Contents

AN EXPLORATORY STUDY OF THE UTILISATION OF THE OUTREACH CLINICS IN BHUTAN 1998

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Background

Since the Alma Ata Declaration, Bhutan has made the provision of Primary Health Care the core focus of health care activities. Although Bhutan had a late start in the modernization process, starting with only a few hospitals and a handful of dispensaries in the early sixties, Bhutan now has 26 hospitals, 97 Basic Health Units and 32 dispensaries providing preventive, promotive and curative care to a population just over 600,000. Bhutan has already achieved remarkable success in many of the preventive and promotive activities such as the control of iodine deficiency disorders, attainment and maintenance of Universal Child Immunization, near elimination of leprosy, almost total eradication of poliomyelitis and neonatal tetanus, etc.

At the lowest level, in order to provide at least the preventive and the promotive health care services as near to the people as possible, and given the difficult terrain of Bhutan with its scattered population, the static health service centers are augmented by over 450 Outreach Clinics, ORC. These are fixed locations that are served on fixed days by health workers from the nearest health facility and each ORC cater to more than four or five villages that are too far to be reached by a static health facility. The time of the Outreach Clinics are fixed by the health staff in consultation with the general public using local calendar days. On those days, the Village health Workers, VHW, mobilize the women and children to attend the Clinic where antenatal, postnatal and intranatal check-up is provided along with immunization of the children. The health workers that provide such services either arrive early on the same day if that is possible, and if not, they must reach that specific clinic the day before with all the necessary equipment and vaccines. At these clinics, health education on such topics as sanitation and hygiene, immunization, family planning etc. are also provided. Should anyone require treatment for minor ailments, it is also made available.

Objectives of the study

The general objective of this study is to determine the level of utilization of the Outreach Clinics by the potential clinics. The specific objectives are as follows:

To determine the rate of utilization of these outreach clinics.
To ascertain the degree of client satisfaction of the services provided at these clinics,
To determine the beliefs, knowledge and attitudes or of other barriers that the nonusers of these services perceive, and
To evaluate the options that health care providers at these levels may have that is distinctly different from what is being offered now.

Materials & Methods

Given that this was to be an exploratory study, a purposive sample of nine districts were selected; namely, Paro, Thimphu, Chukha, Punakha, Trongsa, Mongar, Tashi Yangtse, North Tashigang and South Tashigang. The District Medical Officers of these districts were called for a thorough briefing on the protocol of this study. Along with the standardized questionnaires, they were provided with detailed instruction kit on the manner in which the study was to be carried out. The DMOs personally supervised the data collection and carried out the data quality control at their district headquarters prior to submission of the completed study protocols. The protocols included Schedule I for collection of general information about the catchments area of the ORC, Schedule II, to be administered to the women that attend the ORC, Schedule III, general information from health workers at that health facility, and a non-standardized instruction (Schedule IV) sheet to gather information on those women that have

never attended any outreach clinics. In all 28 ORCs where included in this study.

Analysis & Results

In this study a total of 28 outreach clinics were included covering a population of 15,945 (table 1) in nine districts stretching from Paro in the west to South Tashigang in the east of the country.

Table 1. Number of districts and ORCs included in the study

No. of Outreach Clinics	28
No. of districts covered	9
No. of villages covered	140
No. of households	2614
Total population covered	15945
No. of active VHWs	45
No. of women interviewed	244
No. of health workers interviewed	14

The population enumerated within the study areas is presented in table 2.

Table 2. Population enumerated in the study area

Age group	Male	Female
<1 yr	211	207
1 – 4 yrs	813	865
5 – 14 yrs	2009	1946
15 – 24 yrs	1376	1515
25 – 44 yrs	1779	1959
>45 yrs	1699	1566
Total	7887	8058

Utilisation of ORC

Within this study area, a total of 185 women were currently known to be pregnant (table 3.) From the currently pregnant women, 55 (29.7 %) were found to be attending the outreach clinics, and the rest 78% were attending for postnatal reasons.

Table 3. Pregnant women attending ORC for ANC services

No. of women currently pregnant	185
No. of women attending ORC that day	250
Total No. of women attending ANC	55
No of women that attended at least 1 ORC	158
No. of women that did not attend even once	27

From the current pregnant group of women, 85.4% had attended at least one antenatal clinic during this pregnancy, but 14.6% never attended even one within their areas. Among the women that had attended more than one such clinic, 69% had already made more than one visit. The commonest reasons cited for attending such clinics as in table 4.

Table 4. Reasons for attending clinics

To give injection to child	76.3%
To check my pregnancy	23.3%
To receive injection for self	12.3%
For family planning services	5.1%
For postnatal services	2.6%
Don't know any reason	0.4%

It is still evident that the predominant reason why women attend these clinics is to receive immunization for their children. This shows that the primary function that these clinics serve is to provide immunization. Although additional responsibilities have been added on the immunization, it is evident that they are not considered to be good reasons for these women to attend the clinics. One possible argument is the lack of information (or health education), but 80.3% of the respondent answered in the affirmative when asked whether health workers provide health education or not during these clinics. It is also quite apparent that the range of subjects covered during such talk is wide and included most of the common problems. They include topics such as,

- Immunization
- Sanitation & Hygiene
- Clean water
- Family Planning
- Breast feeding practices
- Nutrition, especially importance of green vegetables
- STD/AIDS
- Tuberculosis
- Diarrhea
- Prevention of Anemia

Although there are only 45 Village Health Workers in the villages enumerated, they are the primary source of information for these clinics. When the women interviewed were asked about the source of information for the clinic, the answers were as in the table 5.

Table 5. Sources of information on clinic & clinic activities

• Village Health Workers	49.4%
• Health Workers	23.9%
• Friends	12.6%
• Village Headman	4.4%
• Husband	4.4%

In the village set-up, it is known that often the women consult local healers when they are sick. When they were questioned directly, only 12.4% answered in the affirmative. However, from the women interviewed, 28 claimed that they were sick last month, and only 37.8% consulted the BHU, 11.1%, the VHW and 29.7% had actually consulted local healers such as tsip, pows, pam or lamas. From the 52 women who claimed to have problems in their previous pregnancy, 64% had consulted a health worker, 23.4%; local healers and 18% consulted nobody.

From the information provided by the women, the ORCs provide the services as detailed in table 6.

Table 6. The range of services received by women at the clinics

Injection for my baby	80.6%
For medicines	78.8%
For weighing baby	74.8%
For health education	56.7%
Check for other diseases	52.9%
Injection for self	51.3%
For blood pressure check	45.8%
For hemoglobin check	38.4%
For contraceptives	20.2%
For post-natal check-up	4.2%

Impact of ORC activities

While the ORCs provide a wide range of services, some services such as immunization held predominant attention of both the providers as well as the clients. One of the important services is that of post-natal check-ups including family services and awareness. From the above discussions, the proportion attending for post-natal or family planning services is very low (table 7). From the information provided by the BHUs regarding contraceptive practices in the catchments area of the ORCs, the contraceptive prevalence still remains low.

Table 7. Contraceptive practice.

Types of contractive	**N**	**%**
Women of reproductive age	3474	-------
Women on Pills	43	9.6%
Women with IUD	85	19.0%
Women on DMPA	57	12.7%
Women who had tubectomy	28	6.2%
Men who had vasectomy	164	36.6%
Couples using condom	71	15.8%
Contraceptive prevalence		12.9%

Source : Annual Health Bulletin, 1997

Regarding TT injection to mothers, sometimes 'protection at birth' is estimated as the proportion of women who had received 2 TT injections at the time of birth. From the information provided by the concerned BHUs, in the previous year there were 401 births and at least 251 of them had received at least 2 TT injections, giving a 'protection at birth' rate of 62.6%.

Women's perception of the utility of ORC

There is no doubt about the usefulness of such clinics, 99.6% of the women think it so. The reasons cited for why they come to the clinics are as in table 9.

Table 9. Reasons given by women who come to the clinics

For regular check up of baby	60.8%
For check up of baby & self	34.3%
For checking self only	22.4%
For spacing	9.2%
Don't need more children	6.3%
No special reasons	2.1%

In terms of the structural preference for an ORC, 97.9% of the clients would prefer a permanent structure as opposed to an open one. The reasons why such a permanent structure is overwhelmingly preferred are the inclemency of weather, safety, comfort and cleanliness.

Despite having a network of ORCs, BHUs and hospitals scattered through out the country, the present proportion of institutional delivery is still far from satisfactory. 51.2% of the women would still prefer to deliver their child at home. The reasons given for such a preferences are many, but there are some that is recurrently common to many.

- Far distance of the health facilities

- Not having enough family members to help the women reach such centers.
- More comfortable at home
- Feels happier when relatives are around
- Health workers can be called if there is problem
- Can take meals as one wishes at home
- Some health workers are rude
- Feel embarrassed to deliver in hospital or BHU
- Afraid of dying in the hospital
- Can bath baby as frequently as she wants at home

Of course, there are also many good reasons why the remaining prefers to deliver in the health facilities. But it is perhaps more important to evaluate the negative aspects so that improvements can be made in order to attract more of our women to deliver in institutional set ups.

There seem no major complaints regarding the services provided. However, when women were asked for their preferences of person attending them at deliver, there is definitely a bias towards women health workers.

Table 10. Preference of persons attending deliveries.

Male health workers	8.3%
Female health workers	37.1%
Any health workers	22.1%
Their husbands	15.2%

Apart from the list in table 10, when queried about any other, mothers, sisters, aunts and female friends were the common choice.

Although they seem satisfied with the services at the ORCs, they have some suggestions for their improvement.

Table 11. Some suggestions for improving services at ORCs

Posting of permanent staff	25%
Permanent structure	15%
Upgrading of ORC to BHU	7.5%
More frequent clinics	5%

Health worker's perception of the utility of ORC

From the health workers that responded to Schedule III, 9 were BHW, 4 HA and 1 ANM. All of them agreed that ORC are definitely useful. There is also additional need for clinics in their areas as 28.6% of these health workers have some villages not covered by any ORCs. Further, 42.9% of the women in their catchments areas do not attend ORC regularly even where ORC exists.

Table 12. Reasons why women do not attend ORC

Far distance	28.6%
Not aware of clinic days	14.3%
Not aware of its importance	14.3%
Religious & cultural beliefs	7.1%
Other reasons	42.9%

The health workers were asked to review the answers in Schedule II and comment on the responses. In general the health workers feel that the answers provided were accurate and honest enough. There were several respondents who claim that they were not aware of the clinic days and that not enough health education is given at these clinics and, as expected, the health workers were defensive about this.

It seems that there are adequate health education materials at the clinic and that the health workers are confident to deliver such services. However, the main impediment to this activity is the lack of time, as these clinics tend to be very busy most of the time and the activities have to be carried out often by a single health worker.

Strengths and weaknesses of the study

Strength

The strength of this study is that it allowed a cross-sectional analysis of the situation that exists at the out reach clinics in the country. It also allowed the district health workers to assess their own performance and existing situation in their own surrounding. It provides the window of opportunity to gain an insight in the strengths and weaknesses of their activities. And it had added valuable knowledge regarding the outreach clinics and the services and activities related to these clinics.

Weakness

Since this was designed as an exploratory study, the sampling itself was purposive. Further, due

to unavailability of trained researchers and, also since we were not able to mobilize health workers from other areas to carry out the assessment, when such questions are administered by the same people that also provide these services, the responses are likely to be biased towards the positive or the favorable aspects. This has been minimized to some extend by the careful design of the questionnaire so that check and balances were built into it.

Conclusions & Recommendations

There is no doubt that the out reach clinics have played crucial role in the promotion of general awareness, be it on common disorders, general sanitation and hygiene, immunization and family planning services and needs. There is also enough evidence to show that the peripheral health workers and the village health workers have continued to struggle to promote healthy lifestyles and practices in the rural areas of our county. The women those attend the clinics for services do so primarily for immunization purposes, but there is also emerging awareness about the availability and need for other services such as family planning and postnatal check ups.

In situation where the utilization of services at the ORCs is not optimal, it is largely due to the long distances that women have to travel. This is compounded by the fact that there are not many people at home to help with the household and farm chores and look after children when mothers are away.

The major activities that are being carried out should be sustained. But order to strengthen the services rendered from the health facilities, be it from the ORCs, BHUs or hospitals, and to attract more of the women to utilize such facilities, the following recommendations may be considered.

1. IEC activities need to be re-focused to emphasis on postnatal services and family planning.
2. The Health Division must continue to post more female health workers to the BHUs so that they can be there to provide services to pregnant intra- and post-natal periods.
3. In the health facilities, more attention need to focused to generate awareness and provide facilities such as warm water to bathe mother and child.
4. Allowing the woman to eat food of her choice, have relatives or other family members around during delivery may help allay fears of death and discomfort in the health facilities.
5. In those areas where ORCs have large population to cater to, assessment of the need to post additional staff at the BHU that provides the clinics may be important.
6. A general training and awareness on the attitude and friendly treatment of patients by health workers may go a long way in attracting more women to utilize institutional facilities.
7. Standardization of service provision.

ORAL HEALTH PROGRAMME, THIMPHU BHUTAN

Introduction

The start of the planned socio-economic development in the kingdom of Bhutan in early sixties also marked the beginning of the health services in the country. Formally Health Services was established in 1961[1] with the opening of a hospital in Thimphu, the capital city of Bhutan.

Health services and infrastructures since then have expanded rapidly with the total health coverage of over 90% as of today.[2] The beginning of Dentistry in Bhutan emerged with the start of the first hospital.

Within the primary health care policy of the country, school oral health programme is a regular component of the health services that is extended to almost all the school children in Bhutan. Dental Surgeons and Dental Hygienist are visiting schools in their region once or twice a year.

Background

In the absence of complete surveys on dental health, there was no clear picture of periodontal diseases prevalence in the country. However, screening examination conducted on schoolchildren through out Bhutan has shown early signs of periodontal diseases and high incidence of dental caries in Bhutanese population. Oral hygiene is generally poor and the onset of periodontal diseases result into loss of teeth much earlier than expected. The habit of chewing "doma" popularly seen in Bhutan, a traditional practice, is believed to be the cause of poor oral hygiene resulting into early onset of periodontal diseases and exfoliation of teeth.

Statement of Problem

Although a preliminary study to determine the prevalence of periodontal diseases was conducted n 1984 and 1987, the information is sketchy and conflicting. However the prevalence of periodontal disease was about 95% (from the country survey of 1985 conducted by Dr.D.K.Singh as the Principal Investigation along with WHO short term consultant). In both the studies no attempts was made to analyse the causal factors associated with them. Inadequate dietary intake of food due to communities dietary habits, constant chewing of doma by people of all age, frequent consumption of sweets by children, poor oral hygiene, poor compliance to oral hygiene care and instruction, poor educational background, poverty and lack of knowledge about caries free diet and oral hygiene procedures are thought to be the possible causal factors.

General Objectives

To determine the prevalence of periodontal diseases. "A study to determine the prevalence of Dental Caries and Periodontal Disease in Bhutanese School Population and Factor associated with them" was conducted following multi stage cluster sampling methods in 30 clusters through out the kingdom. We examined over 387 students, who come from different communities with different food and health habits.

Specific Objectives

To determine the prevalence of periodontal diseases in Bhutanese school population at the age of 18 years of age.

Materials & Methods

Assessment of periodontal diseases can be done by various methods. However, hospital based study will not give the exact prevalence of the conditions because the case seen in the hospitals are disease related. Hence a cross sectional study was done to determine the prevalence of it. A pre tested WHO pathfinder form with CPITN was used for this purpose and its standards were followed in recording procedure. A total of 387 students, 191 males and 196 females at the age group of 18 were examined in this study whose findings are as shown in Table II.

Table II. Analysis on the severity of gum diseases for the 18 years samples

[1] Annual Health Bulletin 1994
[2] Annual Health Bulletin 1994

Sex	Total sample	CPITN "0" No. (%)	CPITN >2 in at least 3 quadrants No. (%)
Male	191	13 (6.806%)	108 (56.544%)
Female	196	42 (21.428%)	87 (44.622%)

CPITN = Community Index of Treatment Need
CPITN O = All the six quadrants of the mouth under examination are free from signs of gum diseases.
CPITN 2 = At least three quadrants of the month under examination have calculus, which is one of the aggravating factors for gum diseases.

Discussion

In this study of 387 school children in Bhutan (30 July to 4 October, 1996), according to WHO's recommended criteria, 85.73% of school children at the age of 18 have gum problems. As this report is aimed in projecting the gum condition each quadrant was carefully checked using a standard periodontal probe and recorded for both sexes separately. The findings are as follows:

From the above analysis it is found that 6.806% of the male student at the age of 18 are free from gum disease while 93.194% of them have gum diseases in the form of bleeding gums or calculus, while pockets measuring in the scale of 4 or more were not observed.

In female samples of the same age group 21.248% are free from gum diseases while 78.752% have gum diseases in some form or the other.

Thus it is also observed that the males have more gum problems than the females and the difference is by 14.442%.
Lack of knowledge among these children and absence of regular dental check up means that they are almost unaware and have no access to the dental care they need.

In addition to these, there are many schools which are very far from the hospitals where dental surgeon or dental hygienist work.

It is observed from the hospital records that only four percent of the people who attend to health centers come up with dental problem and the other 96% have problems not related to teeth and gum.

Comment

In view of this situation, the school oral health programme need to be extended further to all these children in the immediate future and provision made to make them aware of the need to have a regular dental care and treatment for any gum diseases.

Conclusion

It is fair to say that the prevalence of gum diseases is very high among the Bhutanese school population at the age 18 years.

LOW BIRTH WEIGHT – IS IT A PROBLEM IN BHUTAN?

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Introduction

Birth weight is considered an important indicator to monitor the progress in maternal and child health. The global HFA target for the low birth weight is less than 10% of all live births, and The World Summit for Children in 1990 further reaffirmed this goal. A multi-centric study was carried out by WHO in SEARO[1] to determine the incidence. In this study it was found 28.1% of live births in India, 14.4% in Nepal and 18.4% in Sri Lanka, were under 2500 gram weight. It was found that in all these three centers, more that two-thirds of low birth weight infants were "small for date" suggesting that intrauterine growth retardation plays a major role in the aetiology of low birth weight.

The regional picture is not as bright when contrasted with the target for 2000; only Thailand seems closer to the HFA goal for the reduction of low birth weight.

Table 1. Regional picture of Low Birth weight, 1990 – 1994[2]

Country	Percent Low Birth Weight
India	33%
Sri Lanka	25%
Bangladesh	50%
Maldives	20%
Nepal	NA
Pakistan	25%
Thailand	13%

Till now there is no real hard data available for the proportion of low birth weight for Bhutanese new borns. In the 7th FYP document[3] it is stated that the proportion of low birth weight for Bhutan was 36%. The source was quoted as 'hospital records' but there was no exact source indication from which the figure was derived. In the 1998 National Nutrition survey[4], it was found that the proportion of under-five malnourished was 38% and 56% of the children, stunted. If these latter two rates were true, then it is possible to assume that the incidence of low birth weight is also high. In order to initiate the assessment of the situation of low birth in the county, an analysis of the birth weight records from 1991 to 1995 at the Jigme Dorji Wangchuk National Referral Hospital was carried out by the Epidemiologist, Health Research & Epidemiology Unit, and Health Division.

Objective of the Review

The object of the review as to analyse the proportion of low birth weight among Bhutanese new born at the Jigme Dorji Wangchuk National Referral Hospital, low birth weight defined as may new born with weight less than 2500 grams at birth.

Methodology

It was decided, arbitrarily, to analyse the data from the birth records maintained in the Birth Register in the Gynecology & Obstetric Ward of the JDWNR hospital from 1991 to 1995. The data was entered by a computer assistant using FoxPro as the database package and the analysis was carried out with Epi Info version 6.04. All those records were birth dates which were not clear or blank or some records, which were torn and not visible, were all deleted from the analysis. Also those records which were obviously erroneous such as a baby weighing 7 kilos at birth record were deleted from the final analysis. Also those records which birth weights were more than 5 kilos were included, because some of the nurses claim that babies weighing more than 5 kilos were actually seen. Main emphasis was place pm the record of the birth weight. Upon inquiry it was found (according to a nurse) that the scale used to weigh the babies in the maternity ward has been the same scale for over a decade: it was a Salter weighing machine with a cane basket for placing the baby.

[1] WHO, Health Situation in the South-East Asia Region, 1991-1993

[2] UNICEF, The State of The World's Children, 1998

[3] Ministry of Planning, Seventh Five Year Plan (1991-1997), Vol 1, Main plan Document

[4] Health Departments, Nutrition Survey, 1988

Analysis & Finding

The total records included in the final analysis were 5958 births recorded between January 1991 and December 1995 at the JDWNR Hospital. In the analysis of low birth weight, only 5936 births were included after excluding all intra-uterine deaths and stillbirths. The details are presented in table 2.

Table 2. Result of the analysis of the birth weight, 1991 – 1995

Category	Number/Percent
Total birth records analyzed	(n) = 5958
Males	(n) = 3094 (51.9%)
Females	(n) = 2864 (48.1%)
Total births analyzed for LBW	(n) = 5936
Total birth with weight <2500g	(n) = 801 (13.49%)
Mean birth weight	2.995 Kilograms
Standard deviation	0.551 Kilograms
Caesarian section	(n) = 438 (7.4%)
Forceps delivery	(n) = 100 (2.5%)
Vacuum extraction	(n) = 221 (3.7%)

There were 9 pairs of twins, 18 still births and, perhaps, it is an artifact of recording, but the proportion of PET is less than 0.1%. Given that JDW National Referral Hospital is the National Referral Hospital, there should be certainly more reports of complicated cases. In terms of abnormal presentation, 4.1% were breech, 0.5% were transverse lie, 0.1% face, and elbow, foot, hand and shoulder combined in less than 0.1%.

The maternal age could not be analyzed to any significant degree because 61.5% of the records had no mother's age written. The address of most of the cases are written just simply as care of someone within Thimphu: it does not say whether the mother is a resident of Thimphu or came from other district for delivery at Thimphu.

Conclusion & Recommendation

While it may not be possible to extrapolate the results from Thimphu to the entire country, it is also true that the situation in Thimphu is not different from other districts in any dramatic fashion. It is possible that the residents of Thimphu maybe slightly better nourished then a comparative group of mothers in the hinterland of the country where access to such things as meat, eggs and variety of vegetables is limited. At the same time, JDW National Referral hospital also provided regular services to mothers from the adjoining districts of Haa, Paro, Punakha and Wangdue and, therefore, it is not quite true that the results reflects only Thimphu situation.

However, while we are still not at the HFA target of less than 10%, it is without doubt that low birth weight estimated from this five year record at the JDW National Referral Hospital is 13.5% only. This is encouraging and yet, at the same time, this also provides a pointer that the etiology of malnutrition in children may lie with out feeding habits of children.

Available records from other district hospitals should be analyzed, both as a combined data set for the whole country, as well to tease out regional difference, if any.

That the birth register is an important record and, therefore, it should be kept properly. All hospital in-charges of this register should be encouraged to make as complete an entry as possible, especially with regards to key information such as mother's age, address, gravida, complications, outcome, etc. it is also suggested that this register be hard bound.

NUTRITIONAL STATUS OF BHUTANESE CHILDREN: RESULT OF AN ANTHROPOMETRICS SURVEY

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Background

Bhutan has gone through four decades of socio-economic development process, beginning from the early 1960's. Within this short span of development period remarkable progress has been made in all sectors, most notable in education and health. From a situation of no modern health services at the end of the 1950's, by the end of 1980's, Bhutan had achieved almost 90% coverage with basic services, based on the principles of primary health care (I).

Globally it is estimated that 35.8% of preschool children are underweight and that 80% of these affected children live in Asia (2). They are no early records of nutritional assessment in Bhutan, and the only reliable survey on the nutritional status of children in Bhutan was the one conducted in 1988 (3). In this survey it was found that 56.1% of the children were below – 2SD fro height-for-age, 37.9% were below – 2SD for weight-for-age, and 4.1% were below – 2SD for weight-for-age, indicating a significant proportion of 'chronic malnutrition in the country'.

Methodology

The methodology for the survey and data analysis is well established (4,5). It requires the measurement of height (in centimeter), weight (in Kg) and the determination of exact age in months and correlating it with the sex of the child. The data is then analyzed using standard software packages such as Anthro and Epinut in EPI info. A software package that combines a word processor with a database and statistical software (9).

Given that the prevalence of stunting as measured by height-for-age was 56.1% in 1988, and if one assumes a 10% decline since then, the required sample for this survey is very small. However, since this was to be a nation-wide survey and to maintain the comparability with that of the last survey, it was decided to fix the sample size at 3000 children aged more than 6 months but less than 60 months. In 1997, the country had 20 districts and 196 blocks. Out of the 196 blocks, through a random selection process, 30 blocks were identified. Arbitrarily it was decided to sample 100 children from each block. Once the blocks were selected, since we have no detailed household lists at the headquarters, it was again decided that a least five villages must be sampled, thereby reducing the sample size for each village to only 20 children. At the district, the field surveyors consulted the District Medical Officer and the District Health Supervisory Officer to draw up, again through a random process, the list of the villages in that part block. Once the five villages are identified, survey began in any one village first. The surveyors moved on to the next village, in a contiguous fashion, as soon as they found 20 children within the age range in this village. Given the size of the villages and the narrow range for children's age, sometimes the surveyors had to survey more than five villages in a block to obtain the required 100 children in a block.

The actual fieldwork was carried out in March and April of 1999.

Age was recorded in completed months, using the immunization card for verification for exact age. For children up to the age of 15 months, recumbent length was measured, and for those older than 15 months, standing height was measuring boards supplied by UNICEF (Bhutan) for the 1988 survey were used. Height was recorded to the nearest tenth of a centimeter. Weight was recorded to the nearest tenth of a kilogram, using electronic bathroom scales (SECA-UNICEF Electronic Scale 890).

Once the fieldwork was completed, the data sheets were crosschecked for any obvious errors in the entries. Then the data was entered in a database using Epi Info ver 6.02 (9).

Analysis & Result

For the purpose of ensuring the quality and accuracy of analysis, the data was sent to both UNICEF and WHO to analyze. At the same time, analysis was carried out in the Research and Epidemiology Unit, using the program Epinut in the Epi Info. After receiving the WHO printout of the final outputs their analysis, we compared it with out own analysis. Except for minor differences, the two outputs were almost identical. However, the analysis and the result contained within this report are based on the final tables generated by the Global Database on Child Growth and Malnutrition, WHO/HQ/SEARO.

The analysis included a total of 2981 children, of which 49.8% were males and 50.2% were females.

Table 1. Age & Sex distribution of the children assessed

Age Group	Males (N=1484)	Females (N=1497)	Total (N=2981)
6 –11 months	200	209	409
12 – 23 months	356	331	687
24 – 35 months	330	349	679
36 – 47 months	309	319	628
48 – 59 months	289	289	573

The anthropometrics calculations are based on the growth reference curves developed by the National Center for Health Statistics (NCHS) and Centers for Disease Control (CDC) using data from the Fels Research Institute and the US Health Examination Surveys, and recommended by WHO (4,6,7). The Preferred method of presenting the anthropometrics indices is to relate the population data to the reference population by standard deviation scores (Z-scores) for the variables – height-for-age, weight-for-age and weight-for-height, respectively.

Height-for-age

The proportion of children with height-for-age less than –2SD is 40% (C.I. 38.3% - 41.7%), with girls doing better than boys. The comparison with the 1988 survey report is shown in table 2.

Table 2. Height-for-age less than –2SD, 1988 & 1999 survey

Sex	Height-for-age 1988	Height-for-age 1999
Males	57.2%	42.8%
Females	54.9%	37.3%
Both sexes	56.1%	40.0%

Low height-for-age or stunting is often found to be associated with overall lower socioeconomic condition exacerbated by repeated infections. Although there is significant reduction in the last one decade, still the proportion of children stunted is quite high. Further, there is an increasing proportion stunted as the child grows towards higher age group and this is to be expected as a consequence of the time of exposure to chronic dietary insufficiency and not necessarily significant deprivation at that particular age group.

In the east 47.7%, central 34.9%, south 31.1% and west 33.6% of the children are with less than –2SD for height-for-age. It is quite obvious that in the eastern part of the country, chronic exposure to food shortage as evident. Of course, from this study it is not possible to speculate whether it is absolute food shortage or inappropriate food habits that contribute to stunting, but the difference is significant enough to warrant more detailed study.

Weight-for-height

The proportion of children with weight-for height less than –2SD is 2.6%(C.I. 2.0% - 3.2%)

Table 2. Weight-for-height less than –2SD, 1988 & 1999 surveys

Sex	Weight-for-height 1988	Weight-for-height 1999
Males	4.0%	3.1%
Females	4.2%	2.1%
Both sexes	4.1%	2.6%

The weight-for height gives information about weight of the children relative to the weight of reference children of same height. Therefore, this index provides the distribution of those children that are either 'wasted' (thin) or 'obese' (fat). Wasting is indicative of deficit in tissue and fat mass (5) and results either from failure to gain weight or from actual weight loss that may result either from acute food shortages or sudden variations in disease prevalence. In the context of under nutrition and efforts to mitigate the problem, wasting is of interest as it can develop rapidly and can also be restored equally rapidly under favorable conditions.

While there were no significant differences in the distribution of low weight-for-height in the east, west and central regions (2.6%, 1.1%, 1.0%), the proportion of children with less than –2SD was significantly higher in the south (10.7%). The widely different value for this region was contributed by one single cluster, i.e. Gelephu. And in this cluster, the children surveyed were from the township area. The only possible explanation for this higher level of wasting in Gelephu could be the effect of intense malaria transmission during the summer. On the other hand, low weight-for-height may not always be of recent onset; it may be the result of a chronic condition in some communities.

It is also interesting to note that an equal number of children fall in the other extreme: the proportion of children with >+2SD weight-for-height is 2.1%

Weight-for-age

The weight-for-age is a composite index resulting from a combination of factors relating both height and weight to age. Although it is often used to estimate the proportion of children 'underweight' the interpretation of this index is very difficult as it fails to distinguish between tall, thin children from short, well-proportioned children. From this survey, the proportion of children with weight-for-age less than –2SD ii 28.7% (C.I.17.3% - 20.1%)

Table 3. Weight-for-age less than –2SD, 1988 & 1999 survey

Sex	Weight-for-age 1988	Weight-for-age 1999
Males	37.6%	20.1%
Females	38.3%	17.2%
Both sexes	37.9%	18.7%

Discussion

With the reference curves that are used, even within normal population, 2.3% of children will be less that –2SD (4,7). Therefore, adjusting for this 'normality' the nutritional indices for Bhutanese children from this survey are as in table 4.

Table 4. Observed and the adjusted proportion of <-SD for various nutritional indices, 1999, Bhutan

Sex	Height-for-age		Weight-for-age		Weight-for-height	
	Obs	Adj	Obs	Adj	Obs	Adj
M	42.8%	40.5%	20.1%	17.8%	3.1%	1.0%
F	37.3%	35.0%	17.2%	14.9%	2.1%	0.0%
M & F	40.0%	37.7%	18.7%	16.4%	2.6%	0.3%

Comparing with the results obtained in the 1988/89 survey with this one, there is a significant improvement in the nutritional status of Bhutanese children, with girls doing relatively better than boys. A simple statistical test, using X^2, performed on the observed values of the two surveys, indicating that the difference in the nutritional indices observed could not have occurred simply by chance.

Height-for-age; $X^2 = 161.9$ (Statistically highly significant; $p << 0.001$)
Weight-for-age; $X^2 = 280.0$ (Statistically highly significant; $p<<0.001$)
Weight-for height; $X^2 = 10.89$ (Statistically highly significant; $p<0.00$.)

Although, there are no obviously remarkable differences in the economic situation between different regions of the country, and the overall socio-economic development efforts are consistently pursued within the principle of equitable and balanced development, yet there are regional differences in the nutritional status of children. The eastern region is comparatively poorer, central and south somewhere in the

middle, and western Bhutan relatively better off (see Annex I)

The low anthropometrics indices could result either from shortage of food, both chronic as well as acute, or the repeated exposure to adverse conditions such as infections. Anthropometrics analysis by itself cannot define whether low indices results from actual food shortage, infections or just simply poor dietary habits or other contributor factors such as low birth weight. Quest for such answer would require much more detailed economic and social behavior studies of the communities in question. And using the international reference curve masks the genetic differences of stature across different ethnic groups.

In the analysis and interpretation of the data, it must be cautioned that when age is rounded off t the most recently attained month, it overestimates the nutritional status of all individuals (6). Further, the survey would have gained more strength if sampling were made proportional to size using either the household or the population size of each district. However, the basic information of both is difficult to obtain. However, it may be noted that at least seventeen of the twenty districts were included in this study.

Conclusion and Recommendations

With the continued socio-economic development in the country, the nutritional status of the children of Bhutan had improved considerably in the last one decade. However, the prevalence of stunting still remains high. Further, within the country itself, despite having no obvious imbalance in the overall socio-economic scenario and despite the equal input for development, there are still regional imbalances in terms of the nutritional status of the country, with eastern parts of the country considerably worse off than the rest. Therefore, for further studies, regional analysis should be given more attention. Further, studies are required to assess the determinant of under nutrition, with special attention to the effect of intense malaria transmission in the south of the country.

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Annex I Regional distribution of the various indices of anthropometrics, 1999 Survey.

Region	District included	No of blocks	HA -2SD	WA –2SD	WH -2SD
East	Lhuentse	2			
(N=1087)	Mongar	4			
	T/yangtse	1	47.7%	19.3%	2.6%
	T/gang	3			
	P/gatsel	1			
West	Haa	2			
(N=1095)	Paro	1			
	Chukha	2			
	Wangdue	2	33.6%	13.7%	1.1%
	Thimphu	3			
	Punakha	1			
South	Dagana	1			
(N=300)	Tsirang	1	31.1%	15.0%	10.7%
	Sarpang	1			
Central	Bumtang	2			
(N=499)			34.9%	16.6%	1.0%
	Trongsa	1			
	Zhemgang	2			

HA = Height-for-age
WA=Weight-for-age
WH=Weight-for-height

Acknowledgement

This is to acknowledge the support of the World Health Organization, in Particular Dr. Sultan Khanum, Regional Advisor, Nutrition. SEARO, WHO, New Delhi, and UNICEF (Bhutan) for their support in carrying out the analysis.

ILLNESS INCIDENCE AND HEALTH SEEKING BEHAVIOUR IN BHUTAN

RESULTS FROM THE NATIONAL HEALTH SURVEY 2000
NOVEMBER 2000
RESEARCH & EPIDEMIOLOGY UNIT

Introduction

The provider on behalf of the patient decides much of the demand for and utilization of specific health care. The patient, however, is in general the main decision-maker when it comes to the decision as to whether, when and where to seek care. The choice of the ill person or his/her caregivers has implications for the health of the patient and in some cases like for contagious diseases also the health of other persons. Further, the choice of care seeking strategy has resource implications. Thus, on one side the illness may result in a loss of general welfare or happiness as well as of income/production due to absence from work. On the other hand seeking advice is also resource consuming for the patient, who may incur time and transportation costs as well as payments or gifts when advice is obtained outside the modern health system, as well as for society at large if advice is sought form the established health care system that RGOB is subsidising at full cost (with very few exceptions).

Finally, the choice of health seeking strategy will affect the de facto distribution of health. The RGOB is committed to provide health care in the spirit of social justice and equity. The RGOB may influence this directly through infrastructure development, for example aiming at equal access to health care, but the actual health seeking behavior will also affect whether there is in fact equal utilization for equal illness status, and thus equity in health. For example, two geogs with equal sized populations may each have a BHU, but if in one geog people turn out to be quite reluctant to make use of health care, the distribution of health is likely to be and continue to be unequal.

Mapping of health seeking behavior can therefore be useful in several ways. Firstly, we may learn something about which groups are reached by the modern health services and if there are any particular groups that seems to be missed and whose health and well-being may therefore be expected to be improved by better targeted strategies. Secondly, such information may give a picture about the access to services and actual use of services, thus giving an indication of the success in providing equitable services. Thirdly, understanding the health seeking behavior of the citizens may help to predict the future trend in demand for health services and consequent resource requirements for the health sector.

Apart from anecdotal information, the current knowledge about health seeking behavior stems from the National Health Survey that was undertaken in May 1994 (Health Division 1996). From that survey some information is available on number of illness episodes, choice of health care provider and access to health services. However, no analysis was undertaken as to what characterized those who did not go for treatment, nor as to what characterized the users or different kinds of providers.

Objectives

The objectives of the study are to investigate

- illness incidence and burden of illness
- access to health services
- whether care is sought, when ill
- choice of provider

In general as well as with regard to the variation across different socio-demographic groups

Material and methods

Data were collected as part of the National Health Survey 2000, which included a sample of

12,696 households comprising 68,847 household members. The households were selected using a stratified two-stage sampling with rural/urban areas as the two primary strata, cf. Report of the National Health Survey (Health Department 2001) for details. Further, weights were calculated for each geog and urban block and used to derive national estimates. The interviews were carried out in April-May 2000 by health staff.

Analytical framework and choice of variables

The choice of health care resource use may be explained by characteristics of the subject, of the illness in question and of the services available. Characteristics of the subject available in the survey include age, sex, marital status and position in the household as well as formal education and occupation. Income information is not readily available and also not very reliable when using a simple question due to the nature of the economy as largely a subsistence economy in large parts of the country. As health care is furthermore provided free for everybody, it was not considered to collect information on household income.

Relevant characteristics of the disorder may be whether it is chronic or acute, severe or trivial, psychiatric or somatic – all characteristics related to the expected benefit of consulting different sources of advice on treatment. However, due to the limitations in terms of time and cost the survey provide only information on symptoms that were broadly classified into 11 categories of illness[1].

With regard to the characteristics of the service, accessibility, quality, general acceptability and costs of care may affect the choice of provider. As service provision in Bhutan is free of cost to the patient, the cost of care is related to cost of transportation only. The key service characteristic used is therefore distance to nearest health facility. No data at the facility level was selected, but it may be possible for further analysis to develop a quality indicator (for example using drug availability, full staffing, etc.) for health facilities in the selected sampling areas and add them to the data set.

For every household, information on episodes of illness within the last month was recorded and if any episodes had occurred the respondent was referred to Schedule F of the questionnaire for further questions, cf. Annex 1. The respondent was asked to supply information on who had been ill, what were the symptoms and duration of illness, whether any first or second advice had been sought and if so, where and why. As compared to the previous National Health Survey in 1994, in which the respondents were asked which type of care center/provider was consulted, the wording had been changed to where the respondent had sought advice. The rephrasing was done because of the feeling that the National Health Survey 1994 had severely underestimated the use of traditional health care.

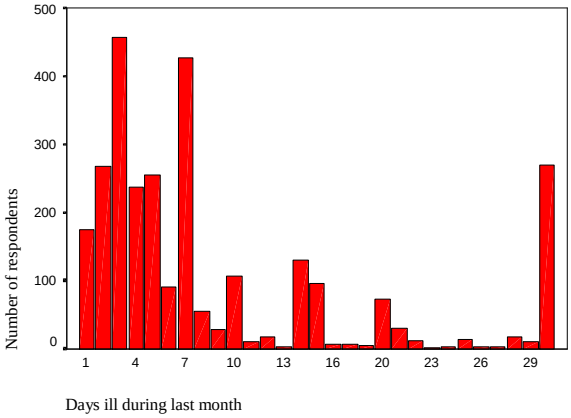
Method of analysis

The data on health seeking behavior was linked with household data providing information on water and sanitation and occurrence of illness in addition to information on age, sex, marital status, education, occupation for individual household members and village information on distance to health facilities and presence of VHWs.

The four main dependent variables are occurrence of illness, duration of illness, distance to nearest health facility and choice of health care provider. The association between the four dependent variables and explanatory variables was examined mainly using chi-square statistics, since most of the variables are nominal. While duration and distance is neither normally nor log-normally distributed and since there is a response bias, these variables will be treated as ordinal variables rather than interval variables in the bivariate analyses. In few cases, non-parametric tests like Mann-Whitney and Kruskall-Wallis tests for equal ranking and Pearson's correlation coefficient has therefore been used.

[1] The open-ended responses are available for further analysis should anyone so wish. This could be done for a sub-sample of the ill, for certain illness categories or for the whole sample.

Figure 1. Frequency for days ill during last month (N=2825).



Results

4.1 Illness incidence and burden of illness

Among the 68,847 household members 2840 episodes of illness during the last month preceding the interview were reported (1). In total, 2752 household members (4.0 %) experienced one or more episodes of illness during the recall period and 2133 households (valid % = 17)[1] were affected (1).

The total number of days the respondents reported to have been ill during the one month preceding the interview amounted to 25.545 days, which corresponds to 1.2% of days available to all members of the sample and 2.0 % of all days available to persons more than 14 years old (2). Most of these days are likely to have led to production losses either due to inability to work due to own or child's illness or reduced productivity due to impairment because of illness.

Of those who were ill, the average duration of illness was 9 days, while the median duration was 6 days, i.e. at least half of those ill were so six days or less (2). The distribution of the sample by duration of illness appears from Figure 1 (2). As it appears, the vast majority of respondents were ill for 1-3 days only. A response bias may be observed for illnesses of longer duration as respondents cluster around one week (7 days), two weeks (14-15 days), three weeks and one month. It is a common phenomenon and nothing particular to this survey that people tend to give rounded off period length rather than exact period for longer illness (Baker 1994). Taking into regard this response bias the number of respondents reporting a specific illness period decreases with increasing length of period, as could be expected. The last bar includes all those respondents who reported more than one month of illness and is therefore somewhat larger. [2]

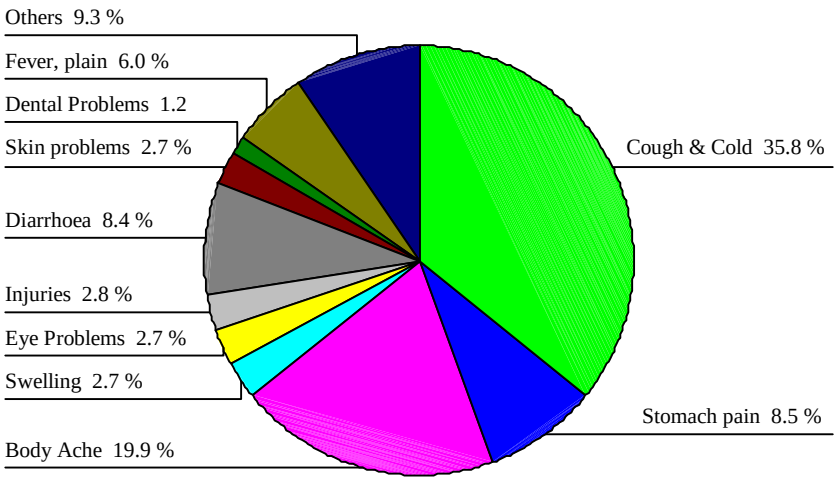
[1] The valid percent refers to the percentage of all those who gave a response to these particular questions as opposed to all respondents, i.e. it excludes those for which the response for these questions are missing.

[2] Since interviewers was not instructed very clearly whether to record the exact period of illness or just the 30 days ill within the last month prior to the interview, we cannot count on the exact period having been recorded above 30 days. The focus is therefore on the last month and all those with longer, often chronic illnesses, are therefore clubbed together in the last group.

Cough and cold, Body ache, Diarrhoea and Stomach pain, cf. Figure 2 dominated the terms of number of episodes as well as in terms of days spent in ill-health. To get an

Figure 2.

Distribution of main symptoms reported for each episode of illness.



symptoms reported (2).Not surprisingly there is a significant difference in duration of illness depending on the symptoms. Symptoms related to longer duration of illness are Swelling, Eye problems and Injuries, whereas Cough and cold as well as Plain fever, Diarrhoea and Dental problems are typically of short duration. The duration of illness related to Stomach pain, Body Ache and Skin problems varies more with some patients experiencing short illness and others long. Cough and cold, Body ache, Stomach pain, Diarrhoea and Swelling account for 71 % of the days respondents were ill, for Swelling and Stomach Pain mainly because of long duration of illness, whereas the other symptoms have high incidence, but are typically of shorter duration (7).

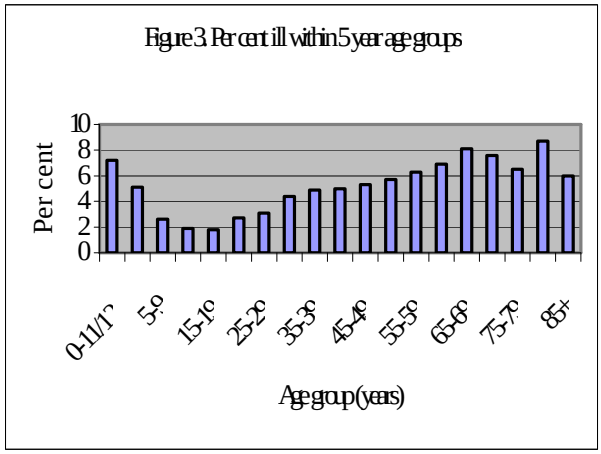
4.2 Who is burdened by illness?

If one could better target health interventions to population groups that are more likely to benefit more in terms of health gains, then interventions may be more cost effective. It is therefore useful to have a picture of who is burdened by illness in idea about whether certain population groups are *more prone* to illness the characteristics of those reporting illness one month prior to the interview are compared to the characteristics of those who reported no illness.

Gender

Females have significantly more often than males experienced illness in the month preceeding the interview, thus only 3.6 % of males did so as compared to 4.3 % of female respondents (chi-square, $p<0.001$)[1]. Thus 44 % of those ill were males and 56 % females as

[1] This could be due to the interviewers picking women relatively more often than men as key informants for the household and key informants remembering own illness history for the past month better than for other household members. It was reported that there was an over weight of women among key informants, because it was more convenient for the interviewer as there were several questions related to reproductive health. The choice of key informant was, however, not recorded.



compared to a gender distribution of 49 % to 51 % in the full sample (3). For those who were ill no gender difference was found in the number of days ill (chi-square, p = 0.343, Mann-Whitney: p=0.597) (6).

Age

Not surprisingly there is a significant difference between the age groups in frequency of reported illness (3). Thus whereas 7 % of less than one year olds experienced illness, that was the case for less than 2% of the 10 to 14 years old. This age group was less burdened from illness than any other age group, cf. Figure 3.[1] From the age of 15 the incidence of illness increases steadily until reaching 8 % for the 65 to 69-year-olds (3). There is a tendency for the illness incidence to decline slightly past this age, but due to the number of observations it could well be due to coincidence. The observation would, however, correspond to observations that have been made elsewhere in the world, suggesting that only those who are fit, tend to live past a certain age. Not only are the elderly more frequently burdened by falling ill, the duration of illness was also found to be positively correlated with age, i.e. the older the respondent is, the more days has (s)he been ill during the past month (Pearson's correlation r=0.113, p<0.001 (6)).

Marital status

Based on findings from other countries (for example House et al. 1988), we would suspect that separated, divorced and widowed respondents have higher incidences of illness due to a supposedly higher vulnerability in a more stressful life situation and also to experience longer duration of illness due to lack of close caregivers as well as to general vulnerability.

There is a significant difference in illness incidence depending on marital status (chi-square, p < 0.001 (3)). It could be suspected that this is an age-related phenomenon, since singles have the lowest illness incidence, while married, separated and divorced respondents have a higher but very similar incidence of illness, whereas the widowed have the highest incidence of illness - almost the double of the average for the sample. A breakdown by age groups (20 years), however, reveals that in all age groups except one the widowed have significantly higher incidences of illness than the average for the age group (5). The exception is for the 60+ year olds, which might be explained by the fact that at that age you would actually expect your spouse to die, thus the loss may be less traumatic.

For widowed respondents it further appears that females significantly more often have experienced illness during the month prior to the interview (8.6 % as compared to 5.5 % for widowed males, chi-square p=0.003 (9)). For widowed respondents that fell ill, males suffered, however, significantly longer from illness than females (Mann-Whitney, p=0.027) (8). Also, married females experienced illness more often than married males (chi-square, p<0.001 (9)). This could be due to their reproductive functions or to higher workloads. There was no gender difference in incidence of illness for singles and respondents divorced or separated. There is no statistically significant difference in the duration of illness by gender for singles, married or separated/divorced respondents that experienced illness (8).

Education

It has sometimes been observed elsewhere that the health status tends to increase with increasing education (for example Dutton 1986). It might be hypothesised that those with a high level of education is less plagued by ill-health

[1] This tendency could have been reinforced by the fact that some children may have ben away at boarding school and the respondents in the household may therefore not have been aware of any illnesses.

because they have better knowledge about healthy behaviour and at the same time may be in a better financial position to live under healthier conditions. Whereas the financial situation may be only significantly better for those who have a high level of education, the improved knowledge of healthy behaviour may appear even at lower levels of education.

When looking at the part of the sample more than 15 years old[1] and those for whom the data on educational attainment is relevant, it appears that among those with none or only non-formal education, 5 % had experienced illness during the preceding month as compared to the average 3.9 % (chi-square, p=0.001 (5)). The level of education was significantly lower for those who reported illness during the last month as compared to those who experienced no illness (Mann-Whitney, $p < 0.001$). There is a slight tendency for the frequency of illness experienced to drop with increasing level of education, the major difference, however, appear between those who completed class 1-6 and those who had no education at all. For those aged more than 15 years and for whom level of education is relevant, the level of education was significantly lower for those who reported illness during the last month as compared to those who did not (Mann-Whitney, p=0.001). The impact of having received some form of education appears to be particularly noticeable for females. Comparison between those who completed class 1-6 by class completed shows no statistically significant difference in frequency of illness experienced (chi-square, p=0.578 (10)).

There is a slight negative correlation between level of education and duration of illness, which is what we would expect based on the assumption that the better educated have better general knowledge about how to treat illness. The correlation is, however, not statistically significant at conventional levels (Pearson's r= -0.077, p=0.105 (10)).

Occupation

Housewives and Others, which include dependants as well as the relatively small group of labourers and industrial workers, tend to have higher incidence of illness with 5.3 % of Housewives reporting to be ill as compared to an average 4.0 % of all respondents (3). Government employees, employees of the Armed forces and Farmers tend to have an incidence of illness slightly above average when the whole sample is considered but on average for the adult population, whereas Students, Monks/gomchens and Business people have lower than average incidences of illness (3,5).

Farmers, however, experience significantly longer illnesses than others (chi-square, $p < 0.001$) with 19 % experiencing more than 21days of illness (Monk/gomchens and Unemployed adults come close but the sub-sample is fairly small, n=42 and n=23) (6). Ill Farmers, Monk/gomchens and Unemployed adults all experienced a mean 11 days of illness (11). Students, Children and Business people generally suffered from illness of shorter duration, thus around 40 % were ill for three days or less and for Children and Students 80 % of the ill were so for less than one week (6).

Location

There is no difference in the incidence of illness depending on whether the respondent lives in a rural or urban area (chi-square, p=0.764 (3)). However, rural residents experience significantly longer illnesses than urban residents (Mann-Whitney, $p<0.001$), which may be attributed to the hard lives of farmers also resulting in longer duration of illness, cf. above (6).

Geographically, the illness pattern also varies. The country may geographically be divided in many ways. We have chosen to look at four zones determined by different climatic and

[1] Since our expectation is that level of education may influence the health behaviour of the respondent, and since children going to school would be categorised along with adults with only little education, we have chosen to include only those older than 15 years. *An alternative strategy for analysis could be to analyse the impact of the highest level of education within the household.*

cultural differences. We have defined an Eastern region consisting of Lhuntse, Mongar, Trashigang, TrashiYangtse and Pemagatshel[1]; a Central region consisting of Bumthang, Trongsa, Zhemgang, Dagana and Tsirang; a Western region consisting of Haa, Paro, Thimphu, Punakha, Gasa and Wangdue; and finally, a Southern region consisting of S/Jongkar, Sarpang, Chukha and Samtse.[2]

Using this geographical division of the country, we find that there is a statistically significant difference in the incidence of illness with the Western region having the highest incidence (4.8 % have experienced illness during the past month), followed by the Eastern region (4.2 %), the Central region (3.6 %) and the Southern region (3.3 %) (4). Due to the different climatic conditions that vary substantially over the year, the data should be interpreted carefully, however. Thus, the interview was undertaken in the period mid-April to mid-May. During this period the Southern districts may not yet have been severely plagued by the many diseases that tend to peak during the warm and rainy season, the malaria cases would for example be few. At the same time, it would still be fairly cold in the mountainous part of the country and the changing weather during springtime in the central belt may give rise to ARI. In line with this it was found that Cold and cough was much more prevalent in the Western and Central region with these symptoms accounting for about one third of the illness episodes reported in these areas. (4)

Water and sanitation

There is no difference in the incidence of illness depending on whether the respondent has access to safe drinking water (chi-square, p=0.188 (3)). There is, however, a statistically significant difference in the incidence of illness related to whether the household has a latrine (chi-square, p=0.006 (3)). Among respondents in households with no latrines 7.2 % reported having experienced illness during the last month as compared to 3.8 % among the rest of the sample. There was no difference between whether the latrine was reported to be used or not. This may be due to methodological problems in collecting information on use or to the fact that despite not using it, having a latrine may have created a sort of awareness about healthy behaviour.

With regard to duration of illness respondents living in households with access to safe drinking water had significantly shorter duration of illness (chi-square, p=0.012 (3)). The mean duration of illness was 9.0 days in households with access to safe water and 9.9 in households with no safe water (Mann-Whitney, p=0.005) (11). The medians were 5 and 7 days, which imply that for a majority of patients duration of illness was 2 days shorter in households with access to safe water. No relation was found with the existence of a latrine (chi-square, p=0.974). Households with no latrine, however, tended to have longer lasting illnesses, but since illness was only reported in 24 households without latrine it is difficult to find any statistically significant results.

Village or geog size (17)

Contagious diseases may spread more easily where people are living in congested places. The relationship between incidence of illness as well as duration of illness and size of the community was therefore analysed. It appeared that respondents in very small villages (less than 20 households) tend to experience illness more frequently (4.8 % of respondents were ill during the last month) (p<0.001). The illness incidence then tends to decrease with increasing village size up till villages with between 150 and 199 households that has the lowest illness incidence. For villages above this size illness incidence tends to increase with increasing village size.

[1] Often Samdrup Jongkar is also considered an Eastern region, but we have wanted to keep the Southern belt along the boarder separate as health conditions are different at lower altitudes. Similarly, Dagana and Tsirang are sometimes considered to belong to the South rather than to the Central, but again we have wanted to keep the population living in the foothills separate as conditions affecting health may be different there.

