually, if a case is reported, politicians hush it up.
- Political interference in postings, internal adjustments and deputations should be eliminated, so that every medical person is put to maximum use. Mismatching of posts should be ended and persons placed in their proper field, e.g., posting a pharmacist in place of a staff nurse leads to bad precedence and inefficiency.
- In many instances, sophisticated equipment and machinery are not put to proper use and at times not even installed. Rationalizing postings of specialist doctors would help in proper utilization of sophisticated equipment and provide job satisfaction.
- In order to reduce the financial burden of the state government, it has been suggested that all diagnostic facilities, such as laboratory tests, X-rays, MRI, ECG, should be handled by the private sector at government-approved rates. This will also result in the co-ordination of the two sectors. Recently, Punjab Health Systems Corporation has opened its doors to the private sector and has come out with a novel experiment to engage medical officers, anesthetist, gynecologists, radiologist, staff nurses and Auxillary Nurse Midwifes (ANMs) on a contract basis to handle emergencies. The success of this model is yet to be assured.
- With the mushroom growth of small nursing homes, often with a husband wife team, malpractices such as referrals, unnecessary diagnosis, fee-splitting, have started in most of the districts in Punjab. It is overwhelmingly believed that most of these nursing homes are fleecing the poor patients. In this regard, it is strongly felt that the Nursing Home Registration Act should come into force with immediate effect. Government should also be empowered to monitor the functioning of all these institutions.
- In order to improve institutional deliveries in the state, it is emphasized that all the staff nurses, lady health visitors, and multipurpose health workers must stay at places of their postings and be available for deliveries. There is need to provide 24 hours specialists, services at the first referral units (FRU), to enhance institutional deliveries, emergencies, obstetric services, and emergency neonatal services. Availability of comfortable residential premises to the medical/para-medical staff would enhance the delivery of quality health services to the community at large.
- Often lack of medicine supply is attributed to insufficient clinical services. Such medicines should be provided in plenty to strengthen the curative services. Supervision in the field should be strengthened. For this purpose, additional drivers, vehicles and provisions for additional expenses on POL should be permitted.

- Optimizing the existing rural health infrastructure in the state is a major challenge. Current vertical intervention programmes like TB, Malaria, or special programmes for STD and AIDs management should be brought under primary health care, in order to stop the lopsided management of health problems.
- Since different districts have different problems, district health plans would be useful for decentralized planning.

CONCLUSIONS

Development of the health sector in India during the last 50 years has been 'through planning special programmes for discreet interventions and then "integrating" them into packages…Practice of the concept of integration of preventive, promotive and curative services in this manner has been one of the major causes for the failure of the health care system.'[41]. Such attempts at integration have resulted in widening disparities between the demand and supply of health services. Primary health care, particularly in rural areas, has been focusing largely on preventive aspects of health care, such as family planning, immunization, and malaria surveillance work and ignoring the curative aspects.

During the different five-year plans and annual plans, the focus of Punjab Government has largely remained on strengthening the health infrastructure in the form of buildings, machinery, equipment and manpower for primary health care. The state has not made efforts to establish a strong health-management information system, which is extremely important for setting need-based priorities. Moreover, the state has not made enough efforts to establish referral linkages, management of life-style diseases, such as diabetes, cancer and cardiovascular diseases, regulate private health care services, and to involve the voluntary sector in different health programmes.

There seems to be a strong preference in the state for availing treatment from the private sector, in both rural and urban areas. The main factors helping the growth of the private sector are availability of medical facilities at all hours, specialized skills and technology, experience and promotional efforts. Despite the higher cost of establishment, the private sector in Punjab is posing a challenge to the public sector by providing services at par with it for non-hospitalized illness episodes and at a slightly higher cost for hospitalized illness episodes. The cost of treatment in the private sector is much cheaper in Punjab than in India. Less people in Punjab prefer to obtain free treatment in government or private/voluntary hospitals than in the rest of India. It is felt that the unregulated growth of the private sector has resulted in widening disparities in affordability, and such malpractices as mushrooming growth of diagnostic facilities, fee-splitting practices, etc.

