Nepal being a developing country has many health problems, many of which escalate in intensity at different times of the year or in epidemic form. There are however not many accounts of diseases seen and the ravages caused over the years. Most of the records of diseases in the early days have been gleaned from the records kept by the Britishers in the residency at Kathmandu. Dr. Oldfield was the first of these and had been promoted as Surgeon to the British Residency from a previous appointment of Assistant Surgeon in the Bengal Army (1). Writing about conditions in 1849 he goes on, “On the 3rd of November Dr. Login left Nipal for the plains; he reached Sigauli in thirty hours, having gone partly on pony, mostly on foot; he escaped the awal, but died, after a few hours’ illness, of cholera at Dinapore.”

Brian Hodgson, a prolific record keeper however had different views (2). In his papers published in 1857 he states that “The fearful epidemics of the plains seldom penetrate the Himalayas… For forty years, cholera has ravaged the plains continuously almost. But in all that period, Nepal has been visited only twice.”

In the past there have been outbreaks of diseases such cholera, smallpox and plague. More recent years has seen attempts at notifications and collection of data on various diseases and their effects. Whilst some statistics are available one is not always sure of their reliability. Regarding the diseases of importance in the context of Nepal, one can for convenience sake, categorise these by their origins into the following major categories:

a. Viruses  
b. Spores
Diseases That Matter in Nepal

1. Due to Viruses

**Smallpox.** The Nepalese have had over the years plenty of experience with this disease. The death of the son of King Pratap Malla, (1641-1674) by smallpox led to profound sorrow in his Rani. In an attempt to cheer her up, and also to show that she was not the only one so bereaved, the custom of *Gaijatra* in memory of all who had died in the previous year was started.

In later years no less a person than King Girvan Yuuddha Bikram Shah died of smallpox in 1816 (3).

Again it is Oldfield (1) who mentions about the practice of vaccination against smallpox during the time of Jung Bahadur. “I received five hundred rupees for vaccinating his eldest boy in 1850, when he was in England.”

Public awareness about the necessity of preventive measures against smallpox increased over the years. It was however not until after the ushering of democracy in 1951 that greater efforts were made regarding mass vaccinations. The last big epidemic was that of winter 1963. Many were affected in urban areas and even some of the porters of the American Everest Expedition contacted it and subsequently were the cause of spreading it to their respective villages. After supply of the dry vaccine to a total of 700,000 doses, the epidemic was contained by May, 1964 (4). Once the concept of eradication came then extra efforts were made in the areas of expanded vaccinations and disease containment.

After ten years of world wide effort in which WHO played a major role, the last case of naturally occurring smallpox was reported at Merka in Somalia on 26th October, 1977. It was officially announced two years later that global eradication of smallpox had been achieved. The disease has now come to be of historical importance only (5).

**Measles.** This is a major cause of childhood morbidity and mortality in Nepal. This is due to the prevalent custom of not treating measles until the child is at death’s door. A number of children go on to have diarrhoea, many malnutrition and some even blindness as a result of accompanying Vitamin A deficiency. A study of a partially vaccinated population in Lalitpur with a coverage of 73% in comparison to the national percentage of 57% showed that bigger children who had missed out on the vaccination programme had a much higher rate of infection. It was this pool of older, susceptible children
who fuelled the outbreak once measles was introduced (6). A study at Sarlahi showed that Vitamin A had the most protective effect against measles (7).