[2] *Ideally, we should subdivide the district by geogs, as there will be quite different conditions within the districts depending on whether they are North or South….*

A slight negative correlation was found between duration of illness and size of the community (Pearson r=-0.032, p=0.088 for geogs and Pearson r=-0.038, p=0.062 for villages). This indicates that duration is shorter in larger communities. This could be related to the fact that in larger communities the likelihood that there will be access to some kind of care is larger than in smaller communities.

Distance to health facility

The illness incidence could be expected to depend on the distance to the health facility in the sense that if a health facility is in the vicinity of your home, then you may be more aware of illness symptoms, for example due to IEC performed by the health staff and you may pay more attention to signs of illness as you know that care is easily available. The occurrence of illness was, however, not found to be statistically significantly different depending on travel distance to the nearest health facility (Chi-square, p=0.270 (5)).

Duration of illness was found to be significantly shorter if a health facility was in the village (Mann-Whitney, p = 0.006). The average duration of illness within the last month was 8.1 days for all those living in villages with a health facility (median = 5 days), as compared to 9.7 days else (median = 6). The larger difference between the means than between the medians imply that the largest difference in duration of illness between those living in a village with a health facility and those not doing so, is experienced by patients with a longer term illness. The average duration of illness in settlements with a health facility varied between 7.3 days in towns and 8.6 days in villages. Including the information on illness periods of more than 30 days of illness, the average duration for those living in places with a health facility was 12 days as compared to 24 days else. This observation is likely to reflect the fact that where there is easy access there is also a higher use of appropriate treatment that can shorten the duration of illness.

Summary

To summarise, the burden of illness does not appear to be distributed evenly across population groups, but rather to be related to a number of characteristics of the individual. Thus, the incidence of illness is found to be higher for

- females as opposed to males
- decreasing age for the less than 10-14 years old and increasing for the more than 10-14 year olds
- widowed respondents, especially younger females
- respondents with no schooling
- Housewives and Others as opposed to other occupational groups
- Western and Eastern region (survey period: Mid April to Primo June)
- Households with no latrines

At the same time the duration of illnesses is found to be longer for

- increasing age
- widowed males
- Farmers
- rural residents
- increasing distance to health facility
- households without access to safe drinking water

4.3. Who is burdened by which illnesses?[1]

Gender

There is a statistically significant difference between the illness pattern of males and females (chi-square, p = 0.084 (12)). Women account for 56.3 % of all those who were ill during the past month, but account for 65.1 % of those with stomach pain, probably reflecting the high incidence of reproductive tract infections and other illnesses related to the reproductive and

[1] Please note that due to the large number of categories, in some cases the categories have been regrouped in order to allow statistical analysis.

urinary system to which females are more susceptible. On the other hand males appear more frequently than could be expected among patients suffering from Swelling, Injuries and Diarrhoea.

Age

There is a statistically significant difference in the morbidity pattern between age groups (Chi-square, $p<0.001$). In the age group 0 – 14 years almost half of all illness incidents reported were Cough and cold. For the under 1 year olds Diarrhoea accounted for 30 % of illness episodes and for both Cough and cold and Diarrhoea as well as Fever, the contribution to illness incidents decrease with age. On the other hand Stomach pain, Body ache and Injuries increasingly contributes to illness incidents as the respondents are older.

Education

Body ache appears to be significantly decreasing with increasing level of education, most likely due to a difference in work conditions, whereas Cough and cold account for an increasing number of the illness episodes with increasing education. This could be due to the decrease in other diseases.

Occupation

Comparing the distribution of symptoms across Civil service &RBA employees, Business people, Farmers, Housewives and Others (including dependants and unemployed adults) showed a tendency for Body ache and Injuries to be more prevalent among Farmers than as could be expected from their share of the population ill. Thus, 80 % of those suffering from Body ache or Injury were Farmers, whereas Farmers only accounted for 75 % of all those who were ill. Respondents in the Government services or the Armed forces tended to suffer from Cough and cold more frequently than other occupational groups. This respondent group along with Housewives also tended to suffer more frequently from Plain fever, which was relatively rare among Farmers. The findings are, however, not statistically significant at conventional level (chi-square, $p=0.105$ (13)).

The female Farmers have a different disease pattern from other ill females (chi-square, $p<0.001$). Female Farmers more often suffer from Body ache, Stomach pain, Swelling, Eye problems and Injuries. (14)

Location

There is a statistically significant difference in the illness pattern between urban and rural residents (Chi-square, $p=0.010$ (12)). Rural residents are much more likely to suffer from Body ache and Eye problems, which may reflect the hard work in rural areas, cf. the results for Farmers above, and the use of open fireplace in the houses without no appropriate chimneys. On the other hand urban residents suffered more from Diarrhoea, Fever, Skin problems and Dental problems. Whereas the first three are related to contagious diseases, the latter may reflect the unhealthy diets among many urban residents and lack of recognition of the importance of dental hygiene.

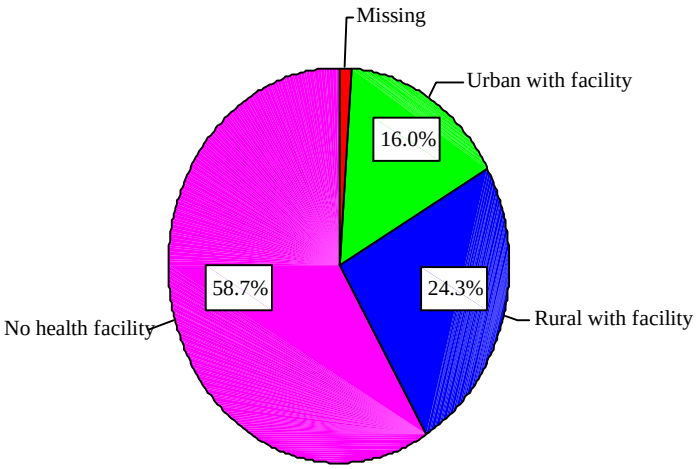
There was also a statistically significant pattern of morbidity between the four regions (chi-square, $p<0.001$ (12)), which is not surprising in light of the very different climatic and geographic conditions. Among those who were ill in the Central and Western region 46.4 % and 41 % suffered from cough and cold as compared to 35.8 % for all those who were ill. Body ache was on the other hand found more frequently in the Eastern and Southern region. In the Eastern region Diarrhoea were more often a problem than in other regions, while Fever was more frequently a problem in the South, probably due to malaria. The high incidence of Diarrhoea in the Eastern region could be one of the reasons for stunting being more prevalent in the Eastern Region (Namgyal and Yoezer 2000).

Water and Sanitation

No statistically significant relationship was found between the symptoms of those ill respondents, who did not have a latrine in the household or who did not use the one they had

Figure 4

Availability of health facility in respondents' village or town.



and those who did have a latrine (or similar facilities) (chi-square, p=0.186 (13)). Due to the small number of households with no latrine, it is however hard to find any significant results in general.

With regard to the relationship between access to safe water and type of illness a statistically significant difference in the illness pattern between respondents from household with safe water source as compared to those without such was found (chi-square, p=0.021). Among Diarrhoea cases 26.1 % was found in households with no access to safe water, while respondents in such households accounted for only 21.9 % of all those ill. Similarly, Eye problems and Swelling were also found more frequently among ill respondents that did not have access to safe water. (13)

Chronic diseases (21)

The survey does not provide sufficient information for classifying the illnesses in terms of acute versus chronic illnesses. It may, however, be assumed that for illnesses lasting 30 days or more a large part will be of chronic nature. In the total sample 9.6 % of those ill were so for 30 days or longer. As could be expected the occurrence of such illnesses of longer duration is statistically significantly higher among the older age groups, i.e. for the 50 + year olds 17.8 % of those ill had an illness lasting 30 days or more. Long lasting illnesses also tended to occur more often among females (10.4 %) than among males (8.5 %) (Chi-square, p=0.081). Farmers were also more likely to suffer from longer lasting illness than other occupational groups as such durations of illness were reported for 15.3 % of ill farmers. This could either reflect that they have to be really ill before perceiving themselves as ill, reflect the existence of occupational hazards or reflect the lack of timeliness of seeking care due to less access to health services in rural areas in the past. Correspondingly, 10.5 % of ill respondents in rural areas were ill more than 29 days as compared to 4.9 % of respondents in urban areas (Chi-square, $p < 0.001$).

Accessibility of health services (15)

The long-term objective of the health services as stated in the 8FYP is to promote the health of the whole population in order to enhance the quality of life of the people of Bhutan through better health care provided in the spirit of social justice and equity. It is therefore also of importance to get an impression of the accessibility of services. Or in other words to ask the question: Does the distribution of health facilities specifically disfavour certain demographic groups? Because if so, we may want to consider if there are feasible ways of improving access for these groups.

Figure 4 illustrates the distribution of the weighted sample according to whether they have immediate access to a health facility in the sense that a health facility is located in their village or that they live in an urban area in which there is a health facility[1]. In some urban areas, like Thimphu, it could, however, also involve quite some travel time to reach to that health facility.
It appears that 40 % of the sampled respondents have immediate access to a health facility. Among those respondents not having immediate access to a health facility 47 % had a travel time

[1] Although a health facility is reported to be in the village, some households may still have quite some travel distance as some of the villages are fairly spread out. It is, however, still considered to fall under the definition immediate as there is fairly easy access.

of one hour or less implying that 68 % of all respondents, cf. Table 1, were within one hour distance from a health facility. Within two hours 81 % of the respondents would be able to reach a health facility and 89 % would be able to do so within three hours. Still, 4.5 % of the respondents would not be within reach of a health facility even after 6 hours of traveling.

Table 1. Distance to nearest health facility (N=68847).

Time use	All respondents		Respondents without immediate access	
	Valid Percent	Cumulative Percent	Valid Percent	Cumulative Percent
Village or town with health facility	40.5	40.5	-	-
1-30 min	16.0	56.5	27.5	27.5
31-60 min	10.5	67.0	19.3	46.8
61-90 min	7.9	74.9	11	57.8
91-120 min	6.3	81.2	9.9	67.7
121-180 min	10.0	91.1	13.7	81.4
181-240 min	2.9	94.0	5.9	87.3
241- 300 min	1.3	95.3	3.5	90.8
301-360 min	1.3	96.6	2.6	93.4
361 – min	3.4	100.0	6.6	100.0
Total	100.0		100.0	

There was a statistically significant difference in the accessibility across regions (Chi-square, p< 0.001). The results should, however, be interpreted carefully as it may be influenced by methodological factors like sampling and the grouping of districts within regions as well as by differences in settlement patterns and terrain.

The best coverage was found in the Eastern region in which 81.4 % of the weighted sample were within one hour's reach of a health facility, and only 2.7 % needed more than 3 hours to reach the nearest facility. The Western region is similarly well covered with 77 % of the weighted sample within a 1 hour distance and only 4.3 % having more than 3 hours transportation. In the Central and Southern Region, however, only 62 % and 52 % of the weighted sample live within 1 hour reach and 16 % and 22 % have more than 3 hours distance to the nearest health facility[1]. Looking only at the population groups living outside town areas with health facility this picture becomes even more biased.

How important is distance for choice of care giver?

Of allt hose who reported being ill, 11 % indicated that their primary motive for choosing caregiver or source of advice was access or distance to the provider. There was a slight tendency for females to find access more important, but the gender difference was not statistically significant at conventional levels (chi-square, p=0.115). There is a slight and statistically significant difference in the frequency with which access is the primary reason for choice of provider for different age groups. Access also appears to be most often cited among those who have no or non-formal education (22 %) . This is only the case for 6 % of those having completed class 1-6 and among 13.5 % of those having completed class 7 or more.

4.5 Choice of provider

Access to modern health services is but one factor among others that may influence the use of such services. The purpose of this section is to look at the pattern of health care seeking behaviour and the characteristics of those who do not seek care as well as those who seek modern health services.

Health seeking pattern (17)

Among those who reported being ill during the last month preceding the interview 22 %

[1] The dzongkhags that appeared to have the longest distances in these two regions were Tsirang, Chukha, Samtse and Sarpang. This should be seen in relation to the damage to and closure of many facilities in relation to the civil unrest in the southern part of the country in the early 1990s and the more recent insecurity in some of the same areas due to the Bodo-ULFA problem.

reported that they had either done nothing at all (the majority) or had treated themselves. Thus, 78 % of respondents had sought advice from a third party and 31 % sought such advice at least twice. The flow of patients is illustrated in Diagram 1. As it appears 65 % of all those who were ill consulted the modern health services, defined as VHW, BHU/ORC or hospital, at least once, corresponding to 83 % of all those who sought advice at all.

From the diagram, as well as from the comments regarding the motivation for seeking advice at first caregiver chosen, it is also apparent that many adopt a health care seeking strategy that involves two sorts of advice at the same time. Thus, many of those patients who chose to seek first advice at a traditional practitioner or a lama, indicate that they needed some rituals to be performed before they could go to attend the modern health facility. This, is reflected by the fact that 31 % of all who sought care went for traditional practitioner or a lama, whereas only 11 % made use only of these sources of advice. The health seeking strategy is therefore for many a conscious two stage strategy, rather than something developing as the illness develops.

For those who initially choose to make use of the modern health care system 69 % do nothing more, whereas 31 % seek second advice of which about one third seek advice from the traditional practitioners or lamas. Those who initially avail of traditional services or services by a lama, 60 % seek second advice predominantly (85%) from the modern health system. Of those who did seek some kind of advice 62 % made use of the modern health system only.

Characteristics of those who do not seek care (18)

There was no statistically significant difference in whether care was sought depending on gender (chi-square, p=0.272), relationship to head of household (p=0.800), marital status (p=0.739), occupation (p=0.127) (although unemployed adults, business people and civil servants tended to use services less and monk/gomchens, armed forces personnel and Others more) and education (p=0.779).

No statistically significant association was found between distance to the health facility and whether care was sought when using categorised data, although respondents in villages or towns with a health facility tended to seek advice more often (82 % of those ill) than those living outside (80 % of those ill) (Chi-square, p=0.262). However, when looking at the ranking of distances for those who sought care and those who did not, there was a statistically significant difference in the ranking, with those who did seek care having the lowest ranking, i.e, being closest to the health facility (Mann-Whitney, p=0.035).

Modern health services tended to be used significantly more often for infants (< 1 year) as well as by the 20 to 29 year olds and less for older people above 60 years old. This could indicate that mothers have indeed learnt to make use of the modern health system, and that the utilisation of modern health services is determined not just by age but also by generation.

There was a statistically significant difference between the Regions with regard to whether care was sought or not (p<0.001). Thus, in the South 84 % and in the West 82 % of those ill sought advice as compared to 80 % in the Central and 75 % in the Eastern region.

There was a statistically significant difference in the propensity to seek care between rural and urban areas (p=0.02) with 84.3 % of respondents in urban areas seeking care as compared to 79.5 % of respondents in rural areas. This is in line with findings elsewhere in the world, where people in rural areas seem to have a higher threshold for when they decide to seek care (ref), but the result may also be confounded by the relationship between likelihood of seeking care and distance.

As could be expected the likelihood of seeking care depends on duration of illness as well as symptoms. The likelihood of having sought care thus is statistically significantly higher with

increasing length of illness experienced ($p<0.001$). Stomach pain, Swelling and Injuries statistically significantly more often resulted in respondents seeking advice ($p=0.001$), whereas Cough and Cold and Fever less frequently, although still in almost 4 out of 5 cases, resulted in advice sought.

Use of modern health services by characteristics of those ill

There is a slight tendency for males to use modern health services more often than females, but the difference is not statistically significant (chi-square, $p= 0.172$). Similarly and surprisingly no statistically significant difference was found between groups with different levels of education, although the likelihood that modern care is used tend to increase with increasing levels of education. Whether modern care was sought was not associated with the existence of a health facility within the village (chi-square, $p=0.546$), but those who sought modern care had significantly shorter distance to the nearest health facility (Mann-Whitney, $p = 0.001$). It was found though, that the presence of a village health worker was statistically significantly related to whether modern health services were sought ($p=0.031$).

The finding that an increasing proportion of respondents use modern health facilities with increasing duration of illness ($p<0.001$) is reassuring. Respondents suffering from symptoms like Stomach, Eye or Skin problems as well as injuries were also more likely to seek modern health services than others. In particular, respondents with Body ache and Dental problems more often sought advice elsewhere.

When the head of household made the decision about whether to seek care, the ill was more often sent for modern health care, whereas this was less frequently the case when the respondent self or grandparents or non-relatives were the decision-makers.

The use of modern health services was statistically significantly different for different occupational groups ($p=0.050$). Thus, Monk/gomchens, Armed forces personnel and Housewives tended to use modern health services more often while Unemployed adults, Farmers and Others tended to use services less than average. Correspondingly, it was found that 76 % of urban respondents seeking care went for modern health services as compared to 64 % in the rural areas. This difference was highly statistically significant ($p<0.001$).

The use of modern health services was statistically significantly different between the four geographical regions ($p<0.001$). Thus, in the South and Central region 71 % of the ill respondent had made use of modern health services at least once, whereas for the West this proportion was 64 % and for the East 61%. This is in contrast to the results found for accessibility.

Bypassing (22)

Those respondents living in villages in which there was a health facility as well as in villages for which the nearest health facility was stated to be a BHU or an ORC was defined as living in a BHU catchments area. Of the latter groups a few may actually be closer to a hospital. Also nearness is not defined, i.e. it is not known whether respondents referred to nearness in terms of distance in kilometers or in travel time.

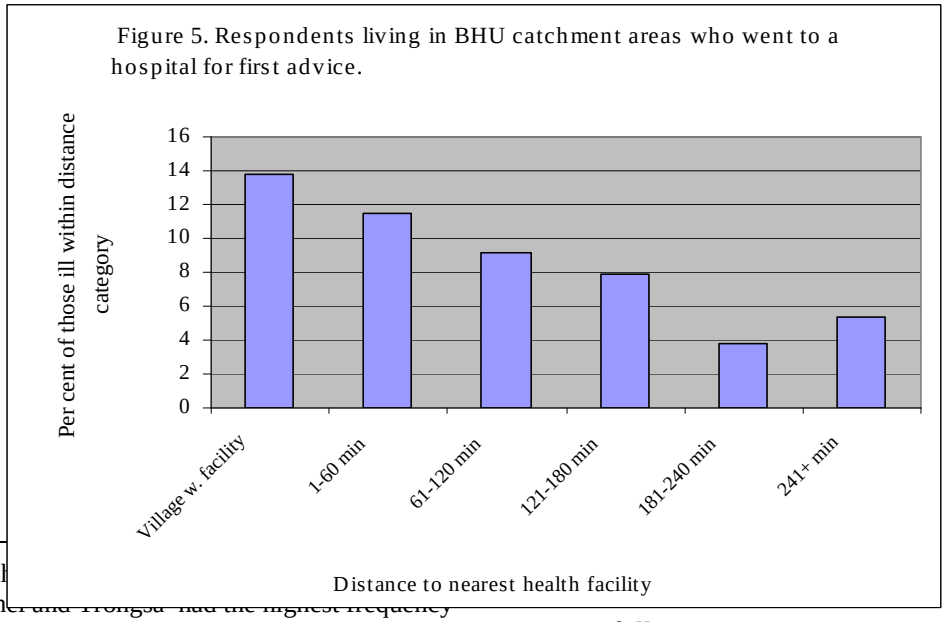
Among ill respondents living in BHU catchments areas 22 % did not seek any advice from third party, 21 % sought first advice from a traditional healer or a lama 40 % consulted a VHW, a BHU or and ORC for first advice and 12.6 % went to the hospital. There may be several legitimate reasons for bypassing the health facility closest to ones home. This could for example be the case if one for some reason was in the bigger town with a hospital anyway or it could be emergency situations. A recent survey from the same period (end of April 2000) for example showed that among those patients who turned up in the hospital OPDs despite staying closer to a BHU, nine per cent were actually emergency cases (Policy and Planning Division 2000). We will, however, define those respondents living in a BHU catchments area and seeking first advice in a hospital as bypassers. There was no statistically significant

difference in the frequency of bypassing between gender and age groups.

The tendency to bypass, however, varied by occupation (chi-square, p <0.001), education (chi-square, p=0.003), symptoms and distance to health facility (chi-square, p=0.003). Thus, Business people, Students, Monks/gomchens and Armed forces personnel more often bypassed than other occupational groups, which seems to be in line with these occupational groups also being the most mobile in the sense that they may often be staying away from their home, e.g. students at boarding school. The highest frequency of bypassing was found for Injuries, for which 23 % went directly to the hospital, followed by Swelling and Stomach problems. Many emergency cases would also fall in these categories of symptoms. Bypassing was also significantly higher for those who had only non-formal education and those who had more than 5 years of education (chi-square, p=0.003).

Interestingly, the tendency to bypass was negatively associated with distance to nearest health facility, i.e. to the BHU/ORC, cf. Figure 5. Those most likely to bypass a BHU were those who had a facility within the village.[1]

Figure 5. Respondents living in BHU catchment areas who went to a hospital for first advice.



[1] Among th
Pemagatshel and Trongsa had the highest frequency of bypassing, whereas Punakha and Bumthang had the lowest. These data should, however, be treated very carefully, as much depends on the specific geogs sampled.

Discussion

Validity and reliability
Methodological issues

For general discussion see the main report on the National Health Survey 2000 (Health Department 2001). Specific for Health Seeking Behaviour only a few points will be raised.

Since the interviews were undertaken by health staff often currently or previously stationed in the Dzongkhag, there is a risk that responses regarding choice of provider has been influenced in such a way that use of non-modern health services for advice has been under reported.

Symptoms may be difficult to describe and only when a clear diagnosis have been given to the respondent will categorization be easy. The question regarding symptoms was open-ended and the categorization was undertaken back in the office. Although guidelines for the coding were given, there is still a risk of uncertainties arising due to the different interpretations of symptoms by the coders. The results regarding types of illness should therefore be interpreted carefully.

Information on distance to nearest health facility comes from village information sheet. Depending on how clustered the households are, the actual distance will vary. In case of very scattered households in the village it may be the case that the nearest health facility is not the same for all households in the village. This could lead to a slight over estimation of the bypassing problem. The village head was asked about the type of the nearest health facility and the time that it would take to go there. As mentioned, it was, however, not well defined what constitutes nearness. The problem of bypassing could therefore be over estimated, if the nearest health facility in some cases have been identified as the nearest in terms of kilometers rather than in terms of travel time for a sick person or a pregnant woman. This would also have resulted in a bias in the assessment of access to health services.

Comparing with other sources

The routine reports on morbidity in the hospitals and the BHUs provide some information on the morbidity patterns across demographic groups. While such routine information is not directly comparable to the survey data, comparisons may be made for those who reported using the government services for validation with the routine reports. The age and sex distribution found according to the two sources of information are presented in Table 2.

Table 2.
Age and sex distribution of patients attending BHU/ORCs and hospitals according to routine morbidity reports received for 2nd quarter 2000 and according to survey results. Figures in percent.

Years	**BHU 2nd QTR , 2000**	**NHS 2000**	**Hospital 2nd QTR, 2000**	**NHS 2000**
0 - 11/12 Yrs	3.5	7.6	4.8	8.0
1 – 4 Yrs	11.6	10.0	11.6	9.2
5 – 14 Yrs	24.1	14.2	20.3	14.9
15 – 49 Yrs	47.0	40.6	46.8	42.9
50+ Yrs	13.8	27.5	16.5	25.0
Total	100.0	100. 0	100.0	100.0
Males	50.5	44.4	50.2	44.9
Females	49.5	55.6	49.8	55.1

Source: Health Information Unit, Ministry of Health and Education, and data from National Health Survey 2000.

The age and gender distribution that is found in the National Health Survey 2000 is significantly different from that found in the routine morbidity reports submitted to the Health Department from the health facilities. This could be due to the sampling for the National Health Survey 2000, which did not include the monk body, army camps and boarding schools, all of which are places where males in the age group 2-49 tend to dominate. The gender distribution of the total sample did, however, not appear to be very much biased. Another potential explanation could be that registrations at the health facilities are not accurate and that for some reason certain groups tend systematically not to be registered. It is, however, hard to imagine why this should be the case. Finally, the above-mentioned interviewer bias, i.e. having health staff conducting the interviews, could affect males and females, old and young differently. If females and old people are more embarrassed to state that they did not use modern health services in front of the health worker, then an over reporting of use of health services could be expected that would bias the age and gender distribution in the National Health Survey as observed in Table 2.

The implications of such a bias would be that the overall estimate for the use of modern health services would be over estimated, that is the actual percentage of ill respondents having used modern health services at least once could be expected to be lower than the estimated 83 % of those who sought some kind of advice for their illness.

Comparison with previous results
Illness incidence

In 1994, it was found that out of 63,890 household members enumerated, there were 5,556 episodes of illness reported during the preceding 2 months (Health Division 1996). Assuming that each household member was only

sick once this amounts to 8.7 %. The illness incidence of 4 % of respondents experiencing illness during the past 1 month in the present survey is thus very much in line with the previous finding. Of those ill in 1994, 34,8 % did not seek any kind of treatment. In the present survey only 22 % was found to have done nothing at all or to have treated him self. The much lower number of ill respondents not seeking any kind of care may represent a substantial change in behaviour, i.e. mainly that respondents have learnt to make use of the health care system, but it may also, at lest partly, be due to the change in the wording of the questions. Whereas the 1994 survey asked where respondents went for treatment, the present survey asked where they first sought advice, as the latter was found to make it easier for the respondent to include other providers than the modern health system represented by the interviewer.

Choice of provider

In 1994, it was found that 92 % of those being ill went to the modern health care system for treatment, whereas 5.8 % went to a traditional healer, 1.3 % went to a lama or monk and only 0.5 % used the indigenous health care system. As mentioned above the choice of health care provider cannot be directly compared between the two surveys as the question was phrased slightly different in the present survey as it was suspected that the 92 % reporting to have used the modern health care system in 1994 was exaggerated due to a) the wording that asked only about treatment and at the same time b) the interview being undertaken by a representative from the modern health care system. The tendency is, however, fairly similar, with the vast majority of ill respondents seeking modern health care at least once, and the second most popular provider being traditional healers.

A recent nationwide survey found that of all patients attending the hospital OPDs during the last week of April 2000, an estimated 7-9 % had bypassed a BHU, corresponding to an estimated 6-8 % of patients that belonged to a BHU catchments area (Policy and Planning Division 2000). Although this figure is net of emergency cases, the finding of the present survey is substantially, and significantly, higher. This could be partly explained by an over reporting of use of modern health services in the present survey, in general as well as in particular among women and older persons as mentioned above in section 5.1. In case of over reporting, it is not unlikely, that a patient has reported going to the hospital for a certain ailment rather than to a BHU, if the interviewer happened to be from the local BHU and thus would know that he/she had not seen the particular patient there. The survey of OPD patients, however, also found large variations in bypassing across hospital areas and the result of the present survey could thus be influenced by the geogs sampled.

Accessibility

68% of those who sought treatment traveled less than one hour and 90 % lived within a distance of 3 hours from a modern health care provider (ORC, BHU, hospital). Surprisingly, given the expansion of infrastructure over the past decade, there does not appear to be much change in accessibility since the last survey. This could be due to a number of the BHUs constructed simply having replaced ORCs or being rehabilitation work of dilapidated structures.

Implications

There may be several potential implications of the above results. Here we will focus on four possible uses of the information.

Targeting interventions at special groups

From the survey data widowers appear to be particularly susceptible to illness, especially if they are young, i.e. below 50 years old. The younger widowers may be an overlooked group as they may not be perceived as being as frail in the same way as older people. Still, they may be left also with children to care for and thus be in quite a difficult and stressful position in many ways. Females tend to have higher incidence of illnesses, whereas males tend to suffer from illnesses of longer duration. Health workers may therefore consider giving special attention to promotive or preventive work amongst

widowers in their community, in particular the younger ones. Experience from elsewhere suggests that this might be especially important during the first years of widowhood.

Another somewhat larger target group is Farmers who suffered from longer duration of illness. Farmers tended to suffer from Body ache and Injuries much more often than the rest of the population, which might indicate that occupational hazards are higher for this occupation. Addressing issues related to occupational hazards in farming may therefore be important for improving overall health and well-being, for example by teaching appropriate techniques for lifting. It should be emphasized that there may also be other occupational groups such as labourers and road workers that may be faced with similar or worse occupational hazards, but these groups have not been identified in the occupational classification used in the survey.

Apart from Body ache being more frequent in rural areas, Eye problems also appear to be a more prominent problem in rural areas, especially among females. This could be due to exposure to smoke from open fireplaces, which would suggest that the work to install smokeless stoves and insulating houses may be intensified in rural areas. Incidence of Eye problems also appeared to be associated with access to safe water, which might indicate that information on hygiene and transmission of eye infections could be another area for preventive work.

Respondents living in urban areas more frequently reported dental problems than rural residents. This may be a result of bad dietary habits related to the increased access to 'junk food' and sweets combined with a lack of recognition of the importance of dental hygiene. Urban residents may therefore be a particular target group for IEC on dental care. Children and teenagers may be particularly susceptible to changes in dietary habits. It may be important to target not just school children, but also parents and it may be considered to introduce IEC on dental care during post natal care sessions in order to instill good habits from early childhood.

Finally, the results confirm the need to continue to focus on improved water and sanitation as existence of latrines and access to safe drinking water was found to be related to incidence of illness, in particular Diarrhoea, and to duration of illness. Also, the village health worker programme appears to be a success in the sense that the existence of a village health worker in the village significantly increases the likelihood that ill persons will make use of modern health services.

Access: Where should health facilities be located?

As mentioned previously the RGOB is committed to provide health care in the spirit of social justice and equity. This could be interpreted as a commitment to provide equal access to health care, or it could be interpreted as a commitment to provide equal access for equal needs or yet again a commitment to ensure equity in health. Other definitions of equity objectives for health care could be added. The point is that having covered the country fairly well with infrastructure, it may be time to discuss how exactly to interpret the overall objective of equity in health service provision. This may become an important theme leading up to the prioritization for the 9FYP.

Despite having expanded the infrastructure substantially over the last decade, the survey results indicate that there still are some significant geographical differences in access to health services, cf. Table 3. When discussing access it is, however, also important to look at transportation modalities available, thus 2 hours distance by walk is obviously different from 2 hours distance by car in terms of inconvenience and suffering of the ill person or pregnant woman. Further, as also indicated above equity may be looked at in different ways. Whereas the Southern region may seem to be disadvantaged when looking at the access from a travel distance point of view, that same region is actually the one where the largest proportion of those ill make use of modern health services, cf. Table 3. If the care received is assumed to be effective, the Southern and Central region could therefore potentially be the less disadvantaged,

if evaluated from the perspective of equity in health.

Table 3. Access and use of health care services by geographical region (N=2812).

Region	distance to nearest facility		% of ill seeking care	Per cent of ill seeking modern care
	< 1 h	> 3h		
Eastern	81	3	75	61
Western	77	4	82	64
Southern	52	22	84	71
Central	62	16	80	71
Total	67	9	80	65

The differences in travel distances across regions may also lead to a discussion of the location of health facilities. There may be many other reasons for location of health facilities than population numbers. Settlement patterns, for example with very few clusters in the Central Region, may by nature mean that it would be highly inefficient to ensure equal access. Similarly, it might be argued that clinics should be located where most people are ill and not where most people live (although often this will coincide). Finally, road infrastructure may be taken into regard. Related to the considerations regarding location of facilities is also the question of distribution of staff across the existing facilities.

Choice of provider

Although the estimated use of modern health services may be slightly over estimated, the finding that 83 % of those who sought care made use of the modern health care system at least once shows that the population seems to have good faith in the system. This can only be so, if quality care, motivated staff and necessary drugs and equipment are in place. Further, it can be seen as a success of the promotional activities by the Ministry itself and by the RGOB in general… some more. Despite this success and to some extent because of it, there are improvements to be made.

Firstly, residents in rural areas tend to make less use of the services and especially Farmers seem to suffer from illnesses of longer duration. Whereas this may be due to special occupational hazards or certain illnesses more prevalent in rural areas, it may also be due to the fact that rural residents just like in many other countries tend to wait longer before they consult someone. More information to promote the use of modern health services may therefore be considered in rural areas. In this context it should be emphasized that the introduction of user fees for services may lead to even lower utilization of services. It is therefore of special importance to maintain the RGOB's commitment that basic services will not be charged in rural areas.

Secondly, however, with 84 % of residents in urban areas seeking care, it may be time to consider strategies to reduce the demand and the load on the health care system. For example, the survey results indicate that almost 80 % of urban respondents suffering from Cough and cold went to see a health worker. Given that most colds will be cured by itself, this percentage could indicate some unnecessary use of health services for minor illnesses and could actually raise some concerns about the use of antibiotics and the risk of development of drug resistance as anecdotal evidence suggests that most people receive some kind of prescription in the OPD. It may therefore be timely to start thinking about ways of educating the public in reading symptoms and in when to contact the health care system and when to revert to self treatment. Alternatively, it might be considered to introduce some kind of user payment in order to regulated demand. The drawbacks of such a solution should however be carefully considered.

Future utilization trends

Illness incidences as well as duration of illness increase with increasing age. As the population grows older, there will therefore be an increasing need for health services. At the same time, the younger age groups tend to use modern health services more than the older age groups. As this generation grows older and the current elderly dies, the utilization rates among the older and more ill can be expected to increase more. Further, there was a tendency for use of modern health services to increase with increasing education level.

All of this points to the fact that increasing demands will be put on the health sector because

- the population gets older and the older are more ill
- the younger generations are used to using modern services more often than the current old generation
- the level of education is increasing
- the number of Farmers and people living in rural areas, i.e. those who are currently low users will decrease.

On top of this then come changes in service provision due to demands for a wider range of services as well as demand for higher quality of care.

Conclusion

The survey has indicated that there are some differences in the distribution of health across demographic, socio-economic and geographical groups, and that although there in general seems to be good faith in the modern health care system, the use of the services also varies across these groups. Both of these observations point towards more targeted interventions to improve health and well-being in the future. The findings also underscore the increasing pressure on health care resources that can be expected in the future merely due to ageing of the population and to generational change. Finally, the observed geographical variations in accessibility and health care utilization point toward a need to clarify in which way to look at equity in the health sector.

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A STUDY OF DMPA DISCONTINUERS

MONGAR DISTRICT

Abstract

Forty two clients who discontinued the use of the DMPA contraception within the Mongar District of East Bhutan were interviewed between October, 1996 and March, 1997, by various health personnel. Almost all of them were between 20 and 40 years and had 2 to 4 children. Over two thirds had received less than 4 successive injections and 45% had mixed feelings about continuing any modern artificial contraception in the near future. If their fears and worries are dismissed through good and proper counseling, these high numbers of drop-outs can be curtailed, given them more prospects for healthier and happier families and society.

Introduction

Depo medroxy progesterone acetate (DMPA) injection is a semi-long term temporary option to child spacing, with efficiency for up to 99.6% when taken every 3 months or 12 weekly. It should be administered by deep intra-muscular (IM) either into the buttock or the deltoid (arm) muscle without massaging the injection site. For client's convenience, the next injection can be safely given as much as 2 weeks before or after the date of revisit (1). Usually the women may feel ambivalent on the goal of preventing pregnancy and needs guidance to resolve her feelings. Medical eligibility after a request for a specific contraception, should be complemented by a cross examination of her personal situation (2)

Various contraceptive methods are available nation-wide throughout the various levels of the health delivery system in Bhutan, since 1990 (2). At the peripheral level, the Basic Health Unit (BHU) which further fans out through Out Reach Clinics (ORC), Oral Pills and the DMPA are readily available. DMPA is widely chosen, after an informed voluntary decision, as the best contraceptive option, but sooner or later the client fails to show up on two or more successive revisits (Discontinuers). It is also not possible to monitor individual movements in and out of the area of residence temporarily or permanently (transfers).

Against this background, concerned about out clinic performance, we set out to study:

a. The socio-demographic characteristics of discontinuers.
b. The reasons behind the non-attendance at revisits.
c. Their views to method change, if they were offered another chance.

Proposals are made at the end of the study on how to make the programme sustainable (improving on the services rendered to ensure small, happy and healthy families).

Materials and Methods

This cross –sectional study by random sampling was carried out between October, 1996 and March 1997, in the Mongar Dzonkhag of East Bhutan. Mongar has a population of about 40,000 inhabitants, spread over 11 Gewogs (Blocks), in which BHUs all exist. The hospital is located in Mongar Town.

Ten interview forms (see Annex) were distributed to all the BHUs and their health personnel carried out the interviews when they came across any discontinuer. Interviewers, who had initially acted as counselor for a particular case, were discouraged from carrying out the interview in such a case, expect other wise. Women who had discontinued their DMPA injections without prior notice to the clinic were included in the study. Exclusion criteria included all those who had expressed the desire for further pregnancy, method change, or were known to have mover out on transfer from the area in

study. Incomplete and wrongly filled out questionnaires were not retained for analysis.

Results and Discussions

Responses were received from all gewogs and only 42 women were classified as discontinuers and their interviews were analyzed. Thangrong BHU reported no discontinuers to the DMPA contraception for up to two years running. Ninety five percent of discontinuers were between 20 and 39 years old, and were married. Eighty one percent had at least 2 living children, with the youngest more than 3 years old in 45% of cases (Table I, II, III, IV)

Table i :- Age Distribution of discontinuers.

Age (years) less than	*20*	*20 – 24*	*30 – 39*	*40+*
Number	1	22	18	1
%	2.4	52.3	42.9	2.4

Adolescent mothers because of a strong desire for birth control, after the experience of child bearing at this young age, may explain why there was only one drop out in this age group.

Table ii :- Distribution by marital status.

Status	*Married*	*Divorced*	*Single*
Number	39	2	1
%	92.8	4.8	2.4

Ninety five percent of discontinuers were married women, who were sexually active and not yet attained menopause. They need re-counseling, persuasion and motivation to look for temporary or permanent contraception measures, that did not interfere with their sexual life, general state of health, busy work schedule (because the many children have to be looked after), and forger-fullness preventing them from unwanted pregnancies.

Divorce and single status, with strict sexual abstinence calls for no other contraception. The lady of single status, 21 years old, in this study had a baby of 9 months old and indicated she needed more children (Table I).

Table iii :- Client distribution by living children

Children	*1*	*2-4*	*5+*
Number	8	26	8
%	19	62	19

Table iv :- Distribution by age of last child (alc).

ALC (years)	*< 1*	*1-2*	*3+*
Number	7	16	19
%	15.5	38.1	45.2

24(57.1%) of discontinuers had done so within the first year after starting the method (Table V). Of these, fourteen had abandoned after the first injection, and three were currently pregnant.

Table v :- Distribution by total dose of dmpa received

Doses	*1-3*	*4+*
Number	29	13
%	69.1	31.9

Either counseling at the onset was ineffective or because of peer pressure, the client came to the clinic determined to have only the DMPA, and quickly did not cope with the side effects or feared for her health. Usually, this was their first contact with modern Contraception, and they can tarnish the image of the Family Planning (FP) Programme through the spread of false rumours. Improving client – provider communication, should be encouraged, for how they interact on the personal level *influences both the attendance at the FP clinic*, initiation and continuation of all reversible contraceptive methods (3,4)

After abandoning DMPA, two women had never used modern contraception for at least three years, yet were not pregnant; most probably they combined abstinence with some traditional and natural methods to avoid pregnancy.

Thirty two women (76.2%) were of a trekking time of less than two hours from the clinic,

while a few others were of trekking distances of 5-6 hours duration. The different health staff involved in the programme are reminded to carry these services to the out-reach clinics rescheduling appointments for clients in various quarters concerned to coincide with the date and days. One in the last group was reconsidering her decision, and to come for Cu T insertion.

25 (60%) of the women did remember the appointment for the next injection, this usually took place during the MCH (Mother Child Health), ORC day, which was usually fixed and on a monthly basis. However if one's children were all beyond 5 years, there was a tendency to forget, because it was need-less attending the infant welfare clinic.

Table vi :- Distribution by reasons for stopping dmpa

a) Reasons	**Number**
CLINIC CAN CONTROL	18
Menstrual irregularities	9
Bad rumors	4
Long distance trekking	3
Provider unavailability	1
Stock – out	1
CLINIC CANNOT CONTROL	24
Desire for Pregnancy	7
Forget – fullness	7
"Much- Work"	3
Method Change	3
Husband traveled	1
Re-marry	1
Divorce	1
Sickness	1

Table vii :- Desire for future modern contraception

Desire	Yes	No
Number	23	19

The reasons for dropping out were varied, however satisfied clients have not only been a deterrent to false rumours but have been a booster to recruiting new clients, and helping them to continue in the programme (Table IV). The bad rumours included getting thin/obese, chest pain, headache, infertility, fear of contacting tuberculosis, waiting for menstrual bleed after a period of ammenorrhea before coming for the next injection; the need for a rest period after three or more years of continuous DMPA and the possibility of acquiring permanent contraception after taking DMPA for up to two years.

Information on DMPA was initially obtained from the health personnel in 25 (54.8%) and 19 (45.21%) from non health staff (friends/neighbors/husbands), by these women. Non health personnel seem to have much influence on the choice of the new client, but the decision on continuation is solely with the individual, depending on tolerance to side effects and inconvenience that many ensure. Again elaborated exhaustive and sometimes irrelevant medical screening for eligibility at the first contact between provider and client may as well act as a barrier. Counseling and screening should be tailored to meet the needs of individual clients after group counseling.

Of the 23 women wishing to continue in out FP clinics, five were for method change, with two husbands already having been sterilized, a lady had inserted the Cu T and one did choose to stay on DMPA (Table VII), Method change offers the opportunity to achieve the ultimate and main objective of avoiding unwanted pregnancy there by staying healthy, and having more time to look after the children and family.

Conclusion

The following conclusion can be drawn.

There are many women of reproductive age with many children, who are sexually active, with a desire to plan further pregnancies; however certain barriers prevent them from achieving this aim.

The new client will always inevitably interact with the provider, a health personnel.

The provider tries to meet the need of the couples, but this may not be to the satisfaction of every client.

Many women who stop using DMPA have no immediate plans for a next pregnancy, but stay away from the FP clinic mainly for avoidable reasons.

Recommendation

In the light of this study these recommendations are being proposed.

a. Good counselors should exercise patience and tolerance with their new clients. Initial individual counseling should not be less than 15-20 minutes in a cordial atmosphere of dialogue. Providers are reminded that counseling is a continuous process.
b. Providers themselves should believe in what they counsel over and possibly be satisfied clients.
c. Proper and effective counseling should be carried out for potential clients in family planning, free of bias and provider pressures for particular methods.
d. There is a need or counselor/provider refresher courses to update knowledge in FP practice.
e. Satisfied clients, better even, could be nominated as village health workers, at their wish.
f. Dissatisfied clients should be persuaded to go for method change.
g. Family Planning activities should be an intergral part of the MCH Clinic at Out Reach Posts; the client's appointments should be rescheduled to fit into clinic days, thus avoiding long distance trekking with the risks this entails.

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Acknowledge

The author expresses his sincere gratitude to the health staff of all the BHUs in Monggar Dzongkhag and the discontinuers for participating in this exercise. Sincere thanks also to the Administration of Monggar Referral Hospital for their logistic support and the Authorities of the Health Division for accepting this work to be done. I feel indebted to Dr.B.R. Giri for proof reading and Mrs.Champa Chapagai for typing the script.

INJECTABLE CONTRACEPTIVE STUDY REPORT (JDWNRH-1999).

Introduction

Injectable contraceptive, as a method of contraception was introduced in the Country in the year 1989 after conducting two pilot studies in two separate Dzongkhags. Depot Medroxy Progesterone Acetate (DMPA) was used in the study and being continued subsequently because of its long duration of action.

At present, DMPA is available in all the Health facilities and out reach clinics. It is the most widely used method of contraception; used by women of all ages in JDWNRH 822 women's were using DMPA as a method of contraception in the month of December 1999.

After the initial Pilot studies no such studies has been carried out, though felt necessary. It was mainly because of lack of adequate records to conduct such studies. After the standardization of the contraceptive record towards the later part of 1998 more institute based record are available now.

The following reports are prepared from the record available in the RHU of JDWNRH for the year 1999. the record of 1998 are found to be incomplete as the clinic has started using standards forms from May 1998. RH unit of JDWNRH caters the Reproductive Health needs of the Population of Thimphu city, Suburban areas and referred/ self referred population from other parts of the Dzongkhag and other Dzongkhags.

DMPA Use:

In the month of December 1999. There were 822 women's using the methods. This includes 587 women who started with the method during the year 1999. The users are predominantly multi-paras women of all age in their Reproductive age.

Age distribution of DMPA Users

Sl.No.	Age of Women	Total Users
1.	Up to 20 yrs.	158 (27%)
2.	21 – 30 yrs	355 (60%)
3.	31 – 40 yrs	60 (11%)
4.	Above 40 yrs	09 (2%)
5.	Unknown Age	15(.85%)

Effectiveness

During the year 4 cases reported for pregnancy while using DMPA. Only 1 case became pregnant after using two doses of DMPA at regular interval, remaining 3 women were started DMPA injection while they were in early stage of pregnancy.

Discontinuation

One hundred and fifty three women has reported discontinuation of the method during the year 1999. Sixty Seven (67) women have discontinued in less than 1 year of use (43%). Rest 86 cases used the method for more than 1 year (57%) the causes of discontinuation and total numbers discontinued is shown in table below.

Causes of DMPA discontinuation for the year 1999.

Cause of Discontinuation	***No of clients***	***(%)***
Want another child	20 nos	13%
Menstrual disturbance		
▪ Amenorrhoea	28	18%
▪ Spotting	20	13%
▪ Heavy bleeding P/V	144	2.6%
Weight Disturbance		
▪ Weight gain	11	7.2%
▪ Wight loss	07	4.5%
Sterilization	13	8.4%
Hypertension	11	7.2%
Pregnancy	05	3.2%
Late for injection	05	3.2%
Giddiness/Headache	10	6.5%
Other Causes *	20	13%

*The other causes include conditions like, backache, loss of sexual desire, pigmentation of face, fearing bad illness, husband away etc.

Side effect and major Health problems :

Separate study on side effects, was not conducted. However, looking at the cause of discontinuation it can be reliably concluded that menstrual disturbance, weight changes, hypertension are the most common minor side effects encountered during use of DMPA.

There is no record of any major Health problem encountered because of DMPA use during the year

.

Conclusion

This report is not representative of the current situation of the DMPA users in the Country, as the report includes finding from the users of the method in JDWNR hospital only. There is no mechanism to know about those women who do not report about side effects or continuation status.

However, it gives us some insight regarding failures, continuation and causes of discontinuation. A wide ranging study may be necessary to know the actual status of DMPA users in the Country.

1999: CYCLIC MONITORING REPORT OF FIVE DISTRICTS

(Gasa, Chukha, Bumthang, Mongar and Lhuntse)

Gyambo Sithey (BSc), Nutrition Programme

Introduction

IDD as a global public health problem
Iodine Deficiency Disorder (IDD) are recognized as a global public health problem today. According to latest estimates at least 1572 million people world wide are at risk of iodine deficiency and at least 655 million of these are considered to be effected by goiter. An estimated 43 million suffers from varying degrees of mental retardation due to iodine deficiency. South-east Asia shares the largest rates of prevalence of IDD (486 million at risk and 176 million goitrous).

The goal set by the World Summit for Children 1990 and reemphasized at the International Conference of Nutrition 1992 is the virtual elimination of IDD by year 2000.

Background

Iodine deficiency disorder (IDD) have long been a major public health problem in Bhutan. A nation wide IDD study in 1983 reported a Total Goitre Rate (TGR) of 54.5 percent; a high prevalence of cretinism and low urinary iodine concentration (only 3 percent urine sample with adequate urinary iodine level of>100 µg/1).

In 1984 the iodine deficiency disorder control programme (IDDCP) was formulated ad in 1985 the salt iodination Plant (SIP) was established in Phuntsholing launching the universal salt iodization programme in Bhutan. Thereafter all salts entering Bhutan was iodized at SIP. Subsequently towo nation wide IDD studies were conducted in 1991/92 and in 1996 to assess the impact of IDDCP. The 1996 IDD study showed that TGR has dropped to 14%, 80% of the urine sample have adequate urinary iodine level and the household iodized salt coverage of 82% (>15PPM)

Cyclic monitoring

One of the recommendations from the 1996 IDD study is to initiate the cyclic monitoring survey for internal evaluation of the IDDCP. Therefore, cyclic monitoring survey was initiated from 1998 and will end in year 2001.

Objectives

- To study the prevalence rate of goiter in the study population
- To determine current iodine status by measuring the urinary iodine leveling a sub sample of the population.
- To identify areas of high endemicity based on the above indicators
- To internally evaluate the IDDCP and identify timely and appropriate interventions.

Methodology:

The survey methodology is the "30 cluster sampling technique" and includes

a. Out come indicators : Goitre Grading (clinical) and urinary iodine (biochemical)
b. Process indicator – iodine content of salt

The survey is conducted amongst the school children between the age group 6 –11 years. From each district 6 clusters (schools) are randomly selected. The sample size is 40 children per cluster for goiter grading; 10 urine and 10 salt samples for lab analysis among the selected 40 children.

The total number is 1200 for goiter grading (n=1200)
Urine sample 300 nos
Salt samples (lab analusis) 300nos.

Clinical survey

The only clinical variable taken was goiter. Senior health workers specially training for this purpose assessed the variable. Goiter was graded into three categories (Grades 0,1,2) based on the recommendation of the joint **WHO-UNICEF-ICCIDD Consultation on IDD indicators.** Whole country was divided into four geographical zones and every year five district are surveyed from these zones thus completing the cyclic survey in four years period (1998, 1999, 2000, 2001).

In 1998, Thimphu, Paro, Tsirang, Sarpang and Samdrupjongkhar were surveyed and report published.

Biochemical analysis

The biochemical variable was urinary iodine level. On the spot casual urine sample were collected from 25% of the study population in each cluster by taking every fourth child for urine collection. Samples were collected in plastic screw-capped bottles and transported to nearest hospital in a cold box. Urine samples were analyzed at Public Health Laoratory (PHL), Thimphu by wet digestion method of Gutekunst et al. the internal quality assessment protocol using Levy Jenning plot. The results are expressed as µg of iodine per liter of urine. The total urine sample analyzed was 300.

Household salt samples

On the day of the survey, all the children were asked to bring salt samples from their house. The salt samples brought by the children who were examined for goiter grading were then tested foriodine content using the field test kit. From these a total of 10 samples were then selected randomly and collected for analysis by titrimetric method at Public health Laboratory (PHL), Thimphu. The cut off point for adequate iodine in salt at the household level is> 15PPM.

Data Management

The survey questionnaire was manually edited and pre-coded for computer analysis. The data entry was done using the Epi Info ver 6.02.

Results & Analysis

Age and sex distribution

In 30 randomly selected clusters, a total of 1200 schoolchildren were examined. The survey was carried out among school children aged 6 –11 years; of which 419 (34.92%) were in the age group of 6 –7 years of age, 423 (35.25%) were between 8-9 years and 358 (29.83%)where between 10 – 11 years of age. The male children constitute 645 (53.75%) and remaining 555 (46.25%) were females.

Prevalence of goiter

On the total 1200 children examined for goiter grading; 136 children (11.3%) were with goiter grade 1* and remaining 1064 (88.7) children with goiter grade 0. The total goiter rate (TGR) in these five districts is 11.3% and as per the **WHO/UNICEF/ICCIDD** criteria, this TGR indicates "**mild iodine deficiency in the community".**

Age wise prevalence of goiter in school children:

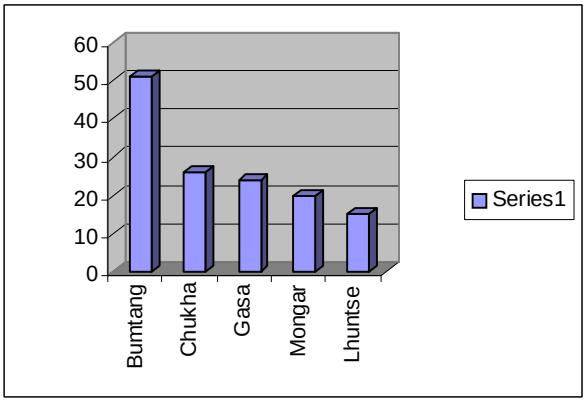
Age	TOTAL EXAMINED	GOITER GRADE			
		0	1	2	TGR=1+2
6 – 7	419(100 %)	390	29	Nil	29
8 – 9	423(100 %)	372	51	Nil	51
10-11	358(100 %)	302	56	Nil	56
Total	1200(100 %)	1064 (88.7 %)	136 (11.3 %)	NIL	136(11.3 %)

- Goiter grade 0 =No palpable or visible goiter
- Goiter grade 1 = A mass in the neck that is consistent with an enlarged thyroid that is palpable

but not visible when the neck is in normal position.

- Goiter grade 2 = A swelling in the neck that is visible when the neck is in a normal position.

District wise goiter prevalence in percent:



It is important to not here that goiter rate gives information about bio availability of iodine to the thyroid gland over a period of time, hence it is a historic marker of iodine deficiency. In other word, measurement of goiter in a population do not reflect the **current status** of iodine nutrition in that population. Only after a period of sustained salt iodination Programme, the reduction in goiter prevalence will be observed.

Median urinary iodine level

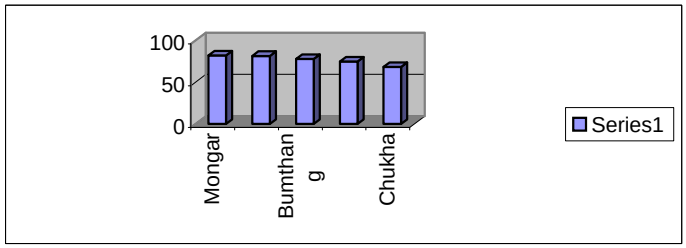
The median urinary iodine excreation level in these school children was 170 µg/1 indicating **No iodine deficiency disorder** as per the **WHO/UNICEF.ICCIDD** criteria. Based on the **WHO/UNICEF/ICCIDD** epidemiological criteria to assess the severity of iodine deficiency disorders based on urinary iodine levels, only 1.6 % of the study samples are suffering from severe IDD, 7.7% from moderate IDD and 13.8% from mild IDD.

76.8% of study population have no iodine deficiencies.

Frequency distribution of urinary iodine levels (ug/I) in school children.

Urinary Iodine (µG/1)	*Frequency*
0-20	5 (1.6%)
21-50	24 (7.7%)
51- 100	43 13.8%)
101 & above	239 (76.8%)

District wise urinary iodine excretion



The urinary iodine content is a good marker of iodine intake of the previous one or two days. It also depends on the iodine stores of the body. Since an individual's level of urinary iodine stores varies daily and even during a given day.