Despite the quantitative increase in health institutions in Punjab, the status of antenatal, natal and post-natal cares remains inadequate. The state has a small number of institutional deliveries, resulting in higher still-births and infant mortality and low breast-feeding practices. There is a rise in the number of caesarian section deliveries, particularly in urban areas of the state. Problems related to menarche, menopause and infertility are neglected areas. The nutritional status of women and children in Punjab reveals high anaemia and obesity levels. As far as the disability patterns are concerned,

[41] Ritu Priya, 'Dubious Package Deal: Health Care in Eighth Plan', *Economic and Political Weekly*, August 18, 1990, p. 1820

locomotor disability among males in Punjab is a matter of concern. Despite the fact that women-centered health programmes in the state have been able to provide health services, their dependence on others for seeking secondary health services is a matter of concern for the future.

VISION AND STRATEGIES FOR FUTURE

Morbidity is inevitable and health-care facilities are its natural concomitant. When a person visits a health care facility, he is already in distress. He looks forward to a system of health care that responds quickly to his needs and reduces his physical, financial and mental pressure. The vision of Punjab, as we foresee, goes a step further than the Government of India's goal of 'Health for All'. A distinct vision of health aspires for a generally healthy population, free from the impact of communicable and non-communicable diseases, with client friendly manpower in health and family welfare centres. Besides the continuation of the usual preventive health care measures, the state must ensure provisions for the availability of quality health care services (including secondary and tertiary health care services) to everyone, including the underprivileged. The health care system of the future should be more scientific and technologically advanced. Better health care services in future are envisaged, with the introduction of selected health sector reforms, such as integration of public and private sectors, formulation of rules for regulating the private sector, introduction of sustainable approaches towards treatment and cure for communicable diseases, particularly HIV/AIDS, and a viable health insurance policy. We also look forward to immediate state interventions in the form of setting up special clinics for the welfare of the vulnerable sections (children, adolescents, women, and the elderly), and bringing about an attitudinal and behavioural change in the removal of existing socio-cultural practices, particularly attached to the reproductive health of women. Revitalizing the existing health care institutions through reforms in governance (with greater involvement of Panchayati Raj Institutions and urban local bodies), and provision of additional funding on a self-sustainable basis (levying of user charges in consultation with the representatives of PRIs and ULBs) would help us come out of administrative problems and resource crunch. We also foresee a greater inter-sectoral and inter-departmental co-ordination, which would not only ensure effective and optimal utilization of existing and future health care programmes, but also result in an increased public awareness towards healthy practices. Periodic assessment of health problems and needs of the state is expected as an essential prerequisite for assessing future requirements. To achieve the above, the following policy interventions are suggested:

1. The first priority for Punjab is to have a State Health Policy, clearly listing out future health care requirements. The state is likely to face newer morbidity patterns emerging, because of rising population, in-migration, urbanization and industrialization.
2. The existing number of medical institutions in the state is sufficient to meet the needs of the people, but they have to be brought to a reasonable norm of efficient functioning. Such shortcomings as inadequate para-medical staff, buildings and equipments must be overcome. It is overwhelmingly felt that with rising urbanization, impetus needs to be given to secondary and tertiary care hospitals, growth of which has not kept pace with the changing times and changing disease patterns.
3. Focused attention needs to be given to curative aspects of health care, particularly in a state like Punjab where the share of the number of cases treated in the public sector has gone down considerably. Strengthening the existing

public health services and widening their network through the involvement of private practitioners, voluntary non-governmental organizations and research institutions would improve the health care services in the state. Trained manpower from different multipurpose health worker's schools (on a contractual or voluntary basis) in the state could be utilized to promote health care at the grassroots.

