

Research Works

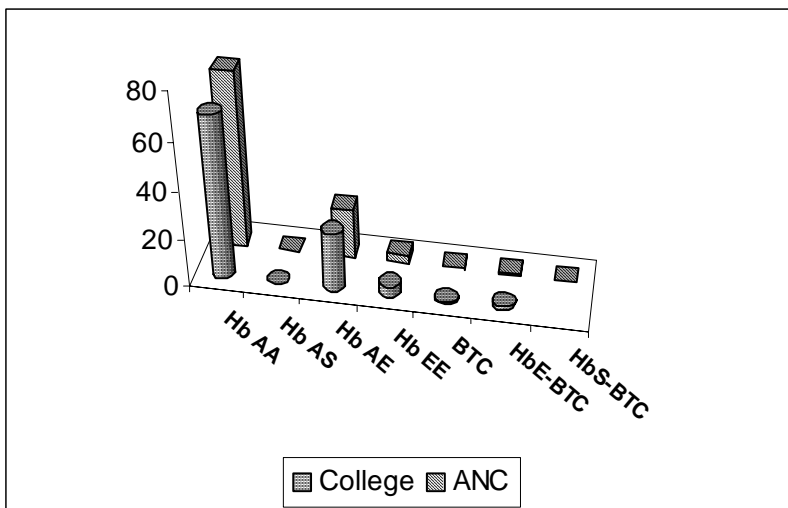
(A) NON-COMMUNICABLE DISEASES

1. Community control of thalassaemia syndromes: awareness, screening, genetic counselling and prevention

Investigators : Dr. S. K. Sharma, Dr. J. Mahanta and IHH, Mumbai
Duration : 5 Years (2000 – 2005)
Funding : ICMR (Jay Vigyan Project; NE Initiative)

This Centre is a part of the collaborative study that began in the year 2000 under the Jay Vigyan Mission project of ICMR. During the period of reporting a total of 1,162 blood samples, representing 637 male and 525 female students, were collected for screening of thalassaemia and other haemoglobinopathies from different colleges of Dibrugarh, Jorhat, Sivasagar and Kamrup districts. ABO blood grouping indicate 36.0% of the college students were with O, 32.1% with B, 24.1% with A and 7.8% with AB blood groups. Rh factor was negative in 2.6% students. Screening for thalassaemia and haemoglobinopathy indicated that 68.2% students were with normal haemoglobin (HbAA), 24.6% with Haemoglobin E-heterozygous and 4.6% with Haemoglobin E-homozygous (Fig-1). Prevalence of sickle cell trait was 0.3%. β -thalassaemia carrier state was observed in 2.3% of students (0.6% E- β -thalassaemia carrier and 1.7% β -thalassaemia carrier) and Zinc protoporphyrin (ZPP) level of $> 80 \mu$ mols/ mol of heme was found in 17.6% of the students.

Fig-1: Prevalence of haemoglobinopathies and thalassaemia among college students and expectant mothers



During the same period a total of 647 expectant mothers were also screened. ABO blood grouping indicated 38.4% prevalence of O blood group followed by B, A and AB representing 33.0, 23.2 and 8.4% respectively. Rh factor was negative in 3.2% anti natal mothers. About 73.8% of the expectant mothers were with normal haemoglobin (HbAA) pattern while. Haemoglobin E-heterozygous and Haemoglobin E-homozygous was observed in 21.1 and 3.6 %

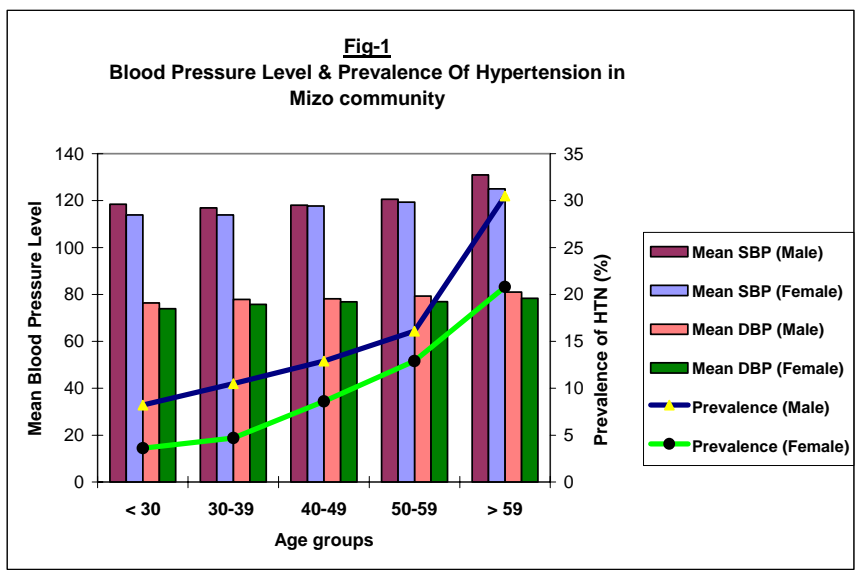
respectively. HbS heterozygous was observed among 0.1% of expectant mothers (Fig-1). Prevalence of β -thalassaemia carrier state was 1.4% (0.5% HbE- β -thalassaemia carriers, 0.8% β -thalassaemia carriers and 0.1% HbS β -thalassaemia carriers). Zinc protoporphyrin (ZPP) level of $> 80 \mu\text{mols/mol}$ of heme was found among 69.4% of expectant mothers.