Iodine content in salt samples

Bas stated, of the 1200 children surveyed from 30 clusters, a total of 300 household salt samples were collected for quantitative iodine estimation. Information of the household consuming adequately iodinated salt gives information about the iodine intake only at the point of time. It does not reflect the variation occurring the past.

All salt samples analyzed had iodine. Thus the entire population in these five districts has access to iodize salt. A total of 71.1% of the salt samples contained adequate iodine (>15ppm) and the remaining 28.9% had inadequate iodine content.

Conclusion and Recommendations

The TGR in these five districts is 11.3% indicating MILD iodine deficiency disorder and median urinary iodine is 170 µg/1 indicating no iodine deficiency disorder as per the WHO/UNICEF/ICCIDD criteria. The adequately iodized salt coverage is 71.1%(>15ppm). Median urinary iodine level

indicates that 1.6% if the population in these areas are at risk of severe IDD and 21.5% of the population at risk of mild and moderate IDD & 76.8% of the population do not have iodine deficiency disorders.

It is important to note here that the UIE and the household iodized salt coverage in these five districts related the present iodine status in these respective districts. Where as the TGR reflects the past 1 – 2 years iodine intake. This study (refer table 1) reflects that no district have household iodized salt coverage (>15ppm) above 90 percent which is why the median urinary iodine level is 170 ug/1, below the expected level. While an effort has to be made to improve the coverage of iodized salt in all district, attention has to be drawn to Chukha district where iodized salt coverage and urinary iodine levels are much lower compared to other districts, despite having the salt iodization plant in the district. Bumthang has the highest TGR of 22.1 percent which is past iodine intake indicative; the UIE and the household salt coverage reflects that present iodine deficiency level is at par with the other districts of Mongar and Lhuntshe.

Advocacy and information on the proper storage of iodized salt at retailer and household levels has to be intensified to target the age old tradition of storing the salt in open container, near a fire place etc. Joint efforts with Ministry of Trade and Industry to discourage salt bags being piled outside the shop in open air, direct exposure to heat and also a rest place for dogs needs t be discussed. This area has to be settled or else the salt iodization from SIP will be in vain.

Cyclic monitoring survey has identified two high-risk communities;

1. National Work Force (NWF) of high altitude area: The NWF workers of high altitude areas and the community within them seem to consume the deicing salt, which is iodine deficient. Deicing salt seems to leak into the community through common barter system. This is a serious public health issue, which needs multi-sectoral collaboration.
2. Army community: Tracing back some of the salt samples, which are iodine deficient, highlighted that army salt, which is supplied directly to army community by Indian army, have inadequate iodine content. This needs immediate consultation with concerns sectors as it imposes serious health risk to large number of Bhutanese.

Acknowledgment

- Tandin Dorji, Public Health Laboratory for resourcing the Nutritional Programme on all aspects of IDD and for biochemical analysis of the urine and salt samples.
- Mr.Nima Yoeser, Research and Epidemiology Unit for his support in carrying out the analysis.
- All team leaders (Rinchen Dorji, Dorji Tshewang, Kinzang Namgyel, Gyembo (Bumtang DHSO), Chakchu Tshering (DHSO, Chukha), Tashi Zomba (UNICEF)) and assistants who carried out the survey for their sincerity and hard work.
- Dr.Dhakal, DMO Haa and Dr.Deki Chhoden, Tsimalakha for resourcing the IDD training for surveyors.
- Bumthang Hospital administration for their hospitality and support during the 3-day training in Bhutmang hospital.
- UNICEF/KIWANIA for financial assistant and technical support to make the survey happen.

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APPRECIATION OF THE STERILIZATION METHOD OF FAMILY PLANNING IN THE MONGAR DISTRICT, BHUTAN

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Rationale

Voluntary female sterilization with more than 150 million users in the world is the most widely used contraceptive method. In many parts of the world, especially in Asia, there is growing male participation in birth control through vasectomy. Both methods are highly effective and convenient with few or no side effects as with others, and have been widely used in Bhutan for over 10 years now. There is no age restriction and the national policy requires the couple to have at least two living children (the last over 5 years old) when requesting for any of the permanent methods of family planning.

Good counseling and a voluntary informed choice have been shown to contribute to client satisfaction, and providers are advised to refrain from exerting any form of pressure for a contraceptive methods to avoid any future regret.
Over time, because of other factors such as the death of a child or spouse, divorce, wrong decision made under pressure (e.g. in labour) or by others, a client who had undergone sterilization may regret the decision.

The Mongar hospital, since the mid eighties, has carried out over 750 sterilizations of which 9 out of 10 were vasectomies. There have been sporadic case of client request for recanalisation. Sterilization has failed in some cases thus resulting in pregnancy.

Against this background this study was designed to find out the level of satisfaction or regret and failure rate among clients who had been sterilized. At the end, proposals on how the family planning services can become more useful and effective to potential and on-going users of the permanent method are made.

Materials and Methods

The descriptive and retrospective study was carried out in the eight block of the Mongar Dzongkhag in East Bhutan between November 1998 and March 1999. One hundred and thirty three clients who had been sterilized more than a year ago were recruited for the study by random sampling. A questionnaire (not pre tested) was used by the Basic Health Unit (BHU) staff in the various geogs for interviewing the eligible clients. All recently sterilized clients were excluded form the study. The interview was one-to one to ensure the authenticity of the answers.

Results

Results from eight geogs, Chamang, Chaskar, Dramitse, Mongar, ngatshang, Saling, Sershong and Thangrong are analysed. Nine BHUs including Yadi in Ngatshang geog participated in the study.

Table 1 : Distribution of clients by geog

GEOG	Number
Chamang	10
Chaskar	20
Dramitse	20
Mongar	24
Ngatshang- BHU	15
- Yadi BHU	8
Saling	10
Sershong	10
Thangrong	16
TOTAL	**133**

Of the one hundred and thirty three eligible clients interviewed, there were seventeen (12%) female and one hundred and sixteen (87%) male clients.

Table 2 : Distribution of clients according to age group

Age Group	Number	Percentage
20-29	16	12
30-39	62	46
40-49	48	36
50-59	4	3
60+	3	2
TOTAL	**133**	**99**

Eighty two percent of the clients were aged 30-40 years; and the oldest was 72 years old. No client in the study had undergone this operation before 20 years of age.

Most clients (96%) were still married, 2 were widowers, one was a widow; and one male was divorced and remarried. The latter had vasectomy three years ago when he was 20, was divorced at 22 and now had a baby with his new wife and has been re-vasectomised.

One hundred and thirteen couples reported no change in the status of the children, and in 5, one or more children were lost. In 4 families, new births had been recorded after vasectomy. Only seven of the fourteen did seek medical help. Semen analysis showed the presence of spermatozoids in 2 cases for which repeat vasectomy was done.

Table 3: Action taken after further pregnancies

Semen analysis - Spermatozoids present	2
- Spermatozoids absent	5
No test	7

Five clients with azoospermia had taken no steps to prevent further pregnancies and their marriages have not been severly affected by further pregnancies and births.

Overall regret rate was 3% (4 cases) citing divorce, having only one daughter, and only one child as the main reasons.

A total of 26 clients had procedure-related complaints which were multiple in some cases.

Table 4: Complaints associated with sterilization

No Scaple Vasectomy (20 clients)complaints	**Number**
Pain and swelling/pus in scrotum	10
Less sex drive	10
Back ache	06
Reduced physical strength	02
Shortness of breath	02
“Serious problems with wife”	01
Reduced vision	01
Increased sex drive	02
Tubectomy (6 clients)	
Back ache	04
Low abdominal pain	03
Ammenorrhoea	01

Only seven clients with complaints saw the health worker (provider service) and two did not have satisfactory replies. Beside one client has been paraplegic six years later after undergoing vasectomy.

Discussions

The sample size fairly well represents the pattern in the Dzongkhag(District), because up to this moment the other five geogs (chakaling, Gongdu, Jurmi, Kengkhar and Silambi) have registered few or no acceptors in the permanent methods of family planning. In the latter geogs the concern has been over he adverse effects of these methods on health, since they have to do regular long distance trekking to meet up family demands.

The peak age group of sterilization was 30 – 49 years which also corresponds with grand multiparity in this society. This permits the couple to devote the rest of their lives caring for the children; enjoy sex without fear of unwanted pregnancy, and pregnancy-related

risks. Aging women are at increased risk of abortion, prematurity, delivery complications, births defects, preinatal and maternal morbidity and mortality. Congenital malformations have also been associated with the aging father.

A 23 year old male who had a failed vasectomy was divorced for family reasons and in now remarried with a child. Repeat vasectomy was done in late 1998 at a health camp. Permanent contraception has been shown not to be suitable for young couples and those with unstable/unsure relationships where the regret risk is more likely. For such group of people, more time should be devoted to counseling with one-to-one discussions and sometimes they should be persuaded to go for long term temporary contraception such as the injectables (DMPA and NORPLANT) or the Intra Uterine Device. Peer pressures should never be exerted on either partner, for though the procedure is relatively easy and safe, it is permanent and difficult to reverse.

Unlike tubectomy which is immediately effective, vasectomy takes weeks or even months. The Nation Standards requires the use of up to 20 condoms or an alternative short term contraceptive during sexual intercourse as temporary back-up contraception after vasectomy; then after a semen examination for the absence of spermatozoids should be done to confirm azoospermia. A massive presence of spermatozoids is an indication for a repeat vasectomy and if there are few spermatozoids present, the condom should be used till there are no spermatozoids in the semen. Elsewhere, some men still did not achieve azoospermia by 24 weeks (1). Male clients who do not use the condoms or other contraception as stated above after vasectomy for any reason cannot accuse their wives of infidelity who become pregnant shortly afterwards, and resort to physically assaulting them as was recorded in a case.

While there Is no guarantee for child survival after sterilization, a desired sex or number of living children should not be prerequisite; the permanent nature of the procedure needs to be stressed upon during counseling; besides there is a need to take good care of children throughout life. Honest feelings should guide the couple during decision making. A man went out of his geog with a falsified declaration on the children he has, and got a vasectomy done; today he stands to regret the decision. The policy is now modified and any one undergoing vasectomy out of his geog has to produce a written and signed attestation from the local health staff.

Such myths associated with sterilization as reduced vision, weakend physical strength and generalized vague abdominal pain should be allayed through proper pre-procedure counseling. Some of these rumors are spread by people who have no knowledge of the operation and far from undergoing one. Male clients with less sexual urge of drive or painful scortum should have a through reassessment especially for testicular size, and presence of any signs of inflammation or stitch abscess and managed accordingly. Vasectomy per se should not have a negative impact on sexual relations. Providers are advised to be meticulous when carrying out the procedure, avoiding injury to blood vessels as much as possible and staying close to the vas. Providers need to have good training in the procedure, and adequate support including supervision to assure quality of service. The surgical equipment has to be in good working condition and rigorous aseptic/sterile technique should be used for each procedure, and follow up to be a routine. The endocrine function of the testis will not be compromised and sexual urge should increase after vasectomy as was reported in 2 cases; sex will be safer because there is no fear of unwanted pregnancy. Back ache is non specific for clients of sterilization and other possibilities such as pathology associated with pregnancy, aging and others should be entertained and treated accordingly. The lone case with amenorrhoea was around the menopausal age group and screening for pregnancy was negative and she was reassured. Regret is associated with method failure or ensuring complications. The failure rate cannot be calculated at the end of this study, since all semen was never analysed following

pregnancy after vasectomy. No case of any form of pregnancy was reported after tubectomy. Our sample size was small to comment.

Conclusions & Recommendations

- The study has confirmed that permanent methods of family planning are quite reliable to use when a couple has completed the family size.
- Good counseling and health education of potential acceptors; adequate training, supervision and support of providers will provide quality services and regret will be negligible.
- Very young potential clients, those with unstable/unsure relationships, and others with method choice based on a desired sex or number of children should be counseled adequately and given the opportunity to go home and think over the decision. In this wise, the National Guide lines for contraceptive practice should be strictly adhered to when helping a client to make an informed choice. Clients with complaints should be seen by a competent counselor/provider and satisfactory remedies prescribed ot ensure client satisfaction and a successful programme.

Further research into semen analysis following vasectomy will clarify the failure rate and the average period to achieve azoospermia.

My sincere thanks to all clients who voluntarily accepted to participate in the study; all the health staff who carried out the interviews; The District Medical Officer of the Mongar Referral Hosptial, and the Hospital Administration for accepting the research to be carried out and all the logistic support.

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ASSESMENT OF FUNCTIONS, WORK VOLUME AND TRAINING NEEDS OF HEALTH WORKERS IN BHUTAN

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Introduction

The Health Department has underlined the importance of continuing education to improve the quality and efficiency of the health care system. A number of health workers working at different levels of the health service have received continuing education on a regular basis. A number of refresher courses, in-service training or meetings have been organized both inside and outside the country. As part of its effort to strengthen the training of health workers the Health Department recently has started a B.Sc. nursing conversation program in collaboration with La Trobe University in Australia. The program has already started in RIHS for 15 senior GNMs. The duration of the program is two years and is implemented through distant learning (1).

One of the most useful recommendation made at the recent annual conference was that it underlined the importance of continuing education for health professionals working at different levels of the health care system (2). It emphasized the importance of conducting a study to determine the training needs of health professionals in order to make training more relevant to the needs of communities, the health system and health workers (2). To highlight the significance of continuing education, the theme of the annual health conference was "Professionalism and efficiency in the health care system☹2).

It is clear that continuing education improves the performance of all categories of the health workers. It becomes an important activity of the Health Department during this period of accelerated social change. The management of the health service is made much more effective when all health workers undergo training (3). Thus, health workers training are a vital component in the management of the health care system. It plays a critical role in improving the quality and efficiency of the health services and at the same time it motivates the health workers to do a better job (3). Health Workers need to be trained, motivated and put to work through social and spiritual incentives.

The reasons why health workers must receive continuing education are many. The introduction of new health technology and equipment, the application of new knowledge, resources or approaches, the changing epidemiological pattern of diseases and health conditions, the change in the demographic profile of the population and the demand of the population for improved services (3).

Justification

Health managers and health workers have recognized that the existing in service training does not adequately prepare them to meet the changing health needs of the population. It was for this reason that the recent annual conference decided to strengthen and reinforced the training of health professionals. There is some inadequacy in the

present health care system in meeting the demand of the population for more and better health care. This is true as the demographic and epidemiological profile of diseases and health condition in Bhutanese population is changing (4). Health service report has indicated an increase in the incidence and prevalence of emerging and reemerging diseases such as heart diseases, stroke, hypertension, diabetes, trauma, mental illness, severe and complicated malaria and so on (4). In addition the direction of Bhutan health service is changing. The Health Department is introducing new managerial practice in order to improve efficiency and quality of the health care system, this means new working and staffing pattern are needed to meet those expectations. Moreover, recent study indicated certain inadequacy in the performance of health workers at the BHU in many key skills such as management of ARI, diarrhea, obstetric complications, community mobilization and IECH. (5). Thus it is for these reasons why in-service training is considered as the most important activity of the Health Department.

In order to make training of health workers more relevant it was decided the annual health conference to conduct a study to determine the training needs analysis (2). Because without training need analysis there is no way of knowing whether the provision of training is relevant or not (3). Training need analysis is a method to know, if a training need exists and if it does, what training is required to fill the gap. Training need analyze helps to highlight the subjects to be covered during in-service training.

When need analysis is carried out and applied to the planning of educational program, relevance is guaranteed (3). Training in the form of in-service or refresher course is satisfactory only if it is consistent with real problems recognized by communities, the health system and health workers (3). Training need analysis also helps trainers to choose appropriate methods of instruction (6).

Study done on training need analysis of health workers in Bhutan is scarce. The study did by Euro. Group team of experts was limited in its scope (5). Its main objective was to evaluate the training of RIHS and its impact (5). So far training need for health workers have been designed by program managers on the basis of morbidity and mortality trends; in this study we have used multiple instruments to define the training needs of health workers posted at district hospital and BHU settings.

Conceptual Framework

Continuing education ought to respond primarily to the needs of the health system, which in turn should respond to the needs of the communities. It should also answer the needs of health workers who are striving to maintain and improve their professional competence (3).

Assessing training needs of health professionals is a complex task. In this study we have selected appropriate tools to identify training needs, the framework of training need analysis is based on the following modalities:

Epidemiological Profile

Knowing and understanding the most important diseases and health condition that cause high morbidity, disability and death in the population serves as a tool to identify training needs. Other additional information is health status indicators such as IMR, MMR, TFR, population growth rate, life expectancy and so on. Community surveys are also useful to identify the magnitude and severity of health problem (3). Information available from health facilities and communities too can assist in finding out the type of in-service training that should be organized for health workers.

Health Service Profile

This provides the information related to human resources and activities a health unit has at its disposal. Human resource information includes type and number of staff available and required. It also covers information on workload such as number of staff available and required. It also covers information on workload such as number of patients seen at the out patient, number of deliveries conducted, number of children immunized; number of patients referred and so on. The list of services provided by the health facilities is essential for verifying the relevance of the everyday work of the various members of the health team (7). It is from

this information that the professional profiles and the training programs of health workers is determined (7).

Activities of health workers

Task analysis, which is the basis of training need, is based on a careful, systematic observation of the activities of the various categories of health workers (6). The activities actually performed at the health unit by the health workers at the place of work helps to formulate relevant task analysis. From a health activity; a list of tasks and subtasks are identified. From these tasks educational objectives are defined and the content of learning for in-service training is formulated (3). Listing the actual activities of health workers while performing is useful in developing explicit educational objectives and this has an important impact on the training program and in meeting the health care needs (3).

Performance assessment

This is another technique useful in assessing training need (3). It is a method of appraising and individual work at the health unit and community setting. It tries to identify the health workers strength and weakness while performing the activity. When the gap between what can be formulated (3). An important prerequisite in the assessment of health workers performance is the establishment of criteria upon which to base assessment (8). The criteria are often in the form of checklists, which can help in observing whether the health worker is performing the task competently or not. Checklists are used as a framework for training, because checklist serves as a common reference for trainers' (8).

Face to Face Approach

This is an interview conducted with health workers at their posting site. This method encourages trust and openness. The health worker is asked to describe based on his empirical experience areas of incompetence. This is sometimes called the critical incident case studies. Health workers are asked to describe few events they felt uncertain to handle the situation (3). And on the basis of these areas further training is identified by the health workers. This in a way provides insight into the health workers knowledge, skill and attitudes (3).

Referral Pattern

The most important function of a hospital is the coordination of the referral system. Patient who need follow up are referred downward to the BHU for continuity of care, and patients in need of high quality of care are referred to the hospital. Health workers at the BHU need to get relevant and timely information about referred patients from hospitals. The number and type of patients referred from the BHU can be a basis for identifying training need for health worker. The number of incorrect referral, misdiagnosis and inadequate management of patients provide an opportunity for the DMO and DHSO to organize relevant areas of training. In addition, in appropriate practices of referrals such as by pass of patients can also be included in the refresher course.

Supervision

This is an important mechanism for obtaining information on problems encountered in the implementation of a health programme(3). The job of the supervisor is to improve the quality of health care under existing conditions. The supervisor needs to be equipped with the necessary knowledge, skills and attitude in order to supervise the performance of the health worker. Identifying the training need of supervisors is an important area that insures the quality of health care (3).

Objectives of the study

General objectives

- To identify the training need of heath workers
- To access the performance of health facilities

Specific objectives

The specific objectives are to

- Assess the performance of health workers
- Determine the staffing need of hospitals

- List most important activities carried out by health workers at the BHU
- Identify the type of training needs reported by health workers
- Identify if there is overlapping of activities by the member of the health team at the BHU
- Assess the workload of health facilities
- Analyze the mechanism of the referral system

Significance of the study

The usefulness of this study is to

- Identify areas for inservice training
- Formulate relevant training needs
- Strenthen the quality of pre and inservice training
- Modify curriculum of RIHS to meet training needs
- Identify areas of weakness in the management of the health service
- Demonstrate how routinely collected data from health facilities can be used to improve the delivery of health services.
- Provide the basis for further research in health professionals training

Methods and Data Collection

The study was conducted during the month of December 2000. it was done by two teams each consisting of investigators from RIHS and the Health Department. The teams were then supported by respective district DMOs, DHSOs and ADMO. The study areas were district of Bhutan and the study units were hospitals and BHUs (Appendix 1)

Inclusion Criteria

All BHU have 3 or 2 staff members; which are fully functional were included, BHU with one staff member and those under special project were excluded. The same criteria were applied to district hospitals. Special hospitals serving the army, special project and leprosy hospitals were left out.

Data Collection Techniques

In this type of study no single data source can be provided all the information required for the study (9). Thus, the data wee generated from many sources. During the pretest, it was found that the minimum data required for the survey was available at the health facilities. The data collected from the study were rearranged to form a summary set of variables conducive for analysis. The methods of data collection were as follows:

Direct Observation

This technique was used to assess the performance of health workers. The health workers were observed while executing certain tasks. The observer used a checklist and simply observed while the health workers was performing the list of tasks. No interference was made to distract the health worker or the patient while the task was performed. The checklist was adopted from the Primary Health Care Management Advancement Program of the Agakhan University. It was field tested in several countries and was found effective to assess the performance of primary health workers and quality of primary health services (8). It is also intended for rapid assessment of performance during supervisory visit (8).

The investigators carefully reviewed the checklist so that the health worker understood the question. The checklist were pre-tested and modified. Before the checklist were used at the BHU, we explained to the health workers what we intend to do and why. This was indicated to the health workers that the purpose of the assessment was to help the staff improve the way the services are delivered.

The checklist contained a list of task that the health worker has to perform. Each checklist has an item with yes or no response. If the health worker carries out the task correctly then the observer, marks “yes”.

The HA was assessed while conducting clinical examination. The checklist contained tasks such as greeting the patient, taking medical history, conducting physical examination, arriving at a rational diagnosis, performing laboratory investigation if available, prescribing treatment and patient management. For each HA one patient was observed.

The ANM was assessed while performing growth monitoring and nutrition education of a child below 5 years of age. The checklist contained tasks such as correctly calculating the age of the child; correctly weighing; locating the child's growth on chart; growth monitoring and nutrition education and health teaching. Each ANM had to assess the nutritional status of one child.

The BHW was assessed while conducting health education to a group of patients attending the BHU at the day of the survey. The BHW was asked to prepare and give health education on any topic he thinks is relevant to the audience. While giving health education the BHW was assessed for tasks such as use of appropriate topic; use of materials; and so on.

The HA, ANM and BHW were also assessed on whether they are able to conduct a table and interpret the data correctly. To each of them available data such as ten top diseases; types of family planning provided and number of houses with latrine were given and asked to construct a table and use the data to analyses their respective activity. The checklist contained tasks such as table construction and data analysis and interpretation. It is to be noted that data presentation in a form of table and graph plays an important role in data analysis and interpretation (9). This helps the health workers to develop critical thinking and use the information to improve the quality of service provided at the BHU (9).

Health Facilities Secondary Data

District Hosptials

The DMO in collaboration with the DHSO, ADMO and Sister Ward In-charge collected the data on hospital statistics. The type of data collected were bed strength, discharges, admissions, length of stay, bed turn over rate, bed occupancy rate, number of deliveries, operations, laboratory investigation, available staff and number and type of staff requirement. In addition, the number and causes of deaths that occurred within and after 48 hours was collected. Death data was available at the death registration book. The cause of death means the diseases, injury or complication, which causes death (10). Two or more causes of death can occur in a single disease. The underlying causes of death are used to identify areas of training. The hospital performance indicators were calculated from in patient bed days available at the record from January to the end of November 2000.

The average length of stay in days of inpatient was calculated by dividing patient days by admissions reported. The bed occupancy rate, which indicates the percentage of beds occupied, was calculated by dividing patient bed days by the available bed days multiplied by 100. this rate provides information about beds used and beds provided. A high bed occupancy rate 100% of more indicated shortage of beds. Bed turn over interval expresses the average number of days in, which a bed remains empty between patients. This rate is calculated by subtracting in patient days form available bed days and is divided by the number of admissions. The bed turn over interval is zero when bed occupancy rate is 100% and becomes negative when the rate is over 100%. A negative or a very short turn over rate indicates shortage of beds. A long interval points excess of beds or a defective admission mechanism (11).

Basic Health Unit

Secondary data related to service statistics was collected. Some of the data collected were number of patients attending, immunization performed, antenatal attendance, deliveries conducted and so on. In addition, number of patients referred to the district hospital and the JDW-NR hospital and the number of patients formally referred back was collected. The information was collected by the HA together with his team members.

Structured interview

An interview with the HA, ANM and BHW was carried at the BHU using a close and open-ended questionnaire. The questionnaire contained information on the type and number of in-service training received so far and the area they thin they need more in-service training. In addition, information related whether they know the prevention, emergency management and follow up of diseases and conditions such as diabetes, cancer, stroke, hypertension, heart disease and trauma was

retrieved. They were also asked to list the activities they are actually doing at the BHU, as this will provide the basic training need analysis.

In depth interview

An in depth interview was conducted at the district hospital with the DMO, DHSO, ADMO and Sister in-charge. Questions relevant to the research problems were discussed. The interview was done in a relaxed atmosphere; No tape or video-recorder was used to transcribe the information because recording was sought to disrupt the interview process (12). Through such interview information about the type of in-service training hospital staff require; causes for low bed occupancy rate; problems of admission; and reasons for hospital deaths were discussed. And problems related to supervision were also discussed with the DMO and DHSO.

Sampling size and sampling procedure

The sample size for the study was considered taking into account the resources, time available and the precision required. A rough estimate was made. Out of the 135 BHU which are normally operating 106 (78.5%), were BHU with 2 or 3 staff members. Out of these 26 (24.5%) were selected for the study. Since the number of district hospitals is small, the number to be included in the study was increased in order to improve precision. Out of the 18 district hospitals, which fulfilled the inclusion criteria 12 (67%), were surveyed.

Initially a sampling frame was prepared. The sampling frame contained the list of BHU and district hospitals located in different parts of the country. The sampling procedure used was stratified sampling. The reason for using such sampling procedure was to insure representative ness of all the health facilities in the country. All the district hospitals and BHUs were stratified by area and by the number of staff incase of the BHU. Then the BHUs and district hospitals to be surveyed were randomly chosen using a random table.

Data analysis

The information collected was analyzed using a simple matrix. The data was transferred form observation checklists to the matrix where analysis and interpretation of the result could be made. However, before the data was put in a form of a table for analysis data cleaning was done in order to transform the raw data to a state in which analysis could be conducted with minimum distortion of results form errors (13).

Data analysis such as frequency distribution or counts and percentage was done manually.

Analysis and Recommendations

The survey team studied all the 12 district hospitals and the 26 BHUs selected.

Assessing Training Needs.
Districts Hosptials

Table 1 shows the availability of technical staff. Most district hospital do not have core specialist such as obstetricians. The number of critical staff such as GDMOs and technicians such as laboratory and dental is low. Discussion with DMOs indicated that Dental Technicians are more appropriate for a hospital setting than Dental Hygienist.

Table 3 shows performance indicators of hospital services. The average number of patients attending the hospitals OPD ranged from 7 in Reserboo to 163 in Punakha. Low number of patients was also reported in the other district hospitals like Sarpang. Sibsoo, Trashigang and so on. Although season affects patient attendance this was not consider in the analysis. The low number of patient attendance means low utilization and low workload. The low utilization is directly related to the quality of care provided at he OPD. Hospital studies have shown a direct association between use, quality of care and patient satisfaction (14). The availability of trained and experienced staff at the OPD and the availability of adequate logistics such as laboratory and X-ray facilities affect quality of care. Normally an OPD ought to be staffed by highly qualified doctors and health workers. The OPD is the window shop of the hospital. The way OPD functions affects community perception. It is in the OPD were management of critically sick and injured patients take place.

According to the reports of the DMOs, many OPDs in the district hospital are run by BHWs, compounders and sometimes, by newly graduated HAs or even GNM who were not taught clinical medicine during their training at RIHS. Patients are usually sent for BHUs by experienced HA to be seen at the OPD by less experienced health worker. Improper functioning of the OPD contributes to defective admission and inefficient use of inpatient beds. The low quality of care provided at the OPD may force many patients to bypass the district hospitals and causes an overcrowding patient situated at national referral hospitals. The recruitment of more GDMOs and training of clinical officers is an area that deserves attention. If neither of them is available experienced HA with short inservice training or clinical management is an option to consider. Currently, GNMs are taught management of common diseases and disorders. If this aspect of training is strengthen they could be used at OPDs of district hospitals.

The result also indicated that the number of deliveries conducted in most hospitals is low. Many of the complicated deliveries are either referred inside or outside the country and this is mostly due to inadequate number of obstetricians.

Annexed Table 3.

The data also showed low work volume in most district hospitals. The same table also indicates that the bed occupancy rate except for S/jongkhar is low. Most of the district hospitals have been occupancy rate of less than 60%. This means the available beds are not fully utilized. Particularly very low bed occupancy is observed in Bumthang (20$) indicating that most of the beds remain unoccupied. However, in S/jongkhar the bed occupancy rate is 150% and the bed turn over rate minus 3 days. This indicates acute shortage of beds. The bed turn over rate ranges form 3 to 8 days. Some of the reasons for low bed occupancy rate are lack of specialists, GDMOs, patient by pass, defective admissions and so on (Table 4).

Table 4: Reported reasons for low bed occupancy rate in the six hospitals

Reported reasons
Lack of specialists
Inadequate number if medical doctors
Timely referral of serious cases
Doctors only admit patients
Social pressure to refer patients
Most patients are treated at OPD
OPD not staffed by doctors of clinical officers
BHW assigned to run hospital OPDs
Inadequate training in ICU
Patient by pass is they knew there is no doctor in the hospital

The result in Table 3 also shows except for S/jongkhar there is no justification to increase the number of beds. Increasing number of beds will increase inefficiency and may create the demand for unnecessary admissions. To increase efficiency the bed occupancy rate must be raised by improving the staffing pattern, quality of nursing care and the application of scientific principles of hospital management. Increasing beds is justified after the hospitals are staffed with the appropriate medical personnel, such as Obstetricians, GDMOs and so on. The current nursing staff in most hospital seems to be adequate. The emphasis for this category should be on inservice training to increase quality of nursing care, which is crucial in accelerating the healing process. The performance hospital indicators along with other parameters could serve the basis for determining human resource requirement and transfer.

Table 3 also showed that the average length of stay of patients in most hospitals is not long. This is an acceptable practice and indicates good organization of medical and nursing services in the inpatient department. It may also mean the immediate referral of patients to higher lever of care. Increased length of stay was observed in S/jongkhar and Trashigang hospitals. DMO/GDMOs and ADMOs have to look ways of decreasing the length of stay by investigating the course of increased stay such as delay in admission, late diagnosis, treatment, late discharge, quality of nursing care and so on before increasing number of beds. Decreasing the length of stay and at the same time improving the quality of care increases efficiency.

Annexed Table 5

Table 5 shows the number of reported deaths in the district hospitals. The number of deaths measures the quality of services and the competency of doctors and health workers. The reported deaths of most hospitals are low. However, out of 178 deaths 108 (60.7%) occurred within 48 hours of admission. This is true as deaths in hospitals often occur within 24 hours of admission (15). Some of the deaths could be prevented if the patient condition is identified soon after arrival and treatment of those serious and life threatening diseases until the doctor arrives. Through brief training the health workers can provide treatment without delay. Among the reported reasons for high death indicated in Table 6 is the in-availability of adequate laboratory facility to carry out emergency investigations. At least basic laboratory investigation required in emergency situations such as blood glucose determination, blood smear, hemoglobin, typing and cross matching, microscopy CSF and urine, blood bilirubin should be done in a district hospital.

The current staff DMO/GDMO, nurses and OPD staff need in service training on the management of critical and life threatening health conditions and injuries as indicated in Table 6.

Table 6: Reported reasons for the high number of deaths in less than 48 hours after admission.

Reported reasons
➢ ***Late arrival of patients***
➢ ***Delay in referral for BHU***
➢ ****Severe diseases with complications***
➢ ***Inadequate Laboratory facilities***
➢ ***In sufficient skill in handling emergency of severe diseases***
➢ ***Low attention of serious patients admitted during holidays and weekends***
➢ ***Problem of in-service training for nurses***

Severe diseases includes cerebral malaria, coronary heart disease, hypertension, complications of diabetes, stroke, cancer, emergency conditions of childhood illness.

Table 7 shows that severe pneumonia, liver disease, heart disease, septicemia, sever and complicated malaria ranked most as causes of death among patients admitted. Reports form teaching hospitals in other countries indicated hypertension, heart disease ad trauma as major causes of death (16). For comparison it is useful to do the same study on the causes of death among admitted patients at JDW-NR hospital as this will help to assess and monitor the quality of care.

In our opinion the diseases listed in Table 7 should be incorporated in pre and in-service training of health professionals. Doctors and health workers posted in district hospitals that are located in endemic malaria's areas require regular service training in the treatment and management of severe and complicated malaria. Most patients with cerebral malaria come with generalized convulsions, impaired consciousness, hypoglycemia, renal failure, pulmonary oedma and so forth.

Table 7 : Cause of death reported from the hospitals surveyed

Cause of death	**No**	**%**
Severe pneumonia	22	12.3
Liver disease*	18	10.1
Heart disease*	15	8.4
Septicemia	13	7.3
Severe and complicated malaria	13	7.3
Pulmonary tuberculosis	10	5.6
Stroke**	8	4.4
Severe dehydration & malnutrition	7	3.9
Renal failure	6	3.3
Hypertension	5	2.8
Cancer***	5	2.2
Meningitis	4	2.2
Shock	4	1.7
Acute intestinal obstruction	3	1.7
Hypoglyvemia	3	1.7
Prematurity	3	1.7
Neonatal jaundice	3	1.7
Bacillary dysentery	3	1.7
Head injury	3	1.7
Anemia	3	1.7
GI bleeding	3	1.7
Bronchial asthma	2	1.1
Accident	2	1.1
Respiratory disease	2	1.1
Pulmonary embolism****	2	1.1
Electro imbalance	2	1.1
Diabetes	1	0.6

Coma	1	0.6
Merasmus	1	0.6
Abdominal TB	1	0.6
PPH and APH	1	0.6
Obstructive pulmonary disease	1	0.6
Rabies	1	0.6
Metabolic acidosis	1	0.6
Gastroduodenits	1	0.6
Fulminating measles with PTB	1	0.6
Suicide	1	0.6
Cause of unknown death	3	1.7
Total	**178**	**100.00**

* *Liver disease mostly cirrhosis*
** *Hypertensive and thrombo-embolic strokes*
*** *Prostate, oral, rectum and lung*
**** *Pulmonary embolism due to PTB and excessive alcohol intake*

Table 8. Shows the adequacy of the referral process. Out of 573 patients that are referred by the BHUs 85(14.8%) were referred back. Moreover, 136 (23.7%) of the patients were referred directly to the JDW-NR hospital indicating referral by pass. In a recent meeting held at RIHS the Health Department emphasized the importance of the referral system in bringing quality and efficiency to the health system. In this respect the district and national referral hospital can organize relevant inservice training for BHUs staff by registering type of diseases and conditions referred to the district hospitals by BHUs. The problems of diagnosis, treatment and management identified during referral can be the basis for identifying training needs at the district level. We think that a hospital should provide adequate information on any patient referred to the BHUs. This will insure quality and continuity of care. We have proposed a referral format that can be pretested at the BHUs and hospitals (Appendix 2).

Table 8: Assessing the adequacy of the referral system between BHU & Hospitals

Name	**Patients referred**			**Patients referred back No.**	**% of referred back**
	Dist.	**JDW NRH**	**Total**		
Bali	10	13	23	3	13.0
Bajo	0	97	97	4	4.1
Bartsham	7	0	7	0	0.0
Bitakha	8	3	00	1	9.1
Chapcha	0	5	5	0	0.0
Chaskhar	11	0	11	3	27.3
Dremtse	31	1	32	10	31.2
Drujyegang	26	8	34	12	35.2
Gaselo	1	0	1	0	0.0
Gynekha	8	6	14	2	14.3
Jigmecholing	8	0	8	0	0.0
Khaling	51	0	51	11	21.6
Khoma	6	0	6	0	0.0
Khamdang	72	0	72	12	16.7
Kuengarabten	15	0	15	0	0.0
Lamidara	12	0	12	5	41.7
Orong	14	0	14	2	14.3
Phongmey	0	0	0	0	0.0
Radi	39	1	40	1	2.5
Tongtongphai	5	0	5	1	20.0
Tsangpo	27	0	27	0	0.0
Tonglcho	30	0	30	3	10.0
Tang	5	2	7	0	0.0
Tendu	18	0	18	0	0.0
Tschochasa	8	0	8	0	0.0
Yangner	25	0	25	12	48.0
Total	437	136	573	85	14.8

Table 9. shows areas of in-service training that are relevant to some members of the hospital staff. The areas of training identified by DMO, GDMO, DHSO, ADMO and the ward in-charge include clinical, nursing and community health skills. The importance of scientific supervisor of the health team has also indicated some deficiencies particularly in the area of clinical and management skills.

Table 9: Identified areas of in-service training during an in depth interview

Staff	**Areas of in-service trainings**
DMO, GDMO	➢ Hospital management ➢ Use of hospital statistics to improve quality of care ➢ Supervisory skill ➢ Management of severe and complicated malaria ➢ Emergency triage assessment and treatment of the sick child ➢ Mgt. of complications of hypertention, diabetes, stroke, myocardial

	infraction
	➢ Organization & coordination of referral system
DHSO	➢ Health services Management
	➢ Supervisory skill
	➢ Clinical & epidemiological skills
Nurses	➢ Mgt. of complicated labour
	➢ Emergency triage assessment and treatment of the sick child
	➢ Training in intensive care unit
ADMO	➢ Use of hospital statistics to improve quality of service

Basic Health Units

Table 10 shows workload of BHUs staff. Workload in some BHUs is low. Gynekha, Tongmkho and Tschochasa see less than 10 patients per day. Number of deliveries conducted during 11 months period in Chapcha, Gaselo, Gynekha, Khamdang and Tschochasa was less than 10. even not one delivery was conducted in a month in these BHUs. Other BHUs not included in this survey have also to be assessed for workload. And those with low workload need to be identified. And the reasons for low workload have to be investigated. Some of the reasons for low output could be low population density; easy access to nearby districts hospital or poor performance of the health service. Monitoring workload on a regular basis helps to rationalize the service in terms of staffing and work pattern. In addition, it can serve as a basis of staff requirement and staff transfer.

Annexed Table 10

Table 11 shows the list of activities actually performed by the HA. The list of activities those health workers actually do serve as a basis for task and training analysis. The main activities that HA do mostly were clinical management, communication and administration of BHU.

Table 11: List of activities done by the HA at the BHU in terms of Importance

Activities
1. Clinical management of patients
2. Giving health education to patients and communities
3. Preparing and submitting reports
4. BHU administration
5. Attending out call emergencies
6. Conducting laboratory investigation
7. Maintaining records
8. Conducing outreach MCH/ANC/FP
9. Attending MCH/ANC/FP activities at the BHU
10. Supervise staff of the BHU
11. Attend School health Program
12. Follow up of patients with chronic disease
13. Sanitation and hygiene
14. Collecting, compiling and analyzing data
15. House to house visit
16. Planning, implementing and evaluating activities
17. Meeting with DHSO
18. Escort patient referral
19. Maintain BHU surrounding
20. Management of store
21. Organize and conduct meeting at the BHU
22. Supervise rural water supply
23. Attend Geog meetings
24. Follow up out breaks of diseases
25. Plan day to day activities
26. Conduct EPI activities
27. Prepare yearly plan
28. Supervise VHW
29. Maintain supplies & Equipment
30. Management of drugs and materials
31. Dressing and injections
32. Attend emergency
33. Supervise model village
34. Participate in the training of VHW
35. CBR program
36. Construct and display tables and graphs
37. Supervise ORC construction
38. Provide first aid and outside of BHU
39. Maintain sterilization
40. Prepare sketch map of the catchments area
41. Develop IEC material
42. Maintain inter sector collaboration
43. Look after inpatients

Table 12 indicates the type of activities ANM mostly do. And most common once were MCH/ANC and FP.

Table 12: List of activities done by the ANM at the BHU in terms of importance

Activities
1. Conduct MCH/ANC/FP at BHU
2. Conduct MCH/ANC/FP at ORC
3. Clinical management of patients
4. Giving health education to patients and communities
5. Prepare and submit reports
6. Attending outcall emergencies
7. House to house visit
8. Attend delivery calls
9. Maintain BHU surrounding
10. Sanitation and hygiene
11. Escort patient referral
12. Assist HA in BHU administration
13. Attend school health program
14. Injection and dispensing of drugs
15. Conduct Laboratory investigation
16. Supervise model village
17. Provide nursing care
18. Maintain records
19. Follow up of chronic diseases
20. Maintain cold chain
21. Management of store
22. Attending outcall emergencies
23. Conduct EPI activities
24. Collecting and compiling data
25. Supervise VHW and care takers
26. Carry out salt analysis
27. Promote kitchen garden
28. Rub BHU in the absence of HA
29. Provide first aid outside of BHU
30. Look after sterilization equipments
31. Look after inpatients
32. Plan day to day activities

Table 13shows that the BHW spends most of his time in communities doing hours to house visiting. Actually, there is no overlapping on the main activities of the HA, ANM and BHW. Each health worker has distinct responsibilities. However, some overlapping among the members of the health team can not be ruled out. And such slight overlapping is desirable in case one member of the team misses.

In our survey we have found out that the HA play a role in BHU management and in clinical patient management and the ANM in conducting MCH/ANM and family planning. The BHW spends most of his activities in community health. In our opinion these categories of health workers from the critical health team for the development of primary health care in Bhutan. The training of these distinct categories out to continue but it should be reinforced by continuous in-service training and carrier structure.

Furthermore in the training of health workers more attention should be paid on the list of activities performed by the different team members. However, incase of the BHW some work rearrangement has to be worked out if the number of days the BHW has to spend in communities is restricted in view of the recent increase in personal daily allowance. If this is not taken into consideration the BHW may have to spend in BHU doing more clinical work than what he is expected to do.

The list of activities performed by members of the health team can serve the basis for reinforcing the training program at RIHS.

Table 13: List of activities done by the BHW at the BHU in terms of importance.

Activities
1. House to house visit
2. Clinical management of patients
3. Giving health education to patients and communities
4. Conduct MCH/ANC/FP at the BHU
5. Conduct MCH/ANC/FP at the ORC
6. Attending outcall emergencies
7. Collecting and compiling data
8. Attend school health program
9. Carry our salt collection and analysis
10. Supervise model village
11. Assist HA in BHU administration
12. Sanitation and hygiene
13. Attend delivery calls
14. Supervise VHW
15. Maintain cold chain
16. Maintain equipment
17. Follow up patients with chronic disease
18. Follow up of out break of disease

19. Conducting laboratory investigation
20. Conduct EPI activities
21. Maintain records
22. Assist HA in recording and reporting
23. Promote kitchen garden
24. Maintain BHU surrounding
25. Organize and conduct meetings
26. Management of store
27. Participate in training of VHW
28. Escort patient referral
29. Manage BHU in the absence of HA and ANM
30. Prepare sketch map of the catchments area

The result in Table 14 has also shown that a high number of health workers have participated in in-service training. Out of 68 health workers 58 (85.3.%) had received in-service training. Most of them had participated twice. There were only 10 health workers who did not receive and the majorities were ANM. The reason for not attending could be many. Some might have been given the chance but were unable to attend. The finding indicates the direction and emphasizes of the health department in health professional training. We think that all health workers particularly those who work in remote areas should receive inservice training continuously. Some health workers however reported that they had attended some type of inservice training again and again in different programs. If this is true then there is no need to coordinate the inservice training conducted by different programs under the health department. Coordination of inservice training avoid duplication and fragmentation thus leading to greater efficiency in healthcare delivery.

Table 14: Frequency of in-service training received by health workers at the BHU from 1998 to 2000

Frequency of in-service training*	**HA**	**ANM**	**BHW**	**Total**	**%**
Once	6	8	6	20	29.4
Twice	8	6	8	22	32.4
Three times	5	2	7	14	20.6
> Three times	2	0	0	2	2.9
None **	1	8	1	10	14.7
Total	**22**	**24**	**22**	**68**	**100.00**

*In-service training outside the country is not included. There were 7 health workers who did in-service training out side the country. There were 5HA, 1 ANM, 1 BHW

**ANMs in Dramtse, Radhi, Tsangpo, Tongtongphai, Orong, Drujyegant, Biteka, Bali received no in-service training including HA and BHW in Dremetse BHU.

Table 15 : Training areas conducted during in-service training for health workers at the BHUs from 1998 to 2000

Health Workers	Areas of in-service training
HA	➢ Acute Respiratory Infection ➢ Basic Laboratory procedures ➢ Community planning and management ➢ Control of diarrhea disease ➢ Emergency medical team training ➢ Family planning counseling ➢ Growth monitoring and nutrition education ➢ IUD insertion ➢ Interpersonal education and communication ➢ Infection control ➢ Midwifery safe mother hood ➢ Malaria control including laboratory ➢ Rational use of drugs ➢ Sanitation of Rural water supply ➢ Store management
ANM	➢ Acute Respiratory Infection ➢ Acute flaccid paralysis ➢ Community based rehabilitation and ➢ Growth monitoring and nutrition education ➢ Infection control ➢ IUD insertion ➢ Interpersonal education and communication ➢ Midwifery safe motherhood ➢ Management ➢ Rational use of drugs
BHW	➢ Communication strategy ➢ Community based rehabilitation ➢ Family planning counseling ➢ Growth monitoring and nutrition education ➢ Infection control; Leprosy control ➢ Malaria control including laboratory ➢ Midwifery safe motherhood ➢ Sanitation and rural water supply ➢ Tuberculosis control using DOTS including microscopy

Table 16 contains a list of specific training needs identified by HAs, ANMs and BHWs. There are similarities in both cases. However as indicated in Table 16, a stronger need to include clinical examination and management of patients was felt by HAs and BHWs. The second most important area was management of obstetrical complications. These two areas seem to be the most critical areas where inservice training should focus. Additional areas that were identified were laboratory skills. Communication skills, construction and interpreting tables and graphs. However, before inservice training in laboratory skills is provided it is important that the basic laboratory equipment and reagents are available at the BHU so that the health worker has the chance to practice what he had learnt.

Annexed Table 16

Equipment maintenance includes laboratory, diagnostic equipment, rural water supply etc.,
Health workers were also interviewed on whether they know the prevention, diagnosis and management of emerging diseases and health conditions. As indicated in Table 17, the majority stated that they lack specific skills in the prevention, management and follow up of diseases like cancer, stroke, heart diseases, trauma and diabetes. The incidence of these diseases is increasing and this is going to change the training and the way health services are provided. The inclusion of emerging diseases in pre and in-service training is an important positive step in medical education.

Annexed Table 17

Another areas of training inadequacy was observed while the HA and ANM were performing essential clinical and growth monitoring skills. The areas of in-competencies identified by the HA while conducting clinical practice were greeting the patients, taking proper medical history; conducting a systematic related physical examination and patient teaching (Table 18)

Table 18

Table 19 indicates subtasks not correctly performed by the ANM. Incompetence was observed in taking child weight and in educating the mother in growth monitoring. The list of subtasks not correctly performed can be used to reinforce training programs.

Table 19

As shown in Table 20 the BHW also lacks few essential skills while giving health education.

Table 20: Subtasks not correctly performed by the BHW while conducting health education session. (N = 13)

Subtasks	HA N = 13	ANM N = 9	BHW N = 9
Health worker writes heading properly	5	8	9
Labels each row and columns clearly	6	8	8
Shows totals in row and Columns	12	9	9
Show percentage Calculations	12	9	9
Analyzes the data in the table correctly	12	8	9

In addition, the HA, ANM and BHW assessed whether they are able to construct a table and interpret the data properly or not, table 21 indicates that all the health workers have problem in constructing and interpreting a table correctly. In-service training will help the health workers on how to analyze and use the minimum data at the BHU to improve the quality of health care. At the same time it encourages critical thinking among health staff and this is a useful tool while dealing with community health problems.

Table 21: Number of type of health workers who were unable to perform in table construction and interpretation of data at the BHU

Furthermore, all the 65 health workers stated that supervision is conducted on a regular basis. There is at least one supervisor visit by the DHSO during 3 months. However, 48 (73.8%) stated that the supervision is mostly managerial than technical. In view of the fact that the DMO does not have time for regular supervision, it is necessary to improve the technical quality of supervision by providing continuous in-service training to the DHSO.

Subtasks	BHW	% of total
Use role playing during presentation	11	84.6
Ask participants if they have any questions	11	84.6
Ask feed back audience on presentation	11	84.6
Promote group discussion	10	76.9
Repeat or restate key messages	7	53.8
Use demonstration models during presentation	5	38.5
Avoid technical/medical terminology	5	38.5

Conclusion

Training need analysis is the most important function of any health system. The present study has demonstrated that training need is analyzed through the use of minimum information available at the health service. Secondary data, health workers activities, performance assessment, referral patterns and critical incident wee the tools used to assess training needs.

The present in-service training can be strengthened and reinforced by incorporating the new training areas identified in this study. The areas of training include procedures of clinical examination and patient management; prevention, management and follow up of emerging diseases: emergency management of serious and life threatening diseases; management of obstetrical complications; communication and epidemiological skills; hospital management and so on. During pre and in-service training, the emphasize need to be on skill development.

In our opinion in-service training is not an end itself; it is closely related to the national health system as a whole and to the workforce. The human resource requirement at the district hospital is a priority area that need ot be addressed urgently. It ought to be

staffed by specialist, GDMOs and laboratory technicians. Strengthening the district hospitals means increasing the effectiveness and efficiency of rural health services.

Despite some limitations in the methodology such a limited resource, and quality of data; the finding in the study is useful to assist in the strengthening of pre and in-service training in a planned manner. It will assist the RIHS also in modifying its curriculum so that the training becomes need and problem based.

Recommendations:

The specific recommendations in this study will be as follows:

1. Health Services Performance

District hospitals

- Need for obstetricians, GDMOs and technicians are areas of priority in human resource requirement
- There is a need to increase the number of laboratory technicians in order to strengthen the laboratory service.
- Strengthen the organization and activity of the OPD through the development of appropriate human resource and the application of scientific hospital management.
- Staff OPDs with experienced HAs if GDMOs and clinical officers are not available.
- Strengthen the emergency services through improved management, appropriate human resource, laboratory and other logistics,
- Look for ways to increasing the bed occupancy rate of district hospitals through improved management ans staffing pattern.
- Increase the number of beds in S/jongkhar.
- Develop mechanisms of decreasing length of stay in Trashigang and s/jongkhar.
- Strengthen the coordination of the referral process by providing referral feed back to every patient referred from BHUs.
- Monitor the quality of service at the BHUs by continually registering referral arrivals.
- Reduce death within 48 hours of admission by strengthening the emergency service training, appropriate staffing and improved managements.

Basic Health Units

- Identify BHUs with low work volume
- Rationalize the service of those BHUs with low work load
- Staffing of the BHU including transfer should be need based
- Monitoring the activities of health workers from time to time to modify training needs
- Include in the coming in-service training those health workers who did not participate previously
- Modify the job profile of the BHW in view of the recent change in daily allowance allocation for community work.
- Strengthen the technical area of supervision inorder to improve quality of care.
- Training of the rural health team namely, HA, ANM and BHW should continue.
- Develop carrier structure for all members of the health team

In-service training

- Reinforce training in the prevention, management and follow up of emerging diseases and health conditions.

- Include emergency triage and management of sever and life threatening diseases.
- DMO, ADMO and Sister in Charge need training in hospital management and how to use hospital information to improve efficiency
- Inservice training for DHSO should include supervision skills and clinical management
- Hospital nurses require inservice training in intensive care unit.
- Training of HA should focus on clinical management
- Reinforce training in management of obstetrical complications and IUD insertion
- Reinforce the training of ANM in growth monitoring/nutrition education
- Emphasize on the training of BHW and other members of the team in communication skills.
- Table construction and data analysis for planning and evaluating of health activities
- Modify or revise RIHS cirriculum on the basis of actual activities carried out by HA,ANM and BHW
- Introduce gradually problem and community based training in RIHS
- Provide feed back to health workers on the result of the study
- Organize a workshop to carry out task analysis and formulate educational objectives.
- Coordinate the in-service training carried out by the different programs and untis of the Health Department

Acknowledgements

We are deeply grateful to the Health Department for approving and financing the study. Our sincere thanks goes to DMOs, GDMOs, ADMOs, Sister In-charge and the many health workers who are posted in different parts of the country for their support and participation in this research.

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Appendix 1 : List of health facilities covered by the survey

Type of health facility	Name of health facility
Hospital	1. Paro
	2. Punakha
	3. Sibsoo
	4. Bumthang
	5. Gaylephu
	6. Lhuentse
	7. Pema Gatshel
	8. Sarpang
	9. Riserboo
	10. Samtse
	11. S/jongkhar
	12. Trashigang
BHU	1. Bali
	2. Bajo
	3. Bartsham
	4. Bitakha
	5. Chapcha
	6. Chaskhar
	7. Drametse
	8. Drujyegang
	9. Gaselo
	10. Gynekha
	11. Jigmecholing
	12. Khaling
	13. Khoma
	14. Khamdang
	15. Kuengarabten
	16. Lamidara
	17. Orong
	18. Phongmey
	19. Radhi
	20. Tongtongphai
	21. Tsangpo
	22. Tangmachu
	23. Tang
	24. Tendu
	25. Tschochasa
	26. Yangner

Table 3: Performance indicators of hospital activities from January to November 2000

Performance indicators	Name of hospitals surveyed											
	Pa*	Pu*	Gay*	Lhu	Bum	S/J	Sar	P/G	Ris	Sip	Tas	Sam
Reported No. of beds	40	30	40	20	33	20	12	27	30	15	75	48
Patients admitted	1178	1261	1868	556	498	1079	454	824	759	783	1429	1328
Patients discharged	930	1029	1551	472	446	977	412	824	772	763	1400	1186
Bed occupancy rate in %	52	54	53	44	20	150	60	53	40	59	53	44
Bed turn over rate in days	5	3	4	8	18	-3	4	5	8	3	8	7
Number of beds occupied maximum in any one day	37	30	40	33	23	38	-	29	-	22	-	38
Number of beds occupied minimum in anyone day	6	11	15	9	2	16	-	9	-	5	-	10
Average* Length of stay in days	5	4	3	5	4	9	5	6	5	4	9	5

Table 5 : Occurrence of death within and after 48 hours of patient admission and death rate among admitted patients.