4. In tune with the objectives of NHP-2002, convergence of all national programmes on health, such as malaria, tuberculosis, HIV/AIDS, RCH and universal immunization programme, under the management of autonomous bodies for overall implementation, is desirable in the state. Effective implementation by such bodies would not only reduce the proportion of communicable and non-communicable diseases in the state but also reduce the burden of the state government to enable it to plan alternative strategies.
5. Special strategies need to be planned for such districts as Amritsar, Ludhiana, Patiala, Jalandhar and Nawanshahar, which have reported a higher number of HIV positive cases in the state. The present Voluntary Counselling and Testing Centres (VCTC) for HIV/AIDS testing in three medical colleges/hospitals, i.e., Faridkot, Patiala and Amritsar, are grossly inadequate. Such testing facilities should be made available at all Civil Hospitals.
6. It is very important that professional medical bodies and the Government of Punjab evolve some rules and regulations and develop appropriate strategies to regulate the private sector. It is important to have directives on the manufacturing, sale, quality and prescription of pharmaceutical drugs on the one hand, and medical and clinical practices, including license to practice, basic code of conduct, negligence and consumer complaint on the other. The rating of private clinics, nursing homes and hospitals based on physical facilities, manpower, equipment and technology would be useful.
7. With the rising medical costs, there arises the question of the available financing options. Hospitalized treatment in both the public and private sectors is very expensive and leads to loss of life-long savings, leaving no money for future social security. It is suggested that the Punjab Government should work out modalities for a viable health insurance policy to meet rising health costs in public and private sectors.
8. Decentralization of powers to Panchayati Raj Institutions (PRIs) in Punjab, according to the 73rd Amendment of the Constitution, to identify their area-specific priorities, develop programmes and mobilize resources, is an obvious measure. This would not only revitalize the faith of the community in their chosen leaders, but also ensure effective administration (accountability, transparency and efficiency) of health services. Imparting training and sensitization of elected PRI representatives on women's and children's issues is important.
9. Special clinics should be established in each district to deal with problems related to menarche, menopause, reproductive health and infertility in the state.
10. A nutritional awareness programme is suggested, on the pattern of the school health check-up programme. Agro-processing industrial units in the state should be encouraged to produce micronutrient-fortified food items.
11. Special emphasis needs to be given to preventive measures, such as vaccination against communicable diseases and identification of high-risk pregnancies to detect deformities and disabilities. Impact of urbanization brings along with it mental stresses and strains. Efficient strategies need to be evolved to combat life-stresses, which lead to accidents, burns and suicides. More trauma wards need to be established in Punjab to meet such eventualities. Mental health specialists at each hospital can play a vital role in maintaining and upgrading the state of mental health of the people of Punjab. Guidance on nutritional intake of

food to prevent deficiency-induced disabilities needs to be spread. Government should make infrastructural changes to make the life of the disabled convenient. Work places, transportation, traffic signals and roads have to be made more handicapped-friendly.

12. A number of primary studies should also be undertaken, through autonomous research institutions, to assess the health needs of the state.
13. Last but not the least, a proper computerized health-management information system should be developed for immediate access to information on health and other such indicators as nutrition and disability at the grassroots level. This will largely help in planning area-specific and need-based policies and programmes in future.

A few concerns, which are outside the domain of this chapter, but constitute an integral part of the healthy growth of the human mind and body are environment and occupational health, adequate availability of drinking water, hygienic living conditions, nutritious food, removal of drug addiction and other health hazards. Excessive use of alcohol is a deterrent to growth, particularly in an agrarian society like Punjab. The state has to design the future of next generation by ensuring minimization of alcoholism and drug addiction. We visualize the need of extending the scope of interconnectivity and interdependence of the state within the region to ensure a disease free, and an environmentally clean society.

References

Bhat, Ramesh (1999), 'Characteristics of Private Medical Practice in India: A Provider Perspective', *Health Policy and Planning*, Volume 14 (1), Oxford University Press, p. 26-37.

Bir, T. (2000), 'User Charges: A Policy Option for Health Service Development in Developing Countries like India', *Health and Population: Perspectives and Issues*, 23(2): 71-84, 2000.