**Hepatitis.** Cases of acute hepatitis have occurred sporadically at Kathmandu during last thirty years. Three epidemics of non A and non B were seen in Kathmandu Valley in 1973, 1981/82 and in 1987 (8). A study in 1985 had reported that following blood antibody levels studies at Kathmandu it was estimated that as much as 87% of the cases occurring were due to non-A and non-B hepatitis virus (9). Hepatitis in its various forms is a regular occurrence in the capital and others parts of Nepal. Quite a lot of the treatment for it is by ayurvedic practitioners. Though a study at the Bir Hospital over a 8 year period ending 1987, showed a total of 100 cases only, the author in his conclusion felt that hepatitis B virus infection is one of the important causes of liver cancer in Nepal (10). Amongst the 1878 units of blood collected by the Western Regional Blood Transfusion Centre run by the Nepal Red Cross at Pokhara during the financial year ending mid July 1996 (ie. 2052-53 BS) a total of 192 were infected. The breakdown of this was 177 Hepatitis B +ve, 15 HIV +ve and 10 VDRL reactive. Shrestha and Gafney have estimated that there are more than 15,000 drug abusers in Nepal and that the majority of them are hepatitis C virus carriers. This is a cause for worry for no routine tests for hepatitis C is done on blood meant for transfusions. Research is being conducted at Kathmandu with support of the Macfarlane Burnet Centre of Australia on Hepatitis E (former non A, non B enteral). A study of 293 samples from acute viral hepatitis cases at Kathmandu in 1997 showed it to be prevalent throughout the year with Hepatitis E virus and then Hepatitis B being the causal agents (11). It is estimated that there have been epidemic spread of this in the past.

**Rabies.** Most of the injections for the prevention of rabies used to be given at the Infectious Diseases Hospital at Teku. That facility continues to this day except that newer vaccines are being used. A lot of injections are being given for bites by suspected animals. A survey of rabies cases at the same hospital showed that 17 of the cases analyzed were bitten by dogs and only one by a jackal. Noting the reality of dogs in urban centres this review of 1983 recommended the killing of stray dogs as a possible strategy to reduce human deaths due to hydrophobia (12).

Another epidemiological review of rabies cases seen at Kathmandu valley over a 3 year period showed that more than 75% of the total anti rabies vaccine consumed in Nepal were used to treat the victims of dog assault. The authors of the study suggested that elimination of stray dogs and compulsory
vaccination of all pet dogs should be an integral part of the control programme (13).

**Encephalitis.** Japanese encephalitis (JE) was recognised for the first time in Nepal in 1978 (14). Though Culicine mosquitoes have been identified as the vectors on the Asian subcontinent, no particular species has been shown to be responsible in Nepal. Confirmation of previous infection has been shown by the fact that one third of both human and pig sera from the Terai areas such as Itahari and Chitwan showed presence of JE antibody (15).

The reporting of cases has shown that the incidence is highest in the mid-west region of Nepal. The case fatality rate (CFR), showed a falling trend from 46% in 1982 to 18% in 1992 (16) but 1994 was a bad year due to the epidemic.

An epidemiological surveillance of JE done in endemic areas of the country was done over a four year period 1990-93. The case fatality in the 1545 cases over the four year period ranged between 31 to 38%. No preventive and control measures of animal reservoirs like pigs and ducks have been done though some vector control has been attempted. Vaccination for protection is very limited because of the cost factor (17).

It is thought that discontinuation of spraying insecticides during the last decade has resulted in the increased number of not only mosquitoes but even sand flies. It is this increase of vectors which is said to be the cause of the increased incidence of encephalitis and also leishmaniasis.

**AIDS.** Screening for HIV infection was started in the country in April, 1986 and the first case of HIV/AIDS was diagnosed in Nepal in July 1988 and was in a non Nepalese (18). During the course of the first six years the number of HIV positive cases, those who developed full blown AIDS and died as a result had increased. By Sept 1993 there were a total of 185 HIV positive cases of which 31 had developed AIDS and 12 had died. These were the findings reported in June, 1994 (19). Majority of persons affected were in the age group 20-29 years followed by the 30-39 years. The increased movement of many Nepalese to the major cities of South Asia for work or as traders plus also the luring of many young Nepalese girls to brothels both in and out of the country as sex workers is expected to have tremendous social, cultural and economic consequences in the country. Certain areas eg. Sindhupalchowk, Nuwakot were first identified as places from where girls were procured. The thought now is that the activity of those involved in the flesh trade has shifted to other districts of Nepal.
HIV/AIDS has been reported in 58 out of the 75 districts of Nepal (20). As of end Sept. 1998 a total of 1132 HIV positive cases had been noted with the gender breakdown of 747 males and 385 females. Of this 385, 295 were commercial sex workers and 73 were housewives. Whilst 592 males and 11, females had been infected as a result of sexual contact, a total of 149 (M/148 & F/1) were due to drug use. Ten children under the age of five have the infection. The age group with the maximum number of cases is 20 to 29 years with 459 males and 203 females. Of the total number of HIV positive cases, the number dying of AIDS now stands at 108.