Pattern of death	Name of hospitals surveyed											
	Pa*	Pu*	Gay*	Lhu	Bum	S/J	Sar	P/G	Ris	Sip	Tas	Sam
No. of death> 48 hours	7	5	21	2	1	7	3	2	2	2	10	8
No. of deaths < 48 hours	14	7	15	4	4	8	4	10	4	2	23	13
Total no of deaths	21	12	36	6	5	15	7	12	6	4	33	21
% of deaths < 48 hours	66.7	58.3	41.7	66.7	80.0	53.3	57.1	83.3	66.7	50.0	69.7	61.9
Death rate among admitted patients in %	1.8	1.0	1.9	1.1	1.0	1.4	1.5	1.4	0.8	0.5	2.3	1.6

***Data available until October, 2000*

Table 10: Work load of the BHUs from January to November 2000

BHU	Ave. P1/ day	No. Of child	No. of adult	No. of delv. con	No. of Immu	No. of FP	Invest Lab
Bali	39	181	55	7	1216	221	965
Bajo	39	48	216	65	163	315	216
Bartsham	19	30	41	50	364	150	60
Bitakha	10	160	32	16	657	68	10
Chapcha	12	261	11	5	130	32	18
Chaskhar	17	610	57	60	329	24	60
Dremtse	20	1121	32	66	323	90	82
Drujyegang	26	122	98	12	729	60	66
Gaselo	12	105	30	8	437	32	-
Gynekha	7	6	17	7	10	22	24
Jigmecholing	21	118	118	65	313	134	-
Khaling	31	445	121	20	52	268	83
Khoma	10	136	28	39	159	57	27
Khamdang	32	614	102	9	509	232	209
Kuengarabten	10	351	52	56	644	269	94
Lamidara	14	-	101	77	360	108	519
Orong	22	110	42	27	608	35	377
Phongmey	18	105	59	-	266	625	97
Radi	47	537	197	62	294	143	503
Tongtongphai	17	495	25	10	330	55	21
Tsangpo	23	431	131	36	535	626	142
Tonglcho	8	440	60	58	704	220	60
Tang	11	178	79	29	386	89	5
Tendu	29	368	186	23	2712	116	199
Tschochasa	9	-	59	9	182	-	-
Yangner	11	152	31	47	54	328	38

Table 16: The type of specific training needs identified by the staff of the BHU

Training need areas	HA N = 23	ANM N = 22	BHW N = 23	Total N = 68	%
Clinical management	18	10	14	42	60.8
Management of obstetrical complication	12	10	8	30	44.1
IUD insertion	8	8	3	19	27.9
Communication skills	7	0	4	11	16.2
Laboratory skills	5	1	2	8	11.8
Control of communicable diseases	5	3	2	10	14.7
Management	3	1	2	6	8.8
Family planning methods	0	3	3	6	8.8
Tables and graphs	2	0	2	4	5.9
Drug use	1	0	0	1	1.5
Control of out breaks	1	1	1	3	4.4
Equipment maintenance *	1	2	3	6	8.8
Medico legal	1	0	0	1	4.4
Knowledge of X-ray	1	0	0	1	4.4
Store management	0	1	0	1	4.4
Health statistics	0	0	1	1	4.4
Counseling	0	1	0	1	4.4
Community nursing	0	1	0	1	4.4

Table 17: Number of health workers who indicated training deficiency in the prevention and management of emerging diseases.

Emerging diseases	HA N = 23		ANM N = 22		BHW N = 23		Total N = 68	%
	No.	%	No.	%	No.	%	No.	
Cancer	17	73.9	21	95.4	17	73.9	55	80.9
Stroke	18	78.3	15	68.2	12	52.2	45	66.2
Heart disease	15	65.2	14	63.6	13	56.5	42	61.8
Trauma	12	52.2	15	68.2	15	65.2	42	61.8
Diabetes	13	56.5	12	54.4	10	43.5	35	51.5

Table 18: Subtasks not correctly performed while the HA is conducting clinical examination (N = 13)

Tasks and subtasks	No. of HA	% of total
Greeting:		
Health Worker greets the patient	10	76.9
Medical History:		
Asks about the chief complaint	8	61.5
Determine the present history of illness	2	15.4
Determine the conditions related to past history	9	69.2
Physical examination:		
Check Vital signs	4	30.8
Conduct a systematic related physical examination	9	69.2
Diagnosis:		
Make differential diagnosis	7	53.8

Make reasonable diagnosis	2	15.4
Laboratory investigations (N = 11)		
Perform simple laboratory test	5	45.4
Treatment:		
Provide appropriate treatment	3	23.1
Prescribe correct drugs	4	30.8
Health teaching:		
Discuss importance of drug compliance	6	46.2
How often the patient need to take the drugs	9	69.2
What dose the patient should take	11	84.6
For how long to continue treatment	8	61.5

Table 19: Subtasks not correctly performed while the ANM while assessing the nutritional status of the child and giving health teaching (N = 16)

Tasks and subtasks	***No. of ANM***	***% of total***
Age calculation:		
Correctly calculated the age of child	6	37.5
Correctly recorded age	4	25.0
Weighing:		
Set the weighing scale to 0	5	31.2
Remove child clothing	14	87.5
Correctly read the scale	1	6.2
Locating the child's growth on chart:		
Connects the pervious growth point	3	18.8
Growth monitoring and nutrition education:		
Tell mother whether the child has gained,		
Lost weight, stayed the same as last weighing	6	37.5
Tell mother the nutritional status of the child:		
Use growth card to explain the mother	6	37.5
How the child is growing	10	62.5
Health teaching:		
Explain the importance of gaining weight	8	50.0
Explain purpose of growth monitoring	8	50.0
Use appropriate health education technique	8	50.0
Demonstrate preparation of weaning food	14	87.5
Use visual aids in transmitting message	14	87.5

Abbreviations

ANM	Auxiliary Nurse Midwife
APH	Antepartum Hamorrhage
BHU	Basic Health Unit
BHW	Basic Health Worker
CBR	Community Based Rehabilitation
DHSO	District Health Supervisory Officer
DMO	District Medical Officer
DOTS	Direct Observation Treatment Short course
GDMO	General Duty Medical Officer
GNM	General Nurse Midwife
GI	Gastro-intestinal bleeding
HA	Health Assistant
IEC	Information Education Communication
ICU	Intensive Care Unit
IMR	Infant Mortality Rate
IUD	Intra Uterus Device
JDWNRH	Jigme Dorji Wangchuk National Referral Hospital
MMR	Maternal Mortality Rate
OPD	Out Patient Department
ORC	Out Reach Clinic
OT	Operation Theater
PPH	Postparatum Hamorrhage
PTB	Pulmonary Tuberculosis
RIHS	Royal Institute of Health Science
TFR	Total Fertility Rate
VHW	Village Health Worker

ANEMIA AMONG MEN WOMEN AND CHILDREN IN BHUTAN. HOW BIG IS THE PROBLEM?

Food & Nutrition section
Department of Public Health, August 2003

Acknowledgement

Food & Nutrition section, Department of Public Heath, Ministry of health would like to thank UNICEF; Thimphu for its financial and technical without which this study would not have been possible. Programme would also like to thank the surveyors (mentioned above) for their time and hardship they had to bear traveling to remote and far flung areas.

Background

Health and Demographic Situation in Bhutan

Bhutan is relatively small country is South Asia located in the eastern Himalyas bordered by China in the north and the Indian states of Arunachal Pradesh, Sikkim, Assam and West Bengal in the east, west and south. The total area is 46,500 square kilometer. It is almost entirely mountainous with flat land limited to a few river valleys in the central and southern regions. About 80 per cent of the population live in rural areas in 5,000 or so scattered villages and hamlets, each with only a few hundred or less inhabitants. Most villages are several hours walking distance from the nearest road. The dispersed population and the difficult mountainous terrain make service delivery and access to education and health facilities difficult and expensive.

Country has noted a rapid progress in the filed of health in last four decades. With a total population of less than one million, country has 122 doctors, 29 hospitals 166 Basic Health Units, 455 outreach clinics and 1023 beds available to cater for health facilities of the country. With relatively high birth rate of around 34/1000 population, the infant mortality rate has come down from 102/1000 live birth in 1984 to 60.5/1000 live birth in 2000. The level of low birth rate (newborn with weight less than 2500 gm. at the time of birth) is reported to be 13.5%. Under five mortality rate has come down from 162/1000 live birth in 1984 to 84/1000 live birth in 2000 and maternal mortality from 7.7/1000 live birth in 1984 to 2.5/1000 live birth in 2000 are all figures suggesting very good progress in a relatively short time. Even in the field of sanitation, 78% have access to safe drinking water and 88% have access to sanitary latrine (National Health Survey, 2000). The vaccine coverage has markedly improved and current achievement for measles vaccine (usually the vaccine coverage is the lowest for measles) is as high as 85% (Annual Health Bulletin 2002).

On the other hand the young population less than 14 years is high at around 40% and persons in the age group of 15-45 years also constitute about 40%. The birth attended by trained person has remained at 24%. Antenatal registration by third trimester is at 72%, however registration by second trimester is just 46% and by first trimester it has been as low as 16% requiring further efforts to improve this situation. Home deliveries constitute 78% of all the deliveries and 19% at the hospital (National Health Survey, 2000).

Anemia in Bhutan: Review prior to this study

Iron deficiency is the most common nutritional disorder in the developing world and the most common cause of nutritional anemia in young children and women of reproductive age (ACC/SCN, 1991). With 40% prevalence of

anemia in the world on an average for the general population, the prevalence in the developing countries tends to be three to four times higher than in the developed countries (Gillespie, 1998).

A study done by Sood and Sharma (1986) in Bhutan indicated a prevalence of anemia in pregnant women was 60%, in preschool children 58% and in school children 36% based on a survey of 561 pregnant women, 540 preschool children and 266 school children. It also confirmed that iron deficiency is most common form of anemia and that folate deficiency and Vit B 12 deficiency were also common. Hookworm infestation was not found to play a major role in anemia and the overall worm burden was moderate.

In the eighth five-year plan (1997-2002) document from the planning commission, attention to malnutrition level and micronutrient deficiency was highlighted. According to WHO/UNICEF/UNU (1996) when the prevalence of anemia is 40% or more in a community, it is a very high magnitude problem and the action to control anemia is necessary. Based on Sood and Sharma (1986) study, the emphasis to control anemia in pregnancy was endorsed. In the antenatal care where women were given two Iron and Folic acid tablets containing 60 mg or iron and 250 microgram of folic acid, though out the pregnancy and also for one tablet for three months in lactation period. However with priorities for other diseases perhaps no further efforts were made in the field of iron deficiency anemia in any of the other age groups. The compliance for pregnant or lactating women is not monitored and we are unable to make out to what extent the supplementation reach to the target group. There had been no formal nation-wide assessment of the situation since 1986 but it is accepted to be very high. Analysis of lab record of JDWNRH in 1994 showed 81 percent anemia in pregnant women (Annual Health bulletin, 2002).

The importance to control iron deficiency anemia was in fact re-endorsed in to the ninth five-year plan and to know the current situation a large scale nation wide study was proposed to study anemia prevalence in men, women and children.

A recent study done in 2001-2002 from 4659 school children from the age group of 4 to 14 years by BHU workers using Sahlis method for hemoglobin estimation revealed that the prevalence of anemia is as high as 64% without altitude correction factor applied. This would mean that after altitude correction it might be as high as 75%. This coincides with a study done by Kotecha et al (2000) in India, Gujarat where they dictated 75% anemia prevalence among schoolgirls. When this data of the school children from Bhutan were sub grouped in to 4 to 9 and 10 to 14 years, the prevalence was as high as 71% for younger age group 4 to 9 years against 58% for 10 to 14 years. Despite these differences, these findings highlight a high magnitude of problem among school children as of now.

National Anemia Study for Men, Women and Children

Realizing the importance of the need for iron deficiency anemia control and the requirement to approach the strategy for it by life cycle approach as endorsed in the national nutrition manual and also in the ninth five-year plan. In light of this it was considered necessary to get the idea of magnitude of problem as well as the regional variation if any and in different category of persons. To address this issue systematically, this study was planned.

Objectives of the study

To define the extent and severity of anemia in men, women and children in the age group of 6-60 months.

To see the effect of age and sex in the prevalence of anemia among children and effect of age among women.

To see the geographic variation of anemia prevalence if any

To relate anemia with other protective and risk factors like taking iron tablets during pregnancy, level of literacy, general level of

nutrition, history of passing worms, height and weight

To serve as a baseline for the interventions in the future and deciding the strategy targets based on the prevalence study.

Methodology

Study Unit

This was a stratified, multi stage cross sectional prevalence study for people of Bhutan where the study unit is a family having a child of 6-60 months of age.

Sample Size

Considering an expected prevalence of 50% of anemia among children, precision of 5% in a cluster sample of the villages and an anticipated design effect of 4, the sample size estimated was 1537 (Epi-Info, 2001). Estimating a possibility non-response or non-availability at the time of survey, a final sample size of 1800 was chosen for the study.

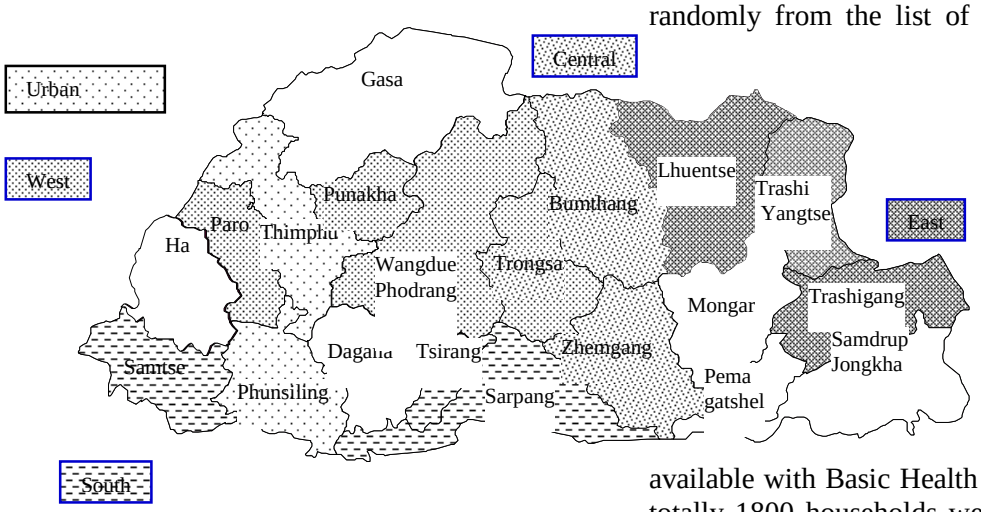


Figure 1 Map of the districts and zones studied

Sampling Methodology

Stage 1: Stratified random sampling was done to select districts. The areas were divided in to four zones (East, Central, West and South) and one urban area thus total five areas (see figure 1).

Stage 2: From each of these four area selected, 3 districts randomly 4 geogs were selected from the total number of geogs totaling to 12 geogs in each area and from urban areas 9 geogs were selected making 57 geogs. (See annexure 1)

Stage 3: In each of these five zones, 360 households having a child between the age of 6 months to 60 months of age were selected randomly from the list of eligible household available with Basic Health Unit (BHU). Thus totally 1800 households were selected for the study.

Data Collection

The data collection was done between 5th May 2002 to 30th June 2002. The dates were fixed up for area. A team consisting of two persons visited the area house to house for data and the blood collection. The blood examination was done using HemoCue method of estimation for hemoglobin estimation. This is simple method using microcuvettte that sucks 20-microliter blood and gives the result using photometer within minutes. The questionnaires were completed from the mother. Height and weight for the child, father and mother was taken where feasible. The questionnaire used for data collection is annexed having three parts viz. for men, women and children (Annexure 2)

Quality Control

Data collection was supervised by senior level medical person and regular reports were obtained to ensure timely and complete coverage of information. The supervisory staff checked the questionnaires daily.

Data Management

2.3.1 Data Entry and Data Cleaning
The data were entered into the microcomputer in the epi_info software developed by World Health and Center for disease control, Atlanta and by using the frequency distribution and logical errors, the forms were reexamined and data corrected where there was any discrepancy.

Data Analysis

The data were analyzed using epi_info software. Hemoglobin values were adjusted as per the altitude correction and the correction factor was subtracted for actual hemoglobin value to make it comparable to sea level hemoglobin (see annexure 3 for the correction factor applied for each of the 12 districts). The use of epi_nut package of epi_info program was used to measure the nutritional parameters viz. weight for height (WH), height for age (HA) and weight for age (WA) indicators. These parameters were added as variables than the file. Using these anthropometric indicators stunting (HA), Wasting (WH) and underweight (WA) indicators were obtained. In doing this extreme values were flagged and omitted from the analysis as per the standard recommendation. Similarly variables for anemia status and the severity were created and by using hemoglobin levels the values for these variables were derived for men, women and children. Based on height and weight of the men and women the body mass index (BMI) was calculated and based on the cut off for BMI as less than 18.5, 18.5 to 25 and more than 25, their status was coded.
As the cluster sample design was used, for important parameters the design effect was calculated and the confidence interval were derived taking in to account the design effect, which generally increases the confidence interval than the random sample design.

Results and Discussion

Total of 1800 men, 1800 women and 1800 children are studied for measuring their hemoglobin. Their height weight are also measured and certain basic question related to antenatal care like how did they receive iron folic acid tablets during pregnancy and after delivery, breast feeding and complementary food initiation are included to get additional information from women. Clinical assessment of anemia was also attempted by looking for the pallor in the subjects studied. History of passing worms was inquired for both men and women. Whether the family has a kitchen garden or not was also asked. The salt used by family was tested for iodine content. Thus the data collected has large areas of information and the analysis that follows try to look at most of the areas in details.

Anemia Prevalence

The values for hemoglobin are adjusted for altitude and then using standard WHO (1968) criteria analysis for anemia and its severity has been made. Where hemoglobin values were missing (2 children and one man and one woman) they were excluded from the numerator for deriving anemia prevalence.
Table 1 shows that the anemia prevalence was very high in children at 80.6%, for women (mothers of children 6-60 months) was 54.8% and for men (father of children 6-60 months) was 27.6%. It is worth mentioning here that without applying this altitude correction the prevalence was 16.1% for men, 40.7% for women and 69.7% for children. These data using cut-off values of sea level by World Health Organization will lead us to underestimation of anemia.

Regional Difference in prevalence of anemia

There are three strata of looking at regional variation and they are by zones, districts and geogs. There were five zones and table 1

indicates prevalence of anemia in men, women and children zone wise. There were 12 districts studied and table 2 indicates prevalence of anemia in men, women and children district wise. There were 57 geogs included in the study and table 3 indicates prevalence of anemia in men, women and children geog wise.

Altitude correction factor to hemoglobin values is applied using the average altitude of the district and not individual geogs. If there is a wide variation in the altitude of geogs in a district, the geog wise prevalence should be viewed with that information in the mind.

Table 1: Area wise Prevalence of Anemia in percentages By Zones

Zones	Men	Women	Children
South	27.3	60.4	74.4
West	33.1	56.3	83.2
East	29.8	52.6	85.8
Urban	14.6	47.0	77.3
Central	33.3	57.8	82.5
TOTAL	27.6	54.8	80.6
95% C.I.	20.9-34.3	50.2-59.4	76.4-84.7
Design Effect (Zones)	10.7	4.0	5.1

Table 2: Area wise Prevalence of Anemia in percentages By District

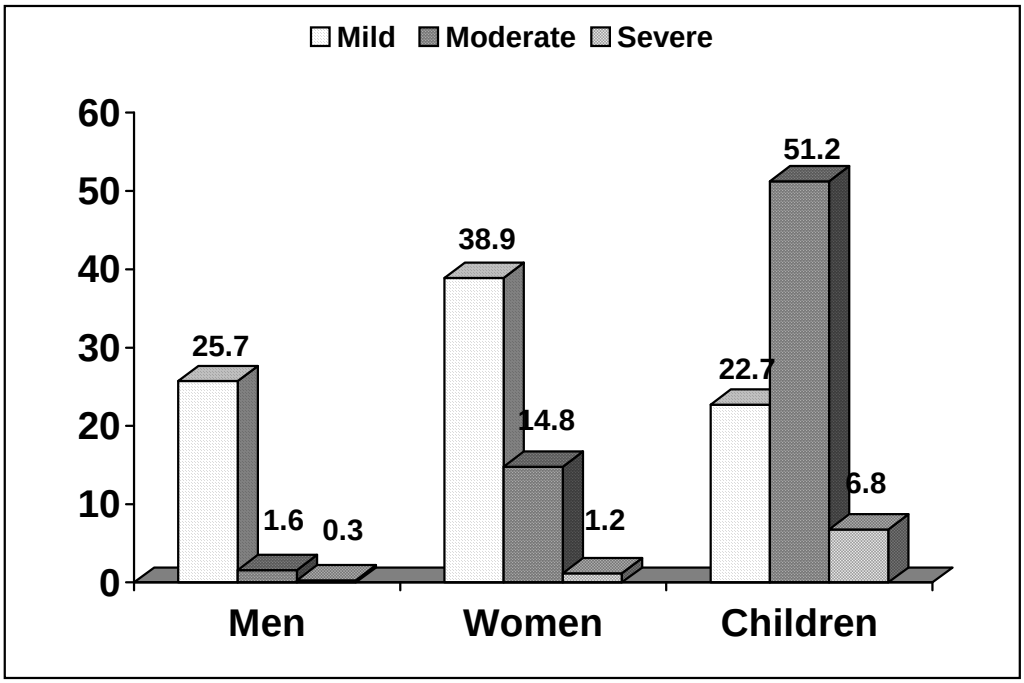
Districts	Men	Women	Child
Bumthang	45.8	63.3	78.3
Lhuntse	26.7	40.0	80.0
Punakha	38.3	56.7	82.5
Paro	38.3	65.0	86.7
Samtse	21.7	54.2	65.0
Sarpang	25.2	61.3	77.3
Trashigang	29.4	61.3	85.7
Transhiyangtse	33.3	56.7	91.7
Tsirang	35.0	65.8	80.8
Trongsa	27.5	55.8	80.8
Urban1 (Thimphu)	19.2	49.5	83.5
Urban 2(Phunsiling)	10.0	44.4	71.1
Wangdue	22.7	47.1	80.5
Zhemgang	26.7	54.2	88.3
TOTAL	27.6	54.8	80.6
95% C.I.	22.3-33.1	50.6-59.1	76.9-84.2
Design Effect (District)	6.8	3.4	4.0

Table 3: Area wise Prevalence of Anemia in percentages By Gewog

GEWOG↓	Men	Women	Child
BALUJORA	23.3	44.2	81.4
BARA	10.0	63.3	56.7
BARDO	36.7	60.0	90.0
BETINI	40.0	44.0	84.0
BUMDELING	30.0	66.7	96.7
CHANG	14.3	61.9	97.6
CHANGANGKHA	8.0	48.0	76.0
CHENGMARI	33.3	63.3	63.3
CHHOEKHO	46.7	63.3	73.3
CHHUBU	36.7	50.0	73.3
CHHUME	36.7	70.0	83.3
CHUBACHU	40.0	66.7	86.7
CHUZAGANG	33.3	56.7	78.3
DAGA	26.7	40.0	83.3
DANGCHHU	16.7	56.7	66.7
DOPSHARI	40.0	56.7	83.3
DRAGTENG	33.3	60.0	93.3
DUNGKHAR	33.3	51.9	88.9
FANGKHAR	20.0	56.7	93.3
GAIRIGANG	36.7	70.0	86.7
GANGZUR	27.3	48.5	78.8
GUMA	36.7	60.0	80.0
JAMKHAR	46.7	46.7	76.7
KABJISA	36.7	63.3	90.0
KAWANG	21.3	43.8	83.8
KHALING	10.0	60.0	80.0
KHAMDANG	30.0	63.3	100.0
KHOMA	23.3	46.7	83.3
LAMIDARA	20.0	60.0	80.0
LANGO	30.0	66.7	83.3
LANGTHI	20.0	53.3	86.7
NANGKOR	16.7	36.7	86.7
NANONG	32.2	52.5	86.4
NUBI	23.3	60.0	66.7
PAGLI	3.3	33.3	66.7
PASAKHA	8.7	60.9	73.9
PATALE	40.0	80.0	83.3
PHANGYUL	43.3	50.0	96.6
PHOBJI	3.4	41.4	75.9
PHUENTENCHH	26.7	66.7	70.0
PHUENTSHOLI	5.3	41.2	66.7
RADI	43.3	80.0	90.0
RAMJAR	26.7	50.0	93.3
RICBCOLONY	25.0	31.3	62.5
SARPANGTAR	23.3	56.7	63.3
SERZHONG	10.0	56.7	80.0
SHABA	33.3	70.0	83.3
SHEGANA	43.3	53.3	86.7
SHINGKHAR	33.3	63.3	83.3
SIPSU	40.0	56.7	73.3
TANG	60.0	60.0	86.7
TANGSIBJI	33.3	50.0	76.7
TSENKHAR	23.8	13.3	70.0
TSENTO	50.0	66.7	96.7
UMLING	34.5	75.9	93.1
UPPERMOTITH	0.0	50.0	50.0
URA	40.0	60.0	70.0
Total	27.6	54.8	80.6
95% C.I.	23.6-31.8	51.4-58.3	76.7-83.6
Design Effect (Geowg)	4.0	2.3	2.7

It important to grasp that what we get from data collected from a sample, how best it is designed is an estimate and not the actual national figure. We get the more scientific estimate of the true value of national figure by looking at 95% confidence interval. 95% confidence interval is a range of values. The true value lies in this range for the indicator we are looking for.

Figure 2: Overall Prevalence of Anemia among men, women and children



The design of sampling is generally of two types. One is random sample, easy to understand but practically very difficult to follow as every possible person or family's details and availability with their number is a prerequisite for this sampling. The other more commonly used sampling procedure is cluster sampling. When cluster-sampling method is chosen, the precision of study is decreased to some extent as compared to random sampling and therefore confidence interval is increased. For analysis therefore design effect (a measurement reflecting the variation due to cluster sampling as compared to random sample design) mentioning should ideally be followed. Tables 1, 2 and 3 are showing design effect and 95% confidence interval for these respective groups.

Anemia in men ranged from 14.6% in urban areas to 33.3% in west with national average anemia prevalence of 27.6%. Similarly for women the range of 47.0 in urban area to 60.4% in Central Zone with national average of 54.8% and for children a range of 74.4% in central to 85.8% anemia is observed with national average of 80.6%.

Severity of Anemia

Table 4 indicates severity of anemia in men women and children (Figure 2) while table 5 gives the break up of this information zone wise.

Table 4: Severity of anemia in Men, Women and Children

SEVERITY ↓	MEN	WOMEN	CHILD
Mild	25.7	38.9	22.7
Moderate	1.6	14.8	51.2
Severe	0.3	1.2	6.8
TOTAL	27.6	54.8	80.6

As seen in these tables mild anemia is common in men and women while in children moderate anemia is common. Even among women, moderate anemia is also quite high indicating not only the problem but also its severity to be high. While in children the group of moderate and severe anemia form almost 60% of the total anemia suggesting large magnitude as well as high severity of the problem of anemia among children.

Table 5: Severity of anemia zone wise

	ZONES	SOUTH	WEST	EAST	URBAN	CENTRAL
	Severity					
Child	Mild	28.4	19.3	20.9	26.0	18.9
	Moderate	22.3	50.3	59.1	47.5	56.7
	Severe	3.6	13.7	5.8	3.9	6.9
Women	Mild	45.1	39.0	35.1	34.3	40.8
	Moderate	14.5	15.0	16.7	12.2	15.6
	Severe	0.8	2.2	0.8	0.6	1.4
Men	Mild	26.5	30.4	26.7	13.5	31.7
	Moderate	0.3	2.2	2.8	1.1	1.7
	Severe	0.6	0.6	0.3	0.0	0.0

Severe anemia for all groups was considered when the hemoglobin value was less than 7g/dl and moderate when hemoglobin value were between 7g/dl to less than 10 g/dl. For mild anemia it was between 10 g/dl to 11.0 g/dl for children, from 10g/dl to less than12 g/dl for women and between 10 g/dl to less than 13 g/dl for men

Figure 3: Median Hemoglobin Values in Men, women and children Zone wise

Figure 3 shows median values of hemoglobin zone wise for men, women and children, indicating different overall picture zone wise.

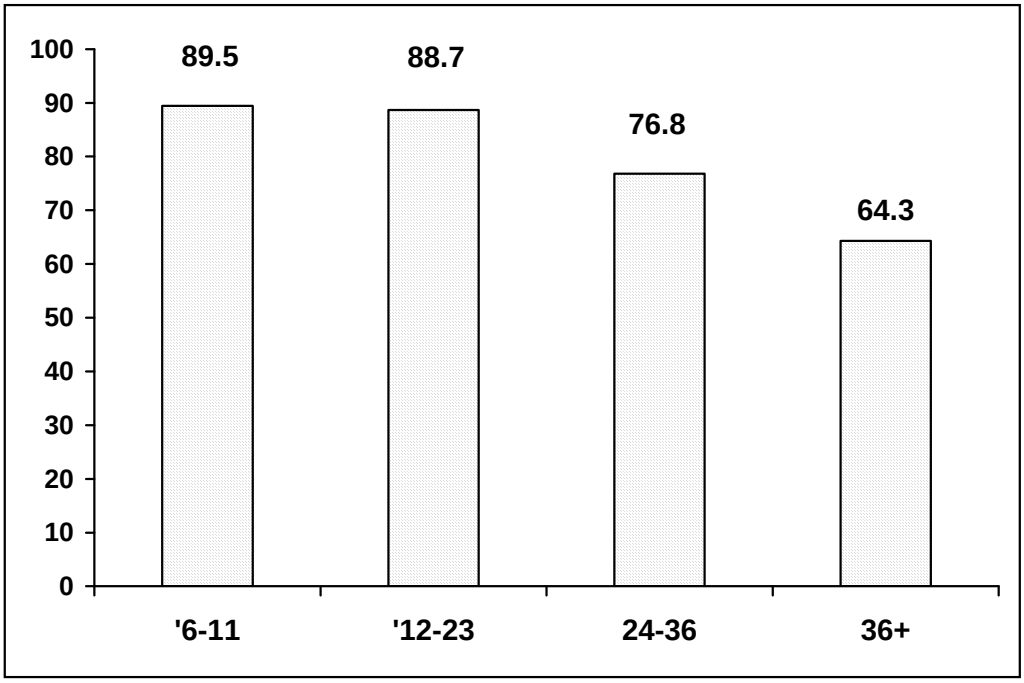
Anemia in children age wise

Table 6 shows the anemia in children age and sex wise. As seen in the table total anemia in children is already very high. But when we look to the age distribution among highly anemic children overall, it is the highest in infancy and second year of life as compared to second and third year. Thus it is clear that the most venerable age group is 6-23 months and when the program is targeted for children special emphasis needs to be given to younger children. This distribution also showed that there is no difference between boys and girls and the difference among them is negligible. If adequate attention is paid to the younger age group, where the brain is developing and if not attended to at that stage, the damage is permanent and subsequent correction of anemia also leaves the child about 10 IQ point behind their counter parts with adequate hemoglobin values. The importance of the younger age group as the risk is highlighted in the figure 4

Table 6: Anemia prevalence in children by age and sex

AGE group in months	***Male***	***Female***	***Total***
6-11	88.9	90.0	89.5
12-23	89.8	87.5	88.7
24-35	77.1	76.5	76.8
36+	65.9	62.5	64.3
TOTAL	81.4	79.9	80.6
Inference	χ^2 43.6= p<0.001	χ^2 39.0= p<0.001	χ^2 =82.1 p<0.001

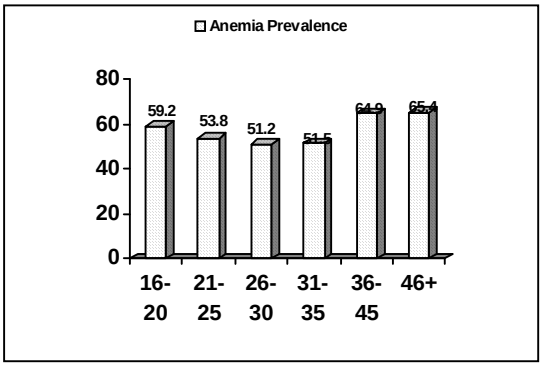
Figure 4: Prevalence of anemia in children with reference to age



Anemia in mothers and their age

The age distribution was studied among women for relationship with anemia and figure 5 shows that prevalence of anemia was higher in young age group of 16-20 and then again after the age of 35 as compared to the age group of 21-35.

Figure 5: Anemia prevalence in women according to age



Anemia and clinical assessment of it by pallor

Pallor was also looked for while data collection for men women and children. People who were looking for pallor were health workers and have been trained for how to look for pallor. Table 7 shows that pallor is not a reliable method of detecting anemia and it has very low sensitivity (capacity to correctly diagnose anemia from those who really have anemia) though specificity (correctly diagnosing having no anemia when one does not really have anemia) may be relatively high. In men, over 97%, in women over 85% and in children over 90% of anemia will be missed with pallor as criteria for diagnosis. This has been reflected at the annual hospital data where case proportionate rate for anemia among all cases at BHU level is less than 1% while at hospital it is 1.2% against such high prevalence of anemia in the country.

Table 7: Anemia prevalence and pallor

	Among Anemic	Among Non Anemic	Total
Pallor detected Men	2.5%	0.7%	1.7%

Women	14.9%	3.7%	9.8%
Children	9.7%	5.7%	8.9%

Anemia and history of worm infection

While collecting information history of passing worm was also inquired. It is believed that there is hookworm problem in Bhutan and it could be contributing to anemia prevalence. However only 3.8% of children, 8.7% of men and 6.7% of the women gave the history of passing worms in the stool.

Table 8: Anemia prevalence and History of passing worms

	H/O worms present	**H/O worms absent**	**H/O Worms**
	Among them Anemic	Among them Anemic	
Men	30.8%	27.3%	6.7%
Women	54.5%	54.8%	8.7%
Children	84.1	80.5%	8.9%

Analysis of linking the history of worm infection to anemia prevalence showed no relationship of anemia prevalence with history of worms passed in the stool significantly. There was slight less prevalence among children and women giving no history of worms as compared to those who had history of worms but the difference was not significant in any of the three groups. See table 8

Level of Malnutrition among Adult

We had information related to height and weight of most of the men and women covered under the study. A general index to measure the nutritional status in Body Mass Index (BMI) which is derived by the formula for calculation as Wt in kg/(Ht in Meter) [2.] When BMI is less than 18.5 person is considered undernourished and 18.5 to 25 is considered normal. These range apply to only adults and not for children.
According to BMI criteria 5.7% of men and 9.6% of women were under nourished. While 11.3% of men and 13.2 of women were over-nourished with BMI above 25 and rest fell in to normal range of 18.5 to 25. (See table 9).
Nutritional Status and Anemia among Adult

When anemia status was correlated with BMI, anemia was more or less equal in all the undernourished, normal and better nourished women with no statistical significant difference while for men, the difference was statistically significant suggesting more anemia among undernourished then among better nourished.

Table 9: Anemia prevalence with reference to their BMI Status in men and women

BMI = Wt in kg/(Ht in Meter)^2	**Men**		**Women**	
	BMI %	**Anemia**	**BMI %**	**Anemia**
Less <18.5	5.7	30.7	9.6	56.4
Normal 18.5-25	83.0	28.8	77.2	55.3
More >25	11.3	17.2	13.2	50.6
Inference	χ^2 12.9= p<0.001		χ^2 2.0= No diff.	p=035

Anemia and Mothers Literacy

Literacy among mothers

We looked at the mother's level of literacy and also tried to relate it with their anemia status as well as their children's anemia status. The level of literacy is very law and 84% of mothers were illiterate or had attended informal education with education of 7th standard or more comprising of hardly 9% (See table 9). In table 10 only those mothers whose information for literacy level was available were included and thus 12 women had to be excluded.

Table 10: Anemia prevalence in % among children and mothers by Mothers Literacy

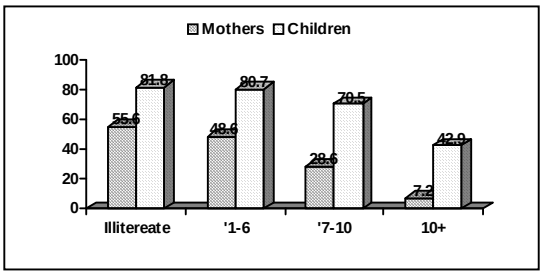
Mothers' literary level	***N***	***Mother***	***Children***
Illiterate + Informal	1474 (83.6%)	55.6	81.8
1-6	161 (9.0%)	54.7	80.7

7-10	146 (8.2%)	48.6	70.5
10+	7 (0.4%)	18.6	42.9
TOTAL	1788	54.9	80.6
Inference		χ^2 4.6= p>0.05 No difference	χ^2 17.2= p<0.001 Significant difference

Anemia in women and children in reference to literacy of women

Literacy level of women was related to anemia prevalence in women and their children. As seen in table 10 there is a decrease in anemia prevalence with increase in mother's literacy level for women them selves as well as for their children. However this difference was statistically significant for anemia status of children while for anemia status of women, the trend is seen very clearly but the difference was statistically not significant. Here education may be playing a direct role or be in indicator of overall socio-economic condition of the family. Figure 6 shows the information graphically.

Figure 6: Mother's Education and Anemia Prevalence among children and Mothers



Sickness and Anemia

The status of current sickness among surveyed men, women and children was inquired.

Table 11: Anemia prevalence and sickness

	Among Anemic	Among Non Anemic	Total	Statistical Parameters
Sickness				
Men	17.7%	13.7%	14.8%	χ^2 = 4.46; P<0.05
Women	25.4%	21.9%	23.8%	χ^2 = 2.94; P>0.05
Children	35.2%	30.5%	34.3%	χ^2 = 2.85; P>0.05

Sickness was present on inquiry of past one month among 15% of men, 24% of women and 34% of children. This itself indicate high load of sickness. When related to level of anemia status evidently sickness was more among anemic group as compared to non-anemic group for men, women and children by about four to five percent (table 11).

Anemia and history of IFA tablets consumed during pregnancy

Mothers were inquired whether during their last pregnancy did they receive IFA tablets. Almost 90% of women had received IFA tablet that indicates a good coverage of antenatal care if IFA tablet received can be used as one of the indicators for ANC received.

Table 12: Anemia among mothers & history of IFA tablet received during pregnancy

IFA tablets taken during pregnancy?	*Proportion Received IFA tablets*	*Anemia Prevalence among Women*	*Inference*
Yes	1606/1795 (89.5%)	864/1606 (53%)	χ^2 = 7.14 P<0.001
No	189/1795 (10.5%)	121/189 (64%)	
Total		985/1795 54.6%	

When analyzed this information with their level of anemia status it was about 10% higher among those women who did not receive IFA tablets as compared to those who had received (table 12). This history of IFA tablets consumption is 6 to 60 months old as they are currently not pregnant and we were asking them about IFA tablet during their pregnancy. What emerges clearly from this is that IFA

tablets do improve iron status and reduce anemia.

Level of malnutrition among children

Height, weight, age and sex of all the children were obtained. This information collectively allows getting all nutritional indicators to be obtained for the children. Using epi_info program their nutritional indicators were derived. The data was then analyzed using Epi-Info version 6.04_d (2001) for common malnutrition indicators. While doing this, the extreme values of parameter due to either missing information or incorrect entry are flagged and then excluded for the assessment of nutritional status. For each parameter what is the final number of male, female and total is indicated in table 12 with details of the results obtained for these parameters

Table 13 indicates these three indicators of stunting, wasting and underweight zone wise. There is a large proportion of stunting in east perhaps linked to high altitude and overall east and south zones are much more affected than the other zones and the difference is statistically significant.

Table 13: Zone wise Malnutrition Prevalence in % among children

Zones	*Stunting*	*Underweight*	*Wasting*
South	56.8	44.9	12.8
West	49.8	29.4	7.4
East	65.5	33.3	6.7
Urban	44.7	33.0	6.0
Central	53.6	27.1	6.1
Inference	$\chi^2 = 33.7$ P<0.001	$\chi^2 = 28.6$ P<0.001	$\chi^2 = 15.3$ P<.001

The two preferred anthropometric indices for determining nutritional status are Weight for Height (WH) and Height for age (HA) as these discriminate between different physiological and biological processes. Low WH is considered an indicator of wasting (literally meaning thinness), and is generally associated with failure to gain weight or a loss of weight. Low HA is considered an indicator of stunting (that means shortness), which is frequently associated chronic malnutrition due to poor overall economic conditions and/or repeated exposure to adverse conditions. The third index Weight for Age (WA), is primarily a composite of WH and HA, and fails to distinguish tall, thin children from short, well-proportioned children.

Stunting (low HA) was present in 54% and severe stunting was present in 24% of children with girls doing marginally better. Similarly wasting (low WH) was present in 8% with severe wasting present in about 2% of the children.

Underweight (low WH) a composite index of above two jointly was present in 34% and severe underweight was present in about 9% of the children studied (see table 14 for details). Level of malnutrition is quite high considering any of these parameters and calls for immediate necessary corrective actions.

Table 14: Level of Malnutrition among children under five years of age

Stunting N=1775 Male=861 F=854 HAZ* Score		**%**	**95 % confidence interval**
Less than –2	Male	54.9	51.5-58.3
	Female	52.9	49.5-56.3
	Total	53.9	51.5-56.3
Less than –3	Male	25.0	22.1-28.0
	Female	23.9	21.1-26.9
	Total	24.4	22.4-26.6
Stunting N=1724 M=864 F= 860 WHZ* Score**		**%**	**95 % confidence interval**
Less than –2	Male	7.9	6.2-9.9
	Female	7.4	5.8-9.5
	Total	7.7	6.5- 9.0
Less than –3	Male	1.9	1.1-3.1
	Female	2.1	1.3- 3.4
	Total	2.0	1.4- 2.8
Underweight N=1791		**%**	**95 % confidence interval**

M=893 F= 898 WAZ** Score			
Less than –2	Male	35.1	31.9- 38.3
	Female	33.5	30.5- 36.7
	Total	34.3	32.1- 36.5
Less than –3	Male	9.7	7.9-11.9
	Female	7.6	6.0- 9.6
	Total	8.7	7.4-10.1

* HAZ = Height for Age Z score according to NCHS standards
** WAZ = Weight for Age Z score according to NCHS standards
*** WHZ = Weight for Height Z score according to NCHS standards

Malnutrition by Age

Malnutrition percentages are very high as evident by table 11 and 12. However these are combined data from all ages and it is important to look which age group is most vulnerable. Table 15 shows this malnutrition proportion by age. The nutritional level in first year is relatively better. In second year it sharply increases and reaches to the peak (figure 7) suggesting that the intervention at this age is very crucial and if attended to the later level of malnutrition will be prevented.

Table 15: Proportion of malnutrition by age

AGE group (months) ↓	*Stunting*	*Wasting*	*Under weight*
6-11	20.6	8.8	11.8
12-23	55.5	9.1	31.8
24-35	54.9	7.1	36.1
36+	51.8	5.5	34.5
TOTAL	54.1	7.8	33.5
Inference	χ^2 16,6= p<0.001	χ^2 3.82= p>0.05	χ^2 =10.5 p<0.02

Figure 7: Stunting, Wasting and underweight in children by their age

Anemia and Malnutrition among Children

When prevalence of anemia is considered as a sign of malnutrition and in a way it is a type of malnutrition when we are considering iron deficiency anemia. Children had very high proportion of anemia and stunting as well as underweight proportion is also very high among children. Whether this overall level of malnutrition (protein energy malnutrition) is related to anemia directly or not is shown in table 15.

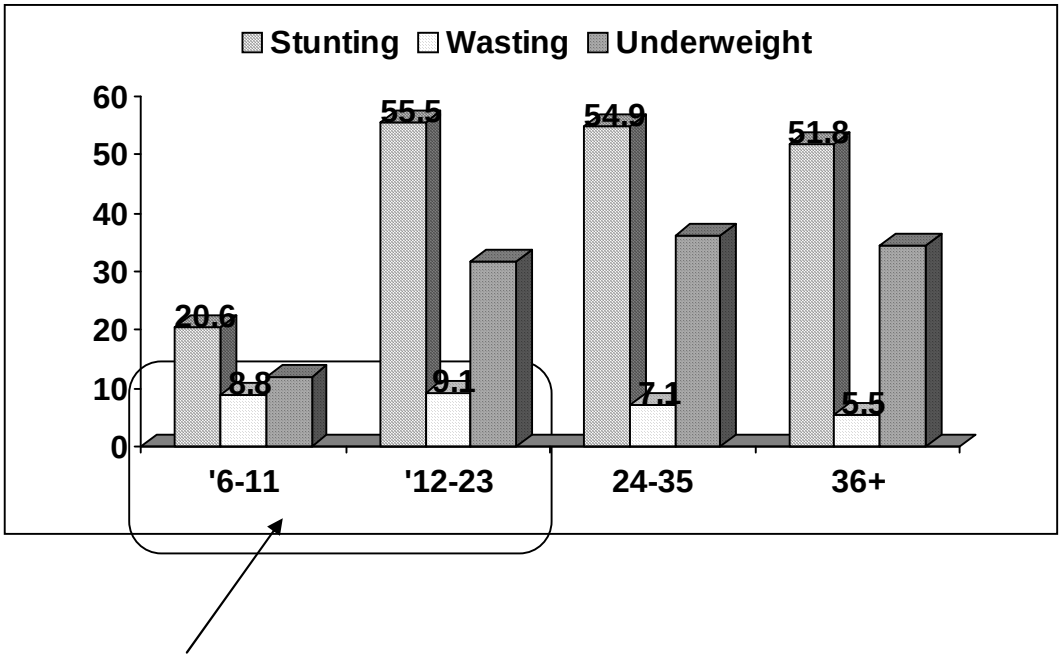


Table 16: Anemia prevalence with reference Nutritional Status in Children

STUNTING=54.1%	*ANEMIC*	*INFERENCE*
ABSENT	76.5%	χ^2 =12.71 P<0.01
PRESENT	83.4%	Significant Diff.
WASTING=7.8%		
ABSENT	80.1%	χ^2 =0.82 P>0.05
PRESENT	81.8%	Not significant
UNDERWEIGHT=33.5%		
ABSENT	79.0%	χ^2 =3.35 P>0.05
PRESENT	82.7%	Not Significant
TOTAL	80.6%	

Anemia was higher among all types of malnutrition of children than those who were not malnourished. However even among non-malnourished children anemia proportion remained very high and the difference was statistically significant among stunted children. In both other groups, though anemia was more among malnourished than not, the difference was small and statistically not significant (table 16).

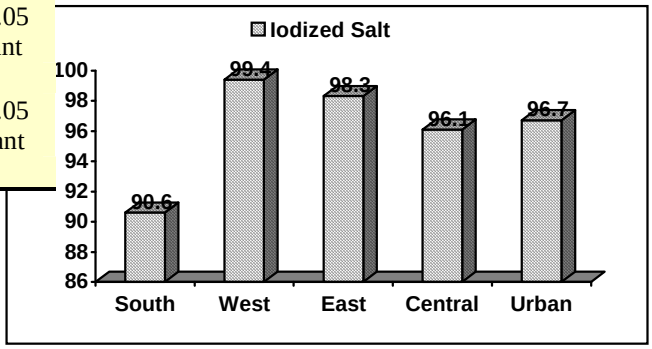
Complementary Food Introduction to children

Inquiry was made about the age of the child when s/he was initiated food in the diet in days or months. From the data it is realized that about 20% of the mothers introduced food in first month and by 3rd month it was 61% and by 4th month 85%. This can also be interpreted that exclusive breast-feeding for four months is 15% or less as by 4th month mothers had already introduced the food.
It is important to note however that this study was conducted in May 2002 and we were asking mothers of 6 months to 5 years aged children. Thus 15% exclusive breast-feeding should be interpreted as applicable to that time and not current time of 2003.

Iodization of Salt at Home level

While the visits were made house to house, the sample of salt was also tested from each house. 96.2% of the households were having salt which indicates a complete coverage of the households with iodized salt. As figure 8 indicates the salt iodization was almost 100% in west zone while south zone had relatively the least at 90% which is also very good coverage.

Figure 8: Iodination of salt Zone wise



Kitchen gardening

An inquiry was made whether the family has kitchen garden and 74% of the families had kitchen garden. However when presence of anemia was studied among men, women and children with reference to the presence of kitchen garden, more anemia was present in the group having kitchen garden than those who did not have (See table 17). The difference was statistically also significant in the group of men and women though not in the group of children.

Table 17: Kitchen garden's presence and anemia prevalence

	Kitchen garden present = 74.1% Among them Anemic	**Kitchen garden absent 25.9%** Among them Anemic	**Total Anemic**
Men*	31.2%	17.4%	27.6
Women*	56.8%	49.0	54.8
Children**	81.4	78.5%	80.6

* Difference Significant; ** Difference Not Significant statistically

Logical explanation for this could be that presence of kitchen garden could be perhaps reflecting poor social class rather than an awareness and utilization of its importance from the nutrition values of the product of the kitchen garden products. The other explanation

could be the interpretation of 'what is kitchen garden'. It was expected of the interviewer to actually observe if there was a kitchen garden but it was only inquired and not observed per se.

Vitamin A dose

Vitamin A history was taken and also it was inquired how many doses each child took. As the age is different form 6 months to 5 years it is no use looking at the data of how many doses children got as such. It is important to look from each age category how many doses they got.

Annexed Table 18

Table 18 shows this relationship. In first year almost 74% of those who should get one dose has got that but after that age the coverage is going down substantially to 3% and 1% in second and third year calling for an effective follow up. 420 children has not got a single dose while 944 has got one dose and 322 two doses and very few having more than 3 doses is a matter of concern.
However it is important to remember that this data probably gives us the overall picture that existed 1 to 5 year prior to the study that was done in the year 2002. So this data relates to vitamin A doses received between 1996 to 2001 and not currently.

Limitations of the study

This has been a nation wide study covering 12 districts out of 20 and represents all sectors of the country. The study unit as a household with a child of 6-60 months with both father and mother has distinct advantage of feasibility but brings certain amount of biases. Reference of the study for women is Bhutanese women, and then the study picks up all married women with a child in our sampling frame. There could be women who are unmarried or married but does not have experienced pregnancy. These women are less likely to be as anemic as the married women with a pregnancy of recent origin are. On the other hand widow lady without support from their husband could be more malnourished and thus both these groups are not included in our sample may bring some difference than the true reference to all women of Bhutan as a sampling frame.

Further children studied having both parents alive and staying with the child obviously places him at a relatively advantaged position then those children who have a single parent or not staying with parent. Excluding these children is likely to underestimate the children anemia as well as level of under nutrition, marginally.

Similarly the family having wife and children, men are better cared for than they are by themselves of widow and these may again mean that we will underestimate anemia among these men as compared to all men of Bhutan as reference population

Altitude correction is done at district level. However in each district different geogs are at different altitude and this can bring some variation in to the actual data. However this variation is on either side and thus adds to random error and not necessarily a bias.

Each of these biases is of small value and mostly leading towards underestimation except in women's case, which has both possibilities. Thus the current problem indicating seriousness of the magnitude of anemia and under nutrition of children is to be endorsed as serious. The larger picture can be very similar or worse but not better than as evident from this study.

To summarize despite these limitation the study is very extensive, well organized, data collection done very systematically, supervised and data management has been complete giving a tremendous potential to the policy makers and program managers to handle these information for future planning based on the findings of this study.

Conclusions and Recommendations

This extensive study done in the year 2002 covering almost 70% of the districts and 1800

men, 1800 women and 1800 children point out the serious problem of anemia and malnutrition for the country. With a prevalence of 80% in children and almost 90% in younger age group the children are at the highest risk of anemia and its serious consequences in the field of health, education, development and overall quality of life and survival. With the focus of His Majesty for Children and his most vital statement "The future of the nation lies in the hands of our children" Bhutan needs to act immediately on anemia control. The data here is complete and comprehensive to indicate that the problem is vast and still under recognized by the health care providers.

Anemia could be of due to various reasons. However in developing countries, the most common cause is iron deficiency and this study pointing out higher prevalence among children and women as compared to men re-affirm iron deficiency as the common most and controllable factor for anemia in the country. Hookworm and malaria also need to be attended to. Possibilities of looking for alternative causes like sickle cell anemia or thalassemia should also be explored if the funds and priority permit. However this is going to be of relatively lesser magnitude and further when detected we have much fewer option to control them except genetic counseling.

Anemia among women is also very high and the fact that there is a program for pregnant and lactating in place for some years now, it is evident that what ever is being done is not sufficient. Young children being anemic and continue to remain anemic when they reach to adolescent age would compromise their growth and girls in particular with early marriage and early pregnancy would enter in to a vicious cycle for anemia and its dreaded consequences. If possible, anemia control is required for all the age group. However following are the priority groups which should immediately attend

Pregnant and lactating women

Children 6-23 months of age and if possible up to five years of age.

Adolescents girls and if possible boys also as seen in the school study where anemia prevalence is very high.

Intervention required for anemia control is not solitary. Multiple approaches are necessary. These would include actions like dietary diversification, iron and folic acid supplementation, food fortification of rice or salt with iron, kitchen gardening, controlling parasitic infection like hookworm and malaria, changing dietary habits of people, promoting breast-feeding and exclusive breast feeding, improving antenatal care. Such multiple actions will require multiple partners. Education department can take lead for children and adolescent while for younger age group health department can reach out to them along with women and pregnant and lactating mothers. Agriculture department can help in many areas to promote the healthy food production and its utilization.

It is strongly recommended based on the study findings to develop a nation wide strategy for anemia control with a multi task force committee to ensure its effective implementation. International agencies can technically and financially assist them.