2. Study on hypertension and CHD in Mizoram

Investigators : Dr. N. C. Hazarika, Dr. J. Mahanta, Dr. Bela Shah, Dr. D. Biswas, Dr. K. Narain (RMRC/ICMR) ; Dr. H. C. Kalita (AMC & H, Dibrugarh)
 : Director (Hospital & Medical Education, Mizoram)
Duration : 3 Years (2003 – 2006)
Funding : ICMR (NE Initiative)

This study started during 2003 to estimate the prevalence of hypertension & CHD and its risk factors in rural and urban areas of Mizoram. Till March 2005, a total of 10,310 individuals (Rural 6369, Urban 3941) were surveyed. Among the 6369 individuals surveyed in rural Mizoram (Males 2882, Females 3487), 68.2 % were married, 11.2 % widow/widower/separated, 4.1 % illiterates, 45.8 % smokers and 13 % alcoholics. Overall prevalence of hypertension in rural population was 12.8 %. In males the mean systolic blood pressure (SBP) was 120.7 ± 18.9 and mean diastolic blood pressure (DBP) was 78.1 ± 10.8 . However, in females mean SBP was 117.2 ± 16.9 and mean DBP was 75.8 ± 9.4 . Mean blood pressure in males (both systolic and diastolic) was relatively higher than females across all the age groups. Prevalence of hypertension showed an increasing trend in both sexes with the increase of age. (Fig-2) Among the normotensives, 13.8% were in High Normal group (SBP 130-139 or DBP 85-89), 32.8% in Normal group (SBP 120-129 and DBP 80-84) and 42.4 % in Optimal group (SBP < 120 and DBP < 80). Of all the hypertensive persons, 6.4 % were in Stage I (SBP 140-159 or DBP 90-99), 3.0 % were in Stage II (SBP 160-179 or DBP 100-109) and 1.7 % were in Stage III (SBP ≥ 180 or DBP ≥ 110).

Fig-2 : Blood pressure level and prevalence of hypertension in Mizo community



Estimation of selected biochemical parameters, namely, Fasting Blood Sugar, Triglycerides, Cholesterol, HDL, Blood Urea, Serum Creatinine was carried out in 294 samples. Increased level of blood sugar, cholesterol and triglycerides was found associated with increased blood pressure level though the range was within normal limits. Of all the reported cases, 262 ECG records were found abnormal of which 0.11 % had ischaemia, 0.71 % had myocardial damage and 0.33 % had left ventricular hypertrophy. Rest of the abnormal ECG records showed sinus tachycardia, sinus arrhythmia, right bundle branch block, complete bundle branch block etc.

3. Study on blood pressure levels in children and adolescents

Investigators : Dr. D. Biswas, Dr. N. C. Hazarika

Duration : 2 Years (2003-2004)

Funding : Intramural

This intramurally funded study was taken up to investigate the blood pressure levels and its relationship with anthropometric measurements in 6-17 years old children belonging to 3 distinct communities viz. tea garden, indigenous Assamese and Mizos. A total of 1,022 children, selected randomly, from indigenous Assamese population (n=656), tea garden (n=256) and Mizo community (n=110) were surveyed. The difference in mean blood pressure level of tea garden children (SBP109.2±9.7; DBP68.0±8.6), Assamese children (SBP106.3 ± 9.1; DBP65.3 ± 7.3) and Mizo children (SBP106.3±8.1; DBP65.0±6.7) was statistically significant (ANOVA; P<0.0001). Blood pressure in children of different age brackets was highest among tea garden subjects and lowest among Mizo subjects except in 15-16 years bracket. Mean values of anthropometric parameters such as height, weight, left mid arm circumference, triceps skin folds and BMI in tea garden children were lower than Assamese children and Mizo children with statistically significant difference. However, waist to hip ratio was higher in tea garden children than the other two groups. The mean blood pressure levels of children tended to be higher when one or both the parents were hypertensive. The prevalence of hypertension (blood pressure level ≥95th percentile for gender, age, and height) was highest in tea garden children (16.4%) followed by Assamese (8.5%) and Mizo (1.8%) children.

4. Study of some genetic aspects of essential hypertension in NE India

Investigators : Dr. J. Mahanta, Dr. N. C. Hazarika (RMRC, Dibrugarh) ; Dr. D. Mohanty, Dr. K. Ghosh, Dr. Shrimati Shetty (IIH, Mumbai)

Duration : 3 Years (Oct 2003 – Sept 2006)

Funding : ICMR (NE Initiative)

This collaborative project with Institute of Immunohaematology (IIH), Mumbai was initiated in October 2003 to study the genetic basis of hypertension using 3 genetic markers viz. Angiotensin Converting Enzyme (ACE) polymorphism, Single Nucleotide Polymorphism (SNP) and Angiotensin Receptor Polymorphism (ARP) in Mizo, indigenous Assamese and tea garden population of Assam. One teagarden and a village in Dibrugarh district, Assam was purposively selected for the study. Every household in the study area was visited and all adult members (≥18 years) were interviewed, clinically examined and blood pressure measured.

