# UNION OF MYANMAR

## Ministry of Health

# Annual Public Health Statistics Report

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# 2009

# Preface

The annual Public Health Statistics Report (2009) is the seventh one published by Department of Health Planning in collaboration with Department of Health, Ministry of Health. It is based on the reports of basic health staff who are working at primary health care centers, covering all health services provided in the period of 2009. Achievements are shown by process, output and outcome indicators.

For ensuring data quality, data dictionary was developed and distribute to all basic health staff to standardize operational definition of all data items, data collection areas, procedure of data collection and calculation of indicators. Adequate distribution of registers and report forms stands to prevent failure of reporting. Moreover, providing facilities which are required in collection of data is also important.

Capacity building of basic health staff such as trainings was also provided to improve the quality of information. As it is necessary to give training to new comers as well as refresher for those currently working in this area and continue medical education is being conducted monthly in township level.

Desk monitoring and field supervision was also major issue to enhancement of data quality. Feedback is also important to receive more reliable information. Township focal person mostly health assistant, township health nurse are key persons to check whether these data are reliable or not. In addition, township and district medical officers and regions/state health directors play major role in supervision and their interest is very influential.

Coordination with voluntary health workers, officials from other related departments as well as community is essential to receive complete information in order to promote data quality. Information from private sectors, which are also providing health care services to community, is still lacking and there is potential for availability in future.

Department of Health Planning share the data collected through routine public health information system in monthly basis for diseases under national surveillance, expanded program on immunization, family health care and vital events, which are crucial for monitoring Millennium Development Goals. Other project data are shared on quarterly basis and in addition to publishing this annual report.

I would like to extend my gratitude to everyone who is involved in the process of management started from data collection to publication. Without their collaboration, this publication would not have been made possible. We really appreciate and welcome any comments and suggestions to improve this publication in the future.

Dr Phone Myint
Acting Director General
Department of Health Planning

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# SUMMARY

This annual Public Health Statistics Report, 2009 covered 97% of townships all over the country from January to December, 2009. Twelve out of seventeen Regions and States reported 100 %. Shan (North) had the lowest reporting (74%) and Shan (East) was second lowest (82%).

The percent of general clinic attendance plays a vital role in showing primary health care services at grass root level and utilization of health care centers. It shows a trend gradually increasing from 2005 onwards and highest in 2009 (22.4%). Frequency of attendance to health centers were 1.6 times. Basic health staff also provided health service at field visits and average frequency of field visit was (22) visits per village and wards in one year. Almost a fifth (18.6%) of total population was provided health care services in field visits. Average number of field visit was highest in Yangon Region (43 times) and lowest in Shan (East) (8 times). Collaborative efforts of basic health staff and community health volunteers were revealed by frequencies of environmental sanitation, health education and report on communicable diseases activities. These figures indicated that joint activities of basic health staff and community health workers still need to be improved.

For growth monitoring purpose, 20.8% of under three years old children were weighed regularly monthly for under one and quarterly for one to three years old children, and 92.5% of under one year and 80.5% of under three years old children were covered in nutrition surveillance areas. The union level of under weight prevalence was 3.8% in under one year and 4% in under three years in nutrition surveillance areas. Rakhine had the highest prevalence of underweight children under one year and Sagaing had those of under three years, 7.4% and 7.5% respectively. Severe underweight was also found in Rakhine State (1.3%) among nutrition surveillance areas.

Aiming to achieve Millennium Development Goal 4 and 5, basic health staff geared to promote the activities of maternal, newborn and child health care. The union level of antenatal care coverage was 70.6%. The highest achievement was found in Tanintharyi Region (87.2%) and lowest in Shan (East) (53.1%). Less than 60% of antenatal care coverage was reported from Shan (East), Chin and Shan (North). Although Shan (East) reported lowest antenatal care, the highest deliveries by basic health staff were observed there. In Rakhine, only 42.5% of deliveries were by basic health staff and 18.3% were delivered by trained traditional birth attendants. Auxiliary midwife were most active in Magway Region. Percentage of deliveries attended by basic health staff, auxiliary midwife and trained traditional birth attendants at the union level were 50.2%, 13% and 8.2% respectively. Average

frequency of antenatal care was 3.3 times and postnatal care was 6 times. The high referral rate of more than 10% was found in Bago (West), Sagaing and Mon.

Under five clinic attendance rate was 19.9% at union level and ranged from 10.2% in Yangon to 33.7% in Chin. Kayah recorded second lowest in ORT use rate and percentage of under five diarrhea cases with severe dehydration was highest.

Proportion of under one year old children immunized against measles; one of the indicators for Millennium Development Goal was 83.8% in 2009. Coverage with third dose of DPT, Polio and hepatitis B were 86.6 %, 86% and 86.1% respectively. BCG coverage was 89.1% at union level. Second dose of Tetanus toxoid coverage was 82.9%. The lowest coverage of immunization was found in Chin State followed by Shan (South).

School examination coverage was 93.6% in 2009 and the highest and lowest coverage were found in Magway and Shan (East) 98.1% and 73.8% respectively. The highest coverage of school with sanitary latrine was found in Yangon (90.5%) and that of safe water was found in Bago (East) (92.3%). Rakhine had the lowest coverage in both, 45.9% in sanitary latrine and 38% in safe water. Both the coverage of school with sanitary latrine and nutrition promotion in school showed increasing trend from 1998 to 2009.

Morbidity rate of diarrhea and dysentery were 707.8 and 290.6 per 100,000 Population at union level. Morbidity rate of diarrhea and dysentery was highest in Chin and Kayah respectively. Morbidity rate for food poisoning was highest in Tanintharyi Region ( 46.2 per 100,000 Population) and highest morbidity rate of enteric fever was found in Chin (69.5 per 100,000 Population).

The highest morbidity rate of measles was found in Kayah followed by Magway. In neonatal tetanus, 8 regions and states reported no case. Morbidity rate of meningitis was found highest in Bago (West) followed by Sagaing. Morbidity rate of ARI was highest in Chin State and mortality rate was highest in Magway Region. Rabies morbidity rate was highest in Mandalay (0.8 per 100,000 Population).

The highest morbidity and mortality of malaria was recorded in Kachin State. Case fatality rate of malaria was highest in Rakhine and Yangon reported second highest case fatality rate. Taikkyi and Hlaingtharyar had more than 4% of malaria case fatality rate. Altogether (36) townships with more than 4% of malaria CFR need more attention.

Reported cases by basic health staff of poisonous snake bite in 2009 were 7997 and case fatality rate was 9.5%. Sagaing, Bago (East and West), Magway, Mandalay, Yangon and Ayeyarwaddy reported more snake bite than other Regions/ States.

Reported morbidity rate of tuberculosis was 183.3 per 100,000 Population. Among tuberculosis cases, 9% were under five years age, 15% were 5-14 years age, 37% were 15-44 years, 18% were 45-59 years age and the remaining were above 60 years. The three fifth of tuberculosis cases and deaths of 5-14 years age group were due to extrapulmonary TB. All types of tuberculosis in both cases and deaths were found to be more common in male.

Prevalence of leprosy indicated decreasing trend from 1999 onwards (0.52 per 10,000 Population) in 2009.New case detection rate of leprosy was highest in Shan (South) followed by Bago (West), Bago (East) and Magway. Although Myanmar is in leprosy elimination state at union level, (44) townships from ten Regions/States had more than 1 per 10,000 population and still  required  to promote new case finding and complete treatment for sustainability of elimination state.

Regarding sexually transmitted infection, 0.6% of primigravida were tested and found positive in VDRL test. The highest rate was found in Rakhine State(3.2%) and followed by Mon (1%). Kachin, Yangon and Ayeyarwaddy reported 0.9%. Genital ulcer rate was highest in Tanintharyi and followed by Mon. The most prevalence of urethral discharge rate was found in Shan (East), and Kayah and Kayin reported second and third highest in urethral discharge rate.

Percentage of eye patients among all clinic attendances was highest in Bago (East) and Sagaing, followed by Mandalay. Blindness was also common in Bago (East), Mandalay and Sagaing.

Reported hypertension per 1000 above 15 year population was 3.7 at union level. Mon had the highest and Kayah had the lowest prevalence. Risk factors of cardiovascular diseases; smoking and alcohol prevalence were 28.4 and 21.1 per 1000 above 15 year population. Both were highest in Shan (South) and lowest in Kayah.

Transport and occupational injuries were most common whereas suicide was the least among eight different types of accidents and injuries. The leading cause of death was drowning and second leading was road traffic accident. Road traffic accident was high in Kachin, Kayin and Shan (East). Mortality due to RTA was highest in Kachin followed by Mon. Mortality due to occupational injury was also highest in Kachin. Mortality due to drowning was high in Kayin, Kachin and Mon (more than 5 per 100,000 Population). Death due to suicide was highly found in

Kayin, Bago (West) and Tanintharyi. Assault cases mostly took place in Bago (East), Bago (West) and Yangon and death was highest in Bago (West).

Alcoholic dependence was highest among reported six mental and neurological disorders. Sagaing had highest reported cases of psychosis, and depression cases were reported mostly from Rakhine and Tanintharyi. Mental retardation was highly found in Ayeyarwaddy, Magway and Sagaing.

Coverage of sanitary latrine gradually increase from 2005 onwards to 83% in 2009. It was highest in Yangon (90.6%) and lowest in Rakhine (57.6%).

Basic health staff conducted health education activities under four areas; family health, immunization, disease and health problem, and environmental sanitation. Among them, disease and health problem was the most frequent area they discussed with community. Average number of talk per basic health staff for all topics was about (92) times and total (372) health talks were given within one month in every township to improve knowledge and behave as a culture in future.

# ABBREVIATIONS

| | | |
|---|---|---|
| AIDS/STI | = | Acquired Immune Deficiency Syndrome/ Sexually Transmitted Infection |
| AMW | = | Auxiliary Midwife |
| AN | = | Antenatal |
| ARI | = | Acute Respiratory Tract Infection |
| BCG | = | Bacillus Calmette Guerin |
| BHS | = | Basic Health Staff |
| CHW | = | Community Health Worker |
| DPT | = | Diphtheria, Pertussis, Tetanus |
| DUNS | = | Diseases Under National Surveillance |
| EPI | = | Expanded Programme on Immunization |
| ES | = | Environmental Sanitation |
| HMIS | = | Health Management Information System |
| MW | = | Midwife |
| NHP | = | National Health Plan |
| OPD | = | Out Patient Department |
| ORT | = | Oral Rehydration Therapy |
| PN | = | Postnatal |
| RHC | = | Rural Health Center |
| RTA | = | Road Traffic Accident |
| TB | = | Tuberculosis |
| TT | = | Tetanus Toxoid |
| TTBA | = | Trained Traditional Birth Attendant |
| VDRL | = | Venereal Disease Research Laboratory |

# INTRODUCTION

The annual public health statistics report, 2009 was the output of management of data from the monthly reports and returns, Form I and annual report forms II and III of Public Health Management Information System.

# DATA COVERAGE

Even though there have been some exceptions, HMIS had covered all over the country since 1995. In 2009, the data from each and every townships in all regions and states apart from Sagaing, Shan (East) and Shan (North) were reported.

The nil-reporting townships were

- Namyun and Leshi Townships in Sagaing Region
- Matman and Monglar Townships in Shan (East) State
- Nahpant, Panwaine, Pangsang, Mongmaw, and Laukkai Townships in Shan (North) State.