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Annexure

Annexure-I List of Zones and Geogs surveyed

Districts	T/yangtse	T/gang	Lhuntse
EASTERN ZONE	Bumdeling Khamdang Jamkhar Ramjar	Pam Radhi Nanong Khaling	Kurtoe Gangzor Tsenkhar Khoma
	Paro	Punakha	Wangdue
WESTERN ZONE	Dopshari Lamgong Tsento Shaba	Shengana Guma Chhaba Kabjisa	Phobji Daga Dangchu Phangyul
	Bumthang	Zhemgang	Trongsa
CENTRAL ZONE	Ura Tang Chhuma Chhoekor	Pangkhar Nangkhor Shingkhar Bardo	Nubi Tangsibji Dragteng Langthel
	Tsirang	Samste	Sarpang
SOUTH ZONE	Betini Gairigaun Phuntenchhu Patale	Chengmari Pagli Bara Sibsoo	Chuzagang Sarpangtar Umling Serzong
URBAN ZONE	P/ling: 4 areas	T/phu: 4 areas	

Table 19 Number of Vitamin A doses received by Age in months

	AGE				
How Man Y Doses Do We Expect Them To Have Received?	At least One	At least Three	At Least Five	At Least Seven	
Doses of Vitamin A	5-11	12-23	24-36	36+	Total
0	10	195	162	53	420
1	18	441	364	121	944
2	9	136	135	42	322
3	1	21	57	17	96
4	0	1	7	5	13
5	0	1	2	0	3
6	0	0	1	0	1
7	0	0	1	0	1
Total	38	795	729	238	1800
Percent of desired doses actually received	74.0	2.64	0.96	0	

Annexure III: Correction applied to hemoglobin values according to height

District	Altitude in meters	Mean correction applied for altitude factor in gm/dl (that means reduced from the actual values as they would have higher hb value)
Bumthang	2650	1.5
Lhuntse	1450	0.5
Punakha	1210	0.3
Paro	2330	1.2
Samtse	400	0.0
Sarpang	330	0.0
Trashigang	1050	0.2
Transhiyangtse	1840	0.7
Tsirang	1650	0.6
Trongsa	2020	0.8
Wangdue	1240	0.3
Zhemgang	1916	0.8
U1 (Thimphu)	2320	1.2
U2 (Phuntsholing)	180	0.0

NEEDS ASSESSMENT STUDY ON FAMILY PLANNING IN LOW PERFORMING DZONGKHAGS IN BHUTAN.

Introduction

Population policy and family planning.

Population planning is an essential component of the Government overall development strategy. It is desired that population growth should be commensurate with the country's progress, especially considering the limited available resources and geo-political situation of the country. It is the responsibility of the present Bhutanese people to safeguard the happiness and prosperity of the future generation.

Recognizing the need to contain the population explosion, to reduce maternal and infant mortality, to enhance the quality of life and to encourage economic self sufficiency, the Royal Government of Bhutan has adopted the small family norm as early as 1971. The directives from the Royal Government were received through 34th national Assembly Resolution Clause 31 in 1971 to introduce family planning services in the country.

UNFPA Assistance to Bhutan's family planning services began in 1981. The funds enabled the program to provide higher quality family planning services and training for providers Contraceptives, conforming to WHO standards, were imported. These include oral pills of low dose estrogen , Condoms, and Copper T 380 A (CUT) from Canada. All the equipments for vasectomy and tubectomy was imported mainly from UNIPAC Copenhagen. By 1990, all contraceptives were available nationwide through various levels of health system in the country.

In 1990, Non Scalpel vasectomy (NSV) was adopted as the standard procedures in the country for male surgical contraceptives. All the doctors have been trained in this latest technology for vasectomy.

As of today, the following methods of family planning are available through the country.

Temporary methods:

Combined Oral Contraceptives (Microgynon ED Fe) (28 days cycle) of low dose oestergen.
Intra uterine Contraceptives device (IUD) Copper T (CUT 380 A)
Barrier Condom 90 x25 mm lubricated.
Inject able - Depo provera (DMPA)

Permanent methods:

Vasectomy for males – non scalpel vasectomy (NSV) procedures
Tubectomy (Tubal Ligation) for female – Minilapratomy (minilap) procedures

Bhutan has a high fertility rate of 4.7 per women, a population growth rate of 2.5 %
(2000 National Health Survey) and a young age structure. Each of these are important issues to be addressed. Howevr they must be addressed within the context of socio economic development and not as separate problems. Bhutan is committed to improve
the quality of life of the people through socio-economic development. In order to do this,it is necessary to recognition of the interaction between population growth and sustainable development.

The 1994 Annual Health Conference had taken note of the Royal Government policy on population planning and recommended the intensification of MCH/FP services throughout the country. It concluded that the growth rate of the population should be kept below 2 percent per annum. This should be done by promoting small family norm through voluntary family planning. This is the key strategy.

Family Planning Policy

The present family planning policy has been adopted by the Royal Government of Bhutan at all level.

Family planning in Bhutan is entirely on voluntary basis and every individuals or a couple

has to have access to its information and services.
Families should voluntarily restrict their family size through personnel preference.
The general public and targets population in particular should have access to information and education regarding pregnancy risk and the benefits of proper spacing through family planning.
Ensure counseling regarding the advantages and disadvantages of individual family planning methods and to help the clients to have his/her choice of contraceptive.
Voluntary Surgical Contraceptive (Tubectomy and Vasectomy) should be offered for couples who have minimum 2 living children.
Infertile couples should receive fill investigation and necessary treatment if required.

In order to create an environment conducive to adopting a small family norm, the following complimentary strategies are implemented.

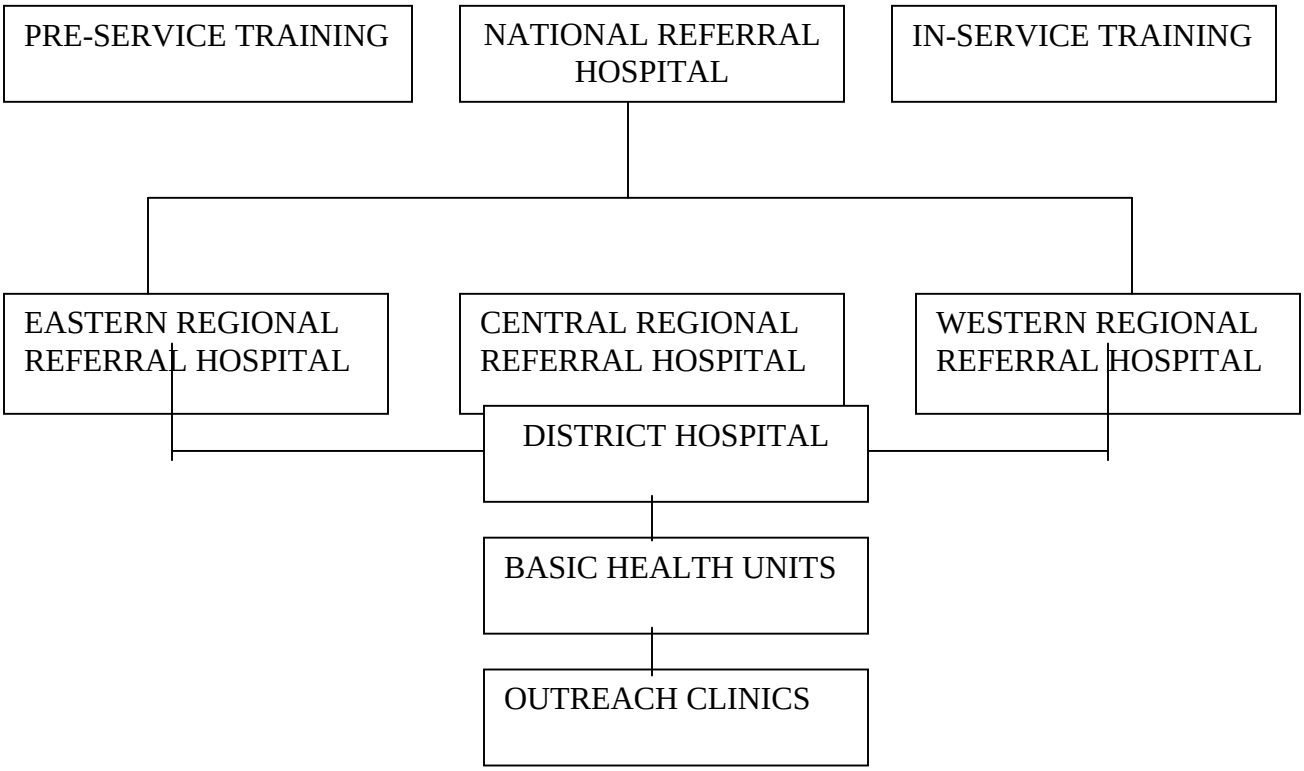
Child survival programme including safe motherhood and primary health care.

Universal primary education, non-formal adult education and population education, both in formal and informal system, with particular focus on youth.
Adequate maternal leave for the working mothers.
Re canalization facilities for both male and female will be made available to couples who have a justified need.

Health Delivery System of Bhutan.

A formal system of modern health care in Bhutan was established in the early 1960s and a rephrased primary health care system in 1974. Since its inception all health services were integrated and delivered through a three-tier system.

National referral Hospital
Regional referral District Hospital
Basic Health Unit


PRE-SERVICE TRAINING
NATIONAL REFERRAL HOSPITAL
IN-SERVICE TRAINING
EASTERN REGIONAL REFERRAL HOSPITAL
CENTRAL REGIONAL REFERRAL HOSPITAL
WESTERN REGIONAL REFERRAL HOSPITAL
DISTRICT HOSPITAL
BASIC HEALTH UNITS
OUTREACH CLINICS

At the base of the health system are voluntary health workers called Village Health Workers (VHW). They work at the community level and are selected by the village where they serve. VHWs are trained initially for two weeks on preventative health care and simple curative care. They convey MCH/FP information to the community and help to conduct outreach clinics.

Basic Health Units (BHU) are first level contact for health services delivery in the Country. Each caters to an average population of 2,500 ranging from 1000 – 8000 population. The BHU Staff comprise of a Health Assistant () HA), Auxiliary

Nurse Midwives (ANM) and the Basic Health Worker (BHW).

District or sub district hospital, regional referral hospital, and national referral hospital constitute the secondary and tertiary health care. These hospitals also serve as primary center for their respective catchments areas.

In service training on family Planning is conducted for all health workers regularly.

MCH /FP services are fully integrated in the general health services delivery system, Services are delivered at health facilities and through outreach clinic. FP services provided by level of Health facilities are shown in table 1.

Annexed Table : 1

A system of records and reporting family planning services has been developed within the framework of the national health information system. Standards format for recording and reporting are used. Collected information is compiled, analyzed, and published annually. Feedback is given to health facilities. The family planning program supervised routinely by DHSOs/DMOs at district and by the programme managers at national level.

Current Family Planning achievements:

Family Planning information and services are provided through 29 hospital's 160 BHUs and 445 Out reach clinics. 1025 VHWs spread out through out the country are providing FP information to remotest household in the country. Some are even involved in distributing condoms and re supply oral contraceptive pills. The National health survey of 2000 has estimated the contraceptive prevalence rate to be approximately 31% Vasectomy (44%) -.

Contraception Method Use. 2000 NHS

Contraceptives	Users
Vasectomy	44%
DMPA	19%
IUD	11%
Oral pills	11%
Tubectomy	10%
Condom	4%
Total	99.00%

Vasectomy (44%) was found to be the most widely used method of contraceptive. Other methods of contraceptives in order of preference are DMPA, IUD, OCP, Female sterilization and condom. The same survey has shown that knowledge on FP is more than 90% among women of reproductive age. This is a significant achievement since the finding of 1994 national Health Survey (18% CPR)

Statement of the problem

The routine report do not show any significant changes in new acceptors. Acceptors for of IUD were expected to increase following training of Health Workers. (ANM & HA) and provision of necessary equipments to the BHUs. In fact more than 90% of the health facilities provide IUD facilities at the moment. However no significant improvement ha been observed from routine reports.

Routine report indicates that achievements in FP coverage differ from Dzonkghag to dzonkghag and even among facilities with a Dzonkghag. It is important to know the factor influencing high and low achievement because this information could assist the programme managers at all levels to initiate remedial measures in those geographic areas where the achievement are comparatively lower.

However, because of inconsistency in reporting and changed in recording and reporting procedures, it is extremely difficult to specifically identify the low performance areas. Form routine reports of 2000 (Annual Health

Bulletin 2000), was found to be comparatively lower in the following Dzonkghag.

1. Dagana
2. Monggar
3. Pemagatshel
4. Wangdiphodrang
5. Bumthang
6. Trashiyangtshi

Dzonkghags wise new Family Planning acceptors for the year 2000. (AHB 2000)

Table 3. Dzongkhag wise Family planning acceptors. 2000. (New / Current)

District	T	V	I	P	C	D
Bumthang	20	169	101	69	57	330
Chukha	208	1192	402	1561	1172	1328
Daga	0	30	37	268	230	355
Gasa	0	1	0	51	53	132
Haa	12	8	17	470	320	1042
Lhuntshi	0	48	113	446	487	2506
Monggar	21	163	189	150	601	891
Paro	146	430	201	501	379	967
P/gstshel	20	281	12	35	111	406
Punakha	541	1070	32	796	214	2737
S.Jonkhar	158	1222	93	195	244	653
Samtse	280	2363	80	364	300	404
Sarpang	536	578	410	765	390	889
Thimphu	96	253	121	198	60	502
T/gang	23	604	129	547	836	2591
T/yangtshi	13	445	252	44	47	191
Trongsa	43	366	103	102	182	446
Wangdue	8	272	60	173	410	417
Zhemgang	56	352	225	259	41	613
Total	2267	10353	2601	7379	6256	17716

Justification and use of the results

In spite of having so much in the field of family planning and reproductive health, there still remain a lot to be achieved. The fact that there are some differences in coverage of family planning coverage from Dzonkgkhag to Dzonkghag and even among facilities with a dzongkhag indicates that there are more things that could be done. This " need assessment" will provide valuable information on the need of health facilities in the selected districts that, if met, could improve family planning activities. This information will be valuable in providing a sound basis for planning of these activities.

Objectives

The general objectives of the " need assessment" study is to study the need of the health facilities in the selected districts which will help them overcome hurdles and impediments towards improving and expanding their family planning services.

The specific objectives of the study are

To identify factors influencing high and low achievement in family planning coverage of the health facilities in the selected health facilities
To identify the need of the facilities in term of need for supply and equipments as well as training needs of the health staff.
To describe the prevailing attitudes and skills of the health staff in the selected facilities towards family planning services.
To describe the quality of services received by the clients from the clients' points of view.

Methodology

Study design and selection of samples

This will be an exploratory study and the need assessment will be carried out using a cross sectional design.
The unit of analysis for this study will be the services delivery point including hospitals and BHUs in the selected dzonkghag. Out reach clinics (ORCs) will not be included in the study as they are usually merely extension of services provided from hospital and Basic Health Units.

The Dzonkghag have been identified using purposive sampling bases on existing information regarding coverage of family planning services. The Annual health bulletin of 2000 presents comparative information regarding contraceptives prevalence in the different Dzonkghags (see table 3)

All the services delivery Points (SPDs) in the identified dzonkghag will be stratified according to the type of facility such as hospital, BHU grade 1, and BHU grade 11. For the training need assessment all health personnel directly involved in family planning.

Information and services in the SDPs will be interviewed (i.e community health team/RH

personnel in hospital and all the technical staff in BHU grade 11. (BHU grade 1 will be treated as a hospital for the study).

Clients from each BHU and 5 clients from every hospital will ne approached for an exit interview. Clients will be people who visit the health center for any family planning services. In case there are no clients in the BHU during the visit of the data collector, two people from the community who have availed of family planning services in the recent past will be approached and interview.

Data collection instruments

The following data instruments (questioner) will be used to gather information for the assessment.

Inventory of services provided:
Facility functioning Assessment form (form No. 1)
Facility case summary sheet (form No. 2)

Inventory of facilities available
Physical infrastructure (form No 3)
Furniture and linen 9 form No. 4)
Equipments (form No 5)
Contraceptives and standards guidelines (form No 6)
Recording and reporting forms/formats (form No 7)

Interview with health workers (form No 8)
Exit interview for family planning clients (form No 9)

These questioners will be per structured and pre tested.

Date collection procedures

A study team will consist of 2-3 persons one of whom will be with technical background (ANM, GNM or a doctor). Each dzonkghag selected for study will have a supervisor to coordinate and supervise the team. The supervisor will be selected from program personnel or a senior District Medical Officer.

The team will spend one working day in each of the SDPs (unit of study) and complete the questioner forms. Completed forms will be handed over to the supervisor immediately after completion before the team is assigned another SDP. The supervisor will be responsible for completeness and correctness of the forms.

The study team and supervisor will be trained in completion forms for a period of one week which will include orientation on the information to be collected, checking completeness and correctness of the information, role plays, and pilot testing of the date collection instruments.

Data handling and Analysis

Once the data collection process is complete, the information will be processed at the RHU, PHD using a user friendly computer programme which could be EPI INFO6 or Microsoft Access 2000.

Descriptive analysis will be done on the entire variable for which data are collected. A preliminary report of the finding will be presented in a representative workshop to search for solution to the problem that emerges.

After the data interpretation workshop, a final report will be written taking into account the finding and the recommendation of the data interpretation workshop. This report will be disseminate to all the stakeholders of the family planning programme.

Budget

Budget will be worked after approval is accorded on the Dzonkghag selection for the study.

Annexure

Table :1 family planning services provision by level of health facility

level/health facility	*time*	*Services*	*responsible*	*prerequisites*
Community	Daily	- Information, Education on FP Method and counseling - Condom distribution - Re-supply of OCP - Referral to other methods - Simple record keeping & report to BHUs/ dispensaries.	VHW	Need for training/refresher courses on condom/Ocp and good reporting (pictorial)
Out Reach Clinic (ORC)	Once or twice monthly	- All of the above - Screening /provision of IUD/NSV services (if facility available) - Screening and referral for sterilization and major complication	HA ANM BHW	IUD/NSV services by trained staff
Basic Health Unit (BHU-11)	Daily	- All of the above - Syndromic approach to STD management - Seen Anylis for post vasectomy follow up - Screening and referral for Tubectomy - Record keeping and monthly regular reports.	HA ANM BHW	IUD/NSV/Semen Analysis by trained staff.
BHU 1 District Hospital	Daily	- All of the above - Provision of tubectomy facility - Elementary investigation of Infertility - Diagnosis. Management of RTI/STI	DMO GDMO MCH- In charge	Tubectomy by trained staff (DMO, GDMO)
Regional referral hospial) RRH)	Daily	- All the above - Management of complication of FP methods - Comprehensive investigation) including invasive procedures e.g laprascopy) for couples infertility & management - Monitoring and supervision of BHU - Quality of services (COPE evaluation - Referral for microsurgery	All above and superintendent Surgeon Gynae.	All above
National referral Hospital (JDWNRH)	Daily	- All the above - Tubal Microsurgery for infertility -Recanalization surgery following sterilization - Referral abroad for any appropriate management (where applicable)	Same as RRH	Laboratory facility for hormonal profile assays and interpretation of cervical smear

Acknowledgements

The assessment of Risk Behaviours & Vulnerability to HIV/AIDS and STIs in Bhutan was made possible through the support of the Ministry of Health. We would like to extend our sincere appreciation to Dr. Dorji Wangchuk, Director, Department of Public Health, for his guidance and support.

This study could not have been conducted without the encouragement from the World Bank team, in particular Ms. Hnin Hnin Pyne, to whom we would like to extend our gratitude.

We would like to acknowledge and thank Nyima Yoezer, Head of Epidemiology and Research, Ministry of Health for providing all the necessary support.

The support from various individuals of the Royal Bhutan Police, Royal Body Guards, Royal Bhutan Army, Department of Roads, Road Safety and Transport Authority and Department of Labour is gratefully acknowledged.

Last but not the least to our researchers who put in their best efforts to obtain confidential information and the people who have participated in the study for their time and patience in answering difficult and sensitive questions.

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January 2004

Acronyms

BHU Basic Health Unit
CSW Commercial sex worker
DMO District medical officer
DHSO District Health Section Officer
IECH Information Education and Communication for Health (now called Information and Communication Buraeu
JDWNRH Jigme Dorji Wangchuk National Referral Hospital
KABP knowledge attitude belief and practice
NMW National migrant worker
NNMW Non-national migrant worker
MCH Mother and Child Health clinic
MSTF Multi sectoral task force for health
ORC Outreach Clinic
RBA Royal Bhutan Army
RBG Royal Body Guards
RBP Royal Bhutan Police
RGoB Royal Government of Bhutan
RSTA Road Safety and Transport Authority

ASSESSMENT OF RISK AND VULNERABILITY TO STIS AND HIV/AIDS IN BHUTAN

Rabten Associates

Background:

The Royal Government of Bhutan is committed towards the prevention of HIV/AIDS and STIs recognizing the prevailing factors that could fuel the spread of HIV/AIDS. Bhutan established the national STD/AIDS control programme in 1988 and the first HIV infection was detected in 1993. As of January 2004, 45 HIV infections have been reported. Though number is not large the rate of increase particularly in last three years is of concern.

To properly assess the potential for HIV spread in the country, knowledge of sexual risk behaviours practiced by the general and sub populations is essential. In 1991, to obtain baseline data on AIDS, STI, condom use and sexual practices, the Royal Government of Bhutan (RgoB) undertook a knowledge, attitude, belief and practice (KABP) study. IECH Bureau conducted another KABP study in 2001. However, these two studies concentrated on the general population and did not delve into the risk behaviours of sub population groups that could be at higher risk to STIs and HIV.

Purpose of the study

The purpose of this study is to conduct an in-depth examination of risk behaviours and vulnerability among sub populations that are considered at higher risk to HIV and STIs.

The results of this study is intended to help in understanding populations that are more vulnerable to HIV and STI and provide inputs into the development of behavioural surveillance surveys and behavioural change communication strategies.

Methodology

Qualitative assessment methods were used to gather information related to sexual and substance use risk behaviours among five priority groups identified as being at higher risk. The five groups identified are; long distance drivers, migrant workers - nationals and non-nationals, commercial sex workers, drug users and armed forces.

Purposive samples of 124 respondents from the five priority groups were interviewed at nine study sites in six dzongkhags. In addition 33 key informants from various sectors were interviewed.

Findings and conclusions

Access and barriers to health care and information

In general, access to health services is not a problem, but barriers to availing the services exist. To minimize the barriers of long waiting time and negative attitude of health workers, health facilities need to improve management and public relation skills.

Main source of health information is from radio, friends, family members, health workers, posters and TV and the majority prefer to get their health information directly from health workers. However, for discussing sexual matters they prefer their own friends, as they feel inhibited with health workers. Therefore peer education on transferring knowledge on sexuality and safer sexual behaviours could be a successful strategy.

Some of the health messages given through music audiotapes, radio and billboards are not easily understood and this has implications for production of future IEC/BCC materials. Thorough pre testing of messages for intended target is necessary.

Knowledge and attitude toward STIs and HIV/AIDS

Awareness of HIV/AIDS and STIs is high. Almost everyone has heard of the term HIV/AIDS and many could cite signs and symptoms of gonorrhoea. However, numerous misconceptions particularly on modes of transmission of HIV exist. Current IEC on STIs and HIV need to be reviewed to increase effectiveness.

STI infections are associated with bad character indicating social stigma and this has implications for HIV infections. The wish to have the identity of HIV infected made public is an indication of possible discriminatory behaviour towards the HIV infected.

People suffering from AIDS are not visible in Bhutan, therefore some people feel that HIV/AIDS is not a real problem and this could affect the adoption of safer behaviours.

Access to STI care and treatment

Barriers to availing treatment from health centres have more to do with personal feeling of embarrassment and guilt for contracting STIs than the lack of health facilities. Apprehension of retribution from health workers is a barrier, which may require examination of attitudes of health workers. Gender sensitive STI care with provision of privacy will encourage STIs patients to seek early care and prevent self-treatment or seeking care from medical shops.

HIV testing

Of the 55 respondents to individual interviews, 20 have done HIV testing, as requirement for availing training courses, blood donation and a few went voluntarily. Of the 20 tested, 7 are the CSWs based in Phuentsoling.

Majority are willing to do HIV test if asked to do so but at locations that are convenient for them, this willingness has positive implication for conducting behavioural surveillance surveys in the future.

Access to condoms

Although condoms are said to be easily available from health facilities and condom boxes placed in hotels, however, some feel inhibited from availing these supplies. Condom boxes at the health facilities and hotels could be placed in more discreet locations so the shy and timid can also access. Condom distribution and supplies in rural areas need to be assessed as some reported non-availability of condoms in the village.

Commercial sex

(Commercial sex is defined as sex in exchange for money)

Commercial sex is not yet an organised industry in Bhutan, CSWs met operate on their own from bars and hotels. However, there are some signs of possible beginnings of organised commercial sex in Jaigon the Indian border town adjacent to Pheuntsoling where a Nepali woman is bringing in girls from Nepal for sex work.

Clients of CSWs based in Phunetsoling consist mainly of army men, businessmen, police men, drivers, government servants on tour, students from Delhi and Kanglung, local Indian tourist from Darjeeling and Kalimpong and occasional expatriate workers. The average number of clients served by CSWs range from 3 to 4 daily with the number increasing to 7 to 8 during the winter months.

With regard to CSW clients in Thimphu, no conclusions can be drawn, as only three sex workers from the low end (*"third class")* of the market could be interviewed. According to key informants, there are women considered *"first class"* who charge high rates (above Nu. 1000) and live high life styles, but these women were difficult to identify and therefore could not be included in this study.

Mobility of local sex workers is limited although some CSWs from Phuentsoling did try to make an entry into Gedu where the large Tala power project is on going, but lack of proper lodgings coupled with strict police vigilance deterred their move. Seasonal CSWs

from Sikkim, Kalimpong and Darjeeling come to Phuentsoling and Thimphu.

Magnitude of commercial sex is difficult to assess, as it is very hidden. Young girls selling sex in Thimphu do not see themselves as CSWs. Only in Phuentsoling, few CSWs openly recognise themselves as CSWs and that is largely due to efforts of the Phuentsoling community health team who have tried to reach this group with counselling and health services. Similar effort must be made in Thimphu, as there is marked difference in the level of STIs/HIV prevention knowledge and condom use between the CSWs in Phuentsoling and those in Thimphu. Further, there was also difference in confidence level, the Phuentsoling based CSWs check to see if client have put on condoms properly while those in Thimphu felt too shy to check.

Casual sex

(Casual sex is defined as sex with non-regular partners. Non-regular refers to a partner with whom one is neither married to nor living with)

The assumption that Bhutanese have less stringent sexual norms may be true as almost all male respondents in the study report multiple sexual partners with the number of partners varying from 3 to 280. Casual sexual partners are strangers at vegetable markets, bars, "woola" camps (camps for contributory labour), passengers of truck/taxi drivers, girls and women taking lifts, informal acquaintances, girls and young women serving in bars and restaurants along the highway, night hunting, night clubs, discos and bars with singing girls. These music bars in an emerging trend in Thimphu. Casual sex is usually in exchange for drinks/dinner/entertainment or other favours and money is given only if the women ask for it specifically for a problem.

Regarding the frequency of number of individuals indulging in casual sex, the armed forces had the least number, followed by migrant workers and drug users. Truck drivers were the highest with most individuals interviewed reporting multiple sexual partners. In terms of actual number of casual sex partners, drug users reported the least (5-8) and drivers the most (2-280). National male migrant workers and armed forces have similar number of casual sexual partners with the average range being between 3 to 20 partners. Thus the truck/taxi drivers have higher risk behaviours associated with multiple sexual partners.

Condom use

Of the 41 male respondents only 9 (22%) reported regular and consistent condom use for casual sexual encounters. Irregular condom use was cited by 19 (46%) and 8 (19%) have never used condoms. Of the remaining five respondents two claimed to be faithful to their spouse and three did not indulge in sex. Many of the irregular condom users believe village and schoolgirls and girls of good repute to be diseases free and use condoms only with "*town*" girls and CSWs. Condoms were also not used with casual partners with who repeated sexual encounters took place.

The maximum number of irregular condom use for casual sex was found among the truck/taxi drivers, thus placing them at higher risk of infection.

Only a few have had instruction/demonstration on proper condom use from health professionals or others while the majority learnt from their friends.

With regard to gender difference in negotiating condom use, 14 (34%) of the 41 male respondents said their female casual sex partners suggested or sometimes insisted on condom use. Of the remaining, some were of the opinion that it was up to the man whether he wanted to use condoms or not since women did not have anything to say about it. In a few cases, women have refused to agree to condom use. In general, village girls are regarded as being too shy to talk about condoms compared to the town girls.

Factors influencing risk behaviours

Factors fuelling risk behaviours were found to be the following;

- Traditional carefree attitude towards drinking and sex.
- Relaxed social norms regarding premarital sex and tradition of night hunting.
- Influence of alcohol and drug use.
- Pressure to keep pace with growing materialistic and consumerist life style.
- Emerging trends of nightlife with bars, discos and poolrooms.
- Separation from family and home for transport workers and migrant workers.
- Lack of education and guidance.
- Too much money in hand.
- Annual festivals particularly Goma Kora and Chorten Kora
- Women teasing and tempting men into having sex.
- Adults who exploit young girls and women into sex work

Factors influencing risk behaviour among the young and educated are those related to modern lifestyles like the emerging nightlife in urban centres like music bars, discos, nightclubs and poolrooms. Risk behaviours among drivers, national migrant workers and armed forces are influenced by the nature of their occupations and further fuelled by the relaxed and care free attitude towards sex. The child support law has to a certain degree made the men more careful about their attitude towards free and easy casual sex.

Factors impeding adoption of safer behaviours:
Knowledge gaps about STIs/HIV.
Lack of awareness of STI and HIV situation in Bhutan.
Condom not sufficiently demystified.
Socio economic problems
Lack of guidance

The most important factor impeding adoption of safer sexual behaviours is the lack of knowledge. Awareness is high for most have heard of HIV/AIDS, but misconceptions about transmission abound. Concerted efforts must be made in order to clear misconceptions.

Hot spots with access to casual/commercial sex

Locations in Bhutan that are known for easy access to casual sex partners regularly:
Phuentsoling ; lower market particularly for low income group
Hotels and bars along the highway between Phuentsoling and Gedu, including Jumja
Thimphu town – Bars with singing girls, Cinema hall area, Hong Kong market area,
vegetable market (outside the paid toilets)
Trongsa town – certain hotels, bars and restaurants with young serving girls, vegetable market
Trashigang town - certain hotels and restaurants with young serving girls, vegetable market
Wamrong - certain hotels and restaurants
Yadi - certain hotels and restaurants
Goma Kora and Chorten Kora during annual tsechu

The most common locations where partners for casual sex is easily found:
Vegetable market places to get village girls/women
"Woola" camps to avail village girls
Bars and teashops with young girls and women serving along the highways
Bars with live music with singing girls in Thimphu
Discos and pool room in Thimphu

Homosexuality

Majority felt homosexual practice is not common in Bhutan, however, some believe that it might exist amongst the monks.

Drug Use

Drug use offences in Thimphu are increasing steadily with majority of the offenders being students and young men from low-end jobs such as mechanics, unskilled labourers and meat sellers. Substances commonly abused are a mixture of solvents, inhalants, prescription tablets and injection. To date no arrests have been made in connection to use of hard drugs like heroin, cocaine and brown sugar, but brown sugar is being used in

Phuentsoling and Thimphu. Another substance of concern is the presence of Buprenorphine in Jaigon. Buprenorphine, a drug approved for opioid treatment has now become the substance of abuse, Nepal and parts of India are already experiencing buprenorphine injecting epidemic resulting in rapid increase in HIV infection.

It is beyond the scope of this study to assess the magnitude of injecting drug users (IDU) in Bhutan, but the general belief is that IDU is still in the early stages at present. The IDUs interviewed have indicated sharing needles and syringes.

Perception of vulnerability to STIs and HIV

Of the 41 male respondents, 7 (17%) felt they were at risk or vulnerable to infections, while 34 (83%) felt they were not at risk. Sex workers, given their profession, seem to be the group most aware of their own vulnerability, with exception of one, all worry constantly about risk of infection through condoms leaking or tearing.

Many of the truck drivers are irregular condom users with multiple sexual partners, but almost all considered themselves not to be at risk of STI/HIV infection. This mistaken perception could further increase their vulnerability.

With regard to risk reduction strategies, among the 7 male respondents who considered themselves at risk of infection, five reported consistent condom use for casual sex and reduction in the number of casual sex partners.

Vulnerable groups as identified by the study respondents

Groups frequently mentioned as being more vulnerable to HIV and STIs, other than the five priority groups identified for the study, are listed below:

Businessmen who travel frequently
Government employees who travel frequently

- Village girls or women who come to sell farm produces or to do seasonal work or live near highways.
- Schoolgirls
- Maids employed by expatriate workers
- Girls hired to sing in the music bars in Thimphu
- Girls hired temporarily as support service in project offices
- Tour guides
- Monks (mentioned in two sites)
- Bachelors
- Unemployed youth

Of the groups listed above, perhaps the most vulnerable would be the village girls/women for the following reasons; a) men target them for casual sex believing them to be free of STIs/HIV infection, b) rural women/girls being less literate could be less informed about diseases prevention, and c) rural women are more shy and therefore less able to negotiate condom use.

The fact so many groups are listed is another indication of the relaxed and liberal attitude towards casual sex in the Bhutanese society.

From among the five groups considered a priority, truck drivers, armed forces and sex workers are at higher risk and more vulnerable given their habit of irregular condom use and multiple sexual partners coupled with type of occupations that involves long periods away from family and selling sex. The external migrant workers, in particular the unskilled construction workers are low risk groups as they do not appear to indulge in casual sex with local population and even if they do its is minimal. Although drug users do indulge in casual sex, the number of multiple partners is much lower among this group. Further, the number of injecting drug users fortunately still seem to be low, however, since drugs like brown sugar and buprenophine are present, the drug use situation must be closely monitored through regular small surveys among the drug users.

Section One: Background and Purpose

1.1 Introduction

The first case of HIV infection in Bhutan was detected in 1993. Since then the number of HIV infection has been steadily increasing. As of January 2004, there are 45 cases reported and eight have died due to AIDS related illnesses. The number of reported HIV infections is not large but the rate of increase particularly in the last three years raises concern.

Though the HIV epidemic is in its early stage in Bhutan, factors such as high mobility of the general population both within and outside the country, the long porous border with India and a largely youthful population coupled with a liberal sexual attitude makes Bhutan highly vulnerable. There is consensus of opinion that all sections of the society must get involved in combating HIV/AIDS as the potential for its spread prevails in the country and thus a decentralised multi-sectoral approach has been initiated. The government commitment to prevent the spread of HIV is high and efforts to intensify targeted interventions towards populations at higher risk are being made. Bhutan in fact established its national STD/AIDS control programme in 1988, five years before the first case of HIV infection was detected.

To properly assess the potential for HIV spread in the country, knowledge of sexual risk behaviours practiced by the general and sub populations is essential. In 1991, to obtain baseline data on AIDS, STI, condom use and sexual practices, the Royal Government of Bhutan (RgoB) undertook a knowledge, attitude, belief and practice (KABP) study. IECH Bureau conducted another KABP study in 2001. However, these two studies concentrated on the general population and did not delve into the risk behaviours of sub population groups that could be at higher risk to STIs and HIV. A strategy that was developed following the IECH study recommended high risk behaviour among commercial sex workers, the armed forces, truck and taxi drivers, migrant workers and frequent travellers be targeted for interventions.

The rapid socio-economic development of the country is heralding in many challenges and risks in relation to the spread of HIV/AIDS. The vibrant construction industry engages large number of migrant workers, both national as well as non-national. A 2002 sentinel surveillance review report not only recommended a special awareness programme to be launched in all construction sites employing more than a hundred workers but also that all migrant non Bhutanese workers during the health clearance examination should be examined genitally also and those with a discharge or an ulcer be treated. Tourists are on the increase with new routes being opened up. Improvement in transport network has increased the mobility of people both within and outside the country. Rural urban migration is steadily increasing and seasonal migration is becoming common where people come to work in the urban areas during the winter months. Commercial sex work is apparently on the increase and not restricted to border towns as previously believed.

1.2 Purpose of the study

The World Bank is supporting the Ministry of Health with a grant of US$ 5.5 million to strengthen the national response to HIV/AIDS in Bhutan.

The results of this study is intended to help in understanding the populations that are highly vulnerable to HIV and STI and provide inputs into the development of behavioral surveillance surveys and behavioral change communication strategies.

Study objectives

The specific objectives are to identify or review vulnerable groups such as mobile populations; truck drivers and migrant workers, drug users, sex workers and armed forces.

- Assess their knowledge gaps about their risk behaviours & vulnerability.
- Identify risk behaviours and find out where and how they take place.
- Identify factors that fuel risk behaviours and impede adoption of safer behaviours.
- Identify factors that influence care-seeking behaviour for STIs.
- Find out their attitudes about HIV/AIDS and STIs, including perceived susceptibility, condoms, substance abuse and HIV testing.
- Assess the level of access and barriers to health services and health information and communications.
- Assess the level of access and barriers to STI care and treatment and HIV prevention services.

1.3 Methodology

Sample population and key informants:

Considering the experience from other countries, the study focused on the following five population groups:
Mobile populations like long distance drivers including truck, bus and taxi
Migrant workers - nationals and non nationals,
Commercial sex workers
Drug users
Armed Forces including RBA, RBG and RBP.

Though the whole general population could be considered vulnerable given the assumption that the Bhutanese society has less stringent sexual norms for both men and women, the sample did not include the general population as the purpose of this study was to conduct an in-depth examination of risk behaviours and vulnerability among sub populations that are considered highly vulnerable to HIV and STIs.

A purposive sample of 124 respondents representing the above five identified groups at nine study sites identified in six Dzongkhags were interviewed. In addition, 33 key informants from various sections such as the health, police, hotels and restaurants, construction site managers etc also interviewed. See Annex 1 for the summary of research sites, samples and methods.

Table 1: Dzongkhags and study sites

	Dzongkhag	Study Site
1	Chukha	Phuntsoling and Gedu
2	Mongar	Limithang
3	Trashigang	Municipal area
4	Thimphu	Dechencholing, Lungtenphu and town area
5	Trongsa	Dzong renovation work camp
6	Wanduephodrang	Basochu hydro power project

Key informants from various sectors like health, police, and hotel/restaurant/teashop owners/employees were interviewed to confirm the relevance of the identified vulnerable groups to be studied and find out if there were additional risk groups.

Study tools:

Qualitative methods were used to gather information. Methods used were individual interviews and focus group discussions that included PRA techniques such as mapping and story telling. Individual interviews with key informants were also conducted. See Annex 2 for study tools.

As people with skills to conduct qualitative research are scarce, the question guide for interviews was semi-structured to allow for the lack of skills in conducting free flowing in-depth interviews.

Training of researchers:

Training for researchers included epidemiology of AIDS and its situation, discussion on the interview guides for individual interviews and focus group discussion, sampling methodology, interviews methods and role-plays. The interview guides were pre-tested among truck drivers, police

and non-national migrant workers in the Thimphu municipal areas.

Initially a six-day training was planned but during the course of the training this time was extended by one more day, making it seven days in total. See Annex 3 for the initial six-day training plan.

Fieldwork:

Fieldwork was carried out in the month of December 2003 and first half of January 2004. It was challenging to identify, locate and gain the confidence of drug users and sex workers. Repeated visits had to be made before they were willing to talk with the research team.

Confidentiality and consent:

Given the sensitive nature of the research involving questions that are very personal and sometimes difficult to answer, getting informed consent and ensuring total confidentiality was an integral part of the research method.

Constraints:

It was not possible to get sufficient number of sex workers in Thimphu and drug users in Phuentsoling despite genuine efforts. Sex workers in Thimphu was extremely difficult to locate as they operate individually and do not have any links with the community health team as in the case of sex workers in Phuentsoling. Furthermore these women in Thimphu did not consider nor see themselves as sex workers. Stigma associated with drug abuse and sex work made it difficult for individuals to agree to meet with the research team.

Focus group discussion could not be conducted with drug users and we could not gather sufficient numbers despite all efforts. Focus group discussion with sex workers in Phuentsoling was organized with a great deal of effort but unfortunately the police had chased away the sex workers before the research team could get to the appointed venue.

Samples from Pemagatshel, Geleyphu and Samdrupjongkhar could not be included in the study due to security problems.

Findings

2.1 Background

In preparation for the fieldwork, information was sought on the five selected groups from relevant sources i.e. Armed Forces, Ministry of Labour and Human Resource, Department of Roads, Career Education and Counselling Division of Department of Culture and Sports, Road Safety and Transport Authority and the Psychiatry Unit of JDWNRH. A brief account of information gathered is given below.

2.1.1 Armed Forces

Type of duty stations:
Most duty stations of the three divisions of the Armed Forces have family accommodations. Posting in non-family duty stations are in most cases temporary and only for shorts periods. New recruits are housed in hostel accommodations, as they are not permitted to marry until they have served for three years.

Mobility pattern:
Mobility is higher in the RBA and RBP. Rotation between duty stations take place every four to five years.

Movement for refresher courses are minimal both within the country and to India. Training courses in India are usually for 6 to 12 months and only the officers are allowed take their families.

Regardless of whether they are in family or non family posting all are allowed 30 days annual home leave and besides this they can avail "sick attendant" leave when someone in the family falls ill.

Information on STIs and HIV/AIDS:
Lady Volunteers (wives of the armed forces) have been established in all three branches of the armed force. The volunteers make family visits to provide general health information that includes STIs and HIV/AIDS on a monthly basis. In addition, health workers give talks and video shows on HIV as and when possible.

Treatment and prevalence of STIs:
Close surveillance is maintained for STIs among the armed force personnel. As STIs and malaria are preventable infections, it is punishable to contract these infections. Prevalence rate for STIs is not recorded but it is assumed to be low.

Risk behaviours:
With regard to risk behaviours among armed forces, apart from alcohol there are no cases of substance abuse. It is assumed that armed forces may come in contacts with CSW while they are on tour and on annual leave and contact with sex workers while on campus is limited or non-existent.

2.1.2. National Migrant Workers

National Work Force:
Information was got from the Department of Road as they employ large number national workers as part of the National Work Force for road maintenance throughout the country. The department employs nationals on a long-term basis as part of the National Work Force, besides this they also employ temporary workers for what they term as casual or local work force. Most of the permanent workers are posted in workstations along with their families and are usually rotated between the workstations every few years.

The Department of Roads with technical support from the local health workers organize awareness programme for the national road workers on health including STI and HIV/AIDS. Starting in 2000 they have conducted health awareness programmes for over 1600 workers. The awareness programme includes only the members in the National Work Force and not the casual workers.

Other national migrant workers:
There is no available information on population who move around the country doing seasonal work such as fruit picking and packing and rural population that move to

urban towns during the lean winter seasons working at construction sites.

2.1.3 Non-National Migrant Workers

The Department of Labour, Ministry of Labour and Human Resource maintains record of labour recruitment in the country. The usual length of work period given on recruitment is for one year that can be extended. Majority of the construction workers are recruited for employment in Thimphu and for large project areas. The Tala hydropower project employs over 12, 000 Indian construction workers on a continuous basis and Basochu project employs over 100 Indian workers. Medical fitness certificate must be provided at the time of recruitment.
To give an idea on the number of construction workers that are recruited monthly, the table outlines recruitment for the two and half months of 2003.

Table 2: Labour recruitment from October to 10 December 2003

Months	Extension	Replacement	New recruitment	Total
October	530	122	1533	2185
November	174	1238	1137	2549
10 December	323	683	1551	2557
Total	1027	2043	4221	7291

2.1.4 Road Safety and Transport Authority (RSTA)

RSTA provides a three-day training programme for professional drivers i.e. bus, truck and taxi drivers. As of 2000, they have added First Aid and awareness on prevention of STI and HIV to the training. Health professionals are invited as resource persons for the training. Music audiotapes with health messages are distributed to trainees at the end of the training. The Ministry of Health provides the music tapes for RSTA.

In total 25,046 driving licenses have been issued to date. This includes 3852 licenses for heavy vehicles (passenger buses and trucks) 1517 taxis.

2.1.5 Information on substance abuse

Career Education and Counselling Division, Psychiatry Unit of JDWNRH and Police Officer in charge of Thimphu were visited to get information on current drug abuse situation.

In addition to career counselling, the Career Education and Counselling Division of Ministry of Education provides counselling services for students with drug use problems. Since 2000 to date 16 male students with drug habits have been provided with counselling. Out of the 16, three are known to be injecting drug users and the substance commonly used for injecting was Spasmo-proxyvon (Dextroproproxyphene). Substances used by the remaining 13 used a mix of inhalants and prescription drugs such N –10 (Nitrazepam), Relipin (Dextroproprosy) and Phensidryl (Codeine Phosphate).

The Psychiatry Unit at JDWNRH has 25 cases of drug users registered over the last 4-year period. Most of the 25 cases are known to be injection users who have reported to the hospital with drug use related problems and all are young males. Majority does not maintain contact with the hospital once the immediate problem that brings them to the hospital has been solved. Drugs commonly used to injecting were Spasmo-proxyvon (Dextroproproxyphene) and fortwin (pentazocine). Apparently a few years ago, several drug users came to seek help for withdrawal symptoms when supply from Phuentsoling got disrupted due to road block in the monsoon season.
The police in Thimphu reported definite increase in the number of drug users with the number of youth detained for drug use offence increasing from 11 offenders in 2000 to 60 in 2003. In Phuentsoling, the police were under the impression that the number of drug use offenders had decreased in the last year. With regard to type of drugs that are being used, apart from cannabis, regular prescription tablets and syrups and solvents, the Phuentsoling police reported the presence of brown sugar but no other opium derivatives. The general assumption is that vast majority of youth, school going and out of school are using a mix “soft” drugs like marijuana, solvents and prescription drug, but the number of injection users was small. Almost all the

drug offenders detained by the police are young males.

2.2 Profile of respondents that participated in the study

Of the 124 respondents, 55 responded to individual interviews while 69 participated in focus group discussions. Out of the 55 who responded to individual interviews, 41 (74%) were males and 14 (25 %) were females. Among 69 who participated in focus group interviews, 62 (90%) were male and 7 (10%) were female. Of the 33 key informants four were female.

Out of the 124 study participants, 44 (35 %) are non-literate and 80 (64%) are literate. As for current marital status, 74 (59%) are married, 10 are divorced and 40 (32 %) are not married. With regard to ethnicity of the 124 respondents, majority were from eastern Bhutan.

Besides the formal interviews with the 157 persons, the research team also met people informally to collect information such as private clinics in Jaigon, administrator and project doctors of the Jai Prakash Company at the Tala Hydro Power Authority in Tala as well as administrator at the Basochu hydro project.

2.2.1 Individual interview with respondents from the five priority groups

Individual interviews were conducted among 55 persons from the five target groups and their profile is as outlined in Table 1 below.

Table 3: Individual respondents by age, sex, marital status, ethnicity and literacy

Group	**Age**			**Sex**		**Marital status**			**Ethnicity**				**Literacy**		**Total**
	16-30	31-45	46+	M	F	Yes	No	D/S	Nga-lop	Shar-Chop	Lho-tsam	Non-Natio	Lite-rate	Non-literate	
Drug Users	9	-	-	9	-	1	8	-	2	6	1	-	7	2	**9**
Migrant worke	8	5	1	11	3	8	6	-	3	1	3	7	10	4	**14**
Armed Forces	4	3	1	7	1	7	1	-	3	3	2	-	8	-	**8**
CSWs	10	-	-	-	10	1	3	6	2	2	2	4	8	2	**10**
Truck drivers	7	6	1	14		12	2	-	4	9	1	-	9	5	**14**
Total	**38**	**14**	**3**	**41**	**14**	**29**	**20**	**6**	**14**	**21**	**9**	**11**	**42**	**13**	**55**

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Focus group discussion (FGD) respondents

Overall, a total of 69 respondents participated in the focus group discussions. In order to avoid influencing responses, respondents who participated in individual interviews were excluded from focus group discussions. The table below provides an overview of respondents' profile.

Table 4: Profile of FGD respondents

Group	**Age**			**Sex**		**Marital status**			**Ethnicity**				**Literacy**		**Total**
	19-29	**30-3**	**40+**	**M**	**F**	**Yes**	**No**	**D/S**	**Nga-lop**	**East**	**Lho-tsam**	**Non-Nation**	**Lite-rate**	**Non-literate**	
Armed Forces	10	10	3	23	-	18	3	2	2	20	1	-	14	9	**23**
NMW*	9	7	-	9	7	11	4	1	-	8	8	-	4	12	**16**
NNMW**	12	2	-	14	-	8	6	-	-	-	-	14	12	2	**14**
Truck drivers	10	4	2	16	-	10	5	1	1	14	1	-	8	8	**16**
Total	**41**	**23**	**5**	**62**	**7**	**47**	**18**	**4**	**3**	**42**	**10**	**14**	**38**	**31**	**69**

*NMW - National migrant worker

**NNMW - Non-national migrant worker

Key informants

A total of 33 key informants were interviewed and four were females. Key informants included health professional, police officers, police on patrol, hotel/bar/shop owners and employees, truck driver, tour operator, contractors and site supervisors. Table 5 and 6 below shows the type of key informants interviewed.

Table 5: Key informants

	Site	**Informant**
1	Phuntsholing	Hotel Receptionist
2	Phuntsholing	Police Officer
3	Phuntsholing	Hotel Manager
4	Jumja, Gedu	Hotel Owner
5	Gedu	DCM Driver (MSTF member)
6	Gedu	Police Officer
7	Thimphu	Waiter in a hotel
8	Thimphu	Police Constable
9	Thimphu	Police Constable
10	Thimphu	Former drug user
11	Thimphu	RBG Officer
12	Thimphu	Hotel Owner
13	Thimphu	Manager of bar with live music
14	Wangdue	Truck Assistant
15	Wangdue	Police Constable
16	Basochu, Wangdue	Restaurant Owner
17	Basochu, Wangdue	Site Manager
18	Trongsa	Traffic police
19	Trongsa	Hotel Owner
20	Trongsa	Restaurant / Bar Owner
21	Trongsa	Hotel Owner
22	Trongsa	Site Supervisor
23	Thimphu	Construction contractor
24	Thimphu	Tour Operator

Table 6: Health professionals as key informants

Sl	Site	Health Professional	Type of Health facility
1	Phuentsoling	Doctor, Skin Specialist	General Hospital
2	Thimphu	Medical Specialist	Imtrat Hospital
3	Trongsa	Doctor, DMO	Trongsa Hospital
4	Trashigang	Lab Technician	General Hospital
5	Wangdue	DHSO	Bajo BHU (grade-I)
6	Basochu, Wangdue	Compounder	Private Dispensary
7	Thimphu	Doctor	JDWNR Hospital
8	Gedu	Health Assistant	Gedu Hospital
9	Gedu	Ex health worker	Medical shop owner

2.3 Health problems and care seeking behaviour of respondents

Interviews were started with question on health problems, access to health services and information as a warm up towards the more sensitive questions.

Majority of the respondents being young, all below 49 years of age, very few reported having health problems apart from minor ailments such as headache, body pain, eye problems and several had experienced STIs.

In general most respondents said they go immediately to a health facilities when faced with what they consider serious illnesses. For minor ailment they do self-treatment or visit the medical shop, as it is more convenient. Traditional healers are consulted and religious rituals performed by some but only after having first visited the health centre for immediate attention. However, there were a few who said that in the event of illnesses with very sudden and acute onset, going to the health centre was avoided until an astrologer was first consulted.

Through a sense of guilt, shame and fear of being scolded by the health staff, respondents who had suffered from STIs, tended to delay seeking treatment until either a friend advised or the condition became unbearable.

In the case of drug users, seven out of nine said they avoided going to hospital/BHU as they felt *"uncomfortable in the presence of health people"* or lacked confidence because of their drug habit. A few believed that regular medicines would not be effective in treating their ailments since they had been misusing drugs.

Majority of those who have availed services from health facilities are generally satisfied with the treatment and care given. On the negative side, one truck driver complained of preferential treatment between the poor and the *"big people"* and doctors not doing good physical examination. Another (drug user) cited his experience of uncaring attitude of health staff; a friend who was knocked down by a car was taken to the emergency where he was made to wait as it was time for *"tea break"* for the staff on duty.

2.4 Access and barriers to health services and information

While collecting information, to get unbiased responses the research team made a point of informing the respondents that the team members were neither health staff nor government officials.

2.4.1 Access and barriers to services

"Now a days getting medicine when you are sick is no problem because thanks to the development in our country, there are hospitals and BHUs almost everywhere you go and everything is free", says a truck driver interviewed in Trongsa. Majority of the respondents echo the above statement and agree that health services are easily accessible to the general public. A young drug user was appreciative of referral treatment he received in Vellore for a heart problem. Indian sex

workers also appreciate the easy access and special care and counselling they are given at the Phuentsoling hospital for their health problems.

Rural women from remote villages currently employed by the Trongsa dzong renovation project were interviewed as internal migrant workers and they too report easy access to health services.

Access to health care maybe easy, but nevertheless barriers do exist. The rural women hesitate for fear that the nurses may scold them and they also feel shy and awkward to have physical examinations that require them to "remove my clothes especially if there are other people in the room". On the other hand for male migrant workers, getting time to go to hospital is a real problem as time off from work is deducted from their wages and after work hours it is too late or too far to walk to the hospital.

For truck and taxi drivers who are constantly on the road and also for some of the respondents from the groups, the long wait at the hospital is seen as a barrier. A couple of respondent mentioned poor attitude (uncaring, scolding) of health care providers as inhibiting factors.

Responses from individual interviews and from focus group discussions tally in their views on access and barriers to health care.

1.4.2 Access and barriers to health information

Respondents cited radio, TV, friends, family member, health workers, posters in the hospitals, and books as their sources for general health information. HIV/AIDS awareness campaigns by Her Majesty Ashi Sangay Choden and Lyonpo Sangay Ngedup was also mentioned.

The wives of the Armed Forces have established women volunteer groups among the wives who are apparently active in promoting health, hygiene and knowledge on family planning and diseases prevention with particular focus on HIV/AIDS. Members of the RBP cited their wives as giving them useful information of family planning and STI and HIV prevention as a result of the women volunteer groups. However, some RBG soldiers were doubtful about the correctness of information they get from their wives – "*it depends on your wife's intelligence, if she is not clever she will not understand or forget the information received and tell something wrong"*. The general feeling of the respondents from the armed forces is that access to health information is limited.

A few of the drivers reported getting health information while attending training given by RSTA. With regard to sex workers, all those from Phuentsoling cited the ANM at the hospital as their main source of health information.

It appears that information on general health topics like sanitation, nutrition, childcare and family planning are more readily available than information related to sexual matters.

Barriers to information was cited as illiteracy by those who were not literate, lack of time to avail information given through radio, TV or written messages. Not understanding messages could be another barrier, as some drivers mentioned not being able to understand the information given on the "music for health" tapes issued by RSTA. Similarly, women migrant workers also said they could not understand some of the health information given on the radio. Some drivers in Phuentsoling said they could not understand the messages on the big billboards put up by the MSTF in the lower market area. Gender of health staff is a barrier when seeking information on sexual health.

2.4.3 Preferred means for getting health information

Almost all respondents were in agreement in their preference to get health information directly from health professionals as they feel it would be the most appropriate and reliable. Most of the urban respondents prefer health messages to be channelled through TV in a documentary or talk show by medical people

while the rural respondents prefer it on the radio though time to listen to is pretty limited.

Some drivers and army members suggested regular training sessions particularly for STI and HIV/AIDS prevention. A drug dependent respondent suggested talks on the radio by former drug addicts would be beneficial for those who are trying to stop the habit.