Dengue. During the two years 1980/81 it was suspected that there was an outbreak of dengue fever in a district which was endemic for Japanese encephalitis. Aedes mosquito was thought to be the major vector of the viral infection dengue fever (21).

b. Due to Spores

Tetanus. A number of studies on tetanus have been done in hospitals in the Terai. One study of 269 admissions during 1975-77 at the Bheri Zonal Hospital in Nepalgunj showed that 70% of the cases were due to tetanus neonatorum and that another common cause in children and adults was injury (22). Another study of 18 months ending March 1984 was of 47 cases only, of which 8.5% were in children below 0-1 years. This showed a slight decrease in tetanus neonatorum cases over the previous five year period (23).

c. Due to Bacteria

Tuberculosis. Though the early medical records have shown that tuberculosis or consumption as it was known to Western doctors was present in Nepal the attempt to control and prevent the disease from spreading started much later. The fight against tuberculosis may be said to have started with the building of the 50 bedded Tokha Sanatorium, on the Northern hill surrounding Kathmandu in 1934. Subsequent work showed also that many in the army and police, being from the rural areas, were very likely to get the disease.

Towards the end of the 104 years old Rana rule, the Chest Clinic at Kathmandu was started in 1951 at the Bir Hospital with Dr. YR Joshi as the first TB specialist. The domiciliary treatment of tuberculosis had started on a
limited scale. After 10 years of its establishment the Chest Clinic became a separate institution and no longer part of Bir Hospital.

In 1966 there was an attempt to introduce direct vaccination of the Bacillus Calmette Guerin (BCG) vaccine, both in the schools and by house to house visits in the Kathmandu valley. In 1968 the BNMT started anti-tuberculosis activities in Koshi and Mechi zones in Eastern Nepal. During the course of the years other NGOs such as UMN, Dooley Foundation and JICA have been involved in the fight against tuberculosis. Later it was another NGO-INF that too became involved in the fight against tuberculosis in Western Nepal.

The Japanese Medical Cooperation Team which started work in 1973 led subsequently to the formation of the Western Region Tuberculosis Centre at Pokhara and also the relocation of the Central Chest Clinic at Sano Thimi in Bhaktapur district. This has now been designated as the SAARC Centre for Tuberculosis. Plans are underway to make inpatient facilities also at this site.

Whilst major work has been done about the human type tuberculous bacillus, some work has been done on the bovine type too. Joshi (24) has identified factors existing in Nepal which lead on to the continuation of the bovine TB cycle in slaughtered or milking animals. Some provision is at last being made in 1998 by the enactment of an Animal Slaughterhouse and Meat Examination Act 1998. It is hoped that there will also be the provision of diagnostic facilities for tuberculosis in animals at the district level.

Based on 1992 tuberculosis notification data and presuming that 40% complete treatment, it is also assumed that there are 16,000 deaths due to this disease every year. A total of 60 out of 75 districts are covered by the National Tuberculosis Programme (NTP). Of this the responsibility for 24 districts is by INGOs and NGOs with short course chemotherapy (SCC). These are AMS, BNMT, GENETUP, INF, JICA, NATA, SCF(UK), TEAM and UMN. However it is felt that overall, the management and control of tuberculous infections leaves a lot to be desired (25).

The overall goal of the NTP is to reduce mortality, morbidity and transmission of tuberculosis to a level which is not a public hazard (26).