# DISTRIBUTION OF BASIC HEALTH STAFF AND VOLUNTARY HEALTH WORKERS
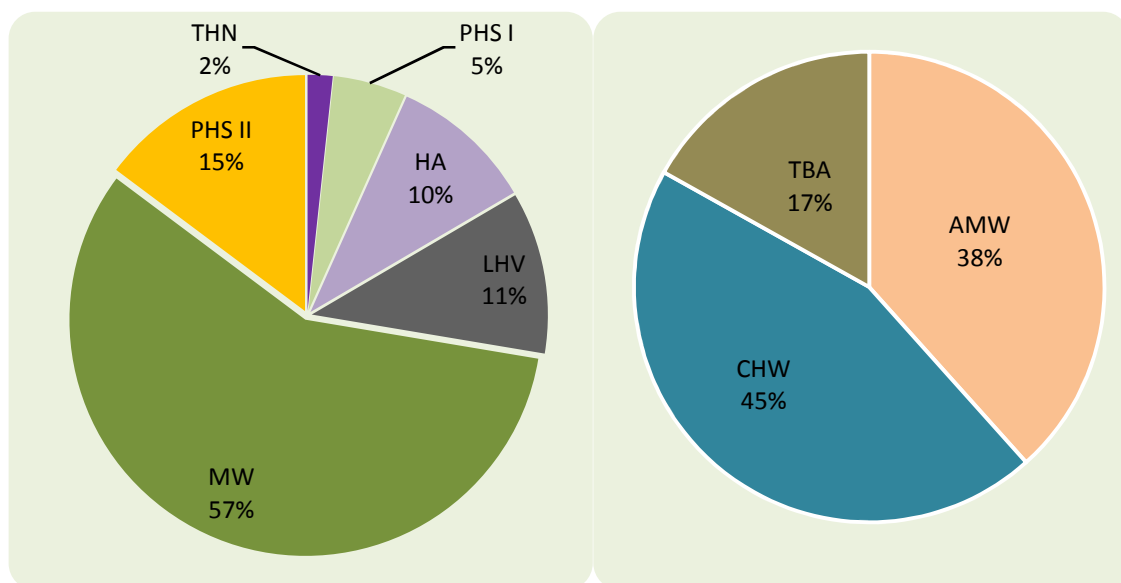


Figure(1.a)Percent Distribution of Basic Health Staff

Figure(1.b) Percent Distribution of Voluntary Health Workers

# REPORTING STATUS OF PUBLIC HEALTH INFORMATION

Depending on the regularity and completeness of the reports, how accurate the information is determined.
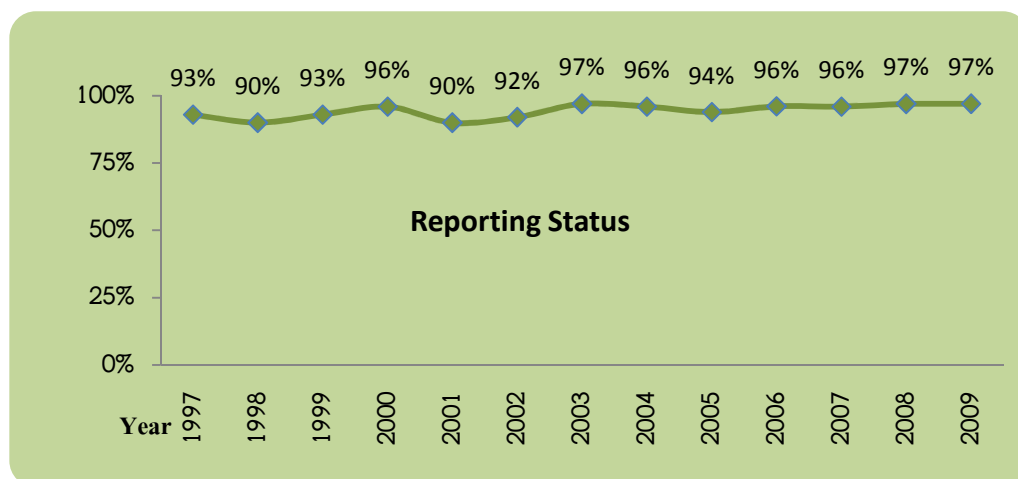


Figure (2) Trend of Reporting Status of HMIS Monthly Report (1997-2009)

The trend of the reporting status of HMIS monthly report from the year 1997 to 2009 is shown in figure (2). Though 100% of reporting status had not been fulfill along the track of reporting status, the highest level was accomplished in 2003, 2008 and 2009, i.e., 97%. The lowest percentage (90%) was seen in 1998 and 2001. Nevertheless, it can be generally said that the best achievement was obtained in the seven successive years from 2003 to 2009.
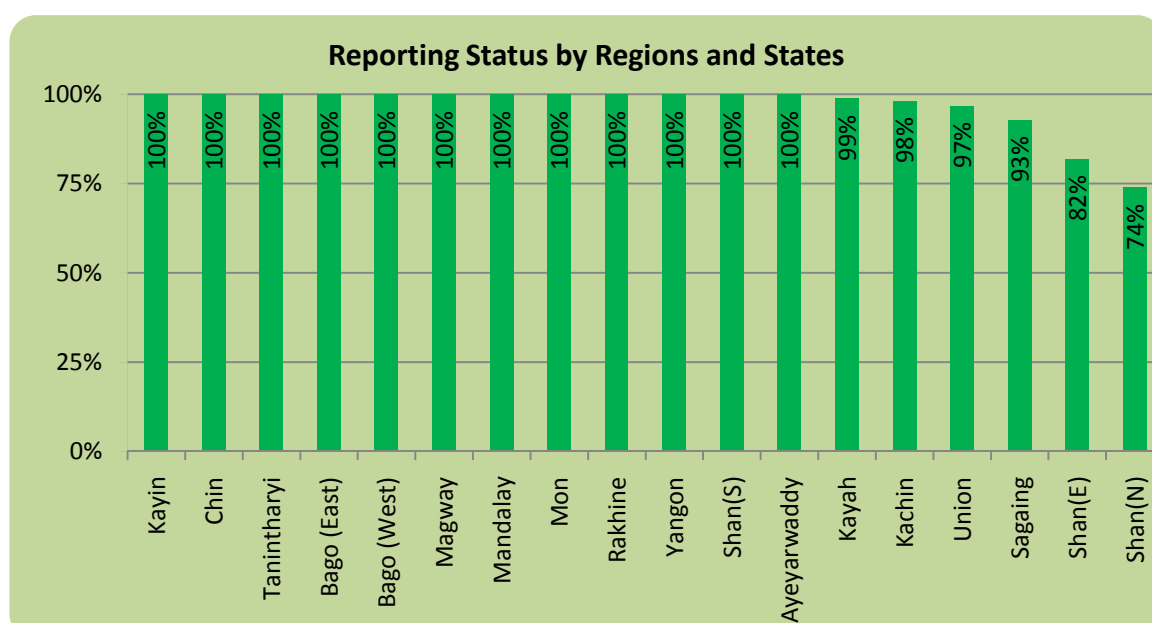


Figure (3) Reporting Status by Regions and States (2009)

As shown in above figure (3), Sagaing, Shan (East) and Shan (North) were the regions and states having reporting status below the union level of 97% as there had some nil-reporting townships in those areas. Twelve out of seventeen regions and states achieved 100% reporting status. Shan (East) and Shan (North) had lower reporting among regions and states throughout the five years (2005-2009);Figure(4).
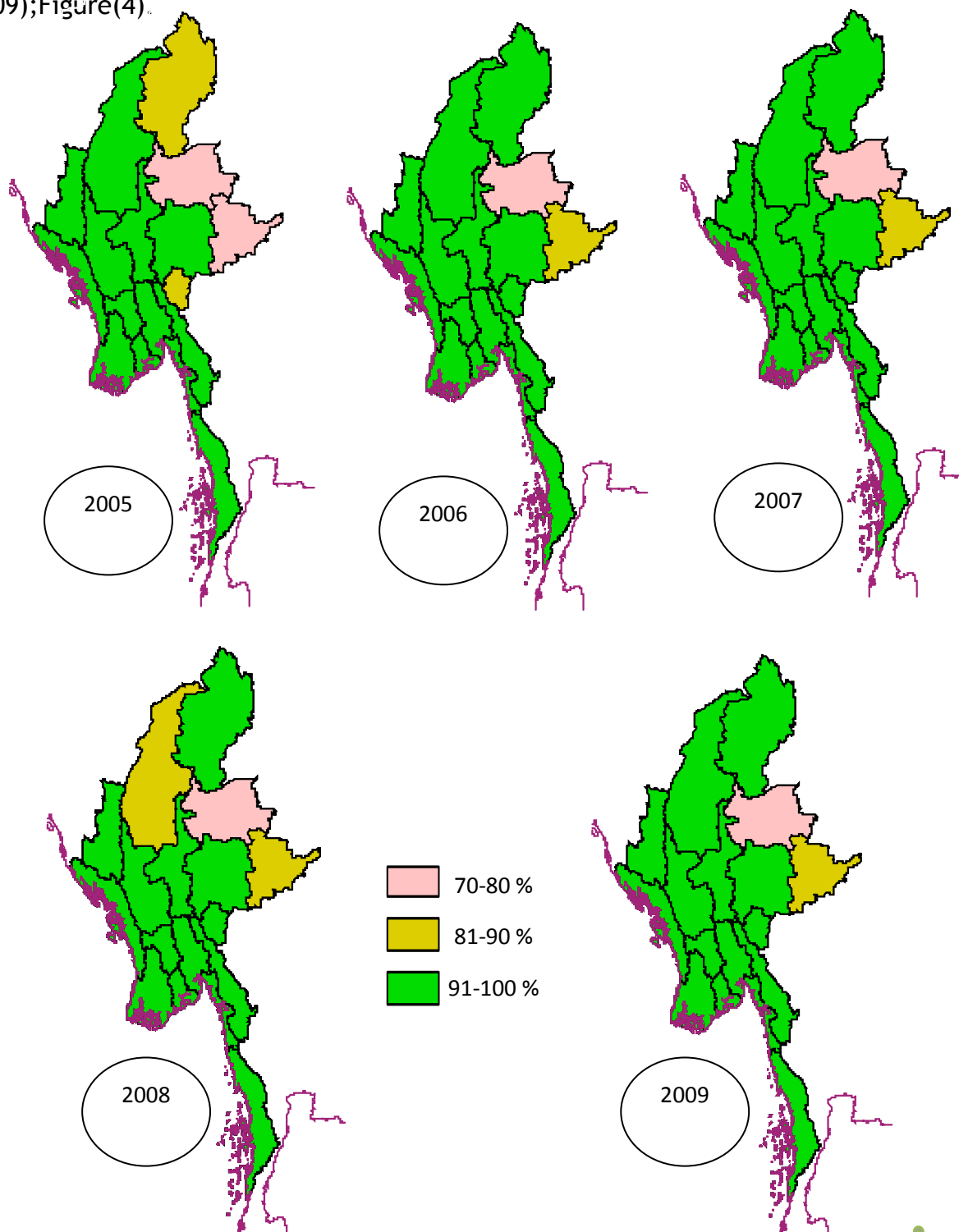


Figure (4) Maps for Reporting Status (2005-2009)