With regards to sexual matters, almost all respondents said they feel more comfortable to discuss sexual health matters among their own friends and not with the health people. On exploring the possibilities of health information through peer education, drivers and members of the armed forces in particular was receptive to the idea. However, some commented that information got from their peer cannot be trusted, *"friends sometimes just make up things to tease and make joke"*.

2.5 Beliefs, perceptions and knowledge about STI and HIV/AIDS

This section was to assess the knowledge and attitudes of the respondents towards STIs and HIV.

Awareness of STI and HIV/AIDS

"AIDS is very famous, everyone in Bhutan knows about AIDS" so says a young drug user and it appears to be true for all respondents with the exception of one female migrant worker based in Thimphu, who has only vaguely heard the word mentioned on the radio once. Almost all respondents cited AIDS as a "*deadly and incurable"* disease that they were much afraid of. Similarly almost all are aware of STIs and gonorrhoea was the most recognised.

2.5.2 Knowledge gaps and misconceptions

Awareness about HIV/AIDS is no doubt very high, but misconception particularly about transmission is also numerous.

Among the different groups, drug users and the non-national migrant workers of skilled and professional level had the best knowledge on HIV transmission. Although many of the respondents from the other groups knew that HIV is transmitted through sex, particularly sex with CSWs and having multiple partners, knowledge gaps are apparent, for example some respondents believe gonorrhoea could be got by sitting on cold ground or eating potatoes/pumpkins. Levels of misconceptions are almost same among the groups.

Some common misconceptions for transmission of STI and HIV:

- sitting on seat still warm vacated by an infected person for both STIs and HIV
- mosquito bite for HIV
- sharing under clothes, towel and soap for HIV
- breath of infected person for HIV
- hugging and close contact for HIV
- eating together with HIV infected person
- close contact particularly if of same blood group as the HIV infected person

Most of the respondents reported not knowing the signs and symptoms of AIDS. A few of the respondents mentioned diarrhoea, slow wasting, weakness and skin peeling off as signs of AIDS. As for STIs, majority of the respondents associated pus discharge, painful urination, genital sores, swelling in the groin and foul smell with STIs. In addition, women also mentioned lower abdominal pain. However, most respondents were able to cite only one or two of the above symptoms.

With regard to treatment of AIDS, many respondents said there was no cure but a few said if diagnosed early, it could be cured. STIs are believed by all to be easily cured with medicines or injections.

2.5.3 Attitude about HIV/AIDS and STIs

"I went to IMTRAT hospital for gonorrhoea treatment two year ago". "It's better to go to Jaigon for STI treatment". The reason why these two men preferred to go to IMTRAT hospital or Jaigon was simply because *"I don't want to be seen by other Bhutanese with this disease". "In Jaigon no one knows me"*. Similarly, almost all the respondents who have suffered from STIs also preferred to avoid treatment in local health facilities as

these infections are associated with bad character. The social stigma attached to STIs will be true for HIV too, if not more so. Although respondents who had experienced STI were keen to hide their STIs yet on the other hand, several on them wanted the identity of HIV positive people to be made public in order to prevent spread of HIV. Several truck drivers heard that a young woman in Gedu with multiple sexual partners infected with HIV was stamped with a HIV positive sign on her thighs with permanent ink by the health staff, which is apparently not true.

On the issue of whether they consider STIs and HIV/AIDS to be a serious problem in Bhutan, majority felt it was indeed a serious problem. A few said it was not a serious problem as they are yet to see any one with AIDS in Bhutan, *"I will think it is serious only if I see the diseases with my own eyes, otherwise I cannot say it is serious"*. To probes on for reasons why it was considered serious, most felt it was serious because it was incurable. Only two respondents said it was a serious problem because it was related to behaviour. *"Bhutanese attitude towards casual sex and the presence of prostitutes"* and *"because of carelessness and doing unprotected sex by maximum people in spite of repeated information given by BBS"*. Ironically, the respondent who is quoted above (carelessness and unprotected sex) was at the time of interview suffering from STI, clearly indicating the gap between knowledge and practice.

2.5.4 HIV testing

Of the 55 individual interviews 13 (23%) had never heard of HIV testing and some even though they know of HIV testing have no idea how and where it can be done. 20 respondents has had HIV test done as requirement for training, employment, donating blood or for health problems. All the CSWs that the research team met in Phuentsoling reported doing regular HIV tests both on advice of the ANM and voluntarily.

Majority of those who knew about HIV testing have never considered or thought the test necessary but when asked if they were willing to be tested, most are willing to have the test if they are asked to do so. In fact some of the truck drivers asked how and where they could have HIV test done, as they wanted to have it done on their own to clear doubts. Only a few respondents said they would not like to be tested in case the result is positive, *"if the result is positive, my life will be ruined and I will become hopeless"*. A couple of the respondents among drivers said they would be scared to have the test done for should it result positive, they were afraid of health staff marking them with permanent HIV positive marker as in the case of the Gedu woman they had heard about. Apparently this is a baseless rumour, Health Department does not brand HIV positive people.

On being asked the most suitable place for HIV testing, majority felt the hospital was the best place. Some drivers suggested for health staff to carry out the test at the truck parking, as drivers do not have time to wait for test at the hospital.

Only a couple of the health facilities reported availability of VCT services.

2.6 Access and barriers to STI care and treatment

Access to STI care and treatment is not a problem as the facilities are available. However, it is embarrassment and anticipation of scolding from health staff that inhibits them from availing the services. Although many mentioned fear of getting scolded, but only one cited actually being scolded by the doctor for seeking treatment late. It seems they expect to be scolded for their behaviour that results in contracting an infection they are ashamed of.

With regard to factors that influence care seeking behaviour for STIs, lack of knowledge of signs and symptoms of STIs delays treatment. According to some respondents who had STIs for the first, treatment was not sought immediately since they did not know what it was until their friends told them it was STI and treatment was necessary. Gender of health worker and lack of privacy are the other two factors that

inhibit people from availing STI care at the hospital/BHU. Some respondents in the group discussion said they feared being asked to bring their partner from whom they had got the infection.

For the armed forces, particularly for RBG, the regulation of STIs being punishable could be a deterrent for proper STI care. In one incidence one of the RBG respondent who had STI sought treatment on the pretext of wanting the treatment for a relative by citing the signs and symptoms to the health worker. Similarly, respondents mentioned cases of self-treatment from medical shops.

To encourage STI care and treatment in the health facilities, respondents suggest consultation and treatment to be given by same gender and separate rooms for examination.

STI care and treatment – Health care provider's perspectives

Key informants from health facilities visited reported providing care and treatment of STIs as part of the general services, no staffs are assigned specifically for STIs. Majority of the health facilities stated having sufficient supplies of STI drugs, some shortages were reported in the east. The health informants mentioned the lack of same sex staff to minimize shyness/embarrassment as a drawback in STI treatment.

Village women, monks, labourers both national and non national, students, wives of driver, wives of civil servants, drivers, low income people, bachelors and businessmen were mentioned to be frequent suffers of STIs. Increase in STI cases are seen after certain festivals like Goma Kora tshechu.

With regard to treatment, although privacy and confidentiality is ensured, health informants felt that the public are still shy and delay treatment. Observation is that STI patients in general prefer to avail treatment from medical shops due to their embarrassment to approach health facilities.

2.7 Access to condoms

Bearing in mind that all the sites were in urban settings, it is not surprising to find that majority reported no problems with access to condoms. Many mentioned that it was easily available in hospitals, BHUs, from village health workers, shops and in boxes placed in hotels. Although condoms are readily available some respondents felt shy to take from the condom boxes particularly if other people were around. The young girls in Thimphu who were just getting into sex work are particularly shy to get it from the hospital and rely on their more experienced friends to collect it for them. Some of the young males also said they felt shy to be seen taking condoms from the boxes in the hotels or health facilities, therefore they preferred to buy it from the shops. One male respondent mentioned about having to give detail of marital status when collecting condoms from a health facility that he found embarrassing.

Sex workers in Phuentsoling are provided with regular supply of condoms from the hospital. Some of the sex workers said they get one box of condoms every time they go to visit the ANM for counselling and health services. Many of the sex workers felt the quality of the hospital issued condoms were superior to the one bought in the shops.

In Gedu, a key informant mentioned that with the initiation of placing condom boxes in hotels and health centres, less number of medical and "pan" shops now stocked condoms.

A male migrant worker mentioned difficulty in getting condoms in the village.

2.8 Attitude on pre and extramarital sex

Regarding pre and extramarital sex, most respondents were of the view that it is not acceptable but that it was common practice for men and women. Majority felt pre marital sex was more acceptable for men than women. Pre marital sex for women is believed to *"stain"* their reputation and spoil chances for getting good husbands. With regard to extra marital sex, most male respondents

expected their spouses to be faithful to them though they themselves were having multiple partners. Only one male respondent (who claimed to have had over 100 sexual partners) said he believed his wife should also have the same freedom to have other partners. Several men, particularly the armed forces and the drivers expressed doubts about the fidelity of their wives. Most male respondents with experience of casual sex believed their casual partners were having multiple partners.

Some respondents voiced feeling guilty for indulging in extra marital sex, "*I could be spending the money on my children instead of on these women, but we cannot control our mind "*. A small number of respondents believe that being unfaithful will cause children to fall ill and bring bad luck to the family.

2.9 Risk behaviours among the respondents

A 28-year-old truck driver says, *"town girls are risky but village girls are safe, so no need to use condoms with them",* and many other male respondents share this view.

This is what a 33 year old taxi driver who claims to have had over 280 sexual partners in his life has to say about his risk behaviour *" life is short and I want to enjoy god given chance of sex - it is boring with wife only"*.

A young married soldier says he has never used condoms, *"don't like to use condoms, it feels dirty to touch because its oily, beside it takes away the enjoyment"*. He has had more than 50 casual sex partners; many of them were village girls picked up in the Sunday market in Thimphu.

"Sometimes men ask to have sex without using condoms for more payment and I agree if he looks ok, what to do, I need to earn money", says by an Indian sex worker from Jaigon.

"When you are desperate and needles and syringes are hard to get, we don't care about sharing needles with our friends" says an injecting drug user from Thimphu.

2.9.1 Commercial sex

Within the limits of this study, efforts were made to find out the prevalence and organisation, if any, of commercial sex in the sites selected for the study. Common assumption that commercial sex is not a large scale and organised operation may be true. It is only in Pheuntsoling that there are women who openly identify themselves as being sex workers. In Thimphu, key informants and individual respondents reported availability of paid sex, but identity of the women who sell sex is hidden and the young women interviewed do not see themselves as sex workers.

Organization of commercial sex

With regard to organisation of commercial sex, observation in Thimphu was that young women at the low end of the trade pick up clients by hanging out in the numerous bars/music bars in the city centre, Hong Kong market and a few bars in the vegetable market. According to key informants, the middle level operators are often school drop outs, girls hired to sing in the music bars and the upper end girls operate by maintaining telephone contacts with high-income clients. Up market girls are said to be educated office-going girls and some housewives and divorcees. Research team were able to meet with only the low-end workers. All categories are said to work own their own without the presence of managers or pimps. Some key informants mentioned that taxi drivers often identified the CSW to possible clients (this was confirmed by a taxi driver interviewed), but payment of commissions was not involved.

In Phuentsoling, all the sex workers interviewed reported operating on their own and although many know each other, there is no networking in terms of getting or sharing clients. Although, they all work on their own, most said that majority of waiters working in the various hotels in Phuentsoling put them in contact with clients for a fee. Commissions paid to the waiter range from Nu.20 to Nu 100 per client, but some of the girls said they preferred to get their own clients so that they do not have to share their earnings with the waiters or *"dalals"*, (a middleman who gets and negotiates clients). Indian sex workers seem to prefer to have a *"dalal"* while the Bhutanese ones like to operate alone.

Brisk sex trade apparently took place in the lower market of Phuentsoling town in teashops managed by Bihari men operating on Bhutanese business licenses (fronting). The Bihari men who run teashops had young women, mostly Indian nationals but also some Bhutanese, working as dish washing, waitresses cum sex workers. The police in the later half of 2003 have closed down these joints. The research team interviewed an Indian sex worker who had worked with such a Bihari man. The work arrangement was that the Bihari paid her a small salary for dish washer/waiting at tables and from her sex work earnings at the teashop, she paid him Nu 100 per client and he also got her the clients. She used to charge about Nu 200 to 300 per client.

At the time of the study, most of the sex work was happening in Jaigon because of the police crack down in Phuentsoling. A newly opened hotel, only steps away from the Bhutan side appeared to be the main hub of commercial sex where Bhutanese clients are involved. CSWs find clients on the Bhutan side and take them to that hotel. One Bhutanese CSW stays in that hotel on long-term basis paying Nu. 200 daily, in addition to the rent, whenever she takes clients to her room for business she has to pay the hotel owner/manager Nu.100 per client during the day and for over night clients pays Nu.200 to 400. The owner/manager of that hotel also gets clients for CSWs who uses his hotel for their business. Prior to the police action, the sex workers and their clients used many of the hotels in Phuentsoling. According to the Indian sex workers, earning was better for them on the Bhutan side as compared to Jaigon.

This is how a 16-year-old sex worker from Nepal got initiated to the trade; she along with three other young girls were brought from their village in Nepal by a woman in Jaigon on the pretext of getting them employment in Bhutan as orange packers but on arrival made them sell sex. After one month she ran away from the woman and now sells sex on her own and is afraid and ashamed to return to her family because of the work she has been doing. In a similar case, a young girl (17 years) from Samste was brought by a man to Phuentsoling and forced to do sex work. She escaped from the man and after six months working on her own as sex worker, she got work as a domestic help and is now married. Some key informants suspect the small bars and food shops along the Phuentsoling and Gedu highway that keep young women (some relatives and some hired as helper) of dealing in sex trade together with their regular small-scale businesses.

Number of sex workers

It is difficult to make a head count of women selling sex (those who recognise themselves as CSWs) even in Phuentsoling where good rapport has been developed between the CSWs and the health team. At the time of the study, the health team had regular contact with only five Bhutanese CSWs. Some months back they had 25 on regulars list, but a few girls got married and some moved off to other places and some were repatriated to their villages by the recent police exercise to curb commercial sex. There are currently 10 to 15 Indian sex workers from Jaigon who are in regular contact with the health team, but it is believed that there are many who are not yet in contact with the health team.

In Thimphu, a key informant believes there maybe as many as 100 women selling sex, but no one really knows how many women indulge in casual sex for "*fun and an evenings*

entertainment" and how many do for money. According to one young sex worker she said there were about eight or nine operating in the same area that she did, but personally knew who have been apprehended from the bars on the suspicion of selling sex.

Mobility of sex workers

The CSWs interviewed in Phuentsoling, particularly the Indians, claimed never to have travelled to interior parts of Bhutan for sex work. Similarly the Bhutanese CSWs said they did not travel beyond Jaigon or to other parts of Bhutan to sell sex, however, one of them had gone to Kathmandu to work for three months as a dancer in a bar, but she did not work as CSW since she was scared of being caught by the Nepali police. Contrary to what the Phuentsoling CSWs say, a key informant in Gedu informed that in 2001 a group of girls from Phuentsoling had come to operate in Gedu, after 3-4 months stay the police drove them away. Similarly one to two girls had come from Thimphu for the same purpose, but due to the lack of proper lodging as there are no hotels with lodging, the girls left.

A few key and informal informants said they had heard of young girls, thought to be school or college girls, going to Siliguri for sex work.

In Phuentsoling, CSWs and key informants talked about the seasonal (winter) presence of groups of educated young women coming from Sikkim, Kalimpong and Darjeeling, staying in high standard hotels for one to two weeks for the sole purpose of earning through sex sale. These women are said to be charging much higher rates (Nu.1000 –1500 per session) and cater to the high-income group. In Thimphu, one respondent made reference to a similar group coming to Thimphu for the same purpose.

Sex workers in other study site

Gedu, with its big power project has seen some CSWs operate for short periods. In the other sites it appears that casual sex seems to be the practice and no CSWs per se were reported.

only four. The manager of a music bar said there were 10 women who always picked up clients from his bar on a regular basis. The police know of 15 to 20 women

Profile of sex workers interviewed

The ten CSWs interviewed were in the age range of 16 to 30 years, with three being below 18 years of age. Of the ten, six were Bhutanese, three Indians and one from Nepal. Eight have primary level education and two are literate. With regard to marital status, one is married, three not married, four divorcees and two are widowed.

Contrary to information given by some key informants that sex was more expensive to buy in Thimphu as compared to Jaigon or Phuentsoling, the CSWs in Thimphu said they charged only Nu 200 to 450 per client, where as the rates in Phuentsoling ranged from Nu 200 to 700 per *"shot"*, during the day and overnight ranged between Nu 500 to 3000 per client. Rates differed between individuals, the better looking and better-groomed charge more. Had the research team been able to reach the up end operators in Thimphu, perhaps the rates would be higher. A key informant (manager of a music bar) indicated that women who regularly picked up customers from his bar were known to the men as *"Nu 800"* or *"Nu. 1500"*etc.

The CSWs in Phuentsoling appeared to be confident and more knowledgeable about STIs and HIV prevention as compared to the three young CSWs met in Thimphu.

With regard to substance use among CSWs, many reported drinking beer and only one CSW in Phuentsoling said she uses nitrazepam, spasmoproxyvon and phensedyl in addition to alcohol but no injections.

Clients of sex workers

To get an idea as to the clientele of CSWs, they were asked to describe the types of people who came to use their services, and the types of service provided.

Types of clients served by CSWs

Almost half the CSWs, said their clientele was Indian and Bhutanese in equal ratio. Three of the CSWs chose mostly only Bhutanese customers. With regard to age of clients, majority were young men in early 20s and 30s, however, some reported middle aged and old men also. Types of clients serviced consist of the following categories;

- Army men
- Business men, low to middle level
- Police men
- Drivers
- Government servants on tour
- Contractors
- Students from Delhi and Kanglung
- Local Indian tourist from Darjeeling and Kalimpong
- Occasional expatriate workers from Phuentsoling

Number of clients

The average number of clients per CSW in Phuentsoling appears to be around 3 to 4 customers daily with the number increasing to about 7 to 8 per day in the winter season. For the three CSWs in Thimphu, they get about 3 to 4 customers per week, the low number here maybe again because the other groups of sex workers could not be reached. As per the personal observations of a key informant, a waiter in a hotel, a sex worker in Thimphu can get to get 2-3 clients per day and not less then one a day.

Type of sex

None of the CSWs interviewed reported oral and anal sex. Three of the CSWs in Phuentsoling said they were requested for oral or anal sex for more money, but claimed to have refused, as they feel "*scared and dirty of this type of sex"*.

2.9.2 Casual sex

"By the age of 30 years, 20 sex partners is the minimum for a man", says a key informant from the armed forces.

Majority of the respondents reported having multiple sexual partners. Number of partners in the last 12 months or their lifetime ranged from 1- 280. A 16-year-old drug user in Trashigang has had 8 sexual partners already. Only a few respondents reported having one constant sexual partner, which was their spouse or a girl friend. Thus, the assumption that Bhutanese have a liberal attitude towards sex could be true. However, without proper study on sexual behaviour in the general population definite conclusions cannot be drawn. In order to assess the actual risk of heterosexual spread of HIV, such a study would be vital.

Casual sex among migrant workers

Majority of national male migrant workers reported having casual sex with 1 to 12 partners after having arrived at the work site. Partners were either women in the work camp who came for "*woola"* (labour contribution) or village girls who came to sell vegetables. The female migrant workers interviewed in group discussions reported having multiple sexual partners, their sexual partners were men from the work camp, drivers passing trough, monks and strangers who come at night to ask them for sexual favours. However, the two female respondents in individual interviews stated sexual relations only with spouses.

With regard to non-Bhutanese migrant workers, the unskilled workers claim to have no sexual activities, as their intention is to save money. Workers (all single males) employed by the Tala power project in Gedu are housed in hostels and work 12-hour shifts with one day off on alternate Sundays have strict regulation, anyone found suffering from STIs are repatriated. According to a key informant from the Tala hydropower project, the village girls of lhotsam origin are suspected of having sex with some of the project workers but it was not common.

A Bhutanese contractor is of the view that casual sex between local women and unskilled/skilled construction workers from India would be very minimal.

According to a health key informant, Indian construction labourers are seen coming to health facilities for treatment of STI but it is

not known whether the infections were got in Bhutan or from outside.

The skilled or professional level expatriate workers reported casual sex with their maids and partners found in hotels in Thimphu. Extra money in addition to the monthly salary was paid to maids for sex services. Key informants suspect casual sex between young local women/school girls hired as temporary support staff and professional/managerial level migrant workers in some development project offices. The table below is the finding from the individual interviews with 14 migrant workers. Seven were Bhutanese, three Peruvians one Austrian and one Pakistani from the Basochu project and two were Indians from constructions site in Thimphu.

Table 7: Multiple sexual partners among 14 migrant workers interviewed individually

Marital Status	**Sexual behaviour**				**Total**
	Multiple partners	Spouse only	Girl friend only	Sex only once	
Married male	4	1	NA	NA	5
Single male*	4	NA	1	1	6
Married female	-	3	NA	-	3
Total	**8**	**4**	**1**	**1**	**14**

* Of the 7 single men, 4 are skilled/professional expatriates, 2 are unskilled Indian construction labourers, 1 unskilled Bhutanese labourer

Casual sex among Armed Forces

Most of the respondents had 3 to 20 casual sex partners, some before marriage and some as concurrent relations. The casual partners were acquaintances, village girls, and girls working in hotels. For sex with acquaintances, food and drinks were given in exchange and with stranger, money was given for sex.

Focus group discussions revealed that armed force use the services of CSWs, particularly while they are on training in India.

Findings from the individual interviews revealed the men to be faithful to their spouses while the focus group discussions indicated multiple sexual partners to be common even after marriage. The table below is the finding from the individual interviews with eight members of the armed forces.

Table 8: Multiple sexual partners among 8 armed force members interviewed

Marital Status	**Sexual behavior**		**Total**
	Multiple partners	**Spouse only**	
Married male	2	4*	6
Single male	1	NA	1
Married female	-	1	1
Total	3	5	8

* With the exception of one respondent, the rest had had multiple sexual partners before marriage.

Casual sex among truck and taxi drivers

With the exception of two respondents the rest claim to have had casual sex with multiple partners. The number of casual partners ranged from 2 to 280. The sex partners were local girls taking lifts, village girl while on *"night hunting"*, hotel workers, businesswomen (doing Dhaka business), schoolgirls and divorcees. Money was seldom given for sex; mostly they just bought drink or dinner or it was in exchange for travel fare. Sometime a hotel room was hired for sex, but quite often sex took place in the bushes by the roadside or in the vehicle itself, though some of the drivers believe sex inside the vehicle gives bad luck.

Most truck drivers said they avoided sex with CSWs for fear of diseases and because they do not have to pay for sex with their casual sex partners.

Table 9: Multiple sexual partners among 14 drivers interviewed

Marital Status	**Sexual behavior**		**Total**
	Multiple partners	**Spouse only**	
Married male	10	2	12
Single male	2	NA	2
Total	12	2	14

Casual sex among drug users

Most drug users said that they had less interest in sex once they take drugs, they

either fall a sleep or just like to listen to music or watch TV instead of sex. Three of the respondents did not have any casual sex while on the other hand one mentioned having countless number of casual sex partners. Half of the respondents said they had 5 to 8 partners in their lifetime. The partners were girls who party and hang around bars. Most of the time sex was in exchange for drinks and dinner. All drug users said they did not have sex with CSWs.

Table 10: Multiple sexual partners among 9 drug users interviewed

Marital Status	Sexual behavior			Total
	Multiple partners	Spouse /girlfriend	No sex	
Married male	1	-	NA	1
Single male	5	2	1	8
Total	6	2	1	9

2.9.3 Condom use

A 26-year-old male drug user who is a consistent condom user after a bout of gonorrhoea says this about condom use, *" sex is boring with condoms, but if you use it all the time you get used to it, and after a while don't mind it"*. Many male respondents made similar comments about not liking to use condoms.

One 28-year-old driver who has never used condoms says *"I feel dirty to use condoms"*

"I use condoms only with girls who sleep around with my friends, but not with village girls since they do not have disease" said a driver in Phuentsoling.

" I am scared the condom will get stuck inside me", says a young girl in Thimphu selling sex for past four months, she has never ever used condoms. This fear is echoed by few of the village women interviewed in the labour camp in Trongsa. Male respondents also reported some of the partners fearing to use condoms for the same reason.

"It happened to me twice that the condom burst during sex act, I get scared in case I get pregnant or diseases ", reported a CSW from Phuentsoling. Another sex worker and a truck driver had similar experiences.

"I think condoms are of different size because sometime I find them too big", said a 25-year-old truck driver. Some women commented if the condoms are too big for the man then it will get left inside the woman.

Among the 41 male respondents interviewed, more than half face risk of STI/HIV infection as 19 (46%) are irregular condom users with casual sexual partners and 8 (19%) never use condoms. Only 9 (22%) reported regular condom use for casual sex and two of the 9 said they adopted regular condom use following their experience with a severe bout of STIs. The men who used condoms regularly with casual sex partners did not use condoms with their wives or serious partners. Table 11 below outlines condom usage by the 41 males respondents by the different groups.

Only a few have received instruction/demonstration on proper condom use from health professionals while majority learnt from their friends. A few CSWs had learnt from the ANM and others from their clients.

With regard to gender difference in negotiating condom use, 14 (34%) of the 41 male respondents said their female casual sex partners suggested or insisted on condom use. And 27 (66%) were of the opinion that it was up to the man whether he wanted to use condoms or not as their female partners usually did not express any opinion. In a few cases, women have apparently refused to use condoms and the men felt the refusal could be because the women want to "*hook*" the man

to marriage. In general, village girls are considered too shy to talk or negotiate condom use as compared to the town girls.

Separation from family and home for long periods for drivers and migrant workers, *"we drivers, have one foot in the home and the other outside, it is difficult to remain faithful"*

Unemployment among young people, *"many young girls who cannot get employment can easily turn to sex work"*. *"Drug addicts are mainly the young men with no jobs"*

Lack of education and guidance, *"young people indulging in drugs or sex are mostly from poor or broken families"*

Too much money in hand, *"truck driver always have money in hand to win over girls by treating them"*. *"Rich businessmen bring many different girls for sex to the hotel"*

Festivals particularly Goma Kora and Chorten Kora in the east, *"annually the highest number of STI cases comes to the hospital following the Goma Kora festival"*. *" Goma Kora and Chorten Kora tsechus are two places where sex is plenty"*

Competition to win girls for sex, *"sometimes drivers compete with each other to see who can seduce an identified girl first"*.

Women taunting and tempting men into having sex, *"how can a man refuse when a woman gives strong signals", "some girls lean on you and act really despearate"*.

Young girls and women tricked into sex work, *"a women brought me from my village in Nepal and made me sell sex in Jaigon"*.

Table 11: Condom use for Casual Sex (CS) by male respondent by different groups

Groups	Regular use	Irregular use	Never used	No sex	Total
Armed forces	1	3	3	-	**7**
Drug users	3	3	2	1	**9**
Migrant workers	3	5	1	2	**11**
Driver	2	8	4	-	**14**
Total	**9 (22%)**	**19 (46%)**	**10***	**3****	**41**

* Of the 10 who never used condoms 2 were faithful to their spouse and saw no need to use condoms while the other 8 indulged in casual sex with multiple partners.

** The drug user never had sex, the 2 Indian migrant workers had sex only once.

2.9.4 Factors influencing risk behaviours

Respondents were questioned in order to identify factors that influence risk behaviours. Given below are some of the factors that were frequently mentioned.

Factors that fuel risk behaviours:

Traditional carefree attitude towards drinking and sex, *" if you want its easy to get girls in the vegetable market"*

Relaxed social norms on premarital sex and night hunting tradition,*"there is no such thing as not being able to find a women for sex, specially in the east"*.

Influence of alcohol and drug use *"drinks give you courage to approach girls"*. *"I might forget to use condoms when I am high"*.

Materialistic want for good life style *"girls want to look good and live well and sleeping with men for money is a easy job"*

Entertainment and good time for educated females who are married or divorced, *"in Thimphu there are young women who hang around in bars and discos for a good time and are willing to have sex if they like someone they meet"*.

Factors impeding adoption of safer behaviours:

The most frequently mentioned impeding factors are mentioned below.

Lack of awareness of STI and HIV situation in Bhutan, *"I have not seen any one suffer from AIDS, until I see with my own eyes, I don't think HIV/AIDS is a serious problem"*.

A few respondents believe that HIV/AIDS is only a scare as it is not visible.

Knowledge gaps about STIs/HIV. In general many misconceptions particularly on modes of transmission exists among the respondents, which may impede adoption of safer behaviours.

Many respondents felt shy to be seen getting condoms, some feel dirty to touch and use condoms, some were worried about the sizes and both men and women worried about condom getting stuck inside the vagina.

Socio economic problems are also mentioned as an obstruction for adopting safer behaviours. "*Khengpa girls are easy to get, you just give them some money or clothes as they are poor, they agree"*.

2.9.5 Homosexuality

On being asked if any had sexual intercourse with same sex, one man said "when there are plenty of women around, why should we go after men?" Though some said homosexuality might exist amongst the monks, majority feel it is not a common practice.

2.10 Hot spots with access to casual and commercial sex

Respondents were asked to identity locations in Bhutan that are well known for finding casual and commercial sex partners regularly and easily. Mainly drivers and some key informants listed the following places.

- Phuentsoling ; lower market particularly for low income group
- Hotels and bars along the highway between Phuentsoling and Gedu, including Jumja.

- Thimphu town – Bars with singing girls, Cinema hall area, Hong Kong market area, vegetable market (outside the paid toilets)
- Trongsa town – certain hotels, bars and restaurants with young serving girls, vegetable market.
- Trashigang town - certain hotels and restaurants with young serving girls, vegetable market.
- Wamrong - certain hotels and restaurants
- Yadi - certain hotels and restaurants
- Goma Kora and Chorten Kora during annual tsechu

Common location for finding partners for casual sex:

- Vegetable market places to get village girls/women
- "Woola" camps to avail village girls
- Bars and teashops with young girls and women serving along the highways
- Bars with live music with singing girls in Thimphu
- Discos and pool room in Thimphu

2.11 Drug abuse

According information got from the Thimphu police station 207 youths were detained for drug use in the period from 2000 to 2003. In 2000 there were 11 cases whereas in 2003 the number of cases increased to 60. Majority of the drug users detained were students and young men from low-end jobs such as mechanics, unskilled labourers and meat sellers. So far only one female case has been reported. Substances commonly abused are a mixture of solvents, inhalants, prescription tablets and injection. To date no arrest related to use of hard drugs like heroin, cocaine and brown sugar is reported in Thimphu. However, during this study, the research team got information in Phuentsoling as well as Thimphu about the presence of brown sugar in both places. It seems brown sugar arrived in Bhutan sometime in 2002, Kuensel also reported its presence in Phuentsoling, in article dated February 2003. This is of grave concern as addiction to brown sugar is fast (takes only a week) and has high rate of relapse in rehabilitation. Another substance of concern is the availability of Buprenorphine in Jaigon, a doctor in a private clinic in Jaigon told the researchers of its availability. Buprenorphine, a drug approved for opioid treatment has now become the substance of abuse, Nepal and parts of India are already

experiencing buprenorphine injecting epidemic resulting in rapid increase in HIV infection, and thus a concern for Bhutan.

Type of substance used and mode of administration

Most commonly used substance was alcohol and marijuana; almost all the drug users interviewed use it. Next commonly used are tablet N-10, relipin, spasmo-proxyvon and syrup phensidryl mixed with alcohol. Of the five drug users met in Thimphu, only one is currently injecting fortwin and spasmo-proxyvon and two used to inject earlier, but only takes tablets now. Of the three in Phuentsoling, one injects fortwin and one is on brown sugar (by inhalation and not injection). The third one has just returned from six months of rehabilitation.

With the exception of one, the injecting drug users (former and current users) all said that they had shared needles at some point of time when supplies were difficult to get. Of the 11 men interviewed, (9 as current 2 as former drug users) four were injection users.

Given below is the list of substance used by the drug dependent respondents interviewed:

Alcohol.
Marijuana
Phensidryl (codeine phosphate)
Tablet N-10 (nitrazepam)
Tablet Diazepam
Tablet Relipin
Spasmo proxyvon (use it orally and by injection)
Injection fortwin
Brown sugar

Number of Drug Users

It is beyond the scope of this study to get information on the prevalence or actual number of drug abusers. According to one drug user, *"I think there must be more than 200 youth who use soft drugs and about 20 to 30 injection users in Thimphu"*. Former injection drug user interviewed as a key informant was of the view that number of injection users has decreased in the last few years because of the strict regulations. Majority of the drug users said they had 6 to 12 friends whom they knew to be drug users. The young man in Pheuntsoling who uses brown sugar has 3 friends who are also use it.

Supply of drugs

Apart from marijuana that grows abundantly everywhere, the other substances are brought from Phuentsoling or Jaigon. Many drug users from Thimphu travel to Phuentsoling to buy their own supplies to save costs. Friends share or sell for some profit among their drug dependent friends. When personally bought supplies run, drugs are bought from suppliers who are taxi drivers or civil servants. Three of the drug users mentioned stealing needles and syringes from the hospital emergency wards during the evening shift duties. Further, two said they had got tablets, needles and syringes from trainee health staff from the Thimphu hospital. Supplies for those in Phuentsoling is not a problem as all types of drugs and needles and syringes are readily available from across the border.

2.12 Perception of vulnerability to STIs and HIV

Of the 41 male respondents, 7 (17%) felt they were at risk or vulnerable to infections, while 34 (83%) felt they were not at risk.

Sex workers, given their profession, seem to be the group most aware of their own vulnerability to STIs and HIV infections. Only one young sex worker (16 years old and CSW since 6 months) felt she was not at risk, while the other nine felt they were constantly at risk of infection through condoms leaking or tearing.

Considering that many of the truck drivers are irregular condom users with multiple sexual partners, with the exception of one, all considered themselves not at risk of STI/HIV infection. Thus, this mistaken perception further increases their vulnerability. Table 12 below reveals the perception of the various groups to their risk and vulnerability to STIs and HIV.

Some drug users who were irregular users of condoms with multiple partners did not feel at risk, but one who shared needle for injecting

felt he was at risk of HIV infection because of needle sharing.

Table 12: Perception of vulnerability to STIs and HIV

Group	Feels at risk	Not at risk	Total
Armed Forces	2	6	8 (1 females)
Drug users	1	8	9
CSW	9	1	10 (all females)
Migrant worker	3	11	14 (3 females)
Truck drivers	1	13	14
Total	16*	39	55

* Of the 16 who feel at risk, 7 are male

With regard to risk reduction strategies, among the 7 male respondents, who considered themselves at risk of infection, five reported consistent condom use for casual sex and reduction in the number of casual sex partners.

2.13 Groups that are more vulnerable and at higher risk to HIV and STIs

Groups that respondents frequently mentioned as being more vulnerable to HIV and STIs, other than the five priority groups identified for the study, are listed below by order of frequency of mention.

- Businessmen who travel frequently
- Government employees who travel frequently
- Village girls or women who come to sell farm produces or to do seasonal work or live near highways
- Schoolgirls
- Maids employed by expatriate workers
- Girls hired to sing in the music bars in Thimphu
- Girls hired temporarily as support service in project offices
- Tour guides
- Monks
- Bachelors
- Unemployed youth

Of the groups listed above, perhaps the most vulnerable would be the village girls/women for the following reasons; a) men target them for casual sex believing them to be free of STIs/HIV infection, b) rural women/girls being less literate could be less informed about diseases prevention, and c) rural women are more shy and therefore less able to negotiate condom use.

From among the five groups considered a priority, truck drivers, armed forces and sex workers are at higher risk and more vulnerable given their habit of irregular condom and multiple sexual partners coupled with type of occupations that involve long periods away from family and selling sex. The external migrant workers, in particular the unskilled construction workers are low risk groups as they do not appear to indulge in casual sex with local population and even if they do its is very few that do so. Although drug users do indulge in casual sex, the number of multiple partners is much lower among this group. Further, the number of injecting drug users fortunately still seem to be low, however, since drugs like brown sugar and buprenophine are present, the drug use situation must be closely monitored through regular small surveys among the drug users.

Section Three: Conclusion on assessment of risk behaviours and vulnerability

Conclusions drawn from analysis of information gathered from the five priority groups (armed force, drug users, migrant workers, CSWs and long distance driver) considered to be at higher risk than the general population, through individual and group interviews includes the following:

Conclusions

3.1Access and barriers to health care and information

Though access to health services in general is not a problem, some barriers like long waiting times and negative attitude of health workers were mentioned. Efforts like improving management & public relations to minimize such barriers need to be made.

While the main source of health information is from radio, friends, family members, health workers, posters and TV, majority prefer to get their health information directly from health workers and discuss sexual matters

with their friends. Peer education to enable transferring correct knowledge on sexuality and safer sexual behaviours appears to be an appropriate strategy.

Some of past health messages given through music audiotapes, radio and billboards were not easily understood indicating the need for proper pre-testing IEC/BCC materials.

3.2 Perception and knowledge of STIs and HIV/AIDS

While awareness on HIV/AIDS and STIs are high, quite a lot have misconceptions on the modes of transmission of HIV exist. Given this, information and education programmes need to be focussed to alley these misconceptions and enhance the knowledge about HIV/AIDS.

Association of STIs with bad character and the desire to have those infected with HIV made public may be pointers for stigmatisation of the people with HIV/AIDS.

As regards to perception of HIV/AIDS situation in Bhutan, since some felt that it was not a serious problem as they don't know of anybody infected with HIV/AIDS encouraging people with HIV/AIDS to come out and participate in the awareness programme appears relevant.

3.3Access to STI care and treatment

As access to STI care and treatment is also not a problem as in the case of general health services, focus needs to be given to addressing the barriers stemming from feelings of embarrassment and guilt and apprehension of retribution from health workers. Such feelings made some to seek treatment from medical shops/IMTRAT hospital and private clinics. Further, considerations like gender sensitivity and privacy while providing care are issues that needs to be addressed.

3.4Access to condoms

Though condoms are said to be easily available from health facilities and condom boxes placed in hotels some men find it difficult as health workers ask for detailed information on marital status etc and some feel shy to take condoms from the public boxes. It also appears that there are some difficulties in accessing condoms in villages. Further, availability through medical and "pan" shops after the initiation of condom boxes in hotels seems to have diminished.

3.5Commercial sex

Commercial sex is not an organised industry at this point of time.

Initiatives taken to reach CSWs with counselling and services has made a marked difference in the level of knowledge, confidence and adoption of safer sexual practices with their clients. Therefore, the efforts that are made in Phuntsoling will be good to be initiated in other areas where CSWs exist.

Since armed force personnel, businessmen, police men, drivers, government servants on tour, students from Delhi and Kanglung, local Indian tourist from Darjeeling and Kalimpong and occasional expatriate workers are identified as clients of CSWs, particularly in Phuntsoling, these groups need to be targeted with intervention programmes or existing programmes further strengthened.

3.6Casual sex

As the assumption that Bhutanese have less stringent sexual norms appears to be true given the fact that almost all male respondents in the study report multiple sexual partners with the number of partners varying from 3 to 280, programmes to promote safer sexual practices needs to be urgently strengthened and ways and means instituted to change these norms. Programmes to target common casual sexual partners like women who sell vegetable in the weekly market and "woola" camps (camps for contributory labour), passengers of truck/taxi drivers, girls and women taking lifts, girls and young women serving in bars and restaurants along the highways needs to be initiated.

3.7Condom use

Given the high number of inconsistent condom use that prevails in casual sexual

relationships and the misconception that it is not necessary to use condoms with village & schoolgirls and girls of good repute as they are considered to be safe, appropriate awareness and behaviour change interventions needs to be explored and instituted. Condoms are also not used with casual partners with whom regular sexual encounters took place.

3.8 Homosexuality

Majority felt homosexual practice is not common in Bhutan. However, some believe that it might exist amongst the monks.

3.9 Drug Use

It appears that number of youths using softer drugs is on the increase but there is little information on the trends for injecting drug users though injecting is also prevalent. Substances commonly abused are a mixture of solvents, inhalants, prescription tablets and injection. Brown sugar also has made the scene and buprenorphine risk looms large. Therefore, the situation requires close monitoring and initiation of appropriate action.

3.10 Factors influencing risk behaviours

The liberal attitude towards sex whether it is pre or extramarital sex, coupled with changing lifestyles and increasing mobility appears to be the major factor influencing sexual risk behaviours. Traditional festivals like Goma Kora tsechu, Chorten Kora tsechu etc., night hunting tradition and annual festivals appear to provide opportunities for casual sex. Materialism, easy means to gain income/favours and urbanisation are definite factors influencing risk behaviour. Campaigns to fill the gap in STD/AIDS awareness and knowledge, promotion of safer sexual practices and guidance of our youth and adolescents are some initiatives that may alleviate the problem.

Factors influencing drug use among young people are the lack of parental guidance, peer influence and unemployment.

3.11 Hot spots with access to casual/commercial sex

As per indications, some locations in the country appear to be hot spots for finding casual sex partners or CSWs. Commonly mentioned places are bars, restaurants and hotels in certain townships and certain localities in some areas. For example live music bars and Hongkong market in Thimphu and lower market in Phuntsoling are identified to be areas where CSWs or casual sex partners can be found. Given this, adequate mapping can facilitate focussed interventions in the particular areas of risk.

3.12 Perception of vulnerability to STIs and HIV

Apart from commercial sex workers, most perceive no risk of STI/HIV infection despite irregular use of condoms and many sexual partners particularly truck drivers.

Some drug users who are irregular condom users with multiple partners did not feel at risk, but needle sharing for injecting is perceived as risky.

3.13 Vulnerable groups as identified by the study respondents

Other than the five priority groups that was assessed in the study businessmen and government servants who travel frequently, village girls or women who come to sell farm produces or to do seasonal work or live near highways, schoolgirls, maids employed by expatriate workers, tour guides and girls hired temporarily as support service in project offices are identified as vulnerable groups that need targeting with interventions. Amongst the above, the village girls/women could be the most vulnerable.

From among the five groups considered a priority, truck drivers, armed forces and sex workers are at higher risk and more vulnerable given their habit of irregular condom use and multiple sexual partners coupled with type of occupations that involves long periods away from family and selling sex. The external migrant workers, in particular the unskilled construction workers and the drug users are at lower risk.

Part B: Social Assessment: People Living with HIV/AIDS

Gembo Sithey, Programme Officer
Department of Public Health

***Background*:**

Bhutan currently has 39 reported cases of people living with HIV/AIDS, whose positive status is only known to the National Program on AIDS and STD control. The positive persons are contacted and counselled by a trained counsellor, who is based in the National Referral Hospital in Thimphu.

Objective of the assessment:

The primary objective of this assessment is to improve access to care and support by people living with HIV/AIDS (PLWHA) and to involve them in project preparation and implementation. To achieve this objective, the assessment aims to:

Understand the barriers to accessing care and treatment services by PLWHA.
Describe difficulties and challenges PLWHA and their families face, including types and degree of stigma and discrimination
Describe sources of social support
Identify means of involving and empowering them in HIV prevention and control

Methodology

The assessment used in-depth interviews with 9 PLWHA.

Information from in-depth interviews will analyzed to:

- Provide demographic and socioeconomic profile of the participants
- Describe how they learn about their HIV positive status and their perceptions about the being positive and about disclosure of their status to their families and communities
- Summarize experiences with stigma and discrimination
- Describe their perceptions about seeking health care (barriers)
- Present key challenges identified by the participants and their main sources of support (emotional/psychological, financial/economic)
- Describe how they would like to be involved in HIV/AIDS prevention, care, and treatment, and what they view as barriers to their involvement

Findings

Recommendations

References

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3. Bhutan National STD/AIDS Programme, HSPS II and inputs to HSPS III, March 2002.
4. Assignment report: Sentinel Surveillance System in Bhutan, Prof LM Nath, WHO STC, May 2002.
5. Mirror magazine published by RIHS
6. DANIDA HIV/AIDS Review
7. Annual Health Bulletin
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9. Adhoc sero survey reports
10. Report of World Bank Mission to Bhutan by Tobi Saidel - December 19-26, 2003

Annex 1

Sample groups, sites, size and research method summary

Sl No.	Sample group	Assessment method	Assessment sites	Total number
1	Drug users	One to one interviews FGD (if numbers permit)	Thimphu /P/ling and where ever found	min. 5 interviews in Thimphu min. 5 interviews in P/ling = in total min. 10 interviews 1 FGD in Thimphu and 1 FGD in P/ling
2	Commercial sex workers	One to one interviews FGD (if numbers permit)	Thimphu/Pling and where ever found	min. 5 interviews in Thimphu min. 5 interviews in P/ling = in total min. 10 interviews 1 FGD in Thimphu and 1 FGD in P/ling
3	Truck drivers	FGD/PRA One to one interviews	P/ling /Trongsa/ Tashigang	3 FGDs in total (1 per site) + 6 interviews in total (min. 2 per site)
4	Migrant workers - National migrant workers - Non-national migrant workers	FGD/PRA One to one interviews	 Trongsa/Thimphu Tala/Wangdue	 2 FGDs in total (1 per site) + 6 interviews in total (min. 3 per site) 2 FGDs in total (1 per site) + 6 interviews in total (min. 3 per site)
5	Armed forces (police/military/RBG)	FGD/PRA One to one interviews	RBA Lungtenphu RBG Dechencholing RBP Tashigatshel (Chukha)	3 FGDs in total (1 RBP; 1 RBA; 1 RBG) + 6 interviews in total (min. 2 RBP, 2 RBA, 2 RBG)
	Key informants *health workers, hotel owner/workers, police, site managers, contractors*	*Police, health workers, bar/restaurant owners or workers in all sites and contractors/site supervisors in research sites for migrant workers*	*All areas of assessment where relevant*	*27 – 30 key informants interviews*
	Total			**44 interviews** **14 FGDs** **27 -30 Key informants** *(expected number only)*

Sampling
Selection criteria for the participants in the research per study group:

CSWs group: note that this group can also include girls/women who rely on multiple sexual partnerships for their economic support system but who do not consider themselves and are not considered as CSWs.

***Truck drivers group*:** note that this group can also include drivers who cover long distances (e.g. bus/taxi drivers going to the east).
For the FGDs and individual interviews respondents should be truck/bus/taxi driver for at least 6 months AND should be sexually active, i.e. should have had at least one sexual intercourse in the last 12 months.

***Migrant workers group*:**
National migrant workers: note the definition of a national migrant worker (a national who moves within Bhutan for labour e.g. seasonal workers)
For the FGDs and individual interviews respondents should be sexually active, i.e. should have had at least one sexual intercourse in the last 12 months.

In Trongsa: 1FGD with women; 2 individual interviews with men; 1 individual interview with a woman
In Thimphu: 1 FGD with men; 2 individual interviews with women; 1 individual interview with a man

International migrant workers: note the definition of an international migrant worker (a non-national who migrated to Bhutan for labour)
For the FGDs and individual interviews respondents should have resided in Bhutan for at least 6 months AND should be sexually active, i.e. should have had at least one sexual intercourse in the last 12 months.

In Tala and Wangdue: in total 2 FGDs with men; among the 6 individual interviews, only if possible 2 interviews with women

Armed Forces group (RBP, RBA, RBG):
For the FGDs and individual interviews, respondents should have been recruited in the armed forces for at least 6 months AND should be sexually active, i.e. should have had at least one sexual intercourse in the last 12 months.

In total: 3 FGDs with men; among the 6 individual interviews, only if possible 1 interview with a woman from RBP

Field work
FGD, PRA and interview guidelines will be finalised and a team of researchers trained. Qualitative data collection in the field will commence from the beginning of December and completed by mid January latest.

Research Tools
Focus group discussion guide for armed forces (Police/Army/RBG)

I. Introduction

- Welcoming the participants and introducing the moderator and the assistants;
- Explaining the general objective of the study;
- Explaining ground rules for the discussion (e.g. no right or wrong answers, participation of everybody, talking one at a time, answer to possible questions of participants to the moderator after the discussion, etc.);
- Explaining the roles of moderator and assistants;
- Insisting on confidentiality;
- **Ice-breaker**: have participants introduce themselves.

II. Warm-up issues
To get started:
Level of access and barriers to health services and health information

- What are the main health problems they face? What health problems are they more likely to worry about?
- When they have a health problem, what do they usually do first? Why? If they seek care, where do they go? Why? How are they treated? Do they feel it is easy for people like themselves (policemen/military/RBG) to seek health care? Why/why not? (**Explore** possible barriers related to the perceived physical and financial accessibility, and the perceived quality of care – quality of the services and effectiveness of the treatment)

- Do they get information on particular health issues? How? (Sources of health information) Do they think it is easy for them to get health information? Why/why not? What do they usually think about the information they get (perceived appropriateness and acceptability)?

III. Main focus of the FGD

Beliefs, perceptions and knowledge about STIs and HIV/AIDS

- In their opinion, what can happen to them as a result of having sex? (Awareness of sexual risks) Which kinds of sexual risks are they more likely to worry about?
- Have they heard of diseases/infections we can get through sex? What do they know about STIs? (**Probe** for awareness of the symptoms) What do they know about HIV/AIDS? **Explore** their beliefs, perceptions and knowledge in relation to the causes/modes of transmission and treatment of STIs and HIV/AIDS.
- How do they know about sexual matters, STIs and HIV/AIDS? (Sources of sexual and HIV/AIDS information) Do they find it easy to get information about these issues? Why/why not? What do they think would be the best way for them to get accurate information on STIs and HIV/AIDS? With whom/how would they like/feel comfortable discussing sexual matters, STIs and HIV/AIDS?
- Are they afraid of getting STIs/AIDS? How serious a problem do they think STIs and HIV/AIDS are? **Probe** for the reasons of their answer.

Perception of risk and vulnerability; risk behaviours; risk reduction strategies

- Do they think they (and people like themselves, i.e. policemen/military/RBG) are at risk for getting HIV/AIDS? To what extent? Why/why not? **Explore** the reasons for perceiving or not perceiving HIV/AIDS risk (behavioural factors; bio-medical factors)
- Types of risk behaviours (Sexual and/or other risk behaviours) **[participatory mapping]** What types of sexual risk behaviours do they (or if reluctant to talk about themselves: people like themselves, i.e. policemen/military/RBG) have? **Probe** for multiple sexual partnerships, unprotected sex, irregular condom use, cultural sexual practices. **Further probes:** What kinds of sexual relationships? (Casual/serious; concurrent/serial monogamous) With whom? (people staying in the places they move to/CSWs/same or opposite sex) Where do these sexual encounters take place? How do they take place? (In what situations and settings?)
- What makes them (or if reluctant to talk about themselves: people like themselves, i.e. policemen/military/RBG) take these risk behaviours? **Explore** perceived factors of vulnerability to HIV/AIDS (e.g. structural/social and cultural/environmental factors).
- As far as they know, what can people (in general) do to protect themselves from STIs and HIV/AIDS? (**Explore** their beliefs, perceptions and knowledge about the modes of prevention)
- Are they themselves (and people like themselves, i.e. policemen/military/RBG) doing anything to reduce their chances of getting STIs and HIV/AIDS? What? Why not? Is there anything they can't always do? Why? What do they think about HIV prevention advices such as *'stick to one sexual partner'*, *'reduce the number of sexual partners'*? (Perceived appropriateness and effectiveness of HIV prevention information) Would they say it is easy for them to adopt such strategies? **Explore** possible obstacles to risk reduction.

Attitudes about condom use and accessibility to condoms

Story for discussion (use different names for the woman and the man according to the

characteristics of the majority of the participants): Sonam Wangmo/Gita has a partner called Karma Phuntsho/Ranjeet who lives and works in another place. Karma/Ranjeet regularly goes to see Sonam//Gita. But Sonam/Gita is now worried because she has heard that Karma/Ranjeet has other sexual partners where he works. She does not know what she should do: she does not want to leave Karma/Ranjeet but she is afraid of getting HIV/AIDS.

- What do they think Sonam/Gita should do? If Sonam/Gita does what they say, how do they think Karma/Ranjeet will react? **Probes:** What do they think about condoms? What are the major reasons for using/not using condoms? **Explore** uses, beliefs and perceptions about condoms; acceptability of condom use – when? With whom (different categories of sexual partners)?; possible obstacles to condom use. **Further probes:** What do they think about a woman suggesting to her partner to use condoms? In general, are men willing to use condoms? What about women? Why/why not? **Explore** gender differences for negotiating power and willingness to use condoms.
- How/where can they get condoms? Do they have regular and sufficient supplies of condoms at these places? Do they pay for them? How much? Do they think it is easy for them to get condoms? Why/why not? Where/how would they prefer to get condoms?

Level of access and barriers to STI care and treatment

Present image showing a man -somebody with whom they can identify themselves- close to a health facility (with a clear sign for it) who seems to be hesitating, explaining the participants that the man thinks he is suffering from a STI but he is not sure yet whether to go to the hospital or not:

- In their opinion, what will that man do? If he would like to seek care, where do they think he will go first? Why? How do they think he will be treated there? What about other places?

  Do they think it is easy for them to seek care for a STI? Why/why not? (**Explore** possible barriers related to the perceived accessibility and appropriateness of existing STI care and treatment services) What do they think would be the ideal way of providing STI services to best serve their needs?

Attitudes about and accessibility to HIV testing

- How do they feel about undergoing HIV testing? What would make them have/not have a test?
- Where can they go for HIV voluntary counselling and testing? Would they go there? Why/why not? (**Explore** possible barriers related to the perceived physical and financial accessibility, and to the perceived quality of the services and of the testing) How/where would they like to have the possibility to be tested for HIV? What could be done to assist them for undergoing a test?

IV. Conclusion

- Asking for any disagreements with what has been said during the discussion and for any additional comments;
- Giving a brief summary of the main ideas/points discussed and asking feed-back from the participants;
- Thanking the participants for their valuable contribution.

Short questionnaire for each participant on basic socio-demographic characteristics (Use ***QUESTIONNAIRE FOR FOCUS GROUP DISCUSSION PARTICIPANTS)***

Focus group discussion guide for drug users

I. Introduction

- Welcoming the participants and introducing the moderator and the assistants;
- Explaining the general objective of the study;
- Explaining ground rules for the discussion (e.g. no right or wrong answers, participation of everybody, talking one at a time, answer to possible questions of participants to the moderator after the discussion, etc.);
- Explaining the roles of moderator and assistants;
- Insisting on confidentiality;
- **Ice-breaker**: have participants introduce themselves.

II. Warm-up issues

To get started:

Level of access and barriers to health services and health information

What are the main health problems they face? What health problems are they more likely to worry about?