Among people belonging to Assamese community in the selected village, a total of 83 hypertensive individuals (≥ 18 years) found in 66 families - 3 hypertensive members each in 20 families, 2 hypertensive members each in 8 families and 1 hypertensive member each in 6 families were included in the study.

In the selected tea garden, surveys covered a total of 273 individuals in 138 families. There were 222 hypertensive individuals in 89 families- ≥ 3 hypertensive members each in 28 families, 2 hypertensive members each in 28 families and a single hypertensive individual in 33 families. A total of 200 blood samples from the two areas were collected and analyzed for blood biochemistry and lipid profile. It is proposed to include three genetic markers namely, ACE (Angiotensin Converting Enzyme) polymorphism, Angiotensin receptor polymorphism, and SNPs in hypertensive families. Selection of molecular markers and standardization is in progress at IIH, Mumbai.

5. Causes of death by verbal autopsy in Assam : A multicentric study

Investigators : Dr. J. Mahanta, Dr. N. C. Hazarika, Dr. D. Biswas, Ms P. Pegu
Duration : 2 Years (2003 – 2005)
Funding : ICMR (Task Force Project)

This multi-centric task force study estimated the probable causes of death in male and female populations of Assam and also studied the socio economic profile of the households with deaths in rural and urban areas covering 4 districts with 30 villages/wards each in each selected district. The population covered was 312,313 and the total number of deaths with identified causes in one year were 1963. Among rural males 822 deaths were recorded. Stroke was the prominent cause of death in the age group 50-59 and 35-39 followed by renal failure and COPD. Malignant neoplasm was a major contributory cause in males over 50 years. Out of 624 deaths with identified causes in rural females, the major causes were stroke, CCF, renal failure and respiratory illness in the age group of 45-49 years and above. Causes of death in the 1-5 year group were diarrhoea & gastroenteritis, PEM, pneumonia and accidents. Maternal causes of deaths were anaemia, complicating pregnancy, eclampsia, puerperal sepsis, antepartum haemorrhage, post partum haemorrhage and prolonged labor. A total of 334 deaths were recorded among urban males during the study. Stroke followed by acute myocardial infarction, renal failure, cirrhosis of liver, carcinoma in various sites of digestive system were the major causes in urban males of 60 years and above. Out of 183 deaths recorded among the urban females, stroke was the predominant cause of death in the elderly group. CCF, malignant neoplasm of oesophagus, stomach and diabetes were other causes. Leading cancers in 45-49 years urban females were carcinoma ovary, cervix and breast. Causes of maternal death in 20-34 years age group in urban females were eclampsia, antepartum haemorrhage, post partum haemorrhage and obstructed labor. Important causes elicited for under stillbirth category were antepartum haemorrhage, eclampsia, obstructed labor, foetal distress, multiple pregnancy etc. Causes of deaths identified for 124 neonatal deaths were prematurity, neonatal tetanus, low birth weight, asphyxia at birth, congenital heart disease, obstructed labor and birth trauma etc. In urban area, 65.8% of the identified deaths occurred at home followed by 13.7% at government hospital.

Dwellings of deceased in the urban areas were mostly Pucca with open and running drainage system. While source of drinking water in both urban and the rural areas were chiefly hand pumps, toilet facilities were poor in rural areas. Open field defecation was in vogue in both the

areas. Majority of the mothers of the deceased in < 5 years age group in both rural and urban areas were housewives, fathers were either cultivators or unskilled workers in rural areas. Predominant occupation of the deceased males in the age group ≥ 5 years in rural area was cultivation, their female counterparts were housewives. Among deceased females in rural area majority were housewives whereas their spouses were either cultivators or unskilled workers. In the urban area, the highest numbers of deceased males in the age group ≥ 5 years were service holders, businessman or unskilled workers, their spouses were housewives. Majority of the deceased females in the urban area in ≥ 5 years age group were housewives and their spouses were service holders, businessman, or skilled workers. Majority of the parents of the deceased in < 5 years age group, in both urban and rural area, were illiterates. Most of the deceased of both sexes in ≥ 5 years age group in rural areas were illiterates, whereas in the urban area majority of the deceased males had secondary/ higher secondary level of education and their spouses were illiterates. Among the deceased females in urban area significant numbers was illiterates.