# I.   COMMUNITY HEALTH CARE SERVICES

### 1.1    Primary Medical Care and Referral of Patients

Primary medical care and referral services are the first and most prominent part of the activities of basic health staffs. In this section, the percentage of general clinic attendance plays a vital role to reflect the current situation.
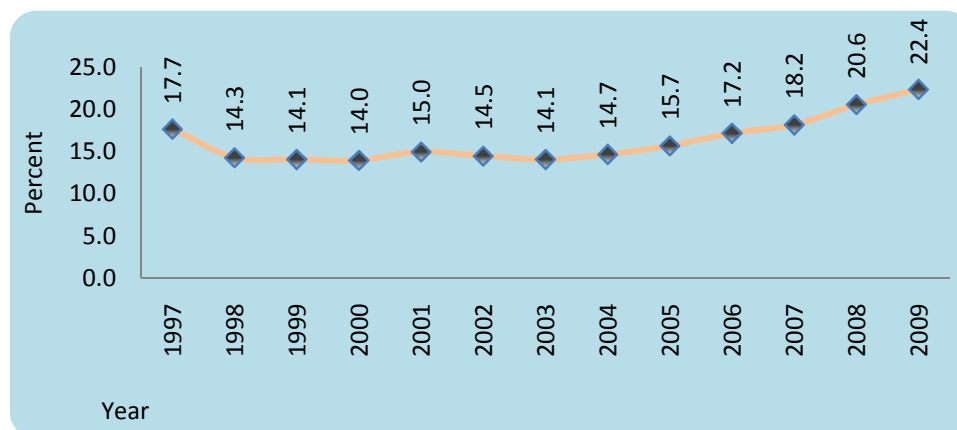


Figure (5) Percentage of General Clinic Attendances (1997-2009)

The trend shown in above figure indicates that the gradual progress of health care services from 2003. The achievement of 2009 (22.4%) was maximum point in the 13-years duration; on the other hand, it is still in need to double-up activities to meet the target of 50%.
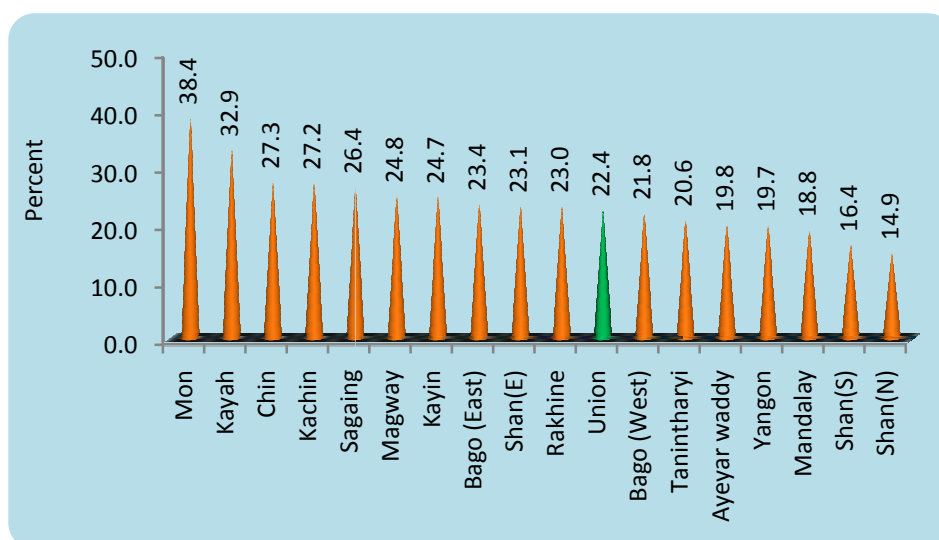


Figure (6)

Percentage of General Clinic Attendances by Regions and States (2009)

Above Figure depicts that Mon achieved highest percentage of general clinic attendances (38.4%) and Shan (North) attained lowest one (14.9%)

in 2009. Those of regions and states achieving under union level are Bago (West), Tanintharyi, Ayeyarwady, Yangon, Mandalay, Shan(South), and Shan(North). Another indicator for utilization of health service was frequency of attendances came to clinic, which is 1.6 times.

Basic Health Staff (BHS) also provided medical services during their field visits; the union coverage was 18.6% of population (Table 1). On viewing the average field visits per village and ward, although 22 times/village & ward was achieved in 2009; it was the highest experienced in thirteen consecutive years, more than half of regions and states were under the union level as shown in figure (7) and (8). Among the general clinic and field attendances, 0.6% was referred to higher level and the details were described in Table (1).



Figure (7)

Average frequency of field visits to villages/wards (1997-2009)



Figure (8) Average frequency of field visits to villages/wards by Regions and States (2009)
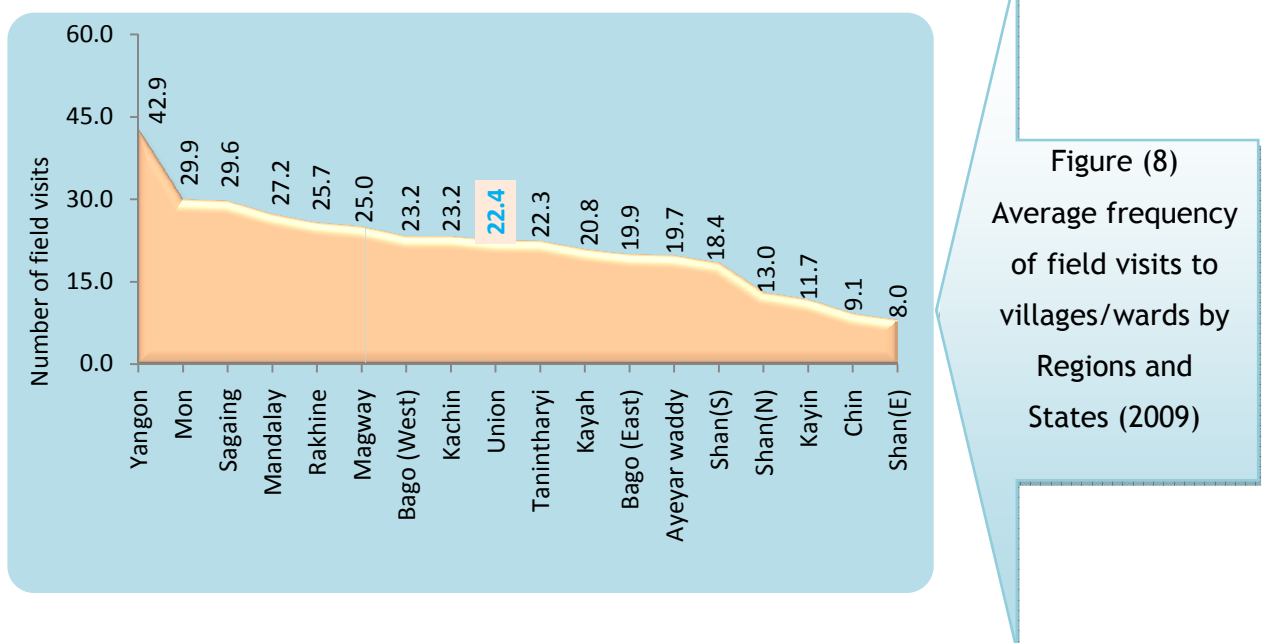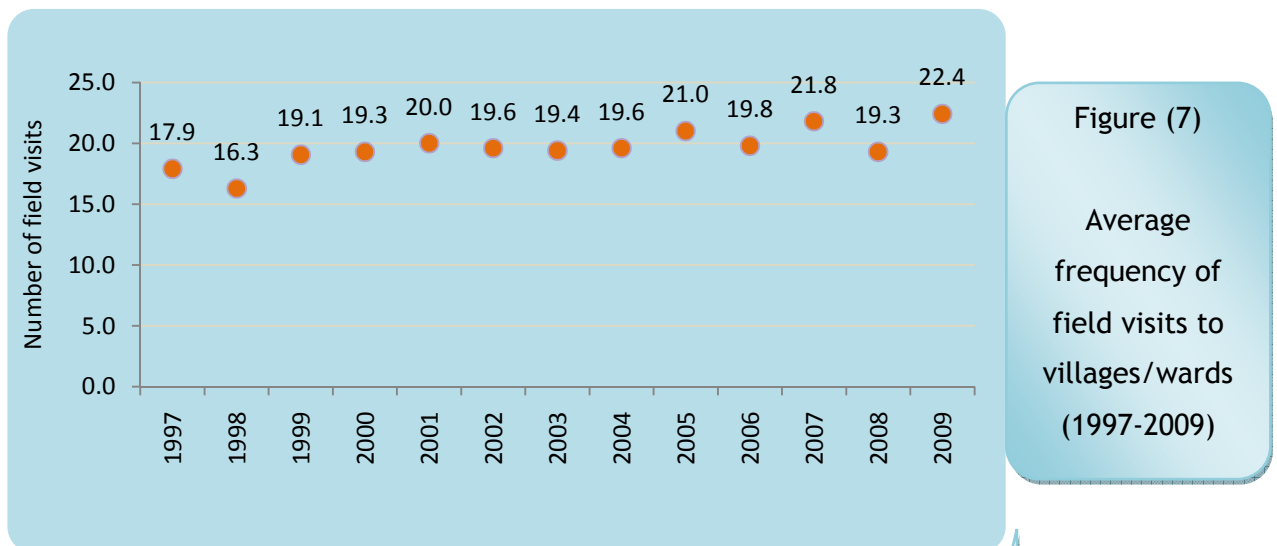
**Activities of Community Health Workers**

The average number of joint activities with Basic Health Staffs was the important indicator for participatory effort of Community Health Workers. In 2009; it was found that the best performance was achieved in Mon State and the lowest in Chin State.
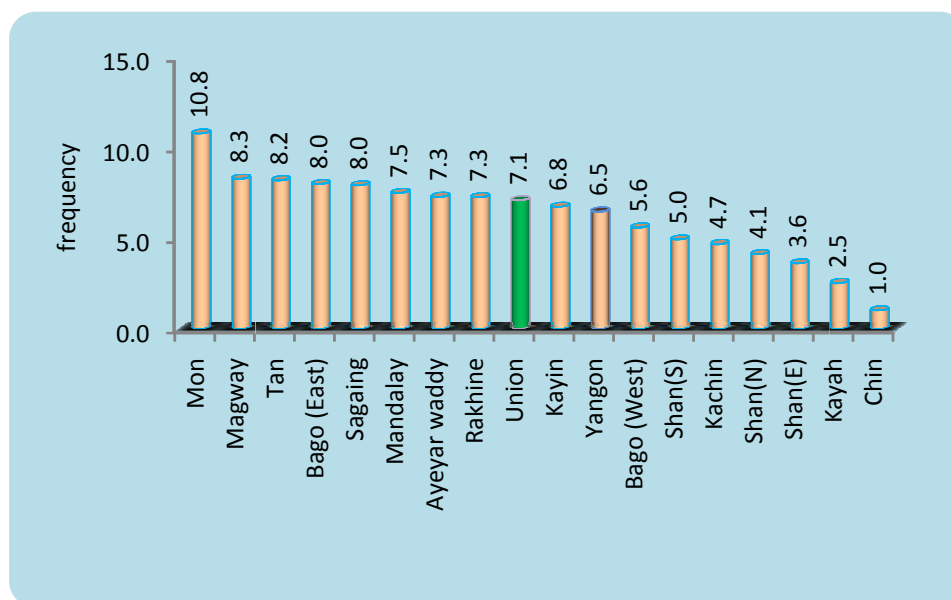


Figure (9) Joint activities of CHW and BHS by Regions and States (2009)

Other activities of CHW were "environmental sanitation activities", "report on communicable disease" and "participation in health education activities". The indicators for number of environmental sanitation activities and participation in health education activities were 4.7 times per CHW, and their targets were 10 times and 12 times respectively. The indicator for "report on communicable disease" was very low; 0.1 time per CHW.