When they have a health problem, what do they usually do first? Why? If they seek care, where do they go? Why? How are they treated? Do they feel it is easy for people like themselves (drug users) to seek health care? Why/why not? (Explore possible barriers related to the perceived physical and financial accessibility, and the perceived quality of care – quality of the services and effectiveness of the treatment)

Do they get information on particular health-related issues? How? (Sources of health information) Do they think it is easy for them to get health information? Why/why not? What do they usually think about the information they get (perceived appropriateness and acceptability)?

III. Main focus of the FGD

Beliefs, perceptions and knowledge about STIs and HIV/AIDS

In their opinion, what can happen to them as a result of having sex? (Awareness of sexual risks) How does the use of substance influence them to take sexual risks? Do they think substance use can affect their health? How? What else can happen to them as a result of their substance use?

Which kinds of risks (sexual risks and/or other risks related to their substance using behaviour) are they more likely to worry about?

Have they heard of diseases/infections we can get through sex? What do they know about STIs? (Probe for awareness of the symptoms) What do they know about HIV/AIDS? Explore their beliefs, perceptions and knowledge in relation to the causes/modes of transmission and treatment of STIs and HIV/AIDS.

How do they know about sexual matters, STIs and HIV/AIDS? (Sources of sexual and HIV/AIDS prevention information) Do they find it easy to get information about these issues? Why/why not? What do they think would be the best way for them to get accurate information on STIs and HIV/AIDS? With whom/how would they like/feel comfortable discussing sexual matters, issues concerning substance use, STIs and HIV/AIDS?

Are they afraid of getting STIs/AIDS? How serious a problem do they think STIs and HIV/AIDS are? Probe for the reasons of their answer.

Perception of risk and vulnerability; risk behaviours; risk reduction strategies

Do they think they are at risk for getting HIV/AIDS? To what extent? Why/why not? Explore the reasons for perceiving or not perceiving HIV/AIDS risk (behavioural factors; bio-medical factors)

Types of risk behaviours (Sexual risk behaviours and/or other risk behaviours associated with their substance use) [participatory mapping]

Types of sexual risk behaviours Probe for multiple sexual partnerships, unprotected sex, irregular condom use, cultural sexual practices. Further probes: What kinds of sexual relationships? (Casual/serious; concurrent/serial monogamous; sex for exchange of money/gifts/favours/drugs) With whom? (categories of people; drug-using partners; drug supplier(s); CSWs; same/opposite sex; same age) In what situations and settings do the sexual encounters usually take place (Where and how?)?

What types of substances do they use? What are the main modes of administration? Probe for injection drug use and its extent. How does drug injection usually happen? Do they share drug injection equipment? With whom? (kinds of relationships with the other drug injectors with whom they share needles; how many of them?) Do they re-use drug injection equipment? What makes them share/re-use drug injection equipment? How/where do they usually get new syringes and needles? Do they find it easy to get and use new, sterile syringes and needles? Why/why not?

What makes them take these risk behaviours (risk behaviours related to substance use and/or sexual risk behaviours)? Explore perceived factors of vulnerability to HIV/AIDS (e.g. structural/social and cultural/environmental factors)

As far as they know, what can people (in general) do to protect themselves from STIs and HIV/AIDS? (Explore their beliefs, perceptions and knowledge about the modes of prevention)

Are they themselves doing anything to reduce their chances of getting STIs and HIV/AIDS? What? Why not? Is there anything they can't always do? Why? What do they think about HIV prevention advices such as '*stick to one sexual partner'*, *'reduce the number of sexual partners'*? (Perceived appropriateness and effectiveness of HIV prevention information) Would they say it is easy for them to adopt such strategies? Explore possible obstacles to risk reduction.

Attitudes about condom use and accessibility to condoms

Story for discussion (use different names for the woman and the man according to the characteristics of the majority of the participants): Sonam Wangmo/Gita has a partner called Karma Phuntsho/Ranjeet. Sonam/Gita is now worried because she has heard that Karma/Ranjeet has other sexual partners. She does not know what she should do: she does not want to leave Karma/Ranjeet but she is afraid of getting HIV/AIDS.

What do they think Sonam/Gita should do? If Sonam/Gita does what they say, how do they think Karma/Ranjeet will react? Probes: What do they think about condoms? What are the major reasons for using/not using condoms? Explore uses, beliefs and perceptions about condoms; acceptability of condom use – when? With whom (different categories of sexual partners)?; possible obstacles to condom use.

Further probes: What do they think about a woman suggesting to her partner to use condoms? In general, are men willing to use condoms? What about women? Why/why not? Explore gender differences for negotiating power and willingness to use condoms.

How/where can they get condoms? Do they have regular and sufficient supplies of condoms at these places? Do they pay for them? How much? Do they think it is easy for them to get condoms? Why/why not? Where/how would they prefer to get condoms?

Level of access and barriers to STI care and treatment

Present image showing a man/woman - somebody with whom they can identify themselves- close to a health facility (with a clear sign for it) who seems to be hesitating, explaining the participants that the man/woman thinks he/she is suffering from a STI but he/she is not sure yet whether to go to the hospital or not:

In their opinion, what will that man/woman do? If he/she would like to seek care, where do they think he/she will go first? Why? How do they think he/she will be treated there? What about other places?

Do they think it is easy for them to seek care for a STI? Why/why not? (Explore possible barriers related to the perceived accessibility and appropriateness of existing STI care and treatment services) What do they think would be the ideal way of providing STI services to best serve their needs?

Attitudes about and accessibility to HIV testing

How do they feel about undergoing HIV testing? What would make them have/not have a test?

Where can they go for HIV voluntary counselling and testing? Would they go there? Why/why not? (Explore possible barriers related to the perceived physical and financial accessibility, and to the perceived quality of the services and of the testing) How/where would they like to have the possibility to be

tested for HIV? What could be done to assist them for undergoing a test?

IV. Conclusion

Asking for any disagreements with what has been said during the discussion and for any additional comments;

Giving a brief summary of the main ideas/points discussed and asking feed-back from the participants;

Thanking the participants for their valuable contribution.

Short questionnaire for each participant on basic socio-demographic characteristics (Use QUESTIONNAIRE FOR FOCUS GROUP DISCUSSION PARTICIPANTS)

Focus group discussion guide for commercial sex workers (CSWs)

I. Introduction

Welcoming the participants and introducing the moderator and the assistants;

Explaining the general objective of the study;

Explaining ground rules for the discussion (e.g. no right or wrong answers, participation of everybody, talking one at a time, answer to possible questions of participants to the moderator after the discussion, etc.);

Explaining the roles of moderator and assistants;

Insisting on confidentiality;

Ice-breaker: have participants introduce themselves.

II. Warm-up issues

To get started:

Level of access and barriers to health services and health information

What are the main health problems they face? What health problems are they more likely to worry about?

When they have a health problem, what do they usually do first? Why? If they seek care, where do they go? Why? How are they treated? Do they feel it is easy to seek health care? Why/why not? (Explore possible barriers related to the perceived physical and financial accessibility, and the perceived quality of care – quality of the services and effectiveness of the treatment)

Do they get information on particular health-related issues? How? (Sources of health information) Do they think it is easy for them to get health information? Why/why not? What do they usually think about the information they get (perceived appropriateness and acceptability)?

III. Main focus of the FGD

Beliefs, perceptions and knowledge about STIs and HIV/AIDS

Do they think their sexual activity can affect their health? How? What else can happen to them as a result of their sexual activity? Which kinds of risks (sexual and/or others risks) are they more likely to worry about?

Have they heard of diseases/infections we can get through sex? What do they know about STIs? (Probe for awareness of the symptoms) What do they know about HIV/AIDS? Explore their beliefs, perceptions and knowledge in relation to the causes/modes of transmission and treatment of STIs and HIV/AIDS.

How do they know about sexual matters, STIs and HIV/AIDS? (Sources of sexual and HIV/AIDS prevention information) Do they find it easy to get information about these issues? Why/why not? What do they think would be the best way for them to get accurate information on STIs and HIV/AIDS? With whom/how would they like/feel comfortable discussing sexual matters, STIs and HIV/AIDS?

Are they afraid of getting STIs/AIDS? How serious a problem do they think STIs and HIV/AIDS are? Probe for the reasons of their answer.

Perception of risk and vulnerability; risk behaviours; risk reduction strategies

In their opinion, are they at risk for getting HIV/AIDS? To what extent? Why/why not? Explore the reasons for perceiving or not perceiving HIV/AIDS risk (behavioural factors; bio-medical factors)

Types of risk behaviours (Sexual and/or other risk behaviours)

Sexual risk behaviours [participatory mapping]

What types of sexual relationships do they have? Probe for sexual partners in exchange of money or the like/other sexual partners; kinds of sexual relationships with those other partners (casual/serious; concurrent/serial monogamous); categories of people and characteristics of their sexual partners in exchange of money or the like/of their other

sexual partners; in what situations and settings the sexual encounters with individuals for exchange of money or the like/with other partners usually take place (further probe for mobility patterns: places of movement inside/outside the country; usual periodicity of movement and length of stay in the different places).

Other types of risk behaviours Probe for risk behaviours associated with substance use: Do they sometimes use substance (alcohol and/or drugs)? Probes for drug use: What types of drugs? What are the main modes of administration? Further probe for injection drug use and its extent; sources of supplies of the drugs that are injected and of syringes and needles; injection drug-using venues (locations/kinds of places); presence of other injecting drug users and kinds of relationships with them; process of injection of drugs. Do they share needles? What makes them share needles? Do they find it easy to get and use new, sterile syringes and needles? Why/why not?
How does their substance use influence their sexual behaviour?
What makes them take these (sexual and/or other) risk behaviours? Explore perceived factors of vulnerability to HIV/AIDS (e.g. structural/social and cultural/environmental factors)
As far as they know, what can people (in general) do to protect themselves from STIs and HIV/AIDS? (Explore their beliefs, perceptions and knowledge about the modes of prevention)
Are they themselves doing anything to reduce their chances of getting STIs and HIV/AIDS? What? Why not? What do they think about HIV prevention advices such as *'stick to one sexual partner'*, *'reduce the number of sexual partners'*? (Perceived appropriateness and effectiveness of HIV prevention information)
Would they say it is easy for them to translate these advices into practice? Explore possible obstacles to risk reduction.

Attitudes about condom use and accessibility to condoms
Story for discussion (use a different name for the woman according to the characteristics of the majority of the participants): Sonam Wangmo/Gita has sex with different persons from whom she receives money and/or other things. She has heard about HIV/AIDS and would now like to do something to protect her health.

What do they think Sonam/Gita could do? If Sonam/Gita would decide she will now always require from such persons to use condoms, do they think she will be able to do that and to stick to her decision? How are these persons likely to react? Probes: What do they think about condom use in sexual relationships for exchange of money or the like? Are such sexual partners usually willing to use condoms? Why/why not? In their opinion, how easy is it to convince them to use condoms? (Explore negotiating power of condom use)
Further probes: In general, what do they think about condoms? Are they themselves willing to use condoms? What are the major reasons for using/not using condoms? Explore uses, beliefs and perceptions about condoms; acceptability of condom use –when? with whom?; possible obstacles to condom use.
How/where can they get condoms? Do they pay for them? How much? Do they think it is easy for them to get regular and sufficient supplies of condoms? Why/why not? (perceived accessibility to condoms)
Where/how would they prefer to get condoms?

Level of access and barriers to STI care and treatment
Present image showing a woman -somebody with whom they can identify themselves- close to a health facility (with a clear sign for it) who seems to be hesitating, explaining the participants that the woman thinks she is suffering from a STI but she is not sure yet whether to go to the hospital or not:
In their opinion, what will that woman do? If she would like to seek care, where do they think she will go first? Why? How do they think she will be treated there? What about other places?

Do they think it is easy for them to seek care for a STI? Why/why not? (Explore possible barriers related to the perceived accessibility and appropriateness of existing STI care and treatment services)
What do they think would be the ideal way of providing STI care and treatment services to best serve their needs? Probe for perceptions

about STI clinics/STI care and treatment offered as a separate service by a health facility that also provides a range of other health services/outreach services; and, perceptions about the main features of good quality services –e.g. regarding providers and staff attitudes, services hours.
Attitudes about and accessibility to HIV testing
How do they feel about undergoing HIV testing? What would make them have/not have a test?
Where can they go for HIV voluntary counselling and testing? Would they go there? Why/why not? (Explore possible barriers related to the perceived physical and financial accessibility, and to the perceived quality of the services and of the testing) How/where would they like to have the possibility to be tested for HIV? What could be done to assist them for undergoing a test?
IV. Conclusion
Asking for any disagreements with what has been said during the discussion and for any additional comments;
Giving a brief summary of the main ideas/points discussed and asking feed-back from the participants;
Thanking the participants for their valuable contribution.

Short questionnaire for each participant on basic socio-demographic characteristics (Use QUESTIONNAIRE FOR FOCUS GROUP DISCUSSION PARTICIPANTS)

Individual interview guide for commercial sex workers (CSWs)[19]

Introduction
Introduce yourself and the note-taker;
Explain the general objective of the study;
Ask the person's consent for conducting the interview. Insist on confidentiality.
Ice-breaker
Start with short questionnaire on background information.
Interview
Level of access and barriers to health services and health information
What are the main health problems she faces? What health problems is she more worried about? Why?
How does she get to know about major health-related issues? (Sources of health information) Does she think it is easy for her to get health information? Why/why not? In general, what does she think about the information received? (Explore perceived appropriateness and acceptability)?
When she has a health problem, what does she usually do first? Why? If she seeks care, where does she usually go? Why? How is she treated there? Does she think it is easy for her to seek health care? Why/why not? (Explore possible barriers to health services related to the perceived physical and financial accessibility, and the perceived quality of care – quality of the services and effectiveness of the treatment)

Types of risk behaviours (sexual and/or other risk behaviours)
A/ Sexual risk behaviours
What types of sexual relationships does she have?
For how long has she had sexual relationships in exchange of money or the like? Does she also have sexual partners with whom no exchange of money or the like/gifts/favours takes place? Probes: What kinds of sexual relationships with those partners? (Casual/serious; concurrent/serial monogamous); Who are those partners? (categories of people; socio-economic characteristics); In what situations and settings do the sexual encounters with those partners usually take place (Where and how?)?
Who are the people with whom she has sex in exchange of money or the like (categories of people; socio-economic characteristics; nationals/non-nationals; staying in/outside the locality where she meets them)? Where/how does she meet them? Probe for mobility patterns related to her sexual activity (places of movement inside/outside the country; usual periodicity of movement and length of stay in the different places); specific areas/kinds of places; involvement of other persons who act as middleman (if yes: who are they?). Which kinds of sexual activities does she have with these people?

[19] In this group, we also include women who have multiple partners for economic gains (money or kind) but who do not consider themselves/are not considered as CSWs.

How many sexual partners has she had in the last 4 weeks? (Probe: how many in exchange of money or the like?; how many others?)
Did she have sex during the last week? With how many partners? (Probe: how many in exchange of money or the like; how many others?)
Ask about the most recent sexual relationship she had in exchange of money or the like:
Did they use condoms?

If yes: Why? Who decided to use condoms? If more than one sexual intercourse took place: Did they use condoms every time they had sex? Why/why not?

If not: Why not? Has the use of condoms been suggested? If suggested: Who suggested it? If not suggested: Were there any reasons she did not suggest the use of condoms?
Ask about the current or most recent sexual partner with whom there is/was no exchange of money or the like/gifts/favours:
Does/did she consider this relationship to be serious or casual? Why? Does she think her partner considers/considered the relationship as serious or casual? Why?
Do/did they use condoms?

If yes: Why? Who decided to use condoms? Do/did they use condoms all the time they have/had sex? Why/why not?

If not: Why not? Has/did she talked/talk about condoms with her partner? If talked: Who started the talk? What were some of the things they both said? If not talked: Were there any reasons she has/did not talked/talk about condoms with her partner?
If respondent did not report condom use (neither with the person she had sex most recently in exchange of money or the like, nor with her current/most recent sexual partner with whom no exchange of money or the like takes/took place):
Has she ever had a sexual intercourse where condoms were used?

B/ Risk behaviours related to substance use
Does she sometimes use substance (probe for alcohol and/or drugs)? If yes: Is there any link between her substance-using behaviour and her sexual activity? What kinds of link?
If respondent reported the use of drugs: What kinds of relationships does she have with her sources of supplies of drugs? What types of drugs does she use? What are the main modes of administration? Probe for injection drug use and its extent.
If respondent reported injection drug use: In what situations and settings does she usually inject drugs? Probe for drug-using venues (locations/kinds of places); presence of other injecting drug user(s) and kinds of relationships with them; process of injection of drugs. Does she share needles? What makes her share needles? How/where does she get the drugs that are injected? How/where does she get the syringes and needles? Does she find it easy to get and use new, sterile syringes and needles? Why/why not?

Beliefs, perceptions and knowledge about STIs and HIV/AIDS
What risks is she likely to have faced/face as a result of her sexual activity? If respondent reported substance use: And what about the risks associated with her substance use?
Which kinds of risks (sexual and/or other risks related to her sexual behaviour/substance-using behaviour) is she more worried about? Why?
What makes her take these risks? (Explore perceived influence of factors such as structural/social and cultural/environmental/personal factors)
What does she know about STIs? What does she know about HIV/AIDS? Explore her beliefs, perceptions and knowledge in relation to the causes/modes of transmission, modes of prevention, and treatment of STIs and HIV/AIDS.
Is she afraid of getting STIs and HIV/AIDS? Probe for the reasons of her answer.
How does she know about sexual matters, STIs and HIV/AIDS? (Sources of sexual and HIV/AIDS information) Does she find it easy to get information about these issues? Why/why not? (perceived accessibility to HIV/AIDS prevention information) How would she prefer to get information on STIs and HIV/AIDS? With whom/how would she like/feel comfortable discussing sexual matters, STIs and HIV/AIDS?

Perception of risk and vulnerability, and risk reduction strategies

Does she fear that she might have been/is in danger of contracting AIDS? Why/why not?
Has she done anything to reduce her chances of getting STIs and HIV/AIDS? What? Why not? What does she think about STIs/HIV/AIDS prevention advices? (Explore perceived appropriateness and acceptability of HIV prevention information)? Does she feel it has been easy to protect herself from STIs and HIV/AIDS? Explore possible obstacles to risk reduction.
Would she say that she has ever been pressured into sex? What sort? By whom? And how?
If respondent reported condom use: Does she know how to make proper use of condoms? What about her clients?
How/where does she get condoms? Does she pay for them? How much? How easy does she think it is to get regular supplies of condoms? (perceived accessibility to condoms)
Has her use of condoms changed since hearing about HIV/AIDS? Probes: how (regularity; in which types of sexual relationships; every time/not every time with the same partner)?; when?; why?

If respondent reported that condoms have never been used: Does she know how to use condoms?
How easy does she think it is to get condoms? (perceived accessibility to condoms)
Is she considering condom use in the future? Why/why not?
In general, is she willing to use condoms? Does she think it is easy to suggest condom use in sexual relationships for exchange of money or the like? How easy is it to convince the persons with whom she has sex in exchange of money or the like? Are they willing to use condoms? What about her other types of sexual relationships? Explore negotiating power of condom use and attitudes about condoms.
Has she ever had a HIV test? What made her have the test? Before having the test, how did she feel about it? How easy does she feel it was to get/be tested for HIV? (Explore perceptions about physical and financial accessibility, and quality of the services and of the testing)

If respondent has never had a test: Has she ever considered having one? If considered: Why? What made her not have the test? How easy does she think it is to get HIV testing? (Explore attitudes about HIV testing as well as possible barriers related to the perceived physical and financial accessibility, and to the perceived quality of the services and of the testing) If not considered: Why not? How easy does she think it is to get HIV testing? (Explore attitudes about HIV testing as well as possible barriers related to the perceived physical and financial accessibility, and to the perceived quality of the services and of the testing)

Would she like to have the opportunity to be tested (again) for HIV? If yes: How/where would she like to have this possibility offered? How could HIV testing be made as easy as possible for her? What kind of support would she need to undergo HIV testing?

Health care seeking behaviour for STIs, including accessibility to STI care and treatment
Can she tell if she would have a STI? How? (Probe for awareness of the symptoms) Has she ever suffered from STIs? Which one(s)? How, with whom and where did she contract the STI(s)? What did she do first? When? Why? If she sought care, where did she go? When? Why? Did she have to pay for the treatment? How much? How was she treated there? What about other places?

Does she think it is easy for her to seek care for a STI? Why/why not? (Explore possible barriers related to the perceived accessibility and appropriateness of existing STI care and treatment services)

Ask her to imagine the ideal way of providing STI services to best serve her needs (Probe for perceptions about STI clinics/STI care and treatment offered as a separate service by a health facility that also provides a range of other health services/outreach services; and, perceptions about the main features of good quality services –e.g. regarding providers and staff attitudes, services hours.)

Individual interview guide for migrant workers

I Introduction

Introduce yourself and the note-taker;

Explain the general objective of the study;

Ask the person's consent for conducting the interview. Insist on confidentiality.

II Ice-breaker

Start with short questionnaire on background information.

III Interview

Level of access and barriers to health services and health information, including STIs/HIV/AIDS prevention information

How does he/she get to know about major health-related issues? (Sources of health information) Does he/she think it is easy for him/her to get health information? Why/why not? In general, what does he/she think about the information received? (Explore perceived appropriateness and acceptability)?

When he/she has a health problem, what does he/she usually do first? Why? If he/she seeks care, where does he/she usually go? Why? How is he/she treated there? (Explore possible barriers to health services related to the perceived physical and financial accessibility, and the perceived quality of care – quality of the services and effectiveness of the treatment)

How does he/she get to know about matters concerning sex, contraception and sexual health consequences? (Sources of sexual health-related information) Does he/she find it easy to get health information about sexual matters? Why/why not? What does he/she think about the information received? (Explore perceived appropriateness and acceptability for the different sources of information)? How would he/she prefer to get sexual health-related information? With whom/how would he/she like/feel comfortable discussing sexual matters and sexual health consequences?

Types of risk behaviours (sexual and/or other risk behaviours)

A/ Sexual risk behaviours

Since he/she has migrated/been migrated for labour to/within Bhutan (for national migrants: ask since when?), how many sexual partners has he/she had? If respondent has migrated/been migrated for labour to/within Bhutan for less than 12 months: Has he/she had sex in the last 4 weeks? With how many partners? If respondent has migrated/been migrated for labour to/within Bhutan for more than 12 months: What about his/her sexual activity in the last 12 months? With how many partners? Has he/she had sex in the last 4 weeks? With how many partners?

Probes if respondent has had sexual partner(s) since he has migrated/been migrated for labour to/within Bhutan: What kinds of sexual relationships? (Casual/serious; concurrent/serial monogamous; sex for exchange of money/gifts/favours); With whom? (people that stay/met in the places where he/she is working; CSWs; same or opposite sex; same age); In what situations and settings did the sexual encounters usually take place (Where and how?)?

If respondent has never been married: What is his/her opinion on pre-marital sex? (common?; acceptable?; differences between men and women?)

If respondent is married: What is his/her opinion on extramarital sex? (common?; acceptable?; differences between men and women?)

If respondent has had a sexual partner(s) in the last 12 months or since he has migrated/been migrated for labour to/within Bhutan (if for less than 12 months), ask about the current or most recent sexual partner:

Does/did he/she consider this relationship to be serious or casual? Why? Does he/she think his/her partner considers/considered the relationship as serious or casual? Why?

Does/did he/she use condoms with his/her current/most recent sexual partner?

If yes: What makes/made him/her use condoms? Who suggested the use of condoms? Does/did he/she use condoms all the time he/she has/had sex with his/her current/most recent partner? Why/why not? How/where does/did he/she get condoms? Do they have regular and sufficient supplies of condoms at these places? Does/did he/she pay for them? How much?

If not: What makes/made him/her not to use condoms? Has/did he/she talked/talk about condoms with his/her current/most recent sexual partner? If talked: Who started the talk? What were some of the things they both said about condoms? If not talked: Were there any

reasons he/she has/did not talked/talk about condoms with his/her current most recent sexual partner?
If respondent has had more than one sexual partner in the last 12 months or since he/she has migrated/been migrated for labour to/within Bhutan (if for less than 12 months), ask also about his/her other sexual partner(s):
Did he/she use condoms with the other sexual partner(s) he/she has had in the last 12 months/since he has migrated/been migrated for labour to/within Bhutan (if for less than 12 months)? Probes: Regular/irregular use?; with whom (different categories of sexual partners)?; every time/not every time with the same partner(s)?; reasons for using/not using regularly/every time condoms?
If respondent has not had a sexual partner in the last 12 months or since he/she has migrated/been migrated for labour to/within Bhutan (if for less than 12 months), ask in general:
Did he/she ever use condoms with his/her sexual partners? Why/why not?

B/ Risk behaviours associated with substance use
Does he/she sometimes use substance (probe for alcohol and/or drugs)? If yes: Does the use of substance influence his/her sexual behaviour? How?
If respondent reported the use of drugs: What types of drugs? What are the main modes of administration? Probe for injection drug use and its extent.
If respondent reported injection drug use: In what situations and settings does he/she usually inject drugs? Probe for drug-using venues (locations/kinds of places); presence of other injecting drug user(s) and kinds of relationships with them; process of injection of drugs. Does he/she share needles? What makes him/her share needles? How/where does he/she get the drugs that are injected? How/where does he/she get the syringes and needles? Does he/she find it easy to get and use new, sterile syringes and needles? Why/why not?

Beliefs, perceptions and knowledge about sexual risks, including STIs and HIV/AIDS
In his/her opinion, what risks is he/she likely to have faced as a result of having sex? (Awareness of sexual risks) If respondent reported substance use: And what about the risks associated with his/her substance use? How does the use of substance influence him/her to take sexual risks?
Which kinds of (sexual/substance use related) risks is he/she more worried about? Why?
What makes him/her take these risks? (Explore perceived influence of factors -such as structural/social and cultural/environmental/personal factors- on his/her sexual and/or other risk taking behaviours)
Has he/she heard of diseases/infections we can get through sex? What does he/she know about STIs? What does he/she know about HIV/AIDS.
Explore his/her beliefs, perceptions and knowledge in relation to the causes/modes of transmission, modes of prevention, and treatment of STIs and HIV/AIDS.
How serious a problem does he/she think STIs and HIV/AIDS are? Probe for the reasons of his/her answer.

Perception of risk and vulnerability, and risk reduction strategies
Does he/she fear that he/she might have been/is in danger of contracting AIDS? Why/why not?
Has he/she done anything to reduce his/her chances of getting STIs and HIV/AIDS? What? Why not? Does he/she feel it has been easy for him/her to protect himself/herself from STIs and HIV/AIDS? Is there anything he/she couldn't always do? Why? Explore possible obstacles to risk reduction.
Does he/she feel his/her sexual partners have had other sexual partners?
Would he/she say that he/she has ever been pressured into sex? What sort? By whom? And how?
If respondent has ever used condoms: Does he/she know how to make proper use of condoms?
Has his/her use of condoms changed since hearing about HIV/AIDS? Probes: how?; when?; why?
If respondent has never used condoms: Does he/she know how to use condoms?
Is he/she considering using condoms in the future? Why/why not?
In general, does he/she think it is easy to suggest condom use to sexual partners? How easy is it to convince them? Is he/she willing to use condoms? What about his/her partners?

Explore gender differences in attitudes about and in negotiating power of condom use. How easy does he/she think it is to get condoms? (perceived accessibility to condoms) Has he/she ever had a HIV test? What made him/her have the test? How easy does he/she feel it was to get/be tested for HIV? (Explore perceptions about physical and financial accessibility, and quality of the services and of the testing)

If respondent has never had a test: Has he/she ever considered having one? If considered: Why? What made him/her not have the test? How easy does he/she think it is to get HIV testing? (Explore attitudes about HIV testing as well as possible barriers related to the perceived physical and financial accessibility, and to the perceived quality of the services and of the testing) If he/she would like to have a HIV test, how/where would he/she like to have it? What kind of support would he/she need to undergo HIV testing?
If not considered: Why not? How easy does he/she think it is to get HIV testing? (Explore attitudes about HIV testing as well as possible barriers related to the perceived physical and financial accessibility, and to the perceived quality of the services and of the testing) If he/she would like to have a HIV test, how/where would he/she like to have it? What kind of support would he/she need to undergo HIV testing?

Health care seeking behaviour for STIs, including accessibility to STI care and treatment
Can he/she tell if he/she would have a STI? How? (Probe for awareness of the symptoms) Has he/she ever suffered from STIs? Which one(s)? What did he/she do first? Why? If he/she sought care, where did he/she go? When? Why? Did he/she have to pay for the treatment? How much? How was he/she treated? What about other places?

Does he/she think it is easy to seek care for a STI? Why/why not? (Explore possible barriers related to the perceived accessibility and appropriateness of existing STI care and treatment services)

Individual interview guide for truck drivers[20]

I Introduction
Introduce yourself and the note-taker;
Explain the general objective of the study;
Ask the person's consent for conducting the interview. Insist on confidentiality.

II Ice-breaker
Start with short questionnaire on background information.

III Interview

Level of access and barriers to health services and health information, including STIs/HIV/AIDS prevention information
How does he get to know about major health-related issues? (Sources of health information) Does he think it is easy for him to get health information? Why/why not? In general, what does he think about the information received? (Explore perceived appropriateness and acceptability)?
When he has a health problem, what does he usually do first? Why? If he seeks care, where does he usually go? Why? How is he treated there? Does he think it is easy for him to seek health care? Why/why not?
(Explore possible barriers to health services related to the perceived physical and financial accessibility, and the perceived quality of care – quality of the services and effectiveness of the treatment)
How does he get to know about matters concerning sex, contraception and sexual health consequences? (Sources of sexual health-related information) Does he find it easy to get health information about sexual matters? Why/why not? What does he think about the information received? (Explore perceived appropriateness and acceptability for the different sources of information)? How would he prefer to get sexual health-related information? With whom/how would he like/feel comfortable discussing sexual matters and sexual health consequences?
Types of risk behaviours (sexual and/or other risk behaviours)

A/ Sexual risk behaviours
Since he has been truck driver, how many sexual partners has he had? If respondent has been truck driver for less than 12 months: Has he had sex in the last 4 weeks? With how many partners? If respondent has been truck driver for more than 12 months: What about his sexual activity in the last 12 months? With how many partners? Has he had sex in the last 4 weeks? With how many partners?

Probes if respondent has had sexual partner(s) since he has been truck driver: What kinds of sexual relationships? (Casual/serious; concurrent/serial monogamous; sex for exchange of money/gifts/favours); With whom? (people that stay/met in the places where he stops/spends the night; people that stay/met in places on his route; CSWs; same or opposite sex; same age); In what situations and settings did the sexual encounters usually take place (Where and how?)?
If respondent has never been married: What is his opinion on pre-marital sex? (common?; acceptable?; differences between men and women?)

If respondent is married: What is his opinion on extramarital sex? (common?; acceptable?; differences between men and women?)
If respondent has had a sexual partner(s) in the last 12 months or since he has been truck driver (if for less than 12 months), ask about the current or most recent sexual partner:
Does/did he consider this relationship to be serious or casual? Why? Does he think his partner considers/considered the relationship as serious or casual? Why?
Does/did he use condoms with his current/most recent sexual partner?

If yes: What makes/made him use condoms? Who suggested the use of condoms? Does/did he use condoms all the time he has/had sex with his current/most recent partner? Why/why not? How/where does/did he get condoms? Do they have regular and sufficient supplies of condoms at these places? Does/did he pay for

[20] Even though it is the term 'truck driver' that has been used in this interview guide, this group could also include bus drivers covering long distances. Note also that as it is expected that truck drivers/bus drivers covering long distances will mainly be male, the terms 'he', 'his', 'him', and 'himself' have been used here. However, this should not exclude female drivers; in this case, the terms should be replaced accordingly.

them? How much?

If not: What makes/made him not to use condoms? Has/did he talked/talk about condoms with his current/most recent sexual partner? If talked: Who started the talk? What were some of the things they both said about condoms? If not talked: Were there any reasons he has/did not talked/talk about condoms with his current most recent sexual partner?
If respondent has had more than one sexual partner in the last 12 months or since he has been truck driver (if for less than 12 months), ask also about his other sexual partner(s):
Did he use condoms with the other sexual partner(s) he has had in the last 12 months/since he has been truck driver (if for less than 12 months)? Probes: Regular/irregular use?; with whom (different categories of sexual partners)?; every time/not every time with the same partner(s)?; reasons for using/not using regularly/every time condoms?
If respondent has not had a sexual partner in the last 12 months or since he has been truck driver (if for less than 12 months), ask in general:
Did he ever use condoms with his sexual partners? Why/why not?

B/ Risk behaviours associated with substance use
Does he sometimes use substance (probe for alcohol and/or drugs)? If yes: Does the use of substance influence his sexual behaviour? How?
If respondent reported the use of drugs: What types of drugs? What are the main modes of administration? Probe for injection drug use and its extent.
If respondent reported injection drug use: In what situations and settings does he usually inject drugs? Probe for drug-using venues (locations/kinds of places); presence of other injecting drug user(s) and kinds of relationships with them; process of injection of drugs. Does he share needles? What makes him share needles? How/where does he get the drugs that are injected? How/where does he get the syringes and needles? Does he find it easy to get and use new, sterile syringes and needles? Why/why not?

Beliefs, perceptions and knowledge about sexual risks, including STIs and HIV/AIDS
In his opinion, what risks is he likely to have faced as a result of having sex? (Awareness of sexual risks) If respondent reported substance use: And what about the risks associated with his substance use? How does the use of substance influence him to take sexual risks?
Which kinds of (sexual/substance use related) risks is he more worried about? Why?
What makes him take these risks? (Explore perceived influence of factors -such as structural/social and cultural/environmental/personal factors- on his sexual and/or other risk taking behaviours)
Has he heard of diseases/infections we can get through sex? What does he know about STIs? What does he know about HIV/AIDS? Explore his beliefs, perceptions and knowledge in relation to the causes/modes of transmission, modes of prevention, and treatment of STIs and HIV/AIDS.
How serious a problem does he think STIs and HIV/AIDS are? Probe for the reasons of his answer.

Perception of risk and vulnerability, and risk reduction strategies
Does he fear that he might have been/is in danger of contracting AIDS? Why/why not?
Has he done anything to reduce his chances of getting STIs and HIV/AIDS? What? Why not?
Does he feel it has been easy for him to protect himself from STIs and HIV/AIDS? Is there anything he couldn't always do? Why? Explore possible obstacles to risk reduction.
Does he feel his sexual partners have had other sexual partners?
Would he say that he has ever been pressured into sex? What sort? By whom? And how?
If respondent has ever used condoms: Does he know how to make proper use of condoms? Has his use of condoms changed since hearing about HIV/AIDS? Probes: how?; when?; why?
If respondent has never used condoms: Does he know how to use condoms?
Is he considering using condoms in the future? Why/why not?
In general, does he think it is easy to suggest condom use to sexual partners? How easy is it to convince them? Is he willing to use condoms? What about his partners? Explore gender differences in attitudes about and in

negotiating power of condom use. How easy does he think it is to get condoms? (perceived accessibility to condoms)
Has he ever had a HIV test? What made him have the test? How easy does he feel it was to get/be tested for HIV? (Explore perceptions about physical and financial accessibility, and quality of the services and of the testing)

If respondent has never had a test: Has he ever considered having one? If considered: Why? What made him not have the test? How easy does he think it is to get HIV testing? (Explore attitudes about HIV testing as well as possible barriers related to the perceived physical and financial accessibility, and to the perceived quality of the services and of the testing) If he would like to have a HIV test, how/where would he like to have it? What kind of support would he need to undergo HIV testing? If not considered: Why not? How easy does he think it is to get HIV testing? (Explore attitudes about HIV testing as well as possible barriers related to the perceived physical and financial accessibility, and to the perceived quality of the services and of the testing) If he would like to have a HIV test, how/where would he like to have it? What kind of support would he need to undergo HIV testing?

Health care seeking behaviour for STIs, including accessibility to STI care and treatment
Can he tell if he would have a STI? How? (Probe for awareness of the symptoms) Has he ever suffered from STIs? Which one(s)? What did he do first? Why? If he sought care, where did he go? When? Why? Did he have to pay for the treatment? How much? How was he treated? What about other places?

Does he think it is easy to seek care for a STI? Why/why not? (Explore possible barriers related to the perceived accessibility and appropriateness of existing STI care and treatment services)

Assessment of Risk Behaviours and Vulnerability to HIV/AIDS and STIs in Bhutan
Training of the Field Workers and Pre-testing of the instruments
Thimphu – 24 to 29 November 2003

Objectives of the training
By the end of the training, the participants should:

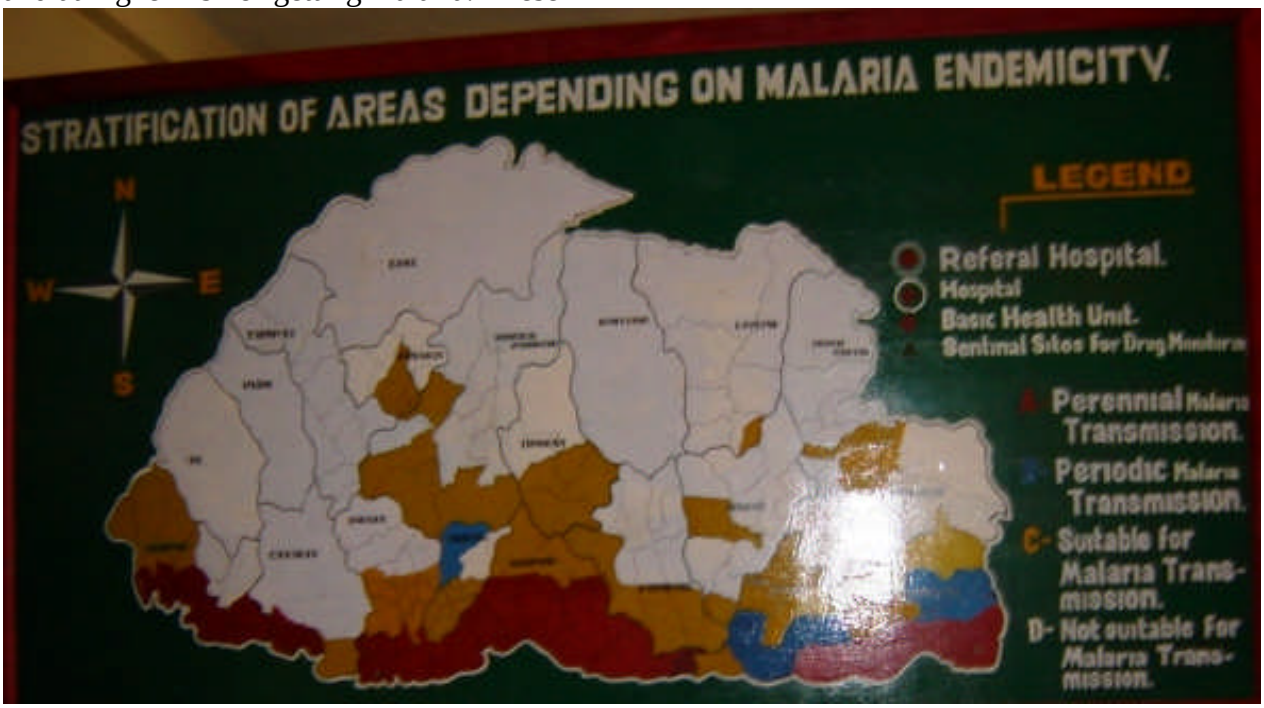
Be well aware of the objectives of the study, the research questions and key issues;
Have a good understanding of the qualitative approach, the research methods used in the study and the instruments developed for the study;
Be able to conduct individual interviews and focus group discussions and properly record the information collected.

MALARIA INDICATOR SURVEY, 2006

Vector Borne Disease Control Programme (VDCP)
&
Research Unit
Department of Public Health
Ministry of Health

Introduction and Background

Although, whole population of Bhutan is at risk of getting malaria, only 15 districts with a population of 468,993 has climatic conditions conducive for malaria vector and at higher risk of getting malaria. These fifteen districts are divided into perennial transmission districts and periodic transmission districts as indicated in following map of Bhutan.



Despite considerable efforts to combat and contain malaria, it continues to be a major public health problem especially in the subtropical southern Districts of Bhutan. Malaria is deeply entrenched in five Dzongkhags along the stretch of 600 Km bordering India i.e., Samdrup Jongkhar, Zhemgang, Sarpang, Chukha and Samtse. These five Dzongkhags with a population of 234,633 accounts for more than 95% of all cases recorded in Bhutan. Furthermore, seasonal transmissions do occur in almost all the districts with an exception of few high altitude districts.

Malaria prevention and control has received high priority from the government and international organizations. The three major funding agencies for the vector –borne disease control programme are Royal Government of Bhutan (RGOB), Government of India (GOI) and Global

Fund for HIV/AIDS, TB and Malaria (GFATM).

In 2005, the program has received substantial financial assistance from GFATM over a period of five years for enhanced malaria control project. The first 2 years fund of US$1.00957 million covers a broad range of interventions in response to the complex epidemiology and burden of malaria. This assistance is performance based, therefore, it is very important to implement an effective monitoring and evaluation mechanism.

The monitoring and evaluation aims to serve as a management tools for the project to monitor the GFATM malaria project implementation activities and evaluate the performance of project implementation and make adjustment to improve performance as implementation process. M&E involves the continuous collection of information during the implementation of the malaria control program to allow for immediate assessment and to identify deficiencies that can be rectify without delaying the program's progress.

The Malaria Indicator Survey, 2006 is part of the monitoring and evaluation of the program and is being carried out to collect information on key indicators for the monitoring of the program.

Objectives

The main objective of this survey is to assess core malaria indicators to monitor progress towards the achievement of key targets.

The specific objectives are to assess:

- Coverage of LLIN (Long Lasting Insecticide treated Nets) and IRS (indoor residual sprays)
- To understand the net use among the community
- To assess the early diagnosis and prompt therapy as per the national treatment guidelines.

Sample Size Calculation:

The sample size was determined based on the desired level of precision for the assumed percentage of under-5 children slept under an LLIN in the night preceding the survey. This would yield the largest sample size which means that the other indicators can be measured comfortably. A conservative estimate of 50% was taken for this indicator. The sample size works out as follows:

$$\mathbf{n=Z^2\ p\ (1-p)/d^2}$$

Where:

n = the number of under-five children required
Z = 1.96 for 95% Confidence level
d = precision taken as 0.05
p = probability of an under-five child sleeping under LLIN taken as 0.5

n = (1.96 X 1.96 X 0.5 X 0.5) / (0.05 X 0.05) = **384**

This **n** is the number of under-five children that has to be included in the survey. A pilot study on malaria KABP carried out in Sarpang Dzongkhag in early 2006 found that 43% of households had at least one child under the age of 5 years. Using this information, the total number of households needed for the survey to ensure that the required number of under-five children is included works out to be 893 households. To account for 5% non-

response rate the final number of households becomes 938, say **950**.

The Bhutan Population and Housing Census 2005 found that the Urban/Rural distribution of population was 30.9% and 69.1% respectively. The sample households will similarly be distributed to include **294 urban households and 656 rural households**.

Sample Population and Sampling

There are five Dzongkhags where malaria is endemic and another ten Dzongkhags where malaria appears on a seasonal basis in selected areas. The nature and intensification of activities carried out by the programme are different in these two "areas" and therefore, 950 households will be taken from each of these two types of Dzongkhags.

To ensure a systematic approach and keeping in mind the constraints of time and budget available 30% of the five Dzongkhags where malaria endemic were selected using random numbers generated by MS Excel after the five Dzongkhags were arranged alphabetically and numbered sequentially. Similarly 30% of the ten Dzongkhags where selected in a similar manner.

The "catchment-areas" of health facilities (BHUs and Hospitals) were taken as enumeration areas for the survey. Once the Dzongkhags had been selected as above, the health facilities in each of the selected Dzongkhags were arranged alphabetically, numbered sequentially, and selected using random numbers generated by MS Excel as done earlier. In case a selected Dzongkhag had only one health facility where malaria appeared, the health facility was selected automatically.

For the urban areas, the main town (municipal) areas in each of the selected Dzongkhags were taken automatically. In one selected Dzongkhag, Tsirang Dzongkhag, the main municipal area is a non-malarious area therefore there is no urban population for this Dzongkhag.

The sites selected are as follows:

Endemic Dzongkhags:

Samtse Dzongkhag
Samtse town (urban)
Gomtu Hospital (rural) (excluding town area)
Samdrupjongkhar Dzongkhag
Samdrupjongkhar town (urban)
Dechiling BHU (rural)
Deothang Hospital (rural) (excluding town area)
Nganglam BHU (rural)

Seasonal Dzongkhags:

Tsirang Dzongkhag
No urban area as there are no malarious urban areas in Tsirang
Patala BHU (rural)
Wangduephodrang Dzongkhag
Bajo/Wangduephodrang town (urban)
Kamichu BHU (rural)
Pemagatshel Dzongkhag
Pemagatshel town (urban)
Pemagatshel hospital (rural)

For selecting the households in the rural areas, a list of households in the selected area, which is usually available with the Gup (Geog Head), was used as a sampling frame. The total number of households in the area were divided by the total households required, which

gave the skip interval. After the first household was selected using a random number table, the next households will be selected using the skip interval obtained.

In the urban areas, the households was selected by going to the center of the town and spinning a bottle. The first household towards the direction of the bottle was selected and every second household after that was included. In case of a multi-storied building, the flat on the top floor towards the right-hand side was considered the first household; the flat on the right-hand side on the floor below was the second household etc. In the event that the required number of households are not obtained after finishing the whole of the municipal area, the remaining households was included in a similar fashion.

In addition to information collected from the above communities, some information was also collected from the health facilities (BHUs and Hospitals) of the selected sites to get data on relevant indicators.

Tools and Methodology

This study was cross-sectional household survey of areas where malaria transmission is either perennial or occurs periodically. The survey was conducted during the month of October 2006.
The information from the households was collected by administrating a pre-set structured questionnaire to the head of the family, or in his/her absence, the oldest adult available.
The data from the health facilities was collected using a standardized form from the hospital records retrospectively. The cases record from the past three months was utilized to get the cases management.

Result and Findings:
Demographic details:
Main characteristics of the respondents:

Demographic	Endemic		Seasonal	
	Rural	Urban	Rural	urban
No of household	654	296	626	294
Respondents mean age	41.6	35.5	41.8	37.0
% of female respondents	58.9	64.9	55.3	62.9

A total of 1870 household were surveyed (950 in endemic area (296 in urban and 654 in rural) and 920 in seasonal transmission districts (294 in urban and 626 in rural)) and 19 health facilities in the selected sites were surveyed.

Average Household size

In the endemic areas, of the household interviewed, the average household size was 4.7 both in rural and urban area. The trend was similar in the seasonal transmission districts with an average household size of 4.7 in both rural and urban.

%of household having any children under five

In endemic rural 38.7 % of household had children under five with an average of 0.5 children per household. And 43.9% of household in urban had children under five with an average of 0.6 children per household. The % of household having children in rural areas of seasonal malaria transmission districts were 48.9% and 44.6% in the urban

areas with an average of 0.7 and 0.6 children per household respectively.

% of household having any pregnant women

In endemic rural 3.2 % of household had pregnant women and 4.1 % of household in urban had pregnant women. The % of household having pregnant women in seasonal areas was 4.9% and 2.4% in the rural and urban areas respectively.

% of household having any people above 60 years of age

In endemic rural 28.6 % of household had people over 60 years of age. And 11.2 % of household in urban had people above 60 years. The % of household having people above 60 years of age in seasonal rural were 29.7% and 18.4 % in the urban areas.

Marital status of the respondents

In the endemic areas of the respondents 86.5% and 90.1 % were married in rural and urban respectively. In the seasonal areas of the respondents 84.5% and 86.1.1 % were married in rural and urban respectively.

Average Number of people who slept in house last night

In the endemic district on the average 4.7 Number of people had slept in household in the rural areas and 4.7 number in the urban areas. The trend in the seasonal district is 4.5 both in urban and rural.

Main Occupation of the head of the Household

Main occupation of the head of the family	Endemic		Seasonal	
	Rural	Urban	Rural	urban
Farmer	85	31	67.6	18.4
Business	5.1	14	6.2	36.7
Govt. employee	4.8	42.1	13.6	36.1
Others	5.1	12.9	12.6	8.8

The main occupation of the head of the family were 85% farmers, 5.1% business, 4.8 % government employees and 5.1% were others in the rural and 31% were farmers, 14% were businessmen, 42.1% were government employees and 12.9 % were others in the urban. For seasonal rural 67.6% were farmers, 6.2 % were business, 13.6% were government employee, 12.6% were others and in seasonal urban 18.4% were farmers, 36.7 % business men, 36.1%government employee and 8.8% others.

Main types of fuel used for cooking

The main cooking fuel used was firewood (76.6%) and in urban it was LPG (61.6%) in the endemic districts. The main cooking fuel used was firewood (64.4%) and in urban it was electricity (70.4%) in the seasonal districts.

Main type of materials for the floor

The main floor for endemic rural in Planks (59.5%) followed by cement 23.7% and earth and sand 10.4 % and in urban the main floor is cement (86.7 %). In the seasonal districts the main floor used was planks (46.3%) and cement 26.7% and earth/sand 14.7 in rural and

in urban the main floor was 50.7% had planks followed by cement 41.5%.

Findings on Key Indicators:

1. % of households in the targeted areas (i.e. endemic-group I) owning at least one ITN (LLIN) = 94.5%
2. % of households in seasonal areas(Group 2) owning at least one ITN (LLIN) = 38.2%
3. % of under five children who slept under a mosquito net (both endemic and seasonal) = 73.6%, in endemic areas only= 94.2% and seasonal areas only=55.3%
4. % of pregnant women who slept under the mosquito net on the previous night endemic 90.5 %(28 out of 31) and seasonal 61.2 (19 out of 31)
5. % of patients receiving anti-malaria drugs out of total fever cases=2.3%
6. % of patients receiving anti-malaria drugs as per the treatment guideline(both old and new guideline)=100%
7. % of patients receiving Coartem out of total pf cases: 75%
8. In both areas (endemic and seasonal), 72.9% of respondents knew that malaria was spread through mosquito bites. In endemic areas, 75% of respondents knew this and in seasonal areas 70.8% of respondents knew this.
9. When asked about the symptoms of malaria only 24.1% of respondents in the endemic areas were able to mention three symptoms (fever, headache and vomiting), while in the seasonal areas, only 14.7% were able to mention these.
10. % household sprayed with Indoor Residual Spray within past 12 month: Endemic area =87.1% & and seasonal transmission districts= 15%

Findings as per the transmission zones:

1. Endemic

1.1 Endemic rural:

1.1.1 Mosquito Nets:

In the endemic areas, the % of household having LLIN was 94.5% with an average of 2.5 LLIN per household. However, 0.2 % of the household did not have any nets.

Of the household possessing mosquito nets 95.7 % received nets from health centre and 53.6 % had self procured nets and an average 4.6 people per household slept under the mosquito nets in the previous night.

The % of under five children who slept under mosquito net on the previous night was 94.2% (Denominator all under five children in the household surveyed in endemic area i.e. 349) and the % of pregnant women who slept under mosquito nets was 90.5%(Denominator all the pregnant women in the household surveyed in endemic area i.e. 21 pregnant women). The % of children sleeping under net before 8 pm was 46.1% where as 4.2% of adults go to bed before 8 pm. 3.7% of the respondents had some problem in using the mosquito nets.

Of the household owning mosquito nets other than LLIN, 66.8 % had treated their nets. Of these treated nets 94.7 % was treated within 3 months, 2.8 % within 3-6monts, and 0.9 % more than 6 months 0.9 % more than 1 year.

When asked about the frequency of net wash in the past 12 months, the response was never washed 30.1% , 17% once, 43% twice and 10% 3 or more times.

Average number of people sleeping away from the house were 0.07% and out of these 76% use mosquito nets.

1.1.2 IRS:

90.5% of the household had been sprayed with IRS during the past 12 months.

1.1.3 EDPT:

Of the household surveyed 8% of household reported that children under 5 (21 out 349 suffered from fever, 3 out of 21 pregnant women suffered from fever.
95.2% of the respondents stated that they visit health facility first after the onset of fever.
Of the total children under five, only two had been diagnosed of malaria in the past 12 months and none of them was diagnosed of malaria in the past 12 months.
On the average, the normal time to reach to the health facility is 88.5 minutes.

1.2 Endemic urban:
1.2.1Mosquito net

In the endemic urban areas 0.3% of the household did not have any nets. The % of household having LLIN was 90.4% with an average of 2 LLIN per household.
Of the household possessing mosquito nets 90.4% received nets from health centers and 84.2% had self procured nets.

Of the household that had nets, an average 4.5 people slept under the mosquito nets.
The % of under five children who slept under mosquito net on the previous night was 88.9% (Denominator all under five children in the household surveyed i.e. 171) and the % of pregnant women who slept under mosquito nets was 75 %%(Denominator all the pregnant women in the household surveyed i.e. 12 pregnant women).
Of the household having mosquito nets other than LLIN 72.1% had treated their nets. Of these treated nets 84.4 % was treated within 3 months, 4.7 % with 3-6monts, and 4.3 % more than 6 months 1.9 % more than 1 year.
The frequency of net wash in the past 12 months are; never 28.1%, 9.6% once, 38.7% twice and 23.6% three or more times.
The % of children sleeping under net before 8 pm was 30.3% where as 2.8% of adults go to bed before 8 pm. 6.6% of the respondents had some problem in using the mosquito nets.
Average number of people sleeping away from the house was 0.04% and out of these all of them had stated that they have use mosquito nets.

1.2.2. IRS:

79.3% of the household had been sprayed with IRS during the past 12 months.

1.2.3. EDPT:

Of the household surveyed only 8% household reported that there was a child under five suffering from fever in the past one month and there was no pregnant women suffering from fever in the past one month. 92.9% of the respondents stated that they visit health facility first after the onset of fever.
Of the total children under five, only 10 had been diagnosed of malaria in the past 12 months and none of the pregnant mothers were diagnosed of malaria in the past 12 months.

On the average, the normal time to reach to the health facility is 19 minutes.

Both in rural and urban areas of the endemic areas, apart from the mosquito nets, the other methods used by the household to protect from mosquito bites were smoke, coil and sprays.