It has been estimated that about 50,000 people develop active TB each year and that about 15,000-18,000 die each year from the disease. The big danger in future years is the combination of HIV/AIDS and TB and the development of multi drug resistance (MTD). Kathmandu, because of the overcrowding and influx of susceptible persons from rural areas is a major
site where the disease is prevalent. A special programme called Kathmandu Valley Coalition Against Tuberculosis (KV-CAT) has been launched. Another programme called directly observed treatment short course (DOTS) has been introduced as a cost effective and rational method for controlling the disease. This DOTS programme has so far been introduced in 27 of the 75 districts where the anti-TB programme is being implemented by the government.

**Leprosy.** Leprosy has been a disease that has affected the world community for ages. In those days patients with the disease were outcasts of society and so the tendency was to hide and not come for treatment. Institutions such as leprosarium were the last resort and treatment for the disease was long and very limited. What prevailed elsewhere in the world was existing in Nepal also.

Mali (27) made an estimation that the Khokana Leprosarium was established around about 1830. At that time patients with this disease were outcasts of society and when they went to such institutions it was as a place of last resort. The main treatment in those times was the Chaulmoogra Oil. Years later patients with leprosy started receiving modern care with the setting up of a leprosarium at Pokhara in 1957 and subsequently the upgrading into the Green Pastures Hospital. A dispensary was also started at Chapagaun in Lalitpur District by the Leprosy Mission International in 1958. This was followed by the establishment of the Anandaban Leprosy Hospital. This 100 bedded referral hospital has also a 10-bedded section which provides primary health care to the community of that locality (28).

The prevalence rate of leprosy estimated in 1961 as one per thousand. The control of this disease may be stated to have started with the formation of the leprosy-tuberculosis control project which had been started with the initiative of WHO in 1965.

A subsequent health survey done by Shah and Worth (29) in 1966 found that there were more cases in the Western and Far Western regions of the country and that the disease was prevalent in all the three belts viz mountains, hills and Terai of Nepal.

There were some small congregated pockets as with the Tharu community in Nawal Parasi.

Reorganisation of services provided made it into the Expanded Leprosy Project in 1967 but its main area of functioning was restricted to two small areas in Bagmati and Narayani Zones.
Before the Fifth Five Year plan, agreement was reached between the Leprosy Control Project and the INF for the establishment of the Green Pastures Leprosy Hospital with inpatient facilities. INF was responsible for the provision of services for leprosy cases in the Western and mid Western regions of Nepal.

Work by expatriates such as Pedley in Tansen showed that leprosy bacilli seldom ever emerge from intact lepromatous skin. He had earlier shown that leprosy bacilli could be transmitted as a result of strong sneezing by patients with lepromatous leprosy. Other workers at Anandaban did research into cultivation procedures on mice regarding resistance of *Mycobacterium lepra* to dapsone and rifampicin. Work on leprosy has been done by a number of INGOs or NGOs such as the Netherlands Leprosy Association, TEAM, Sasakawa Memorial Health Foundation, NELRA, Nepra E.V. etc. More than a dozen surveys have been done since 1985.

The WHO recommended MDT in 1982. It had long been advocated that the treatment of leprosy should be integrated into the general health services. The leprosy control programme was integrated into general health services in 1987 to provide wider coverage. From then on, more so in recent years, there has been improvement in the attitude towards the disease. MDT is thought to have a positive impact on the operational and epidemiological solution. However some workers feel that there was no evidence at present, showing disease transmission in West Nepal as going down.

**Diarrhoeal Diseases.** These are important being one of the major causes of childhood mortality in Nepal. It must however be noted that the causes of such states is not restricted to bacterial origins but could also be due to viral causes. A survey on CDD in 1991 revealed that on average, each child suffered from 3.3 episodes of diarrhoea per year. The number of deaths due to diarrhoea is estimated to be 45,000 per year.