6. Morbidity surveillance in Sikkim

Investigators : Dr. N. C. Hazarika, Dr. J. Mahanta (RMRC, Dibrugarh); Dr. I. L. Sharma (Sikkim)
Duration : 2^{1/2} Years (2003 – 2005)
Funding : ICMR (NE Initiative)

The study collected 3 years retrospective and 2 years prospective morbidity data covering two rural PHCs (Phodong in North Sikkim district, Rongpo in East Sikkim district) and one urban unit (SNTM Hospital, Gangtok). The objective was to collate, analyze and interpret this data so as to help the state health authorities to introduce a sustainable surveillance system in Sikkim. A total of 10812 cases (Males 5120, Females 5692) were recorded during the prospective study period. Morbidity pattern showed predominance of ARI (Rural 20.8 %, Urban 12.4 %), Acute Diarrhoea (Rural-8.4 %, Urban-3.9 %) and fever of unknown origin among the communicable diseases in both urban and rural areas. Tuberculosis was also a major health problem in both urban (2.8%) and rural areas (0.7%). Among the communicable diseases prevalence of malaria was low while Japanese Encephalitis was virtually absent. Vaccine preventable diseases were less in number or absent. Emergence of non-communicable diseases, specifically hypertension and diabetes, was observed in the study with an increasing trend. Diseases of the Hepatobilliary system viz. cholelithiasis (2.5%) and Cirrhosis of liver were found major health problems observed in prospective as well as in retrospective data. Other significant health problems in the urban area were anemia, intestinal infectious diseases, worm infestation, dental carries, skin diseases and ocular problems. Similar pattern was observed in rural area. In comparison to urban area, prevalence of mumps, anemia, worm infestation and skin diseases was higher in rural area. Injuries of different types were observed as a major problem in both urban and rural area. Records of suicide and homicide were virtually absent.

7. Risk factors for stomach cancer with particular reference to dietary practices and its associated habits in Mizoram

Investigators : Dr. R. K. Phukan, Dr. N. C. Hazarika, Dr. J. Mahanta (RMRC, Dibrugarh)
Dr. Eric Zomawia (Nominee of DHS Mizoram)
Duration : 5 Years (2000 – 2005)
Funding : Intramural

This hospital based case-control study (2001-2004), covering 274 cases and 555 controls, identified dietary risk factors along with associated habits for stomach cancer in Mizoram. The results

have been reported in earlier Annual Reports. During the reporting year, as advised by 17th SAC, the consumption of tobacco, alcohol and some dietary food items was quantified in 55 new histologically confirmed stomach cancer cases and 110 sex, age and ethnicity matched controls.

7.1 Tobacco use and stomach cancer

The odds of developing stomach cancer in current smokers was 2.2 times more in comparison to past smokers and the increased risk persisted for about 10-19 years after quitting the smoking. Higher risk was seen for meiziol (a local made cigarette) smokers (OR=2.7, p=0.001). A dose-response effect on increasing stomach cancer risk was found for number of cigarettes smoked per day, number of years of smoking and early age for starting the smoking habit. The risk of developing stomach cancer increased with the number of pack-years (indicator for cumulative dose of smoking) in a dose dependant manner (Table-1)

Table-1: Smoking habits and risk of stomach cancer

Smoking habits	Cases	Controls	Odds Ratio¹	95% C.I.
Non-smokers	10	42	1.0	
Smoking status				
Past smokers	13	25	1.4	1.1-5.2
Current smokers	32	43	2.2	1.7-7.1
Type of smoked				
Cigarette	7	18	0.8	0.5-4.1
Meiziol	28	30	2.7	1.1-8.3
Both	10	20	2.0	1.0-6.2
Number smoked per day				
1-5	8	18	0.8	0.2-5.2
6-9	10	22	0.9	0.8-5.9
10-19	12	15	2.5	1.6-8.4
20≤	15	13	3.2	1.8-8.6
Years of smoking				
<10	12	20	1.3	1.0-5.3
10-19	19	26	2.3	1.4-9.2
20≤	24	22	3.7	2.1-9.9
Age started smoking (years)				
<15	26	36	2.6	1.8-9.3
15-25	11	18	1.7	1.1-8.4
25<	8	14	1.3	0.1-4.2
Pack-years of smoking				
<10	15	27	1.2	1.1-5.7
10-19	13	22	2.1	1.3-6.5
20≤	17	19	2.7	2.1-9.5
Tobacco smoked (mg)				
<25,000	8	17	0.92	0.8-5.2
25,000-50,000	12	20	1.6	0.9-7.3
50,000<	25	31	2.3	1.7-8.2
Years since stopped smoking				
<10	5	8	2.3	1.2-6.3
10-19	5	9	2.1	1.2-5.4
20≤	3	8	0.7	0.2-7.2

¹ Adjusted for education, income, occupation, chewing, alcohol drinking, tuibur, family history of cancer and food habits

Consumption of tuibur, the unique tobacco smoke infused water very common in Mizoram, was found to be a risk factor for stomach cancer (OR =2.2). Significant dose-response relationship was observed between the risk of stomach cancer and the frequency of tuibur use, cumulative dose of tuibur intake and the age of initiating the habit. Increased risk was observed for early age of starting the habit and the risk remained there for 1-10 years after quitting the habit (Table-2). No independent risk was observed for alcohol consumption and tobacco chewing habit with the development of stomach cancer. However, significant risk was observed for the combined habit of tobacco chewing, tobacco smoking and tuibur consumption (OR=2.2, p=0.039); for tobacco smoking and alcohol consumption (O.R.=2.0) and for tobacco chewing, tobacco smoking, consuming tuibur and alcohol (OR=2.4).