2. Seasonal Transmission districts:
2.1 Seasonal rural:
2.1.1. Mosquito Nets:

In the seasonal rural areas 29.1% of the household did not have any nets. The % of household having LLIN was 44.8% with an average of 1 LLIN per household.
Of the household possessing mosquito nets 64.9% received nets from health centre and 75.1% had self procured nets.
Of the household that had nets, an average 3.8 people slept under the mosquito nets.
The % of under five children who slept under mosquito net on the previous night was 32.5% (Denominator all under five children in the household surveyed i.e. 428) and the % of pregnant women who slept under mosquito nets was 46.9% (Denominator all the pregnant women in the household surveyed i.e. 32 pregnant women).

Of the household having mosquito nets other than LLIN 33.7 % had treated their nets. Of these treated nets 3.3 % was treated within 3 months, 30.1% with 3-6 months, and 39.4 % more than 6 months 24.9 % more than 1 year.
The frequency of net wash in the past 12 months is never 59.9%, 17.2% once, 14.2% twice and 8.8% 3 or more times.
The % of children sleeping under net before 8 pm was 61.0% where as 3.6% of adults go to bed before 8 pm.
2.6 % of the respondents had some problem in using the mosquito nets.
Average number of people sleeping away from the house were 0.3% and out of these 40 % use mosquito nets.

2.1.2 IRS:

22% of the household had been sprayed with IRS during the past 12 months.

2.1.3. EDPT:

Of the household surveyed 8% household reported that children under 5 (56 out 428 suffered from fever, 3 out of 32 pregnant women suffered from fever.
90.4% of the respondents stated that they visit health facility first after the onset of fever.
Of the total children under five, only 9 had been diagnosed of malaria in the past 12 months and out of total pregnant women 1 of them was diagnosed of malaria in the past 12 months.
The household interviewed stated that the normal time to reach to the health facility is about 188 minutes.

2.2 Seasonal urban:
2.2.1 Mosquito Nets:

In the seasonal urban areas 22.8% of the household did not have any nets. The % of household having LLIN was 1.4 % with an average of 0.01 LLIN per household.
Of the household possessing mosquito nets 1.4 % received nets from health centers and 97.1% had self procured nets.
Of the household that had nets, an average 3.9 people slept under the mosquito nets.
The % of under five children who slept under mosquito net on the previous night

was 54.1% (Denominator all under five children in the household surveyed i.e. 183) and the % of pregnant women who slept under mosquito nets was 28.6 %(Denominator all the pregnant women in the household surveyed i.e. 7).

Of the household having mosquito nets other than LLIN 1.7 % had treated their nets. Of these treated nets none was treated within 3 months, 19.1 % with 3-6monts, and 4.8 % more than 6 months 9.5 % more than 1 year.
The frequency of net wash in the past 12 months is never 18.1%, 23.4% once, 31.7% twice and 26.8% 3 or more times.
The % of children sleeping under net before 8 pm was 36.4% and where as 1.0% of adults goes to bed before 8 pm.
2.0 % of the respondents stated that they have some problem in using the mosquito nets.
Average number of people sleeping away from the house were 0.2% and out of these 32.7% use mosquito nets.

2.2.2. IRS:

None of the household had been sprayed with IRS during the past 12 months.

2.2.3. EDPT:

Of the household surveyed 8% household reported that children under 5 (24 out 183 suffered from fever, none of 7 pregnant women suffered from fever)
95.6% of the respondents stated that they visit health facility first after the onset of fever.
Of the total children under five, only nine was diagnosed of malaria in the past 12 month and none of the pregnant women was diagnosed of malaria in the past 12 months.

On the average, the normal time to reach to the health facility is 38 minutes.

Other findings:

Other findings that were quite common in all survey groups were: The main reasons for not treating nets were the coverage of LLIN, had no idea about net treatment, no one came for impregnation, no old nets. In all the household possessing LLIN, more than 99% of the LLIN were in good condition and more than 90 % of the household use some form of detergent to wash their nets.
The main problems in using nets were itching, irritation and skin burning on contact were some of the problems stated by the respondents.
Of the household sprayed most of the spraying was done within 3.9 months from the date of interview.
The main source of information on malaria is health workers 47 %, radio 33%, and television 15 %.

Health facility indicators:

The surveyors reviewed the malaria cases for the past three months and analysed 282 malaria cases retrospectively in terms of the treatment provided. The cases included 123 plasmodium falciparum, 135 plasmodium vivax and 24 mixed cases. The cases as per the different transmission zones are: endemic districts; plasmodium falciparum 104, plasmodium vivax 113 and Mixed 21 cases; seasonal transmission districts; Pf 19, Pv 22 and Mixed 3 cases.

Treatment schedule for both areas (endemic and seasonal combined)

Treatment Regimen	Freq.	Percent
A	134	47.52
B	93	32.98
C	16	5.67
D	33	11.70
H	1	0.35
I	5	1.77
Total	282	100.00

Treatment protocol as per revised schedule (Coartem):

*A: Treatment protocol for P vivax

B: Treatment for p falciparum with Coartem

C: Treatment for severe malaria (With quinine and Artimether)

Treatment protocol as per old regimen (It was used for the purpose of the study since the orientation to the new regimen was not complete and hence assumed that new regimen may not be followed by the health facility during survey):

D: Adult non prégnant

E: Pregnant First trimester

F: Pregnant 2nd and 3rd Trimester

G: Child below four weeks

H: Child 4 weeks to 8 years

I: Child above 8 years (9-14 years of age)

J: Severe malaria

Discussions:

The study included both endemic districts which had the perennial transmission and the seasonal transmission districts. The sample size of included 1870 household which is about >>>>% of the total household. The average household size is on average 4.7 which is in line with population and housing census conducted in 2005…..In addition the survey indicated that on average 4.7 people has slept in the household corresponding to the family size. Considering the vulnerability to the disease, the survey also focused on children and pregnant women.

The survey also looked at the materials for the floor so that IRS application strategies can be developed. Only about 10-14% of the household had earth/sand as the main floor which needs plastering very frequently. Therefore, the application of IRS should also consider the local pattern of plastering the floors and walls.

Under the GFATM funding Bhutan has procured more than 100,000 LLIN and it is distributed to the public to cover both urban and rural population most living in the endemic areas with an aim to achieve over 70% coverage by 2006. These achievements is substantiated by the survey findings of over 90 household having at least one LLIN however, the coverage of LLIN in the seasonal transmission districts is only about 38%. Although, this coverage is as per the set targets of 30%, there is a need to improve the coverage in these districts. However, the distribution should be focused and cover only that area which has previous cases of malaria so that LLIN is distributed. This would be also cost effective since most areas under the seasonal district have not experiences malaria although climatic conditions favour mosquito breeding. Therefore, to save cost, the net distribution in these areas should be strategically framed considering various factors of probability of getting malaria.

The result also indicated a high percentage of people who stated that they sleep under the mosquito nets inclusive of children, pregnant women and elderly who are at higher risk with

an average of 4.5-4.6 people who slept under the mosquito nets. Understandably, the findings are lower in the seasonal transmission districts correlation to the low coverage of nets. Believing that the people go inside the net only when they go to bed, the sleeping timing was also asked with 8pm as an index hour. The survey showed that less than 50% of the children and less than 5% of the adults go to bed before 8 pm. However, about 60% of the children dwelling in the rural seasonal districts go to bed before 8 pm. The sleeping time of the people or the time they go inside the mosquito net should be correlated to the biting time of the vectors. However, it has to be understood that these results are the answers provided by the respondents to the surveyors structured questionnaire and not the observations. Therefore, it has to be interpreted within the context that respondents must have provided correct answers although the surveyors were the malaria health workers. While distribution of nets, people were made to understand that they will use net or less the net will be taken back. These could have resulted in an over statement of positive answers.

The net wash and method of net wash could effect the chemical efficacy of the nets and the LLIN is supposed the withstand 25 washes. Only 10 % of the endemic rural population washes net more than twice a year. Therefore, the present LLIN efficacy can last the entire duration of the net life of 5 years considering the net wash was as the sole parameter. Despite these finding, the chemical efficacy of the net must be regularly monitored since there are various other factors which would cause less effectiveness. Further, considering the living conditions of the Bhutanese population, the nets would be physically worn out even with 2-three years. Therefore, to maintain the low burden of malaria, the net coverage should be sustained for years to come by providing at free of cost to the rural population and at subsidized cost in the urban areas who can afford.

On top of the LLIN, many household also had other nets which require regular impregnation by the chemicals. Therefore, although, the LLIN coverage is good, the impregnation facilities have to continue for some time to come so that the population can also utilize the available old nets.

The farmers are usually slept out doors in the field protecting their field at night time. Our survey also indicated that although there are people sleeping out side the house, the proportion of net use was quite high even among this population. However, all these findings are as per the verbal statement of the respondent and to really understand the behaviour of the population we may need observational study as mentioned in earlier section.

On the Indoor residual spraying, the coverage is very good of over 90% in endemic rural population and over 70% in endemic urban areas. These could be due to initial out break in 2006 which required intensified coverage. However, the coverage is very minimal in the seasonal transmission districts with only 22% of the household surveyed covered with IRS. This is in line with our control strategies where IRS is applied only to focal areas as per set criteria. The coverage data is similar to the data collected regularly at the programme from the spraying squad. In 2006, a total of <<<<< household was applied with IRS.

With the assistance of GFATM, Bhutan has introduced Coartem* as the main therapy for the uncomplicated regimen. In addition, the treatment guideline was printed and lot of health workers was oriented to the new treatment regimen. Therefore, it is important that the health workers prescribe as the standard regimen. For the purpose of the survey, both treatment regimen, old and revised was used since the orientation to the guideline was late and even distribution of the guideline got delayed. The results showed all the malaria treatment was based on standard treatment regimen provided by the programme. However, the % of patients receiving Coartem out of total pf cases was 75%. Coartem as per the treatment guideline is indicated for the treatment of only uncomplicated pf cases. Therefore, the Coartem use rate is good considering that Coartem is distributed only recently and the health workers are still in a process of getting oriented with these drug. With further training, it is expected that 100% compliance with the treatment regiment. However, some of the health workers still follow the old regimen. This trend is expected to be changed over period through continuous training programmes.

The health facility coverage is also good with all the household surveyed stated that they take less than three hours to reach to the health facility and more than 90% of the household stated that they visit health facility first after the onset of fever.

With over 70% of the people knowing the mode of transmission of malaria, it can be concluded that people have received some form of information regarding malaria.

The majority of the respondents stated that they get their information about malaria from the radio.

Survey Limitations:

The survey included those areas which are possible for malaria as per the geographical location and vector prevalence as per the entomological opinion. There was no extensive survey done to see the prevalence of vector in these areas. Further, till date there is no entomological data established to confirm the malaria vector in Bhutan. The possible vectors such as an. Minimus and fluvitalis are based on the presumption since it is the vector on the Indian borders and also as per the expert opinions of the consultants. Therefore, although large sample size was taken for the survey, the findings has to net correlated with the entomological findings when such an entomological data is available.

All surveyors are malaria technicians who had frequent visits to the rural population on net distribution and net usage inspection. Therefore, there could be a possibility that the respondents could have lied leading to biased results.

Although net was can be one of the determinants of the chemical efficacy, there are various other factors affecting the LLIN efficacy and therefore, insecticide efficacy monitoring has to be followed frequently.

Health facility data was obtained retrospectively from the limited health facilities only. In future this has to be streamlined into the main information channel to provide wider representation.

Conclusion:

The survey showed a good coverage of LLIN. All the key indicators are

achieved and some of the indicators have even surpassed the set targets. The people seem to use the nets that are distributed. Despite all these preventive measures, the malaria cases come back every year and focal out breaks seems to be a common phenomenon. Therefore, there is a need to study the people's behaviors and correlate these to the vector bionomics. There is also a need to perform an in-depth entomological study not only to identify the malaria vectors but also to understand the vector bionomics in Bhutan. Only then a focused preventive strategy would have greater impact in reducing the morbidity and mortality due to malaria.

RAPID ASSESSMENT OF SERVICE SATISFACTION OF PATIENTS ATTENDING JDWNRH,

May 2004

Research & Epidemiology Unit

Background

The JDWNRH team together with the Ministry of Health is in the process of reviewing services and management of the JDWNRH in order to improve the current services available to the public. While reviewing & self-examining functioning and management of the various units within JWDWNRH, it is also important to get an understanding of how the patients availing care at JDWNRH view the services received. Therefore a rapid assessment of the service satisfaction of patients availing services was though to be vital and was carried out on 31st May 2004.

A structured questionnaire was used to gather information from patients availing services in the general OPD, casualty and the wards. In the OPD and casualty the questionnaire was administered to the patients who have been through the whole service cycle of registration, being seen by the GDMO/ACO/Specialist and getting services from the pharmacy, laboratory, x-ray etc. (exit interview). In the wards, the survey targeted patients who were being discharged or near discharge.

In total 97 patients were interviewed in this rapid assessment. Of these, 2 (2%) were interviewed from the Cabins, 7 (7%) from Dental clinic, 4 (4%) from the ENT ward, 5 (5%) each from the maternity, surgical, medical and pediatric wards, 20 patient attendants (21%) from the pediatric OPD, and 44 patients (45%) from the general OPD. Of the total people interviewed about 56% (n=97) were females. The average age of the people interviewed was 35.5 and ranged from 15 years old to 85 years old patients.

62% (n=95) of the people were residents of Thimphu. Of the remaining who were from outside Thimphu, 81% (n=36) had come to Thimphu specifically to avail treatment facilities from the hospital.

Almost half of the respondents (47%) could not read or write. The education level of the respondents are as summarized in the table below.

Education Level	Freq.	Percent
Primary School	12	12.37
Middle School	9	9.28
High School	21	21.65
Graduate & Above	5	5.15
Monastic school	4	4.12
Can't read/write	46	47.42
Total	97	100.00

Patient Satisfaction

A: Waiting Time and Access to Information on Services

More than half the respondents (51%) had visited the JDWNRH many times while about 21% of them were visiting it for the first time. For those who were visiting the hospital for the first time, they were asked if they came across any difficulties finding their way around the hospital. Of the 22 people who said they were visiting for the first time 12 (55%) said they had no problem. The problems pointed out by the

10 people who said they faced some sort of problem is summarized below:

Problem	Freq.	Percent
Had to ask other patients for directions	6	60.00
Hospital Staff too busy to guide	1	10.00
Others	3	30.00
Total	10	100.00

The time taken for a person to complete the whole process of registration to the time of collecting of medicines was reported to be less than 30 minutes for 14.8% of respondents. 13.5% said they took less than 2 hours and 20.2% said it took one working day. For the other respondents (who probably had to avail of other facilities such as laboratory, radiology etc) about the time ranged from 2 working days for 12.2% to 7 working days for 1.3%. In summary, almost 38% of respondents reported that the time taken was less than two hours. The possible reason for those who avail the services within 2 hours could be due to the fact that the patients know the staff at registration and ACO/GDMO; break the queue; that they came early to be the first in line; they came just before closing time. These situations, which were reported by many of the respondents, would have reduced the waiting time for these people.

An overwhelming 73% of respondents reported that the length of waiting time was either fairly acceptable or acceptable. However, it could be important to take note of the 16 % of respondents who reported that the waiting time was not acceptable.

The area where people had to wait the longest was reportedly to meet the ACO/GDMO (reported by 62% of respondents) followed by meeting specialists (12%) and the registration area (10%).

When people were asked if information on services and their locations were easily available 87% of respondents felt that it was available sometimes or most of the time. However, they said it was available only when they went around and asked people about it. 7% felt that such information was either mostly not available or not available at all.

Satisfaction level of respondents on availability of information or care instruction in areas of the hospital such as registration, ACO/Doctors, pharmacy, laboratory, radiology etc was generally high ranging from 65% to 75% saying they were satisfactory. The area where there was highest percentage of people who said they were unsatisfactory was the Casualty area. Here, about 37% of respondents said that the care and service received was unsatisfactory or highly unsatisfactory.

B. Attitude and professional competency of service providers

Most respondents (60% to 80%) felt that some staff or most staff in the hospital were friendly, helpful and took time to explain details to patients. However it might be of importance again to note that even though most people feel this way there are still some respondents (20%) who disagree.

Respondents were asked about how much they were satisfied regarding the attitude of staff in the different areas of the hospital. Although the level of satisfaction appeared to be generally high among the respondents, more information into areas where dissatisfaction was high was explored for. This information would be useful to inform us regarding areas where we could improve. Once more, “Casualty” area appeared as the main place were most

people (28%) felt that attitudes were either unsatisfactory or highly unsatisfactory. This was followed by attitude of nursing staff (12.5%) and registration staff (11%). 6% of respondents were unsatisfied or highly unsatisfied with the attitudes of ACO/Doctors and 4% with specialists.

97% of respondents were confident or fully confident about the professional competency of the specialists, 86.9% were confident of the ACO/GDMO, 85.2% of the registration staff, 83.9% of the laboratory staff, 75% of the nursing staff and 61.2% of the staff in the "casualty" area. This indicates a high level of confidence in the staff of the hospital among the general respondents. Nonetheless, 25.8% also felt that they were only partially confident or not confident about the professional competency of staff in the Casualty. This was followed by 17% of respondents who were only partially confident or not confident about professional competency of nursing staff and 12.5% about the laboratory staff and registration staff.

Opinion on various hospital services
More than 80% of the respondents stated being satisfied or highly satisfied with the services received in the various areas of the hospital. Here again casualty rated the lowest with only 60% of respondents saying they were satisfied or highly satisfied.

Respondents were asked to provide three reasons for their dissatisfaction with the hospital services. On the whole, most people stated being satisfied with the services being provided. Among those who gave reasons for dissatisfaction, the reasons cited were:

- Staff not helpful and were rude
- Harsh treatment in Casualty
- Staff in Casualty not readily available
- Preferential treatment by staff for family and friends
- Poor information and instruction
- Long waiting time
- Doctors do not examine thoroughly and are impatient
- Staff scold and are rude to poor people from the village
- Laboratory is closed by the time patients are seen by doctors and get there
- Nurses do not call doctors at night
- Trainees provide inadequate and poor services

Suggestions for improvement of services (from respondents)

Respondents were also asked to provide suggestions for improvement of services in the hospital. The most common suggestions cited are as listed below:

- Staff should be more friendly and helpful
- Attitude of registration staff should be improve (should be more aware of the elderly and really sick people)
- Token system for seeing doctors and specialists could be introduced
- Better supervision of treatment by doctors and staff
- Cleanliness of toilets and bedpans (in the wards) should be improved
- Need to improve care of patients without attendants and terminal patients
- "Casualty" should be made bigger
- Increase number of staff in the hospital
- More facilities made available so people need not go out for treatment

Analysis from patients in Casualty Ward

It was recognized that Casualty Ward was an area where dissatisfaction level was

high even before this assessment was carried out. In addition to this, the patients in casualty ward are a little different in that they do not have to go through the whole process of registration and visiting the ACO/Doctors just like the other patients. Therefore, a separate questionnaire was designed to gather information from patients in the casualty ward.

In total 13 such patients were interviewed. Of these, 62% said that the staff of casualty ward attended them to immediately and 38% said that the staffs were busy with other patients. None of the respondents reported that the staff were not bothered to give attention or that they had to wait for a long time for the casualty duty doctor to come and see them. More than half (53%) reported that they received services within 10 minutes of their arrival, 30% within half an hour and 15% within one hour. The most common reason outlined for delays were that staff were busy with emergency cases.

Most respondents in the ward (92%) felt that the casualty staff was competent and more than 90% thought that the staff was caring and helpful. However, when the complaints with which these patients presented to the 'casualty' area were analyzed in detail, only four cases of the total thirteen patients were actually "emergencies" which merited presentation to the "casualty" area. This might have led to a high level of satisfaction among the others since they were not in acute or serious discomfort.

Discussion and Conclusion

In general, it appears that the level of satisfaction and confidence in the staff of the different areas of the hospital is high among the respondents in this assessment. In fact, when they were asked about their impression on the overall services in JDWNRH 63% of respondents said it was good and 33% said it was satisfactory. Only 3% said it was not satisfactory and 1% said it was poor.

However care should be taken in interpretation of these findings given the limited sample size and design employed for this rapid assessment. In this assessment, about half of the respondents had no education (could not read or write) and only 5% had a university education. It could be argued that the expectations of uneducated or lesser-educated people are relative low. Further, about 38% of respondents were from outside Thimphu and the services offered in JDWNRH, being the national referral center, are presumably much better than those offered in the districts. Therefore, it could be of much use to carry out a properly designed study to explore if the expectations and satisfaction of different types of people are different. This study could be designed in such a way as to allow for proper stratified analysis.

Analysis of areas where the dissatisfaction levels were relatively higher shows that "Casualty" is a major area where people are least satisfied and confident. However, when the patients admitted in the casualty ward were interviewed, satisfaction level and confidence was found to be very high among them. Dissatisfaction and poor confidence levels in attitude and competence of the nursing staff is also relatively high.

HYPERTENSION STUDY, JDWNRH,

Health Research & Epidemiology Unit

Background

The Kingdom of Bhutan is situated in the Himalayan Mountains and is characterized by rugged terrain, with a scattered population of around 700,000 people living on 38,394 square kilometer (1). Bhutan is signatory to the Alma Ata declaration, and has chosen primary health care as its core strategy (2). As a developing country, it has achieved substantial progress in health care: 78% of the population has access to safe drinking water, 88% of people have some means of hygienic excreta disposal and a health care facility is available within 3 hours walking distance for 89% of all people (3). From 1984 to 2000 the under-five-years mortality rate has gone down from 162 to 84 per 1,000 live births (3), new cases of leprosy have dwindled over the same time span from 130 to 16 per year (4,5) and reported malaria cases came down from 38,901 in 1994 to 5,935 in 2000 (6,5).

With a steady economic growth based mainly on the export of hydropower (the gross national product per capita rose from $170 in 1989 to $560 in 1999 (7)), and overcoming the burden of childhood, maternal and infectious diseases to some extent, non-communicable diseases are likely to become more important in terms of morbidity and mortality.

Worldwide most deaths are attributable to non-communicable disease, and half of those deaths are due to cardiovascular disease (CVD) (8). Cardiovascular diseases are not the hallmark of affluent societies any more: twice as many deaths from CVD now occur in developing countries as in developed countries. Overall, in developing countries CVD ranks third in disease burden (after injuries and neuropsychiatric disorders) (8). Sub optimal blood pressure (systolic>115 mmHg) attributes to 62% cerebrovascular disease and 49% of ischaemic heart disease globally, while the main causes of high blood pressure are modifiable (9).

In Bhutan, a national health survey held in 2000 pointed out cardiovascular- and blood disorders ranked third as cause of death for all age groups (3); CVD was the leading cause of death among all reported deaths in Bhutan in 2002, and hypertension was numbered 16th on the list of morbidity cases reported from Basic Health Units throughout the country in that year (10). Although these figures must be interpreted with caution, it might be that Bhutan is now facing the "double burden" (9); on the one hand it's dealing with diseases mainly affecting poor people, while on the other hand it needs to respond to a growth in non-communicable diseases.

This double burden is already acknowledged in the Jigme Dorji Wangchuck National Referral Hospital (JDWNRH) (2). This hospital is the apex referral centre of the country, but also caters to the population of the district of Thimphu and the city of Thimphu. Its general outpatient department (OPD) is the busiest in the country: in 2000 27% of all outpatients in the country came to the JDWNRH (5). Each day about 600 patients register at the general OPD, to get attended to by first-line health care personnel (health workers or general physicians). They treat patients independently, or refer them to a medical specialist. Up to now the general OPD is very much demand driven: health workers will focus on the health problem presented to them, and they have neither the time nor the means to screen for health risks.

A screening programme for cervical cancer, introduced at the gynaecology OPD of the JDWNRH in 2001, was the first standardized approach at prevention of chronic disease in Bhutan [11]. This programme is being extended gradually over all hospital OPDs in the country and scheduled to cover 50% of the population by the end of 2007 (2).

Presently the Ministry of Health is considering an analogue approach to hypertension. Since up to now not much is known about country-specific risk factors for non-communicable or cardiovascular disease, this study is designed to provide answers to some basic questions.

The general objective was to estimate the prevalence of known risk factors of Cardiovascular diseases among the patients in the outpatient department of the JDWNR Hospital. Specific objectives were: to estimate the proportion of patients in OPD of JDWNRH with elevated blood pressure according to WHO/ISH definitions and classification (12); to estimate their mean systolic blood pressure; to estimate the proportion of these patients on treatment for hypertension; to estimate tobacco use among these group of people, alcohol consumption, diet, and physical inactivity as behavioural risk factors for cardiovascular disease; to estimate their mean Body Mass Index (BMI) and the proportion of these people who were overweight and obese.

Design & Study population

The design used for the study was descriptive cross-sectional type. The population used of the study were outpatients of the Jigme Dorji Wangchuck National Referral Hospital (JDWNRH) aged 35 years or older.

Material and methods

Data collection

Data collection took place from 26 until 31 January 2004. Participants would be recruited each time an interviewer was available. Data were collected using the STEPS Instrument for NCD risk factors (7) and following the protocols from the WHO STEPS field manual (12). All STEPS core questions were included and part of the expanded format (history of high blood pressure). Some country specific questions were added (demography, dietary habits, additional history of disease). The data collection form is presented in annex1. For blood pressure measuring the Omron MX3 (HEM-741C-C1) (Omron Healthcare Inc, USA) automated blood pressure measuring device was used, which has been validated in an independent study (14). In case of error or unavailability of the Omron the Diamond Regular (IEAP, India) mercury sphyngomanometer was used. Only a standard cuff size was available. Data collectors were students from the Royal Institute of Health Sciences in Thimphu, whom had received training in interviewing techniques, the questionnaire used and the protocols for blood pressure and height and weight measurements. Two senior civil servants from the Ministry provided supervision on site and performed checks on the quality of data collection. Prior to data collection we field-tested the entire procedure.

The board of the JDWNRH and the Ministry of Health gave permission to carry out the study. In Bhutan no ethical review committees were functioning when we proposed our study. We asked informed consent of each participant; time expense was on average 20 minutes and no invasive procedures took place. Confidentiality was maintained by cutting of the name of the participant from the data collection form after the interview. If a participant had high blood pressure, he or she was referred to a health worker. Health care is available to all

Bhutanese free of charge, and includes medication for hypertension.

Data processing and analysis

Data were double entered and crosschecked for differences. Range and outlier checks were performed. Stata statistical package was used to calculate summary measures (Stata 7, Stata Corporation, College Station, USA).

Results

General characteristics

418 outpatients where asked to participate in the study. Two persons did not consent and 6 were excluded because they were younger than 35 years. We included 410 persons.

5.1% of 91 variables across 410 respondents were missing. Variables missing per section are outlined in table 1.

Table 20: Missing variables for 410 respondents across different sections

Section:	*Total data:*	*Missing data (%):*	
Demographics:	4510	88	(2.0)
Tobacco use:	5330	417	(7.8)
Alcohol:	7380	944	(12.8)
Diet:	3280	30	(0.9)
Physical activity:	8200	142	(1.7)
History of high blood pressure:	3690	40	(1.1)
Blood pressure:	4100	266	(6.5)
Height & weight:	820	14	(1.7)
Total:	37310	1911	(5.1)

Demographic characteristics

Out of the 410 participants 179 were male (43.7%) and 223 female (54.4%) (8 unknown sex).

23 Respondents knew their date of birth (5.8%); most people knew their approximate age. Mean age at time of study was 49.3 years (*n*=409;SD:12.2;min:35,max:88 years). Percentage wise, age group distribution was as follows: 24.9% was aged 35-39 years; 34.7% 40-49; 19.3% 50-59; 10.8% 60-69; 8.8% 70-79 and 1.5% 80-89 years (see figure 1).

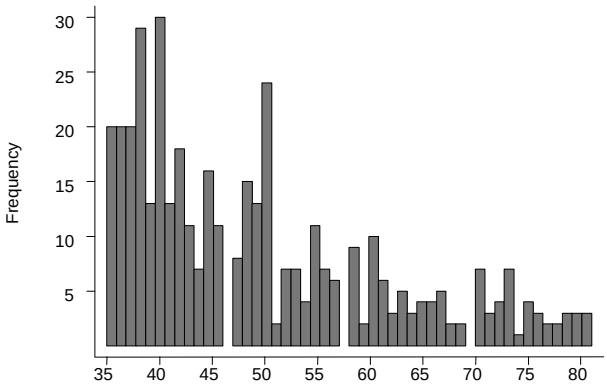


Figure 9: Frequency distribution of the age of 409 respondents

On average people had spent 1.8 years in full-time study (*n*=352;SD:3.7;min:0,max:17 years). Most people (76.6%) did not have any schooling.

209 people came from the city of Thimphu itself, while 200 people came from other towns and/or districts. The average time of residence was 20.1 years in the current place of residence, with a wide spread from one day up to 81 years (*n*=407;SD:21.0 years). People from Thimphu had resided 12.8 years on average in Thimphu, whereas people from other places had resided an average of 27.7 years in those towns (t-test(df:405):7.7;$p<0.0001$).

For 409 respondents their occupation was known. Most described themselves as either housewife (126) or farmer (100). Other professions mentioned relatively frequent were: business man or woman (18), no work (17), clergy (13), teacher (10) and driver (9). Ethnicity is outlined in table 2.

Table 21: Frequency distribution of ethnicity of 410 respondents

Ethnicity:	*Number of respondents:*	*% of respondents:*
Ngalop	170	41.5
Sarchop	106	25.9
Lotsampa	80	19.5
Kurtap	17	4.2
Indian	15	3.7
Khengpa	14	3.4
Tibetan	7	1.7
Missing	1	0.2
Total	410	100

Reasons for coming to the OPD were divers (see table3). Most persons had been to the OPD before (339 persons or 84.1%). Out of the people coming from Thimphu, 54.0% had been a patient before, compared to 46% of persons from outside the city (Pearson Chi^2(df:1):8.3; *p*:0.004).

Table 22: Reasons for coming to the OPD for 410 respondents

Complaint:	*Number of respondents:*	*% of respondents :*
Gastro intestinal complaints	56	13.7%
Complaints of joints and or muscles	40	9.8%
Eye problems	39	9.5%
Hypertension or blood pressure check-up	35	8.5%
Common cold symptoms	21	5.1%
Headache	17	4.1%
Follow up for unknown cause	15	3.7%
Diabetes	12	2.9%
Other	175	42.7%
Total	410	100.0%

Tobacco

23 people smoked, of whom 18 were daily smokers (4.4%;*n*=407;95%CI:2.6-6.9%). Mean age at which people started smoking daily was 25.6 years (*n*=17;SD:15.1;min:12, max:62 years). Out of these daily smokers, 10 persons smoked manufactured cigarettes, 5 smoked biris and one person smoked hand rolled cigarettes. (Daily) smokers did not differ significantly from non-smokers.

41.9% (*n*=399;95%CI:37.0-46.9%) of respondents used some kind of smokeless tobacco. 134 persons, or 33.8% (*n*=397;95%CI:29.1-38.6%) were daily users of some form of smokeless tobacco. Favorite smokeless tobacco product was doma with 86 people using doma daily. 48 people chewed tobacco daily, 20 people used zarda and 3 people used snuff daily. Users of smokeless tobacco were younger than non-users (47.4 versus 50.9 years, t-test(df:396):-2.8;*p*=0.005).

Alcohol

223 respondents 55.5%;*n*=402;95%CI:50.5-60.4%) had ever used alcohol, and 113 persons (28.2%;*n*=401;95%CI:23.8-32.9%) had done so in the past twelve months. Among these respondents there were more users of smokeless tobacco (55.9%) than amongst the persons that had not drunk alcohol within the past year (36.9%; Pearson Chi^2:11.7;*p*=0.001).

Of these 113 people, 27 (6.8%) said to drink on 5 or more days a week, 32 (8.0%) drank 1 to 4 days a week, 35 (8.8%) drank 1 to 3 days a month and 19 (4.8%) drank less than once a month.

The average number of drinks (estimated in 'mugs', see Annex 2) a person would drink on a day when drinking alcohol was 2.5 mugs (*n*=77;SD:2.1;min:0.5,max:8 mugs). 25 people answered 'I don't know' to this question.

All people who had drunk alcohol in the past 12 months were asked about their drinking behavior in the past week, for home made and factory produced alcohol separately. Only about half of the drinkers could answer this question. Results are outlined in table4and @.

Table 23: Mean gram of ethanol consumed on each of the past 7 days

Day:	Mean gram ethanol consumed:	SD:	Minimum:	Maximum:	Number of respondents:
Monday:	12.1	33.0	0	205	50
Tuesday:	12.6	26.1	0	112	53
Wednesday:	10.1	26.2	0	142	50
Thursday:	3.2	8.2	0	32	45
Friday:	3.6	9.7	0	41	43
Saturday:	9.4	31.6	0	160	42
Sunday:	14.5	45.9	0	256	45
Total:	9.5	28.7	0	256	328

For 41 respondents the average intake of grams of ethanol per day in the last seven days could be calculated, which was 4.8 g (SD:12.2;min:0,max:52.7 g).

Two out of 41 persons drank on average more than 35 g of ethanol on a day.

For 43 persons the average intake of mugs of home made alcohol in the past week could be calculated, these persons drank 0.5 mugs on average (SD:1.1;min:0,max:6 mugs). Only one respondent drank both ready made and home brewn alcohol.

Table 24: Average number of mugs of home made alcohol drank in the past 7 days

Day:	Mean number of mugs consumed:	SD:	Minimum:	Maximum:	Number of respondents:
Monday:	0.7	1.7	0	10	56
Tuesday:	0.6	1.1	0	6	56
Wednesday:	0.5	1.1	0	6	53
Thursday:	0.5	1.1	0	6	53
Friday:	0.8	2.8	0	19	51
Saturday:	0.5	1.1	0	6	52
Sunday:	0.6	1.4	0	7	57
Total:			0	19	378

Diet

Most people ate fruit on some days but 86 (22.1%) respondents did not eat any fruit at all. From the people from outside Thimphu, 25.5% did not eat any fruit at all, compared to 16.4% of the people from Thimphu (Pearson Chi^2(df:1):5.1;p=0.02). On a day on which fruit was consumed, people ate 2.0 servings on average (n=320;SD:1.1;min:1,max:7 servings). The average number of servings people consumed in a week did not differ amongst different groups.

People usually ate vegetables each day of the week (272 out of 408 respondents). On a day on which vegetables were consumed, people ate 2.4 servings on average (SD:0.7;min:1,max:5 servings). Fruit and vegetable consumption in an average week is outlined in tables 6 and 7.

Table 25: Number of days respondents eat fruit and vegetables in a typical week

Number of days:	*Fruit: number of respondents (%)*		*Vegetables: number of respondents (%)*	
0	86	(21.1)	2	(0.5)
1	54	(13.2)	0	(0.0)
2	92	(22.6)	12	(2.9)
3	91	(22.3)	20	(4.9)
4	22	(5.4)	23	(5.6)
5	16	(3.9)	59	(14.5)
6	5	(1.2)	20	(4.9)
7	42	(10.3)	272	(66.7)
Total	408	(100.0)	408	(100.0)

Table 26: Number of servings of fruit or vegetables people consume on a typical day

Number of servings per day:	*Fruit: number of respondents (%)*		*Vegetables: number of respondents (%)*	
0	86	(21.2)	2	(0.5)
1	126	(31.0)	47	(11.6)
2	100	(24.6)	148	(36.4)
3	67	(16.5)	208	(51.1)
4	19	(4.7)	1	(0.3)
5	4	(1.0)	1	(0.3)
6	3	(0.7)	0	(0)
7	1	(0.2)	0	(0)
Total	406	(*99.9)	407	(*100.2)

*Due to slight rounding differences

The majority of people, 368 out of 407 respondents (90.4%) use some sort of refined vegetable oil as a cooking medium. 28 persons (6.9%) used dalda or palm oil, nine persons (2.2%) used animal fat and 2 persons (0.5%) did not use any kind of cooking medium. Many people consumed salty Bhutanese dishes weekly (table 8).

Table 27: Frequency of use of selected Bhutanese (side) dishes

Frequency:	*Salted butter tea (%):*		*Pickles (%):*		*Extra salt with chili (%):*	
5 or more days per week	144	(35.7)	140	(34.7)	50	(12.3)
1-4 days per week	60	(14.9)	101	(25.0)	67	(16.5)
1-3 days a month	57	(14.1)	81	(20.1)	90	(22.1)
Less than once per month	142	(35.2)	82	(20.3)	200	(49.1)
Total	403	*(99.9)	404	*(100.1)	407	(100.0)

*Due to slight rounding differences

Physical activity

The level of physical activity during work, leisure time and travel was questioned. Work included unpaid work and chores people have to do, like chopping wood, getting water and so on. On average people

spent 5.2 hours per day sitting or reclining (not including time spent sleeping;*n*=392;SD:5.1;min:0,max:21.5 hours).

Most people (258 or 62.9%, *n*=410) said their work involved mostly sitting or standing, with physical activity lasting less than 10 minutes at a time. People coming from Thimphu did such work more frequently than people coming from other places (67.9% versus 57.5%; Pearson Chi^2(df:1):4.8;*p*=0.03).

63 (15.4%) persons said their work involved vigorous activities for at least 10 minutes at a time, and 129 (31.5%) of persons said their work involved moderately intense activities for at least ten minutes at a time.

People's leisure time was spent mostly sitting or reclining: only 44 persons (10.8%) did some kind of activity during their leisure time. 17 persons (4.1%) did some kind of vigorous activity during their free time, and 25 persons (6.1%) did some kind of moderate type activity during their free time.

To travel to and from places, 248 persons (61.2%) would walk at least ten minutes continuously (*n*=405). The average time spent walking to travel for these people was 1.1 hours (*n*=238;SD:1.5;min:0.05, max:10.3 hours). The average time all people spent walking per day is 0.6 hours (*n*=395;SD:1.3;min:0,max:10.3 hours).

History of high blood pressure

Most people had had their blood pressure measured within the past twelve months (253 or 62.5%;*n*=405). 75 People (18.5%) had their blood pressure measured one to five years ago; for 15 people (3.7%) it was more than 5 years ago and 62 persons (15.3%) had never had their blood pressure measured. Respondents who had been to the OPD were more likely to have had their BP checked in the last year, than respondents who were a first time patient in this hospital ((67.2% versus 39.7%; Pearson Chi^2(df:1):17.1;*p*<0.001).

129 persons (31.8%;*n*=406) had been told by a health worker that their BP was too high. 111 of these (86%) were currently following some form of treatment or advise (see table 9). Most of them followed more than one treatment or advice.

Table 28: Advice or treatment 129 persons follow for hypertension

Type of advice or treatment:	*Number of people (%):*
Drugs taken within the past 2 weeks	68 (52.7)
Dietary advice	104 (80.6)
Advice to lose weight	36 (27.9)
Advice to stop smoking	48 (37.2)
Advice to do more exercise	44 (34.4)
Visit to traditional healer	29 (22.7)
Herbal or traditional medicines	22 (17.2)
None	18 (14.0)

Body mass index

The mean body mass index (BMI) of 401 respondents was 23.9 kg/m^2 (SD:3.9;min:15.3,max:40.2 kg/m^2). Figure 2 shows the frequency distribution of BMI. Most people (265 or 66.1%) have a normal weight, but 33.9% of persons have a BMI of 25 or higher.

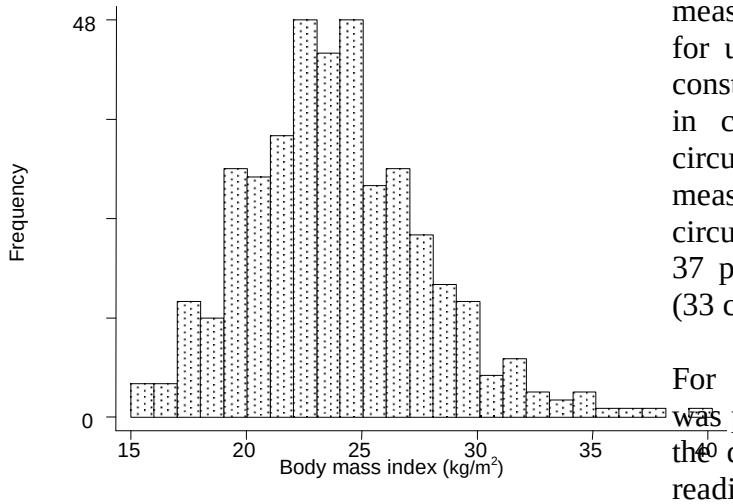


Figure 10: Frequency distribution of the body mass index of 401 participants

Blood pressure

The arm circumference of 335 persons (85.9%) was 22 to 32 centimeters, 18 (4.6%) had a smaller arm circumference and 37 (9.5%) a larger arm circumference.

All 410 respondents had their BP measured once, and 405 persons had their BP measured twice. For 290 persons BP was measured automated and for 34 persons with a traditional mercury sphyngomanometer. For 86 persons information on type of measurement was missing. Reasons given for using the manual BP meter were time constraint and error messages of the Omron in case of high systolic BP. The arm circumference of 390 persons was measured: 18 persons had a small arm circumference (21 centimeters or less) and 37 persons had a large arm circumference (33 centimeters or more).

For 117 persons a third BP measurement was performed because either the systolic or the diastolic value of the first and second reading differed more than 10 mmHg (16 missing values). To calculate summary measures on blood pressure the lowest systolic and diastolic readings out of the first two measurements were taken. If a third reading was required this reading was taken to calculate summary measures on blood pressure.

Mean diastolic BP was 87.1 mmHg (*n*=393;SD:12.7;min:44,max:130 mmHg). Mean systolic BP was 135.5 mmHg (*n*=393;SD:21.5;min:90,max:198 mmHg). Frequency distribution of systolic and diastolic pressures is shown in figures 3 and 4.

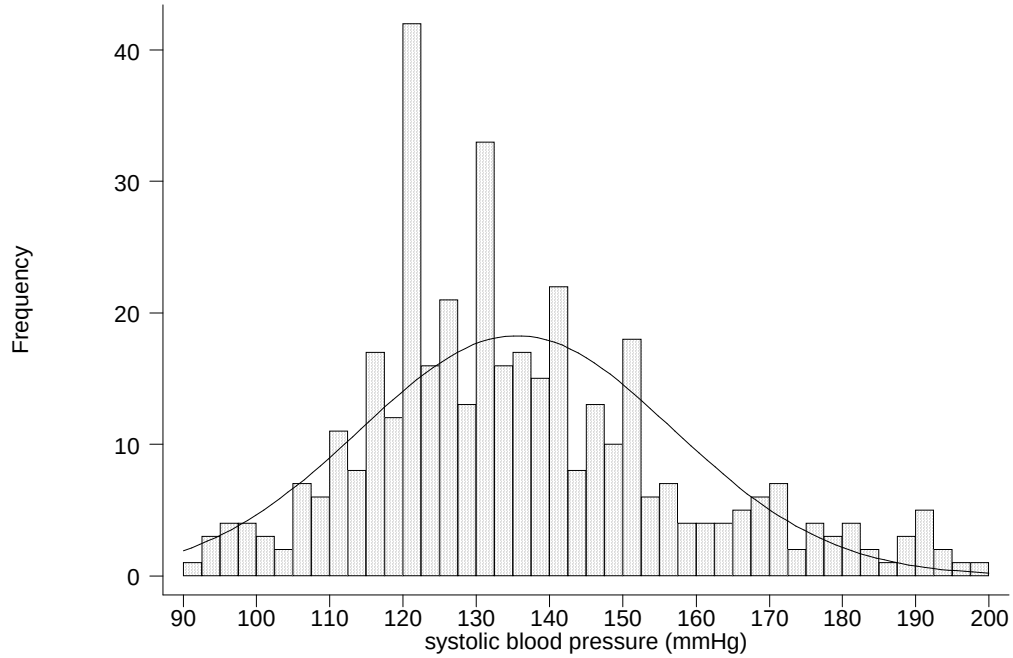


Figure 11: Frequency distribution of systolic blood pressure in 393 participants

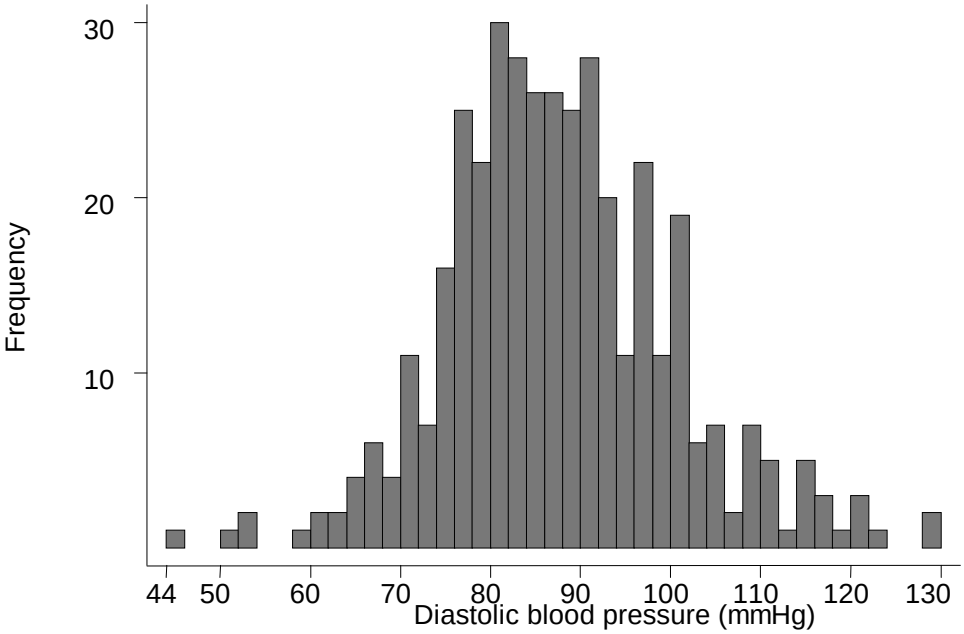


Figure 12: Frequency distribution of diastolic blood pressure in 393 persons

194 persons (49.4%) had hypertension according to WHO/ISH guidelines, of whom eight persons either had a renal disease, used corticosteroids or both (none were pregnant). So 186 (47.3%, *n*=393;95% CI: 42.3-52.4%) respondents had probable essential hypertension. 105 of those persons (56.8%) were unaware of their hypertension. Of those people who were aware, 85% received therapy or advice.

Out of the 60 persons who's BP was never before measured, 25 had probable essential hypertension (41.7%,95%CI:29.1-55.12%). From the total of 265 persons whom had never been told they had a high BP, 115

(43.4%) would be categorized as hypertensive in our investigation.

People aged 40 years or over were more likely to have hypertension than those aged less than 40 years (50.7% versus 37.8%;Pearson Chi^2(df:1):4.9;p=0.03). Being overweight was also associated with having hypertension: the prevalence of essential hypertension was 62.4% amongst overweight persons, compared to 38.7% amongst normal weight persons (Pearson Chi^2(df:1):19.7;p<0.001).

Overall there was no difference in the prevalence of probable essential hypertension. In those aged forty or over, 56.6% from Thimphu was hypertensive, compared to 44.7% coming from other parts (Pearson Chi^2(df:1):4.2;p=0.04).

Probable essential hypertension was not associated with sex, schooling, (daily) smoking, (daily) consumption of smokeless tobacco
, alcohol consumtion, dietary habits or physical activities.

Table 29: Control of blood pressure in 124 patients ever told their blood pressure was too high

Type of advice or treatment:	*High blood pressure (%):*	*Normal blood pressure (%):*	*Total (100%):*
Drugs taken within the past 2 weeks	17 (26.2)	48 (73.9)	65
Dietary advice	35 (35.4)	64 (64.7)	99
Advice to lose weight	10 (27.8)	26 (62.2)	36
Advice to stop smoking	15 (32.6)	31 (67.4)	46
Advice to do more exercise	15 (35.7)	27 (64.3)	42
Visit to traditional healer	14 (48.3)	15 (51.7)	29
Herbal or traditional medicines	9 (42.9)	12 (57.1)	21
Any kind of treatment or advice	38 (35.9)	68 (64.2)	106
No treatment or advice	12 (66.7)	6 (33.3)	18

Discussion

General characteristics

We used visit based selection, asking each patient registering at the outpatient department to participate at the time an interviewer became available. Such a sample method may not reflect the population of patients seen, and patients sampled in such a way may be more frequent visitors, older and in poorer health, including a having a higher prevalence of hypertension (18).

Most sections have less than 2% missing variables, with the exception of the sections ‘tobacco’, ‘alcohol’ and ‘blood pressure’. In the alcohol and tobacco sections the answers to questions in which we tried to elicit number of consumptions per day where frequently missing. Possibly these questions were too demanding for the respondents, or interviewers lacked the skills to probe for an answer.

Demographic characteristics

Only 6% of respondents know their date of birth, most people gave their age in years. Figure 1 shows the frequency distribution of age of respondents in years, which shows round number preference, which is a common phenomenon when people don’t know their date of birth. Some people in our study aged 35 years (20 persons in total) might actually be younger. This could bias towards lower values for blood pressure and other characteristics associated with age.

Comparison of data from Bhutan with studies done in other countries must take into account the round digit preference for age of the Bhutanese.

Tobacco use

With 4.4% daily smokers, cigarette use is quite low in this study population.

Alcohol consumption

Measuring alcohol consumption is notoriously difficult and, to our knowledge, has never before been done in Bhutan. With our data we could estimate the proportion of the respondents that drank alcohol in the past year, and the frequency with which these persons drank. Too few drinkers answered to the questions eliciting the amount of ethanol per day they had drunk in the past week, to be able to classify drinkers into categories. Possibly more experienced interviewers, or a population with more schooling may facilitate these questions. Otherwise, less complicated classifications of alcohol consumption might be used.

The wide spread habit of consuming home brewn alcohol of unknown ethanol content further complicates the picture. At present the J-shaped curve between alcohol consumption and chronic disease cannot be investigated in Bhutan. Further research is warranted into the ethanol content of home made alcohol.

Diet

Our study was conducted in wintertime, when most fresh fruits and vegetables are imported. This might have influenced our results. In Bhutan red chilies are considered a vegetable, and several very popular dishes consist of (dried) chilies as a main ingredient. In the present study we have not made the distinction between types of vegetables.

Physical activity
Blood pressure

We set out wanting to measure each respondent's blood pressure by the Omron machine, to minimize round digit preference and inter and intra observer bias. However, the Omron proved to be the bottleneck in the data collection procedure. Due to time pressure some measurements have been done by hand. At the second day of data collection a second Omron arrived so more measurements could be done automated. Manually measured blood pressure readings show marked round number preferences, with hardly any values between tens (figure 5). For 86 respondents (21%) the information on whether BP was measured manually or with ABPM was missing. Since these measurements do not show such marked round number preference, we assumed most of these have been done automated.

The influence of round digit preference on mean blood pressure equals out, since rounding should be as often towards a lower round number as towards a higher round number. However, it does bias towards more persons classified as 'hypertensive', whom actually have normal blood pressure.

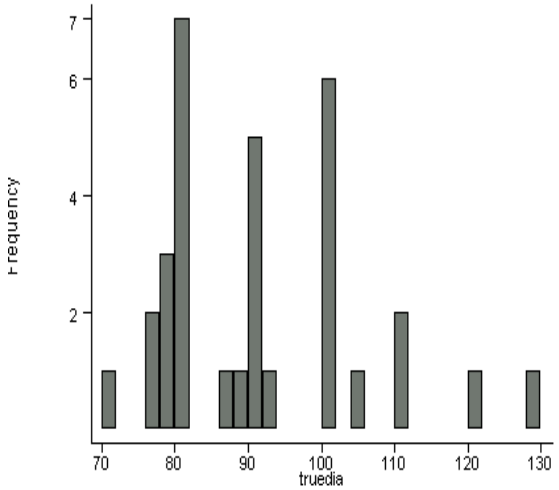
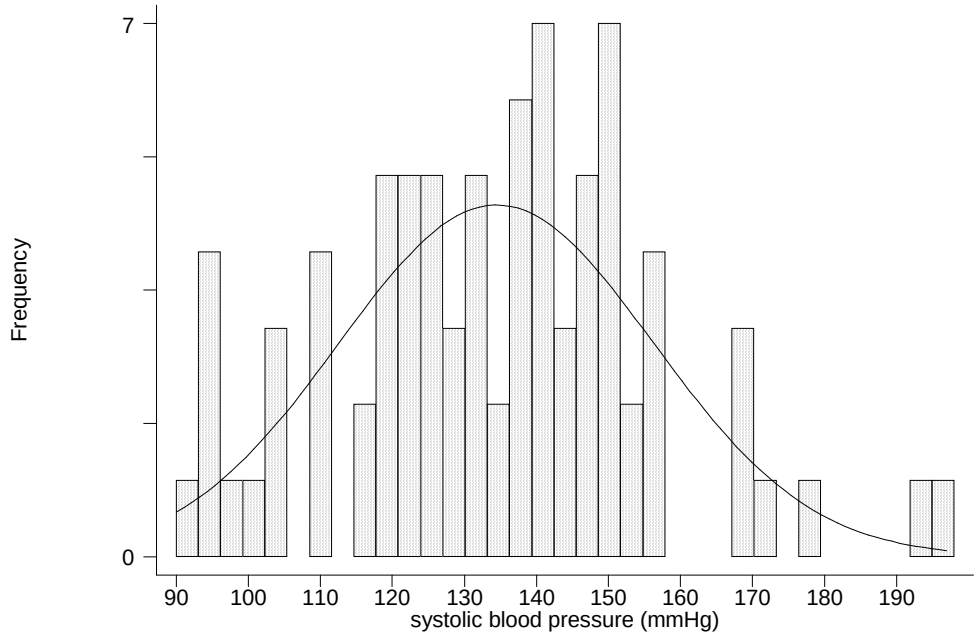


Figure 13: Frequency distribution of the diastolic blood pressure of 34 respondents, measured with sphygmomanometer



For those persons with an arm circumference out of the standard range of 22-32 centimeters we couldn't use a smaller or larger cuff size as per the STEPS protocol. Undercuffing in obese patients may cause an overestimation of blood pressure, and an overestimation of hypertension of around 40%). 19 persons who were classified as having probable essential hypertension in our study had an arm circumference of 33 centimeters or more (10.6% of hypertensive persons), and might have been normotensive. For future hypertension research as well as for patient care different cuff sizes should be easy available.

47% of respondents had probable essential hypertension. Any visit-based sampling method including ours, may not reflect the patients seen, as the more frequent visitors are included more often and they are usually the patients in poorer health and older, and thus have a higher prevalence of hypertension). The prevalence of hypertension we found is similar to the prevalence found in a large Chinese study amongst OPD patients).

57% of hypertensives were unaware of their high blood pressure (105 persons). However, half of these persons (59) had had their blood pressure measured within the past twelve months. Which factors were decisive when these people where not informed nor followed up? We cannot discern that from the present study.

64% of hypertensives receiving some kind of treatment were normotensive in our study, comparing favorably to the Chinese study with a control of only 33%.

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