**Typhoid.** A study of admissions at the Infectious Diseases Hospital showed that in 1983, enteric fever cases constituted about 5% of total admissions. The cases were treated with chloramphenicol alone or a combination of chloramphenicol with another drug such as ampicillin. The reality however is that salmonellosis is almost endemic in the capital and many other urban centres of Nepal. The work at Patan Hospital has shown that typhoid fever has a regular yearly cycle with the least number of cases occurring during the last quarter of the Nepalese year i.e. from Magh to Chaitra.
Cholera. A particularly severe outbreak of the disease occurred in 1818 when it is said to have reappeared in the Bundelkhand area over Agra and Delhi and subsequently extended to Nepal (3). That the disease was present is shown by the fact that Queen Tripurasundari who as Regent Mother looked after the kingdom of King Rajendra Bikram Shah from 1806 till 6th April, 1832 died as a result of cholera.

Cholera was very much prevalent as shown by the death of Chandra Shumsher’s Maharani in 1905. This seemed rather ironic for the lady in question had been involved in the fight against cholera. Tuker’s recording the event goes on to state that there was great grief and sorrow in many homes of the Valley, “in Patan particularly which owed to her and to her determination to wipe out cholera, the provision of its water supply.”(37).

In 1958 there was a cholera outbreak in the Kathmandu valley. The Kathmandu City Municipality launched a “Kill the flies” campaign to try to contain the epidemic. A mana of dead flies was priced at two and half rupees and a man collecting the largest number was to be given a medal (38)!

Since the beginning of the nineties however cholera cases have tended to occur annually, in fairly large numbers at Kathmandu the capital. The fact that laboratory facilities are not easily available in other areas may be the reason for its non identification more frequently. An analysis of the cases of diarrhoea at Kanti Children’s Hospital showed Vibrio Cholerae being isolated from 285 out of 683 children with watery diarrhoea. It was suggested by the investigators that the spread pattern suggested it to be due to contaminated river water (39). Things seemed to get out of hand during July 1995 when cholera not only occurred at a number of sites of Kathmandu and Bhaktapur in Kathmandu valley but also in different parts of Nepal, including the Far Western Region.

Meningococcal Meningitis. A major outbreak of meningococcal meningitis with 1475 cases occurred in the Kathmandu valley over a twenty five month period starting April 1982. This led to an extensive vaccination campaign which in turn resulted in a decrease of cases then. After this, a certain base line of cases have been seen over the course of years. Some form of vaccination has been kept up over the years and so perhaps the expected recurring cycle is not apparent. Subsequent outbreak in 1990-92 was controlled with drugs (40).

Brucellosis. This disease was an unconsidered entity till 1979 when it was first reported as a result of infection by Brucella melitensis, in shepherds of sheep rearing stations of Pokhara (41).
Diseases That Matter in Nepal

Plague. Outbreaks of plague have occurred in Nepal in the past. From 1960 to 1962 a total of 150 cases were reported in Rupandehi and Mahottari districts. As the programme to eliminate malaria also controlled the flea population, the incidence of plague declined sharply (42). In 1967/68 it was seen again in the villages of Naura and Pitholake in Bajhang district. It is suspected that in this second epidemic, the infection was first contracted from wild rodents or their fleas and subsequently went on to cause an outbreak of pneumonic plague (14).

The plague epidemic which occurred in India in August of 1994, created a stir in Nepal. The media has maintained that one case did occur but as it was cremated fairly soon after death, there is no convincing proof of this. Some doubt has been raised in India itself as to whether the original cases were in fact pneumonic plague.

Streptococcal Infections. These are important precursors of subsequent rheumatic heart disease (RHD) in the country. It is quite usual to see advanced cases even in children and is reminiscent of the conditions that existed in the developed countries in the first half of the twentieth century. A report by Pandey & Ghimire (43) has found the incidence of rheumatic heart disease to be declining. Hopefully, as economic conditions improve, the incidence of rheumatic heart disease and glomerular nephritis as a sequelae to streptococcal throat infections will also decrease. A seminar in 1987 made suggestions for effective prevention of RHD and rheumatic fever by pleading for these measures to be incorporated into existing primary health care procedures.