## Table(1) Indicators for Primary Medical Care and Referral of Patients

| | Primary Medical Care & Referral Project | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Activities of Basic Health Staff | | | | | Activities of Community Health Worker | | |
| Regions and States | % of Pop under jurisdiction of BHS attended general clinics | Average number of attendance by a patient | % of clinic attendances during field visits | No. of field visits to villages/ wards | % of referral out of total attendances | Number of joint activities with BHS | Number of Env: sanitation activities with local people | No. of participation in mass health education activities |
| Kachin | 27.2 | 1.6 | 10.6 | 23.2 | 0.6 | 4.7 | 2.7 | 2.9 |
| Kayah | 32.9 | 1.5 | 25.0 | 20.8 | 0.4 | 2.5 | 2.3 | 2.1 |
| Kayin | 24.7 | 1.7 | 14.5 | 11.7 | 0.5 | 6.8 | 4.8 | 4.9 |
| Chin | 27.3 | 1.6 | 13.7 | 9.1 | 0.2 | 1.0 | 0.9 | 0.7 |
| Sagaing | 26.4 | 1.6 | 19.7 | 29.6 | 0.7 | 8.0 | 4.5 | 4.5 |
| Tanintharyi | 20.6 | 1.6 | 14.0 | 22.3 | 0.6 | 8.2 | 6.0 | 6.4 |
| Bago (East) | 23.4 | 1.8 | 14.0 | 19.9 | 0.6 | 8.0 | 6.1 | 5.7 |
| Bago (West) | 21.8 | 1.6 | 24.0 | 23.2 | 0.5 | 5.6 | 4.4 | 3.8 |
| Magway | 24.8 | 1.6 | 23.0 | 25.0 | 0.5 | 8.3 | 5.5 | 5.1 |
| Mandalay | 18.8 | 1.7 | 22.1 | 27.2 | 0.6 | 7.5 | 4.8 | 5.2 |
| Mon | 38.4 | 1.6 | 15.2 | 29.9 | 0.6 | 10.8 | 9.4 | 7.9 |
| Rakhine | 23.0 | 1.4 | 18.7 | 25.7 | 0.6 | 7.3 | 4.2 | 4.5 |
| Yangon | 19.7 | 1.9 | 19.0 | 42.9 | 0.4 | 6.5 | 4.9 | 4.5 |
| Shan(S) | 16.4 | 1.7 | 18.3 | 18.4 | 0.5 | 5.0 | 2.4 | 3.0 |
| Shan(N) | 14.9 | 1.5 | 10.4 | 13.0 | 1.2 | 4.1 | 3.3 | 2.9 |
| Shan(E) | 23.1 | 1.6 | 16.9 | 8.0 | 0.7 | 3.6 | 2.2 | 2.6 |
| Ayeyarwaddy | 19.8 | 1.6 | 18.6 | 19.7 | 0.5 | 7.3 | 4.6 | 5.2 |
| Union | 22.4 {6513138} | 1.6 {10670607} | 18.6 {8860287} | 22.4 {1406944} | 0.6 {111797} | 7.1 {180809} | 4.7 {119103} | 4.7 {119488} |

## 1.2 Nutrition Development Services

Not only Myanmar but also all of the developing countries have been facing a variety of nutritional problems for a long time. To fulfill the first one of the Millennium Development Goals, growth monitoring and promoting of children is one of the yardsticks to measure its progress. Therefore, BHS are assigned to weigh under one year old children and 1-3 year old children from the nutrition surveillance areas monthly and quarterly respectively.

To compare the former years, it remarkably declined in 2009 as nutritional care coverage of under three years old children was 20.8% of the total under three children compared to 27.1% in 2008. However, in nutritional surveillance areas, 92.5% of under one year old children were weighed monthly; and 80.5% of under three years old children were weighed quarterly (Table 2).
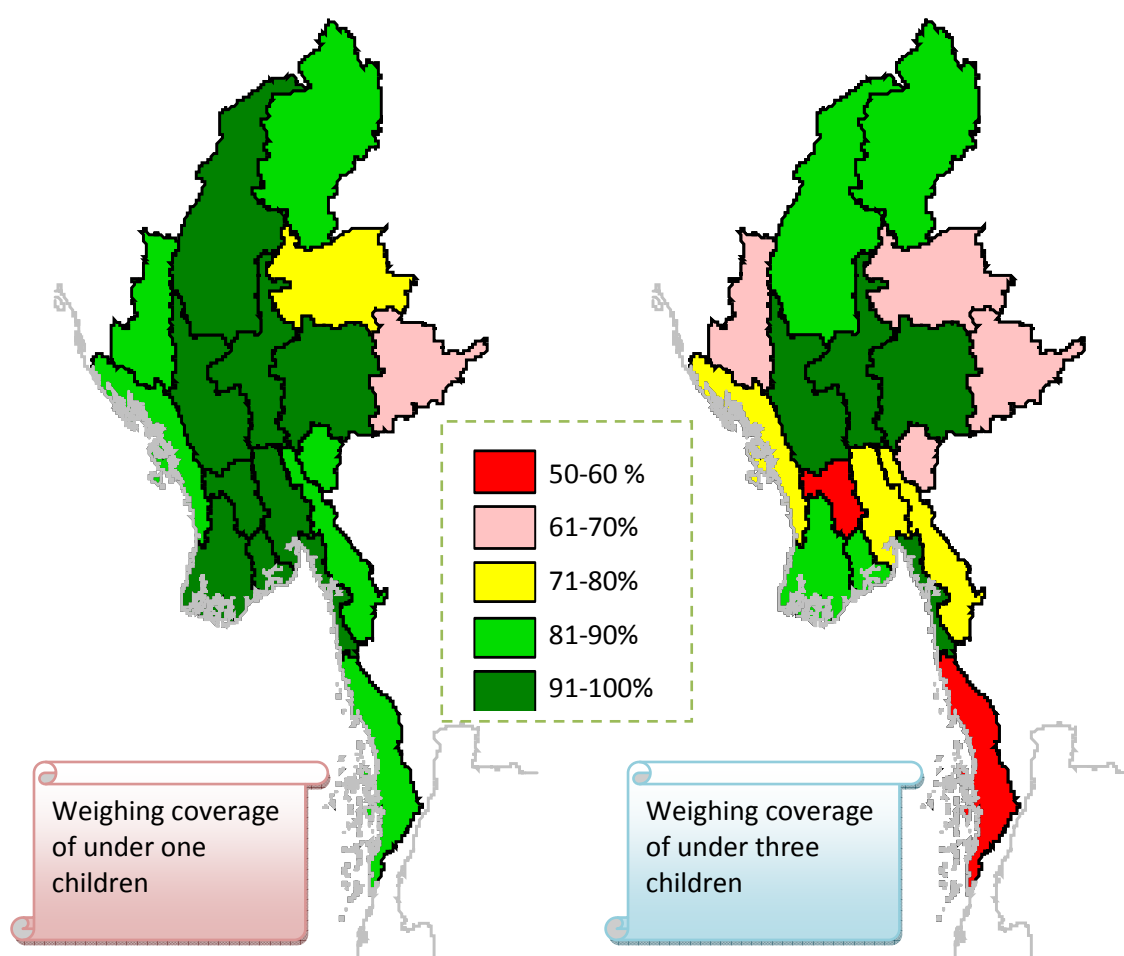


Figure(10) Weighing Coverage of under one and under three children in surveillance area

According to the above figure, the minimum weighing coverage of under one year(68%) was observed in Shan (East) and those of under three years old children (51%) was found in Tanintharyi Region. The maximum of both was found in Magway i.e., 98.1% and 96.2% among all regions and states.

Regarding to the nutritional status of under one and three years old children in the regions and states in 2009, the union level of underweight percent was 3.8% in under one year and 4% in under three years in the nutrition surveillance areas. Rakhine had the highest percentage (7.4%) of underweight children under one year old and Sagaing (7.5%) had those of under three years children. However, the lowest percentage of both (1.2% and 0.9% respectively) was achieved by Kayah State.
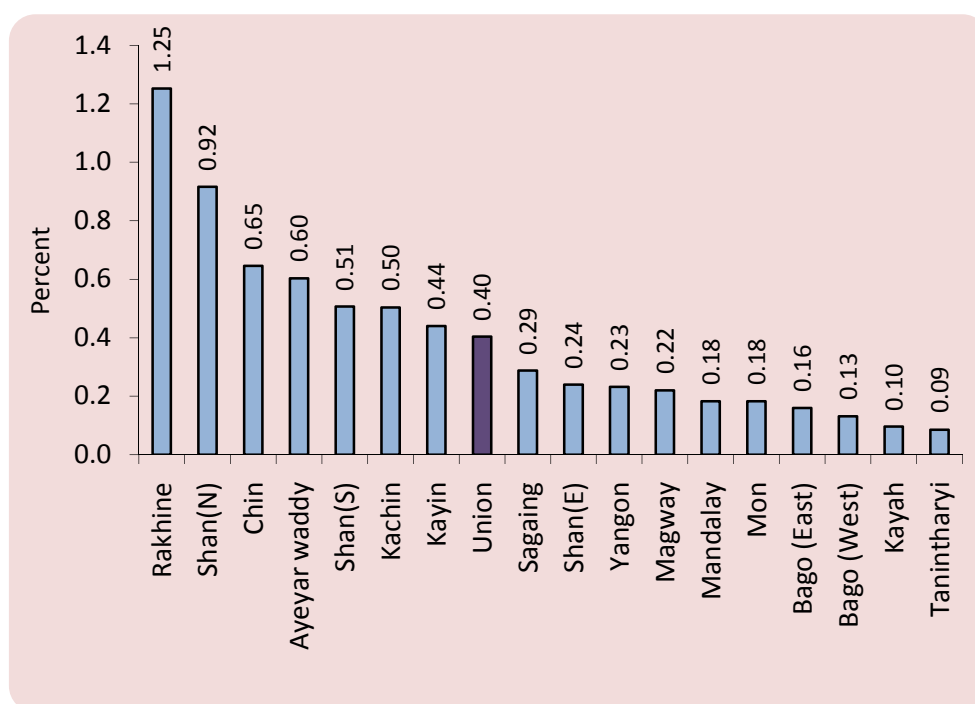


Figure (11) Severe underweight percent by Regions and States (2009)

The severe underweight percent under three years of age was demonstrated in above figure. There were six regions and states above the union level of 0.4%. Among them, Rakhine was the one that recorded more than threefold of the union level.