Table-2: Tuibur (Tobacco smoke infused water) and risk of stomach cancer

Habits	Cases	Control	Odds Ratio ¹	95% C.I.
Status of tuibur				
No	24	65	1.0	
Yes	31	45	2.2	1.1-5.2
Frequency per day				
<5	12	19	1.3	0.5 -5.3
5-10	10	14	1.6	0.8-6.3
10<	9	12	1.9	1.1-7.2
Duration (years)				
≤ 15	7	13	0.6	0.03 -4.2
16-30	15	17	1.3	0.8 -5.3
30<	9	15	1.6	0.3 -5.2
Age started (years)				
≤ 19	14	15	1.8	1.2 -6.2
20-29	9	11	1.1	0.8-7.4
30 ≤	8	19	0.3	0.02-4.2
Years since stopped				
<10	5	4	2.6	1.2 -9.2
10-20	6	9	0.6	0.08-5.2
20<	3	7	0.4	0.02-4.9
Cumulative dose to amount of tuibur (ml)				
< 1000	15	30	0.7	0.05-5.3
1000-2000	8	9	1.8	1.01-7.25
2000<	8	6	2.4	1.69-9.21

¹Adjusted for education, income, occupation, smoking, chewing, alcohol drinking, family history of cancer and food habits

7.2 Dietary habits and stomach cancer

Among the dietary habits, consumption of smoked dried fish (OR =2.2) and smoked dried meat (OR=3.0) was found as risk factors for stomach cancer in a dose dependant manner. Among the peculiar food items of Mizoram, consumption of SA-UM, the fermented pork fat (OR=2.6), and Soda (alkali, food additive in every food items) (OR=2.3) were found to be the

significant risk factors for stomach cancer (Table-3). Consumption of green leafy vegetables (OR=0.3), fruits (OR 0.2), fresh chicken (OR=0.4), fresh beef (OR=0.9) and fresh fish (OR=0.3) was found to be protective against stomach cancer whereas the consumption of fresh pork (OR=1.6) was a risk factor.

Table-3: Risk of stomach cancer and consumption of different dietary product

Smoked dried fish	Cases	Controls	Odds Ratio¹	95% CI
Never	10	38	1.0	
Once in a week	19	40	1.1	0.4-5.2
Twice or more in a week	26	32	2.2	1.0-7.2
Smoked dried meat				
Never	13	47	1.0	
Once in a week	17	35	1.8	0.2-8.2
Twice or more in a week	25	28	3.0	1.8-7.3
Smoked salted dried fish				
Never	18	40	1.0	
Once in a week	20	38	1.8	1.0-8.2
Twice or more in a week	27	32	2.7	1.2-7.4
Smoked salted dried meat				
Never	7	35	1.0	
Once in a week	22	37	2.7	1.1-9.2
Twice or more in a week	26	38	3.2	1.0-6.2
SA-UM (fermented pork fat)				
Never	14	49	1.0	
Once in a week	18	27	1.5	0.3-6.2
Twice or more in a week	23	34	2.6	1.1-5.2
Soda (Alkali)				
Never	15	48	1.0	
Once in a week	14	39	0.8	0.0-4.2
Twice or more in a week	26	23	2.3	1.0-6.3
BEKANG (fermented soyabean)				
Never	14	50	1.0	
Once in a week	18	28	1.1	0.1-6.2
Twice or more in a week	23	32	1.9	0.4-7.2
Total	55	110		

¹ Adjusted for education, income, occupation, chewing, smoking, alcohol drinking and tuibur habits

**8. Comprehensive study of carcinoma oesophagus at North East India
-Multidiscipline approach**

**Investigators : Dr. J. Mahanta, Dr. R. K. Phukan, Dr. N. C. Hazarika (RMRC, Dibrugarh)
; Dr. S. Saxena, Dr. S. Kapur (IOP, New Delhi) ; Dr. B. C. Das, Dr. J. K. Sharma (ICPO, New Delhi)**
Duration : 3 Years (2004 – 2007)
Funding : ICMR (NE Initiative)

Data from cancer registries in India shows the highest incidence of esophageal cancer in Assam. Large geographical variation and familial aggregation in its incidence suggest that environmental exposure as well as familial pedigree is causally important. The aggregation of esophageal cancer in families is a long-observed and well-documented phenomenon, but it is still subject to debate. With this background a collaborative comprehensive study on the oesophageal cancer was initiated in April 2004 to validate whether the etiologic significance of familial clustering represents inherited susceptibility or common familial exposure to some cultural, dietary or other environmental stimulus. A total of 80 new histologically confirmed esophageal cancer cases, registered at BBCI, Guwahati, were recruited during the year in the study, their family history, socio-demography, food habits and other associated habits recorded. A total of 32 blood samples and 17 samples of biological tissues collected from the cases were transported to IOP and ICPO, New Delhi, as per the protocol, for molecular investigations.

2.1 Socio-demographic information

More than 45% cases of oesophageal cancer were in 45-65 years age group with mean age of 53.5 years and male: female ratio of 2.9:1. Majority of the cases (32.6%) were from Kamrup district of Assam and rural areas (67.4%). About 59% of the cases were educated up to primary & middle level and most of them (37.1%) were from lower economic status. Occupation wise 23.6% of the cases were service holders, 9.6% business persons, 18.4% cultivators, 15.0% house wives, 13.7% unskilled and 9.1% skilled workers.