Sexually Transmitted Diseases. Whilst AIDS has been listed already in view of the world wide focus on it, the others such as gonorrhoea and syphilis have been of importance in the Nepalese scene in that a lot of Nepalese have always been on the move because of employment or trade.

Various studies indicate that the prevalence of STDs in Nepal is quite high and it is estimated that upto 3% of the population is infected by some or other STD (44). The major hospitals of the country report high prevalence of gonorrhoea followed by syphilis, chancroid and herpes genitalis.

d. Due to Parasites

Malaria. Malaria, as has been mentioned in the second chapter had been reported by Dr. Oldfield, who during the course of his thirteen years in the country had travelled widely and mentions “that awal sets in Nayakot at
about the same time that it does in the Tarai, viz. 15th of March.” Oldfield noted too about the immunity of the local tribes such as Darris, Khumbals, Manghis, Bramus for he wrote, “These tribes inhabit with impunity the lowest and hottest valleys in Nipal, just as the Tharus do the Terai of Nipal.”

It is therefore of no surprise that the malarious areas of the Terai and the inner Terai were often referred to as “Kalapani” areas in view of the dark coloured urine that those infected passed. Even some of the valleys of Nepal were affected by malaria. Cowper of USAID, writing about the Surkhet Valley recalled: “the first time we went through there, there was nobody living in the valley, only a few animal sheds and fields. The farmers lived up on the hill sides and would come down to farm the valley in the day, but went back up before nightfall. Although they didn’t know the mechanics of malaria transmission, they did know that if they spent even one night in the Valley, they would fall sick within two weeks” (4).

USOM’s anti-malaria programme started in Nov. 1952 with the setting up of a malaria control office. In August 1954 a joint HMG/USOM project - the Insect Borne Disease Control Bureau (IBDCB) was started. This same year after becoming a member of WHO, Nepal became an ardent supporter of this organisation. Thus when WHO declared in 1955 that malaria can be eradicated, Nepal too concurred. The amalgamation of the IBDCD and the WHO project in Dec. 1958 led to the founding of the Nepal Malaria Eradication Organisation (NMEO). In a matter of twelve intervening years the number of people suffering from malaria had been brought down to 0.4 per thousand (1 per 2500). The “From the more than 2 million cases annually in the 1950’s, malaria was reduced to an all time low of 2,468 in 1968.” The goal became eradication of the disease by 1971 but this was extended to 1973. After 4 successive years, when there were less than 3,000 cases per year the Malaria Control Project was terminated in 1972. However after some years, perhaps because the mosquitoes had developed resistance to DDT, the number of cases went up to 2.2 per thousand ie. 6 per 1500. As a consequence, WHO in 1976 made a call to change to a Malaria Control Programme instead (45). Respraying was started. Other causes for resurgence are thought to be chloroquine resistance cases and also the importation and reinfection of cases from across the Indian border.

During the last few years, from 1992 to 1997 the number of cases recorded annually are below 10,000 of which about 10% are due to P. falciparum (46). Chloroquine resistant cases of falciparum infection were first reported in 1984. Resistance to sulfadoxine-pyrimethamine was suspected in 1993 and confirmed in 1996/97.
**Kala-azar.** Kala-azar cases have been on the increase since the last eight years and the cause is thought to be due to the lack of spraying of insecticides for the control of malaria. The subsequent increase of the bed bug population has led to spread of the disease by these vectors. A community study in Morang district showed that the most important factors affecting prevalence of leishmaniasis infection were socio-economic status, living conditions, environmental sanitation and the behaviour and practices of the population (47). In 1994 major outbreaks occurred in many areas in the Terai to make it a matter of serious public health concern. The introduction of Direct Agglutination Test (DAT) is expected to make the diagnosis more rapid and reliable (48).

**Amoebiasis.** This has been present for many a year. Taylor writing of the Nepal of the fifties has this to say (49):

“Amoebiasis is the greatest medical problem in the hills of Nepal... The reason for the high incidence of amoebiasis and other intestinal infections is quite obvious as one walks the trails of Nepal. The usual latrine areas are the places where paths cross streams. This means, of course, that practically all the lovely, sparkling mountain streams are heavily contaminated.”