**Up to 5%**
**5.1-10 %**
**10.1-15 %**
**15.1-20%**
**More than 20%**

Underweight percent of
under one children

Underweight percent of
under three children
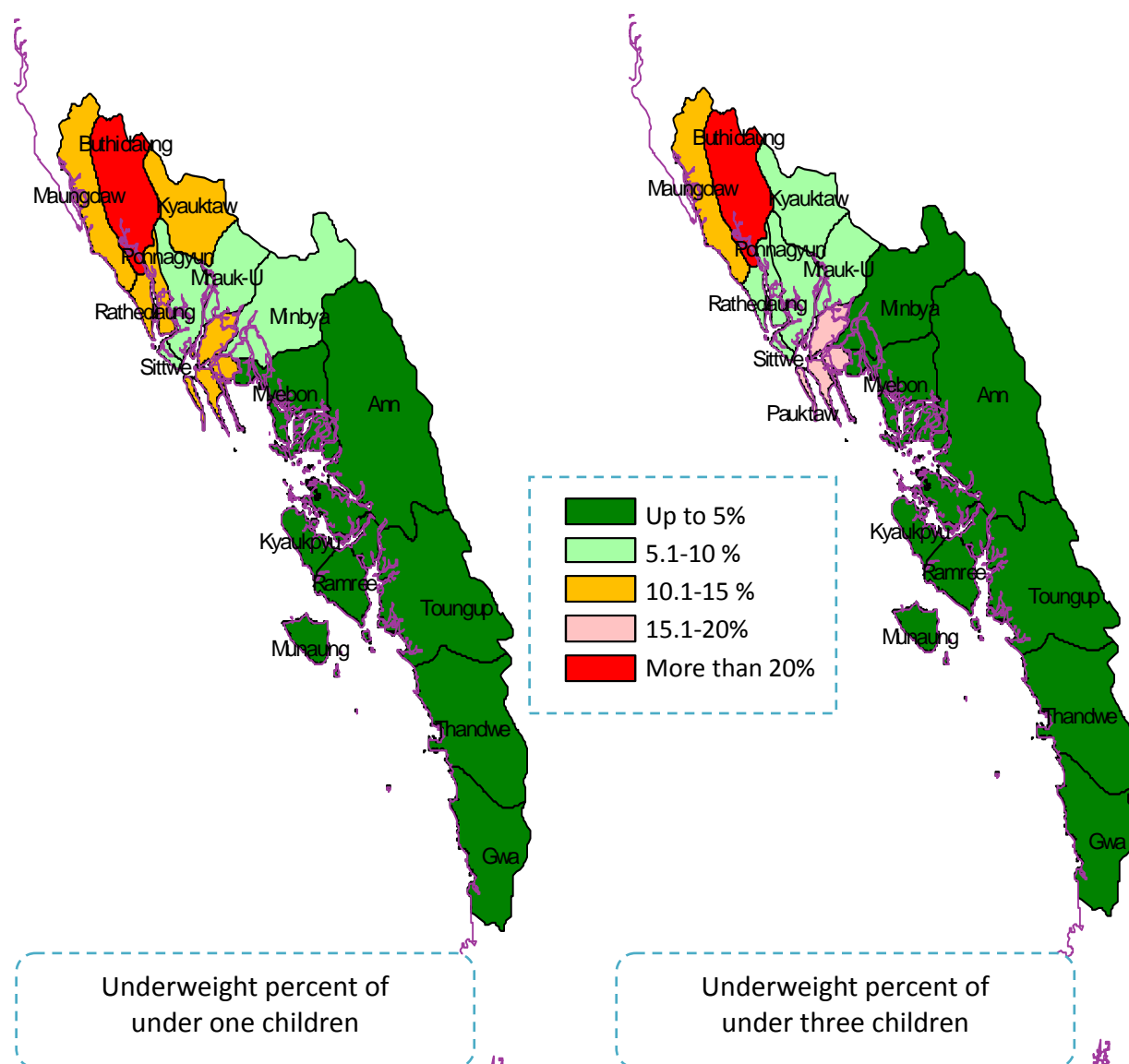
Figure (12) Nutritional Status in Rakhine State (2009)

Nutritional status in Rakhine State was explored to determine which townships were contributing to the highest underweight percent among Regions and States. Pauktaw, Kyauktaw, Maungdaw, Rathedaung, Buthidaung townships had highest underweight prevalence in under one group and then Pauktaw, Maungdaw, Buthidaung were highest in under three group.

## Table(2) Indicators for Growth Monitoring

| Regions and States | Nutrition Development Services | | | | | Growth Monitoring coverage in percentage within jurisdiction of midwife |
|---|---|---|---|---|---|---|
| | Within nutrition surveillance area | | | | | |
| | Under one year old | | Under Three years old | | | |
| | Weighing coverage in percent | Under weight in percent | Weighing coverage in percent | Mild under weight in percent | Severe underweight in percent | |
| Kachin | 87.5 | 5.5 | 84.3 | 5.1 | 0.5 | 27.2 |
| Kayah | 86.5 | 1.2 | 63.0 | 0.9 | 0.1 | 79.5 |
| Kayin | 86.7 | 4.6 | 79.6 | 5.5 | 0.4 | 16.8 |
| Chin | 80.6 | 4.6 | 67.5 | 3.7 | 0.6 | 29.1 |
| Sagaing | 97.3 | 5.6 | 88.2 | 7.5 | 0.3 | 28.4 |
| Tanintharyi | 84.6 | 2.7 | 51.2 | 2.0 | 0.1 | 32.6 |
| Bago (East) | 94.1 | 2.0 | 71.5 | 1.7 | 0.2 | 21.5 |
| Bago (West) | 97.3 | 1.6 | 58.0 | 1.7 | 0.1 | 35.8 |
| Magway | 98.1 | 3.7 | 96.2 | 3.6 | 0.2 | 40.0 |
| Mandalay | 96.8 | 3.4 | 94.0 | 3.4 | 0.2 | 21.5 |
| Mon | 95.8 | 2.1 | 91.3 | 2.7 | 0.2 | 24.5 |
| Rakhine | 86.9 | 7.4 | 78.0 | 5.7 | 1.3 | 23.4 |
| Yangon | 94.1 | 2.2 | 86.9 | 2.5 | 0.2 | 17.6 |
| Shan(S) | 93.5 | 5.0 | 92.3 | 4.6 | 0.5 | 24.7 |
| Shan(N) | 71.0 | 6.2 | 68.2 | 5.0 | 0.9 | 18.4 |
| Shan(E) | 68.1 | 3.3 | 64.4 | 3.1 | 0.2 | 23.7 |
| Ayeyarwaddy | 93.8 | 3.8 | 82.9 | 4.5 | 0.6 | 12.9 |
| Union | 92.5 | 3.8 | 80.5 | 4.0 | 0.4 | 20.8 |

## 1.3    Maternal, Newborn and Child Health Care

Maternal and Child Health including newborn care has been regarded as a priority issue in the National Health Plan of Myanmar, aiming at achieving global target 4 and 5 of Millennium Development Goals. Such kind of health services are provided by midwives (MWs), auxiliary midwives (AMWs) and Trained Traditional Birth Attendances (TTBAs).



51-60%
60.1-70 %
70.1-80 %
80.1-90%

Figure(13)
Antenatal
Coverage
(2009)
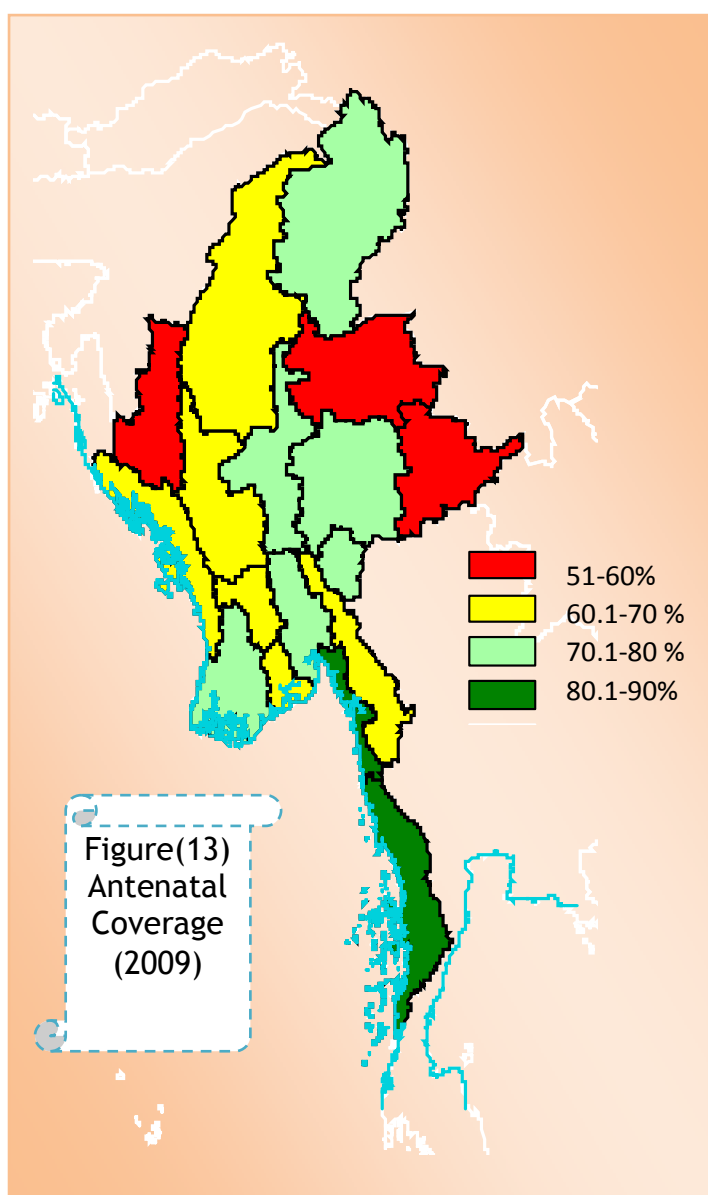
Antenatal care coverage in the regions and states was illustrated in figure (13). The union level of 2009 was 70.6% which showed that strenuous effort was required to achieve 100% coverage. However, Tanintharyi Region had the supreme activity this year because its antenatal care coverage was 87.2%. Ten out of seventeen regions and states were under the union level. Among them, Shan (East) had the lowest percentage of antenatal care coverage i.e., 53.1%.

Average frequency of AN care was 3.3 times per pregnant mother; and PN care was 6 times in puerperium period. Percent of closed birth interval among pregnant mother showed 1.1%. Rate of referral became as 7.1% among pregnant mothers, deliveries and puerperium period.
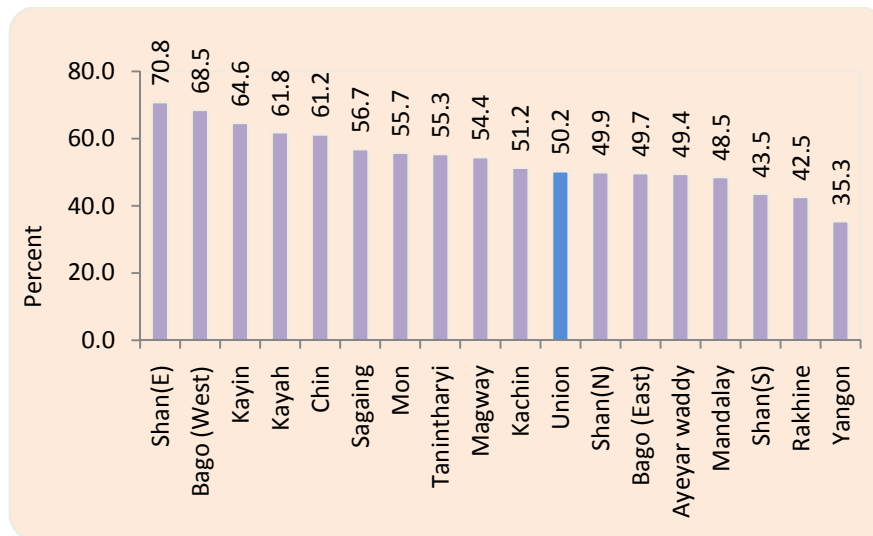
Figure (14) Percentage of deliveries attended by BHS (2009)

In the above figure, it is observed that rate of deliveries attended by BHS at union level is an excellent (50.2%). Among all regions and states, Yangon recorded only 35.3% and it was the only one region below the norm 40% because most of the deliveries had taken place in the hospitals according to its more urbanized socio-demographic situation.