2.2 Clinical findings

All the cases were confirmed by histology and endoscopy. Site wise, the cancer in 33.4% cases was detected in the lower-third, in 49.9% in the mid-third and in 15.2% occurred in the upper-third region of the esophagus. Of all the cases 97.2% were SCC and 2.8% were adenocarcinoma.

2.3 Family history

Forty six percent of the cases had the history of cancer in their families. The history of oesophageal cancer was found in the families of 25.1% cases. The history of cancer among the 1st degree relations was found in 27% of the cases.

9. Northeast cancer registry programme

Investigators : Dr. J. Mahanta, Dr. R. K. Phukan, Dr. N. C. Hazarika

Duration : 3 Years (2003 – 2006)

Funding : ICMR (NE Initiative)

Under this project, a total of 6 cancer registries are functioning- 3 in Assam (Assam Medical College, Dibrugarh; Dr.BBCI Hospital, Guwahati & Silchar Medical College, Silchar), 1 in Sikkim (STNM Hospital, Gangtok), 1 in Manipur (RIMS, Imphal) and 1 in Mizoram (Civil Hospital, Aizawl) along with a monitoring unit at Regional Medical Research Centre, Dibrugarh. The data is being collected on the lines of Population Based National Cancer Registry Programme. The number of cancer cases reported by different registry units is given in Table-4. Aizawl cancer registry reported the highest cancer incidence followed by Guwahati.

Table-4: Cases reported by different cancer registry units

Cancer Registries	2003						2004					
	Male			Female			Male			Female		
	No.	CR	AAR	No.	CR	AAR	No.	CR	AAR	No.	CR	AAR
Aizawl	640	165.3	184.6	575	176.7	188.1	520	150.2	168.3	407	153.0	161.3
Dibrugarh	226	35.8	59.6	177	29.3	58.2	187	27.6	37.3	126	18.5	21.6
Gangtok	121	58.1	73.5	167	89.6	103.6	42	32.1	36.4	76	43.7	51.2
Guwahati	507	106.2	126.3	378	85.4	104.5	226	58.9	65.3	188	42.8	62.1
Imphal	194	21.4	32.5	235	32.9	45.6	126	15.3	22.5	174	26.1	34.1
Silchar	60	75.4	86.3	56	75.9	84.5	15	20.2	28.6	10	12.7	14.7

CR=Crude rate AAR= Age-adjusted rate

Site wise distribution of cancer cases (Table-5) shows stomach as the leading site of cancer among males followed by oesophagus and lungs. The predominant cancers among females were breast, stomach, lungs and cervix.

Table-5: Site wise distribution of cancer cases by

Major site	Assam				Manipur				Mizoram				Sikkim			
	Male		Female		Male		Female		Male		Female		Male		Female	
	N	AAR	N	AAR	N	AAR	N	AAR	N	AAR	N	AAR	N	AAR	N	AAR
Oesophagus	167	34.3	68	22.6	11	2.1	6	1.1	50	25.3	12	7.0	10	8.6	14	10.8
Stomach	46	15.1	13	10.3	15	2.2	11	1.5	115	60.2	65	33.5	11	8.7	4	4.9
Lung	50	22.3	12	9.5	40	8.5	34	6.2	39	18.6	58	30.1	8	8.3	4	4.9
Breast	-	-	118	36.6	-	-	30	5.9	-	-	57	29.6	-	-	27	19.5
Cervix	-	-	76	25.3	-	-	40	6.9	-	-	55	26.3	-	-	13	10.2

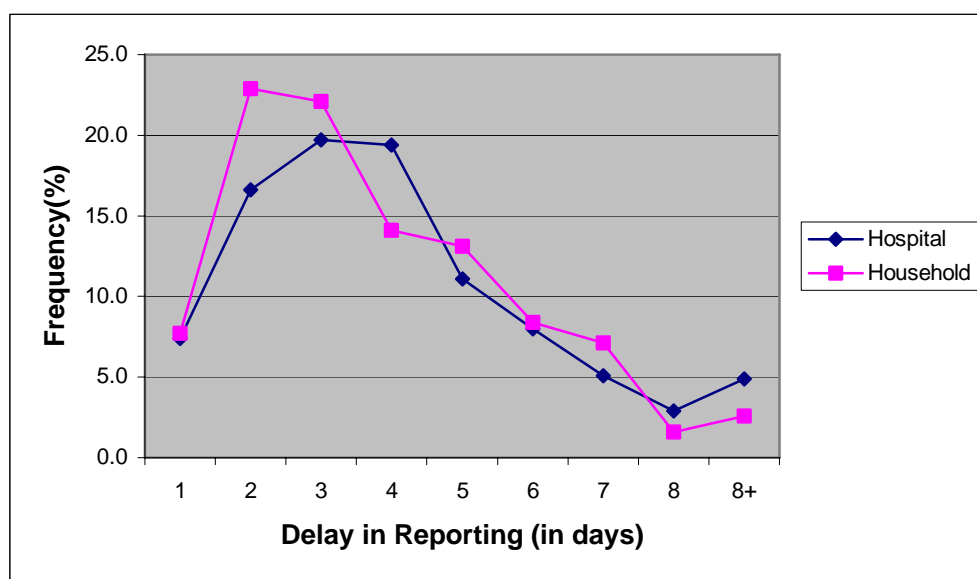
10. A study on treatment seeking behaviour and reporting pattern of patients to health service centres especially with fever symptoms