In a serological study of amoebiasis done among 280 subjects above 15 years of age at the Teaching Hospital in Kathmandu, 25% were found to be positive for amoebic antibody, 10% were doubtful and 65% were negative (50).

**Echinococcus.** A total of 76 cases of hydatid disease were seen amongst the 27,188 cases operated upon for various reasons in three Kathmandu valley hospitals over the period 1979 to 1988. Diagnosis is being made more often because of the advent of ultrasonogram. It is also suggested that *E. granulosus* infection is controllable in the domestic animal cycle by applying strong rabies control and meat inspection (51).

**Cysticercosis.** Infestation with *T. solium* and *T. saginata* are seen quite frequently. Epilepsy due to cerebral cysticercosis is thought to be quite common in Nepal. It has also been seen and reported amongst Gurkha troops in Hong Kong (52).

**Other Worm Infestations.** The major ones would be due to roundworm and hookworm infestations. Whilst roundworm would be very common and affect the growth and development of a lot of children, it is seen that hookworm is a important cause of anaemia in both children and adults. In community reports, over 50% of infections are due to ascariasis - but in
hospital records about 30-40% are seen. The parasitic rate of infection is increased in summer and post rainy season (53).

e. Others

**Vitamin A Deficiency.** This has now come to be a major cause of childhood blindness as a result of keratomalacia and damage to the eye. The importance of this vitamin has been highlighted in recent years due to its protective effect against diarrhoea and chest infections. Research in Sarlahi in 1989/90 and in Humla (1992) has shown the important role of Vitamin A in increasing child survival (54 & 55). The MoH launched a National Vitamin A Programme in 1993 with the support of USAID and UNICEF. Two major components of this programme are to:

1. give high dose 200,000 units vitamin A capsules supplementation.
2. motivate to increase production and regular consumption of vitamin A rich foods in preschool children and pregnant and lactating women.

The semi-annual Vitamin A capsule distribution was at first started in 32 priority districts. It is now being conducted in 40 districts and the objective is to expand further into the remaining districts.

**Cor Pulmonale.** An assignment report on cardiovascular diseases reviewed an epidemiological study of admissions at Bir Hospital, Kathmandu over the period 1970-75. This and another review at the Gandaki Zonal Hospital showed a high proportion of cor pulmonale. The conclusion was that domestic smoke in houses with open-fires and no chimneys was the major cause of this condition. An epidemiological study done over a four month period in 1979 revealed a fairly high prevalence of chronic obstructive lung disease (56).

**Cancers.** Pathological specimens study at TUTH over a 5 year period 2048-2052 BS has shown that the commonest cancer seen is that of the stomach (16.0%). Others in order of frequency are: lung (11.5%), cervix (9.7%), skin (6.0%) and breast (5.7%). It was also noted that the change of lifestyle of Nepalese population, exposure of carcinogenic substances had changed the pattern of cancers seen eg. cancer of lung increased in frequency from 7.3% in 2048 BS to 17.5% in 2052 BS (57).

**High Altitude Sickness.** Because of the popularity of mountaineering and increased movements of people along the mountains and high altitudes
this condition is being encountered more frequently. Local porters who have climbed at fast rates have been seen to suffer from it. Another aspect is the religious pilgrimage to shrines on the high Himalayas and the non divulgence of symptoms of high altitude sickness by the devotees in their quest for spiritual attainments. A study by Basnyat on pilgrims going to Gosaikunda (4154 m) showed that 4.4% appeared to have altitude sickness (58).
References

3. Cholera, R Pollitzer, 1959, WHO.
5. EPI Newsletter, 1996, 18 (1), Special Program for Vaccines and Immunisation, Pan American Health Association.
Diseases That Matter in Nepal

52. Heap BJ, Cerebral cysticercosis as a common cause of epilepsy in Gurkhas in Hong Kong. J R Army Med Corps 1990; 136: 146-149.