**Functions of AMWs and TTBAs**
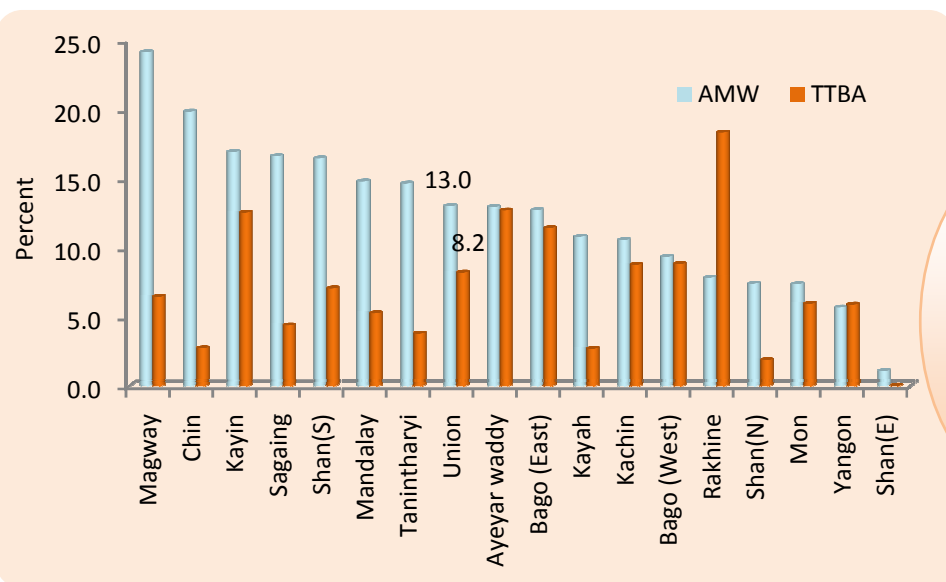


Figure (15) Percentage of deliveries by AMW and TTBA (2009)

To portray the complete activities of reproductive health, functions of AMWs and TTBAs are also important. In figure (15), deliveries attended by AMWs

at union level was 13% and that of TTBAs was 8.2% whereas half of total were covered by BHS. Magway outrivaled other regions and states with 24.1% in deliveries by AMW; and Rakhine showed deliveries by TTBA(18.3%)higher than AMWs. Shan (East) had the highest coverage of deliveries by BHS(figure 14) and lowest percentage of deliveries by AMWs and TTBAs(figure 15); showing better performance by BHS.

**Child Health Services**
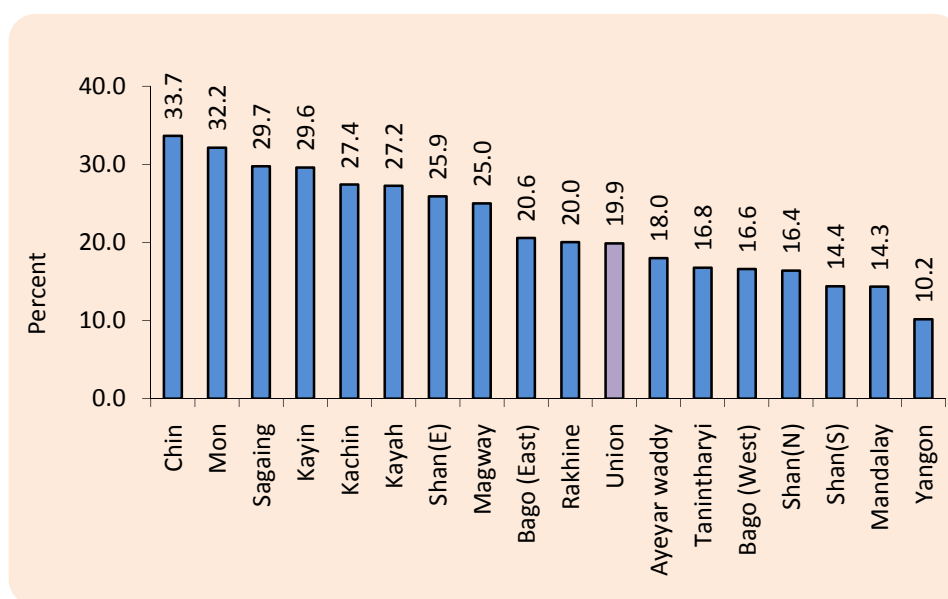


Figure (16) Under 5 clinic attendance rate by Regions and States (2009)

The figure represents the clinic attendance rate of children younger than five years by regions and states in 2009. Its union level was 19.9 % and the coverage ranged from 10.2% in Yangon to 33.7% in Chin. It is observed that the more accessible the advanced health care is, the lesser is the attendance rate especially in Yangon and Mandalay.

Even now-a-days, preventable and curable diseases such as ARI, Diarrhoea and Malaria are still leading causes of under five deaths. The relation of diarrhea cases and utilization of ORT among under five years old children in 2009 was shown in figure (17) and (18). Kayah was the state with highest rate of diarrhea with severe dehydration, at the same time; it was one of the states with least utilization of ORT (less than 90%). However, all regions and states including Kayah were over the target (80%).
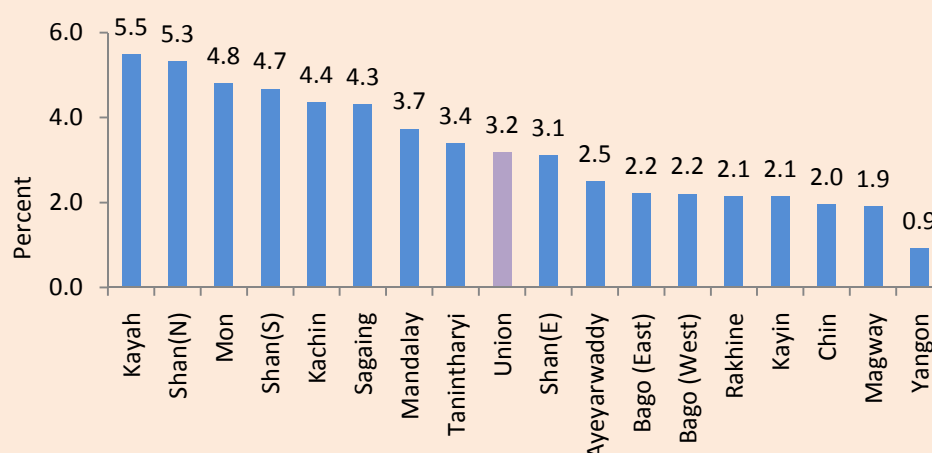
Figure (17) Percentage of under five diarrhoea cases with severe dehydration among total diarrhoea cases by Regions and States (2009)
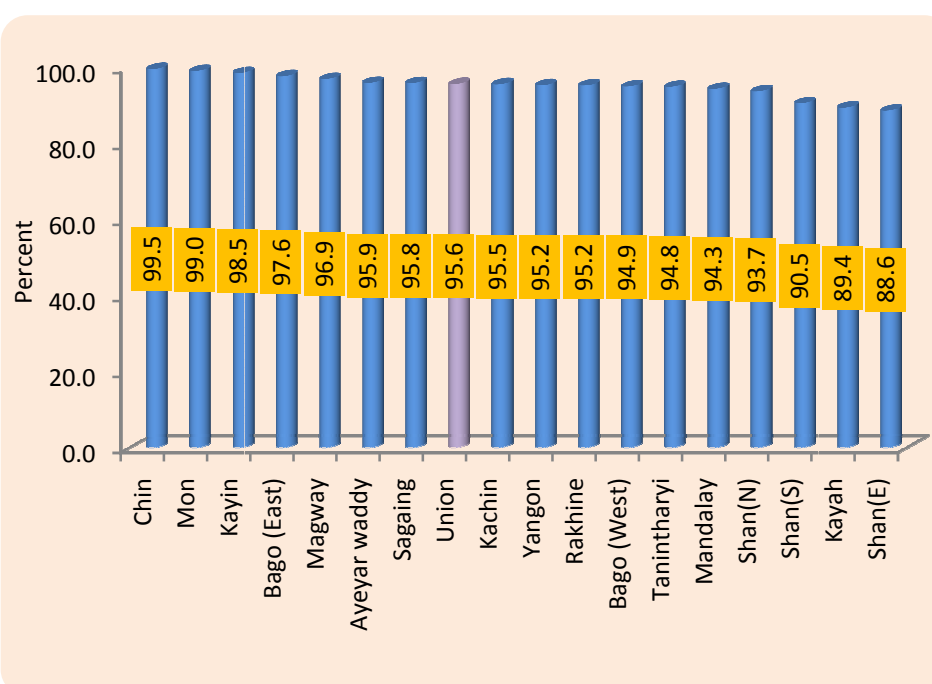


Figure (18) Percent of utilization of ORT among total diarrhoea cases by Regions and States (2009)

Regarding ARI cases, 4.6% of under five population were treated as pneumonia at service delivery points; and 0.2% of those were diagnosed as severe pneumonia. Rate of referral was 1.1% among all under five patients.

## Table(3) Indicators for Maternal and Child Health Activities by BHS

| Regions and States | Maternal, Newborn and Child Health Care (2009) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Maternal and Child Health Activities by BHS | | | | | | | | |
| | AN Care Coverage (%) | Average frequency of AN care | % of pregnant mothers with closed birth interval | % of deliveries attended by BHS | % of deliveries at RHC delivery room | % of newborn with low birth weight | % of Perinatal mortalities out of total deliveries | Average frequency of PN care | % of Referral among (AN + Delivery + PN) mothers |
| Kachin | 79.4 | 3.3 | 2.5 | 51.2 | 1.3 | 1.3 | 1.7 | 5.1 | 4.6 |
| Kayah | 76.3 | 3.7 | 4.1 | 61.8 | 1.6 | 1.2 | 1.8 | 4.2 | 6.7 |
| Kayin | 68.8 | 2.9 | 1.2 | 64.6 | 7.0 | 1.1 | 1.2 | 4.0 | 7.4 |
| Chin | 56.1 | 3.7 | 2.2 | 61.2 | 0.5 | 0.4 | 0.8 | 4.0 | 2.2 |
| Sagaing | 68.9 | 3.9 | 1.3 | 56.7 | 2.5 | 1.1 | 1.5 | 6.8 | 11.4 |
| Tanintharyi | 87.2 | 3.0 | 1.0 | 55.3 | 2.3 | 0.7 | 0.9 | 6.3 | 3.7 |
| Bago (East) | 73.9 | 3.1 | 0.8 | 49.7 | 1.2 | 1.1 | 1.6 | 6.2 | 5.9 |
| Bago (West) | 67.2 | 3.6 | 0.4 | 68.5 | 0.3 | 1.0 | 1.3 | 5.8 | 11.6 |
| Magway | 69.6 | 3.9 | 0.6 | 54.4 | 0.5 | 0.8 | 1.1 | 5.7 | 7.9 |
| Mandalay | 73.6 | 3.4 | 0.6 | 48.5 | 2.1 | 1.0 | 1.2 | 6.5 | 6.9 |
| Mon | 81.4 | 3.7 | 1.0 | 55.7 | 5.8 | 2.0 | 1.7 | 8.0 | 10.6 |
| Rakhine | 66.6 | 2.9 | 2.1 | 42.5 | 0.3 | 1.5 | 0.8 | 4.3 | 4.4 |
| Yangon | 65.8 | 3.3 | 0.4 | 35.3 | 2.7 | 1.2 | 1.0 | 8.8 | 5.1 |
| Shan(S) | 70.5 | 3.0 | 1.9 | 43.5 | 0.8 | 1.7 | 1.4 | 5.1 | 6.7 |
| Shan(N) | 59.6 | 3.0 | 5.1 | 49.9 | 3.8 | 2.4 | 1.6 | 5.1 | 9.1 |
| Shan(E) | 53.1 | 3.4 | 2.0 | 70.8 | 5.4 | 1.1 | 1.7 | 4.1 | 8.3 |
| Ayeyarwaddy | 72.1 | 3.1 | 0.7 | 49.4 | 1.4 | 1.5 | 1.6 | 5.4 | 6.0 |
| Union | 70.6 | 3.3 | 1.1 | 50.2 | 2.0 | 1.2 | 1.3 | 6.0 | 7.1 |