Investigators : Dr. H. K. Chaturvedi, Dr. J. Mahanta, Dr. R. K. Phukan
Duration : 2 Years (2003 – 2005)
Funding : ICMR (NE Initiative)

This study launched, under NE initiative, during 2003 to investigate behavioural aspects of treatment of fever cases at household level, covered 90 randomly selected villages and urban wards in Golaghat and Tinsukia districts of upper Assam. Using appropriate sampling technique, data from a

total of 1789 households, where at least one family member was treated for fever during preceding 3 months of the survey, was collected. Further, information was also collected from 350 indoor patients admitted in various government or private hospitals with fever. Among the 1789 surveyed fever cases, delay of 2 to 5 days in reporting to a medical practitioner for treatment was found in 1201 (67.1%) cases and a delay of more than 5 days in 328 (18.3%) cases. Of all cases, 338 (18.9%) took some medicine for fever without consulting a doctor. Analysis of 350 indoor patients (218 Males and 132 Females) who reported to various hospitals for treatment indicate that delay in reporting from the onset of fever was 2 to 5 days in 234 (66.9%) cases and more than 5 days 73 (20.8%) cases (Figure-3). Among the indoor patients, 188 (53.7%) patients reported to have taken some treatment earlier at home by a local doctors. Data is being analysed to find out the associated causes of delay and other behavioural practices related to treatment of fever cases.

Fig-3: Delay in reporting of fever cases to health facility



11. Studies on HIV/AIDS & Drug Abuse in Mizoram and Nagaland

Investigators : Dr. J. Mahanta, Dr. P. K. Challeng, Dr. H. K. Das (RMRC, Dibrugarh) ;
: Director Health Services Mizoram, Director Health Services, Nagaland
Duration : 3 Years (2004 – 2007)
Funding : ICMR (Task Force)

This ICMR Task Force project, having units at Aizawl (Mizoram) and Kohima (Nagaland), was initiated in 2004 with an aim to build up capacity for research in NE region and to conduct comprehensive research in the field of HIV/AIDS & drug abuse. The study is looking in to following issues (i) Seroprevalence of HIV among the high risk groups especially IDUS and their spouses and CSWs (ii) Pattern of opportunistic infections and tuberculosis among HIV positives (iii) Effectiveness of isoniazid as a preventive drug for prevention of tuberculosis among HIV positives (iv) Role of cotrimoxazole in prevention of opportunistic infections (v) Association of HBV and HCV among HIV positives. The study is divided in to three phases and

in the ongoing Phase I the sero-prevalence among the high-risk behavioral groups (IDUs) and risk behavior of other susceptible groups in acquisition of HIV is being studied.

During the reporting year the field staff was recruited and positioned in Kohima and Aizawl units. Contacts were made with various NGO's / CBO's / FBO's already working in this field of IDU's in these two states. In Nagaland, a total of 200 random blood samples of IDUs were screened from two sites, (Kohima & Dimapur) of which 15 HIV positives were detected which were recruited in the study. In Mizoram, 129 IDUs were screened randomly from Aizawl of which 15 were found positive for HIV. Blood of 78 IDUs was reactive for HCV and that of 6 subjects for HBV. Maximum positivity in Aizawl was found in 21-30 years age group.

12. A Study on health consequences of domestic violence with special reference to reproductive health : A multicentric task force study

Investigators : Dr. J. Mahanta, Dr. N. C. Hazarika

Duration : 1^{1/2} Year (2004-2005)

Funding : ICMR (Task Force)

This project was initiated in July 2004 in 3 north-eastern states viz. Assam, Meghalaya and Sikkim to study the perception, prevalence, associated factors and reproductive outcome resulting from domestic violence and to study the socio-cultural and institutional mechanisms to prevent domestic violence. Two districts in each state viz. Dibrugarh, Kamrup (Assam), East Khasi Hills, West Garo Hills (Meghalaya), Sikkim East, Sikkim North (Sikkim) were included in the study and both rural and urban populations were covered following systematic sampling procedure. Surveys were completed covering 1350 respondents in Assam, 908 in Meghalaya and 2307 in Sikkim (Table-6). The data entry and analysis work is in progress.