Brugha, Ruairi and Zwi, Anthony (1998), 'Improving the Quality of Private Sector Delivery of Public Health Services: Challenges and Strategies', *Health Policy and Planning*, 13 (2), 107-120.

Caldwell, et al., 'What We Know about Health Transition, the Cultural, Social and Behavioural Determinants of Health', *Health Transition Series*, Vol 1 and 2, The Australian National University Printing Service for the Health Transition Centre, National Centre for Epidemiology and Population Health, The Australian National University, Canberra, Australia.

Census of India The Physically Handicapped, Report & Tables, 1981. Series-1, India, Part VII-B.

Central Bureau of Health Intelligence, Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India, New Delhi, *Health Information of India* (various issues),

Central Bureau of Health Intelligence (CBHI), Ministry of Health and Family Welfare, Government of India (1998), *Health Map of India.*

Chatterjee, Meera (1988), *Implementing Health Policy*, Manohar Publication, New Delhi.

Department of Women and Child Development, Ministry of Human Resource Development, Government of India, *India: Nutrition Profile, 1998*

Department of Planning, Government of Punjab *Annual Plan* (various issues), Chandigarh.

Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India, *Bulletin on Rural Health Statistics in India,* June 2000.

Duggal, Ravi (2000), *The Private Health Sector in India: Nature, Trends and a Critique*, Voluntary Health Association of India, New Delhi.

Dutt, P.R., *Primary Health Care, Rural Communities, Vol. 1* (1993), Gandhigram Institute of Rural Health and Family Welfare Trust, Tamilnadu, India.

Economic and Statistical Organization, Government of Punjab, *Statistical Abstracts of Punjab* (various issues)

Economic and Statistical Organisation, Government of Punjab, *Economic Survey of Punjab* (various Issues)

Elamon, Joy (1998), 'Gender Differentials in Child Immunization: A Study Based on NFHS Data', *Journal of Family Welfare*, Vol. 44, No. 3, September 1998.

Gerard, Russo (1994), *The Role of the Private Sector in Health Services: Lessons for ASEAN,* reprinted report No. 308, East West Centre, Honolulu, Hawaii, USA

Indian Institute of Education, 'Health for All: An Alternative Strategy', *Report of a Study Group* set up jointly by the Indian Council of Social Science Research and the Indian Council of Medical Research.

International Institute for Population Sciences and Macro ORC, *National Family Health Survey-2*, India 1998-99.
International Institute for Population Sciences, Mumbai (1998-99) *District Household Survey: Reproductive and Child Health Survey*.

Janovsky, Katja (1995), *Health Policy and Systems Development, An Agenda for Research*, World Health Organisation, Geneva.

Kaila, Meena (1999) 'Health and lifestyle -- The Veritable Linkage', *Health for the Millions*, Vol., 25, no. 3, May-June 1999.

Krishan, Gopal (1997), 'Spatial Contrasts in Socio-Demographic Profiles of India', *Population Geography*, Volume, 19, No.,1 & 2, June-December 1997.

Ministry of Health and Family Welfare, Government of India, New Delhi *Family Welfare Programme in India, Year Book* (various issues).

Ministry of Health and Family Welfare, Government of India, New Delhi, *`Annual Reports'* (various issues)

Ministry of Health and Family Welfare, Government of India, New Delhi (2002), *National Health Policy* 2002.

Murali Indira, Bir T. and Kumar Rajesh, *Training Course on Health Policy Research* (December 20-24, 1999), National Institute of Health and Family Welfare, New Delhi.

Nanda, A.K., Aggarwal, R.K., Sharma, P.K., Parthi, K., Sharma, S and Munjial, M. 'Special School Health Check-up Scheme for Primary Schools in Punjab: Impact Evaluation in Rupnagar and Patiala District' Population Research Centre (PRC), Centre for Research in Rural and Industrial Development, Chandigarh (October 1998), 53 p.

National Commission on Population, *District-wise Social Economic Demographic Indicators*, New Delhi, 11 July 2001.