## Table(4) Indicators for Maternal Health Activities by AMWs and TTBAs

| Regions and States | Maternal, Newborn and Child Health Care (2009) | | | | |
| --- | --- | --- | --- | --- | --- |
| | Activities by AMWs | | | Activities by TTBAs | |
| | Home Delivery Rate | % of new-born with low birth weight | % of referral among (AN + Delivery + PN) mothers | Home Delivery Rate | % of referral cases (during delivery) |
| Kachin | 10.6 | 1.4 | 9.7 | 8.8 | 2.0 |
| Kayah | 10.8 | 1.3 | 5.1 | 2.7 | 4.6 |
| Kayin | 16.9 | 0.6 | 4.1 | 12.5 | 1.7 |
| Chin | 19.8 | 0.8 | 0.4 | 2.7 | 1.6 |
| Sagaing | 16.6 | 1.3 | 9.3 | 4.4 | 5.2 |
| Tanintharyi | 14.6 | 0.8 | 4.3 | 3.8 | 1.9 |
| Bago (East) | 12.7 | 0.4 | 4.3 | 11.4 | 2.7 |
| Bago (West) | 9.3 | 0.4 | 8.1 | 8.8 | 3.9 |
| Magway | 24.1 | 0.5 | 5.1 | 6.4 | 1.7 |
| Mandalay | 14.8 | 0.7 | 6.4 | 5.3 | 1.5 |
| Mon | 7.4 | 1.8 | 8.9 | 5.9 | 6.0 |
| Rakhine | 7.8 | 2.9 | 7.2 | 18.3 | 4.4 |
| Yangon | 5.7 | 1.4 | 7.1 | 5.9 | 3.3 |
| Shan(S) | 16.5 | 0.7 | 9.1 | 7.1 | 4.9 |
| Shan(N) | 7.4 | 1.3 | 16.4 | 1.9 | 2.9 |
| Shan(E) | 1.1 | 5.1 | 29.9 | 0.0 | 0.0 |
| Ayeyarwaddy | 12.9 | 0.9 | 4.9 | 12.7 | 2.0 |
| Union | 13.0 | 0.9 | 6.7 | 8.2 | 3.0 |

## Table(5) Indicators for Child Health Activities

| Regions and States | Maternal, Newborn and Child Health Care (2009) | | | | | |
|---|---|---|---|---|---|---|
| | % of < 5 yr old children who attended clinics | % of <5 yr old children with diarrhoea who suffer severe dehydration | % of < 5 yr old children with diarrhoea who received ORT | % of < 5 yr old children with symptoms for pneumonia | % of < 5 yr old children with severe pneumonia | % of < 5 yr old children referred to higher levels |
| Kachin | 27.4 | 4.4 | 95.5 | 6.6 | 0.3 | 0.8 |
| Kayah | 27.2 | 5.5 | 89.4 | 6.6 | 0.6 | 1.1 |
| Kayin | 29.6 | 2.1 | 98.5 | 4.7 | 0.3 | 0.6 |
| Chin | 33.7 | 2.0 | 99.5 | 9.5 | 0.4 | 0.2 |
| Sagaing | 29.7 | 4.3 | 95.8 | 7.1 | 0.4 | 1.4 |
| Tanintharyi | 16.8 | 3.4 | 94.8 | 4.9 | 0.1 | 0.8 |
| Bago (East) | 20.6 | 2.2 | 97.6 | 3.9 | 0.1 | 1.0 |
| Bago (West) | 16.6 | 2.2 | 94.9 | 3.1 | 0.1 | 1.1 |
| Magway | 25.0 | 1.9 | 96.9 | 7.3 | 0.2 | 1.1 |
| Mandalay | 14.3 | 3.7 | 94.3 | 3.1 | 0.2 | 1.8 |
| Mon | 32.2 | 4.8 | 99.0 | 3.8 | 0.2 | 1.3 |
| Rakhine | 20.0 | 2.1 | 95.2 | 5.7 | 0.2 | 0.9 |
| Yangon | 10.2 | 0.9 | 95.2 | 2.0 | 0.1 | 1.1 |
| Shan(S) | 14.4 | 4.7 | 90.5 | 3.9 | 0.2 | 1.1 |
| Shan(N) | 16.4 | 5.3 | 93.7 | 3.6 | 0.2 | 1.3 |
| Shan(E) | 25.9 | 3.1 | 88.6 | 7.9 | 0.3 | 1.4 |
| Ayeyarwaddy | 18.0 | 2.5 | 95.9 | 4.4 | 0.2 | 1.0 |
| Union | 19.9 | 3.2 | 95.6 | 4.6 | 0.2 | 1.1 |

## 1.4    School Health Services

As the childhood is the cornerstone of the future, promoting the health standards, knowledge and practice to school-aged children is fundamentally needed for adopting a healthy life style. One of the main functions of school health service teams is to examine the students regularly. If there is no school health teams in the townships, BHS have the responsibility to cover this activity.
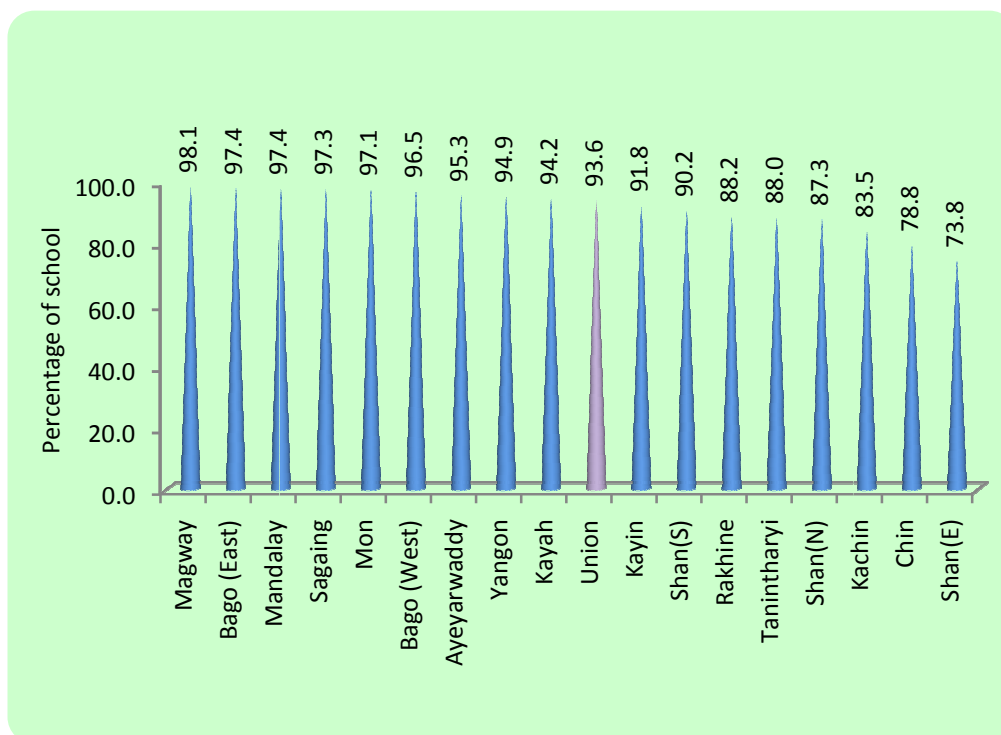


Figure (19) School Health Examination Coverage by Regions and States (2009)

The union level of school examination coverage in 2009, 93.6%, was an acceptable amount; however, coverage in eight states and divisions were below this level as shown in the above figure. Among them, Shan (East) and Chin had the lowest coverage of 73.8% and 78.8% respectively. The best performance was attained in Magway with 98.1%.

Comparing all regions and states in figure (20), the top one in the coverage of school with sanitary latrine was Yangon with 90.5% and that of safe water supply was Bago (East) with 92.3%. Rakhine had the lowest coverage in both, i.e., 45.9% in school with sanitary latrine and 38.0% in school with safe water supply.

The union indicator for students' health examination was 74.5%, schools

with health promoting school was only 32.1% and schools with mosquitoes free activity was 44.3%.
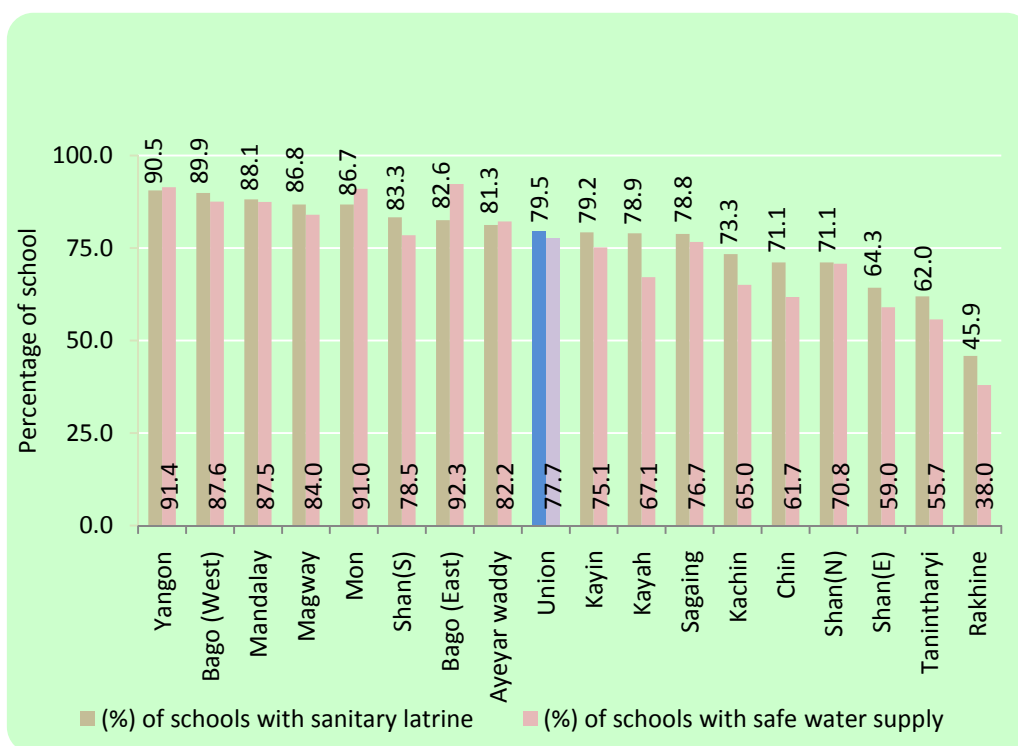