Table-6: Population coverage for health consequences study of domestic violence

Area	Assam				Meghalaya				Sikkim			
	Dibrugarh		Kamrup		East Khasi Hills		West Garo Hills		East Sikkim		North Sikkim	
	M	F	M	F	M	F	M	F	M	F	M	F
Rural	228	228	228	228	160	160	160	160	403	404	402	402
Urban	97	97	97	97	67	67	67	67	173	173	172	172
Total	325	325	325	325	227	227	227	227	573	577	572	572

M = Male F = Female

13. Mapping and size estimation of Injecting Drug Users in five north-eastern states of India

Investigators : Dr. J. Mahanta , Dr. G. K. Medhi
Duration : 1 Year (2004)
Funding : Extramural (Family Health International)

In the northeastern parts of India, injecting drug use is the major mode of transmission of HIV/AIDS. This 1 year study, funded by Family Health International, was conducted in five northeastern states of India viz. Manipur, Nagaland, Mizoram, Meghalaya and Assam with the objectives of (i) estimating the size of injecting drug users (IDUs) (ii) geographic mapping of IDUs and (iii) social mapping of IDUs. In order to estimate the size of IDUs four methods viz Capture-recapture, multiplier, census and Respondent Driven Sampling(RDS) methods were adopted in different parts of the states depending on the suitability of the method. A total of 2464 IDU sites were identified and the estimated size of IDUs in these five states was nearly fifty thousand (Table-7)

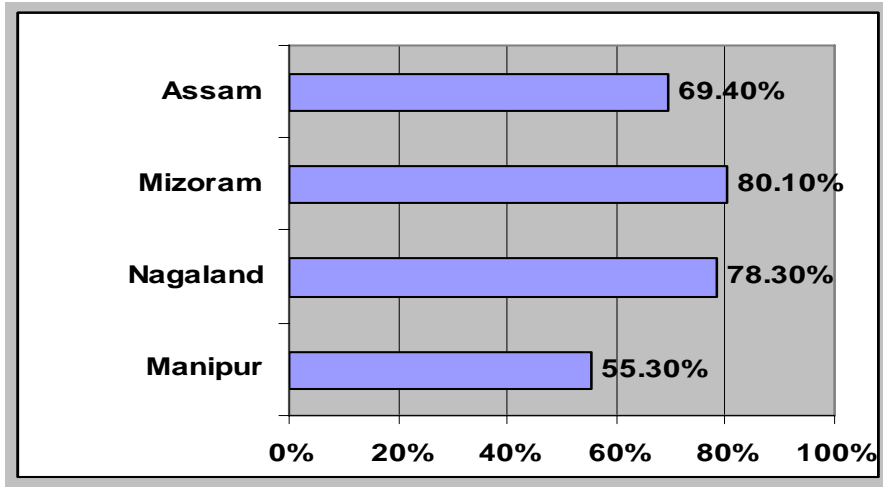
Table-7: Numbers of IDU sites observed and estimated size of IDUs in five North-eastern states of India*

State	No. of injecting sites	Appox. number of IDUs	Method adopted for size estimation
Assam	170	1706	Capture-recapture, Census and KIs estimates
Meghalaya	294	4299	Capture-recapture, Census
Nagaland	475	9015	Multiplier, Capture-recapture, Census and KIs estimates
Manipur	1337	26776	Multiplier, Capture-recapture, Census, KIs estimates and RDS
Mizoram	188	8850	Census
Total	2,464	50,646	-

* IDU injecting in a group of 2 or more are only counted in size

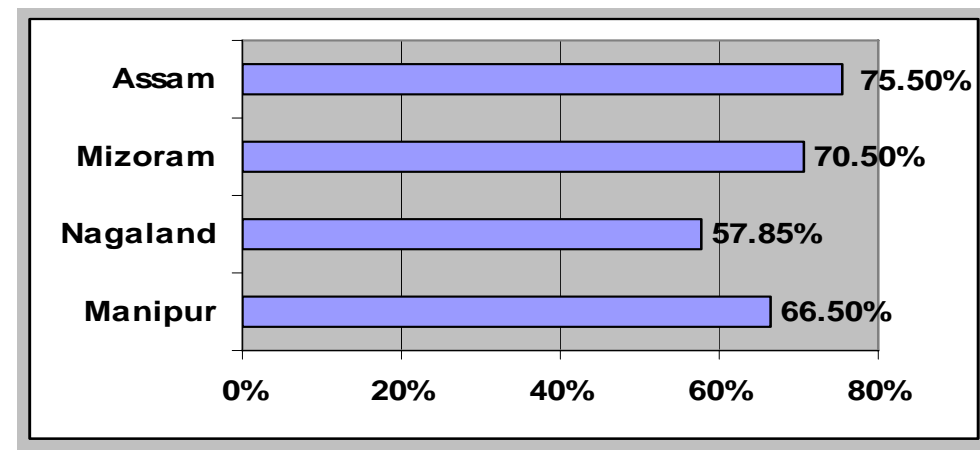
Injecting equipment sharing behavior was highly prevalent in all the states (Fig-4). Cleaning of the injecting equipments in some sites was noted, however, the method of cleaning injecting equipments was not appropriate in most of the cases. Most common cleaning agents used by IDUs to clean their injecting equipments was plain water. Some other agents used as cleaning agents were hot water, saliva, wiping with cloth.

Fig-4: Proportion of sites where needle sharing was observed



Dynamic network among IDUs was observed in all the states (Fig-5).

Fig-5: Proportion of sites with dynamic network



An IDU injecting spasmoproxivon in to femoral vein



An IDU with thrombotic vein and ulcers due to injecting drugs