National Council of Applied Economic Research (NCAER), New Delhi, *Household Survey of Medical Care (May-June 1990),* June 1992, 52 p.

National Council of Applied Economic Research (NCAER), New Delhi, (March 1995), *Household Survey of Health Care Utilization and Expenditure*, 95 p.

National Institute of Health and Family Welfare, New Delhi (December 2000), *Development of Health Insurance in India: Current Status and Future Directions*, Report of Seminar held on 29-30 December 2000, 46 p.

National Sample Survey Organisation (NSSO), Department of Statistics, Government of India, *Sarvekshana*, Volume IV, No. 1& 2, 1980.

National Sample Survey Organisation (NSSO), *Morbidity and Utilization of Medical Services* (42nd Round), July 1986-June 1987.

National Sample Survey Organisation (NSSO), (50th round), Department of Statistics, Government of India, *Sarvekshana*, October-December, 1997.

National Sample Survey Organisation, Department of Statistics, Government of India, Maternity and Child Health Care*,* NSS 42nd round (July 1986-June 1987) in *Sarvekshana*, issue no. 47, Vol. XIV (April-June, 1991)

National Sample Survey Organisation (NSSO), Department of Statistics, Government of India, Morbidity and Treatment of Ailments (52nd round), July 1995-June 1996, Department of Statistics, Government of India, *Sarvekshana*, November 1998.

National Sample Survey Organisation, Department of Statistics, Government of India, *Maternal and Child Health Care in India*, National Sample Survey, 52nd round, July 1995-June 1996, December 1998.

Peabody, John W. et. al : 'Policy and Health: Implications for Development in Asia', Cambridge University Press.

Pedagaonkar, S.L., 'Health Services in Maharashtra: A study of growth and inequality', *Margin* (special issue), January-March 1993, Part II.

Peter, Pritchand (1981), 'Manual of Primary Health Care: Its Nature and Organization'*,* Second Edition, Oxford University in Press.

Planning Board, Government of Punjab, 'Five Year Plan Documents' (various documents).

Planning Commission, Government of India, 'Five Year Plan Documents' (various documents).

Population Reference Bureau (PRB) 'World Population Future', *Population Bulletins* (various issues).

Priya, Ritu, 'Dubious Package Deal: Health Care in Eighth Plan', *Economic and Political Weekly*, 18 August, 1990, p. 1820.

Raina B L (1988) *'Population Policy'*, B.R. Publishing Corporation, Delhi.

Rajaraman, Indira, Mukhopadhyay, Hiranya and Amarnath, HK (1999), *State Fiscal Studies: Punjab*, National Institute of Public Finance and Policy, New Delhi. (1999)

Registrar General of India, *Population Projections for India and States 1996-2016*, New Delhi.

Registrar General of India (1997), *Sample Registration System Statistical Report*, New Delhi.

Registrar General of India (1998), *Sample Registration System Statistical Report, New Delhi*.

Registrar General of India, *Survey of Causes of Death* (Rural), (various issues).

Seshadri,Subadra (1997) 'Nutritional Anaemia in South Asia', in Stuart Gillespie (ed.)', *Malnutrition in South Asia*: *A Regional Profile,* Khatmandu, Regional Office for South Asia, UNICEF.

Shariff, Abusaleh (October 1995), *Health Transition in India*, Working Paper No. 57, National Council of Applied Economic Research, New Delhi.

UNICEF *Data Sheets* on mitigating fluorosis through safe drinking water

World Bank, *A Vision for India's Health System*, Report of Conference held on 15-16 November 2001, New Delhi, downloaded from internet.

World Health Organisation (1977), *Health Needs of Society: A Challenge for Medical Education*, edited by Gellhorn, A., Fulop, T. and Bankowski, Z., Council for International Organizations of Medical Sciences (C.I.O.M.S.), Geneva.

World Health Organisation (1978), *Primary Health Care*:, Report of the International Conference on Primary Health Care, Alma Ata, USSR, 6-12 September 1978.

World Health Organisation, *The World Health Reports* (various issues).