Figure (20) Schools with Sanitary latrine and safe water supply (2009)
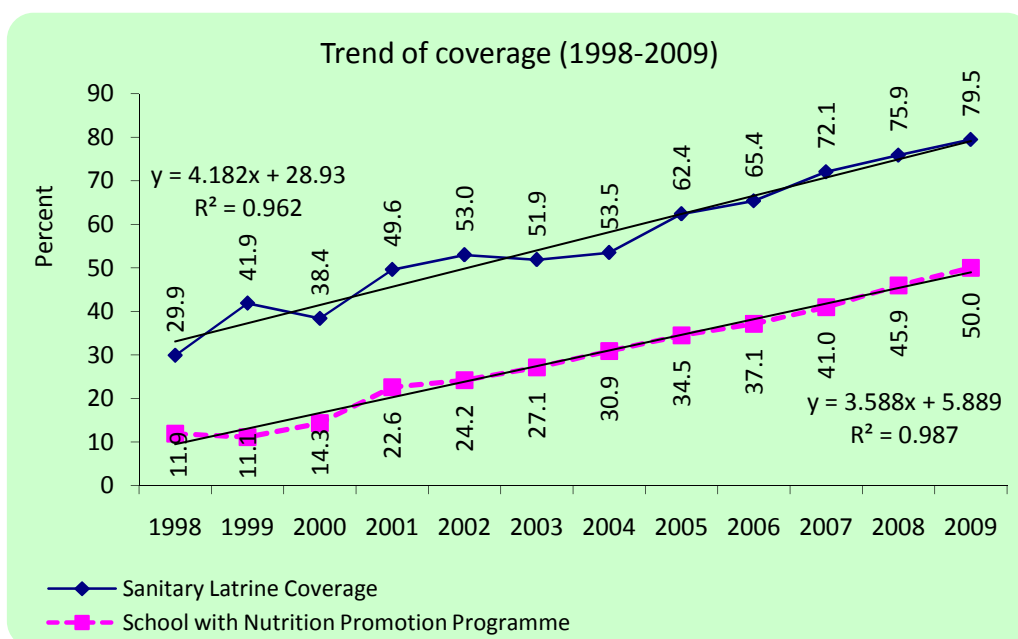


Figure (21) Percentage of Schools with sanitary latrine and nutrition promotion

The trend of coverage of sanitary latrine and nutrition promotion in school showed increasing trend and it can be used for projection of coming years.

## Table(6) Indicators for School Health Activities

| Regions and States | School Health (2009) | | | | | | |
|---|---|---|---|---|---|---|---|
| | % of schools undergo school health examination | (%) of schools with sanitary latrines | (%) of schools with safe water supply | (%) of schools with nutrition promotion activities | (%) of students examined | (%) of health promoting schools | (%) of Ades Egypti free schools |
| Kachin | 83.5 | 73.3 | 65.0 | 52.7 | 57.7 | 29.3 | 28.5 |
| Kayah | 94.2 | 78.9 | 67.1 | 41.6 | 79.5 | 12.9 | 29.7 |
| Kayin | 91.8 | 79.2 | 75.1 | 49.9 | 73.8 | 25.7 | 28.8 |
| Chin | 78.8 | 71.1 | 61.7 | 15.0 | 56.0 | 14.0 | 13.3 |
| Sagaing | 97.3 | 78.8 | 76.7 | 41.2 | 76.1 | 19.5 | 28.4 |
| Tanintharyi | 88.0 | 62.0 | 55.7 | 58.6 | 79.9 | 20.5 | 21.4 |
| Bago (East) | 97.4 | 82.6 | 92.3 | 78.3 | 72.6 | 43.6 | 63.9 |
| Bago (West) | 96.5 | 89.9 | 87.6 | 57.8 | 74.0 | 46.0 | 51.7 |
| Magway | 98.1 | 86.8 | 84.0 | 48.9 | 75.5 | 30.5 | 44.7 |
| Mandalay | 97.4 | 88.1 | 87.5 | 44.1 | 80.0 | 33.9 | 56.8 |
| Mon | 97.1 | 86.7 | 91.0 | 83.8 | 82.3 | 71.8 | 83.8 |
| Rakhine | 88.2 | 45.9 | 38.0 | 18.0 | 71.0 | 6.6 | 3.5 |
| Yangon | 94.9 | 90.5 | 91.4 | 72.9 | 73.0 | 67.1 | 77.2 |
| Shan(S) | 90.2 | 83.3 | 78.5 | 56.3 | 67.1 | 35.6 | 48.6 |
| Shan(N) | 87.3 | 71.1 | 70.8 | 50.4 | 71.5 | 34.2 | 40.2 |
| Shan(E) | 73.8 | 64.3 | 59.0 | 28.2 | 58.7 | 18.3 | 26.0 |
| Ayeyar waddy | 95.3 | 81.3 | 82.2 | 49.9 | 77.3 | 27.4 | 50.6 |
| Union | 93.6 | 79.5 | 77.7 | 50.0 | 74.5 | 32.1 | 44.3 |

# II. DISEASE CONTROL SERVICES

## 2.1 Epidemiological Surveillance and Response

As epidemiological surveillance plays an essential role in health services to control and prevent communicable diseases, Diseases Under National Surveillance (DUNS) System covering seventeen diseases is designed to address the challenges. The general objective is to reduce the morbidity and mortality resulting from communicable diseases by monitoring the data trend that can be used for planning control measures for communicable diseases at national level.

Morbidity per 100,000 populations of diarrhoea was 707.83 and that of dysentery was 290.58 at union level.



Figure (22) Morbidity and Mortality of Dysentery (2009)
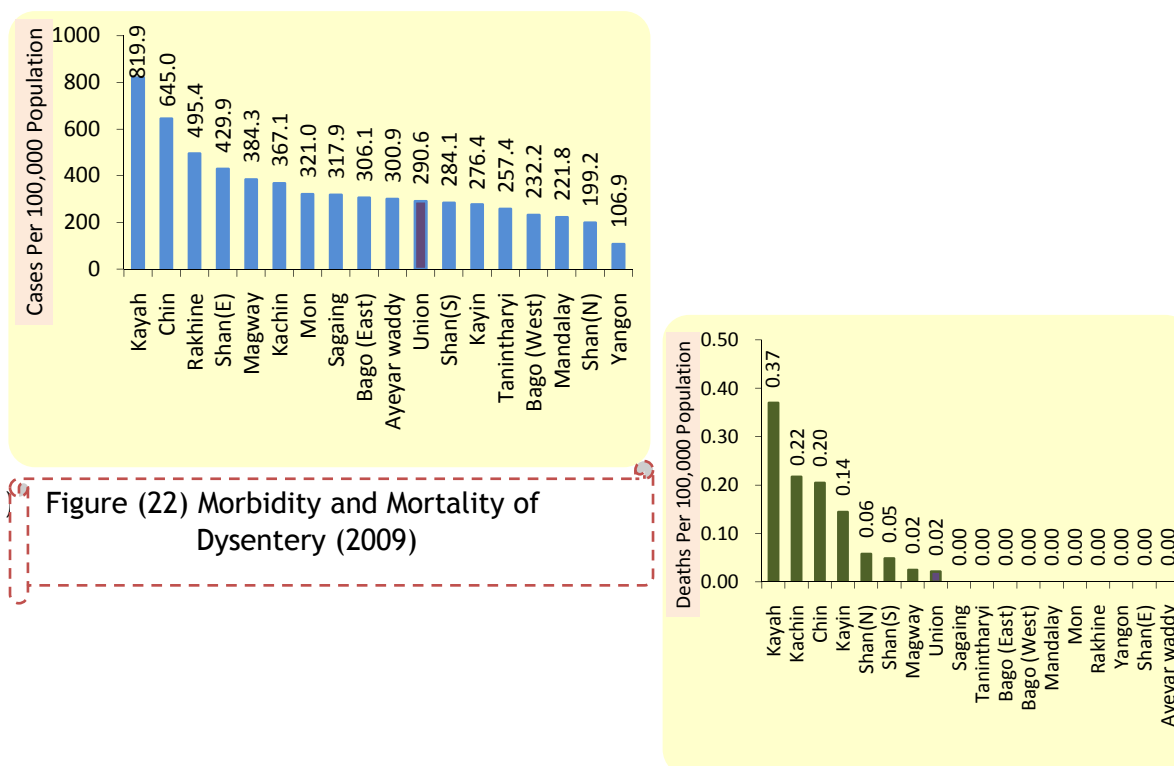
The above two figures indicate the morbidity (cases per 100,000 population) and mortality (deaths per 100,000 population) of dysentery by regions and states. Situation on Kayah state call for special attention because it showed the highest one in both figures.

ARI is a main killer disease of under five children in Myanmar, and so surveillance system was important for that disease.
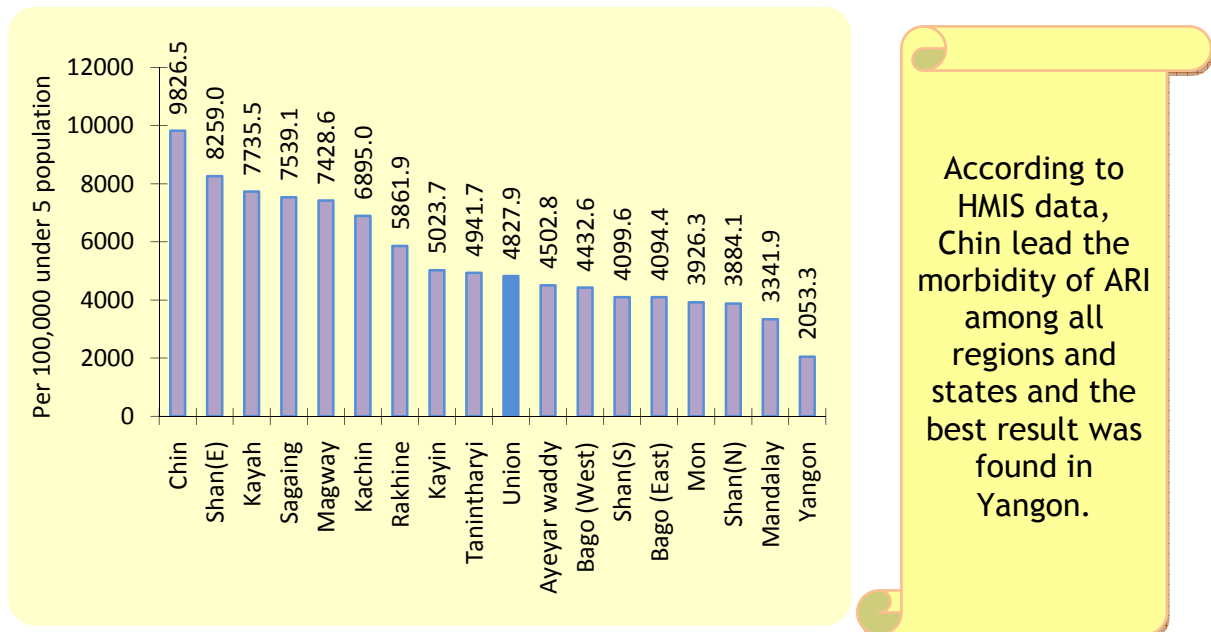
Fig (23-a) Morbidity of ARI by Regions and States (2009)

According to HMIS data, Chin lead the morbidity of ARI among all regions and states and the best result was found in Yangon.

However, in the mortality data, Magway had the worse condition than Chin. Mandalay, Mon and Shan(South) showed lowest mortality with ARI.
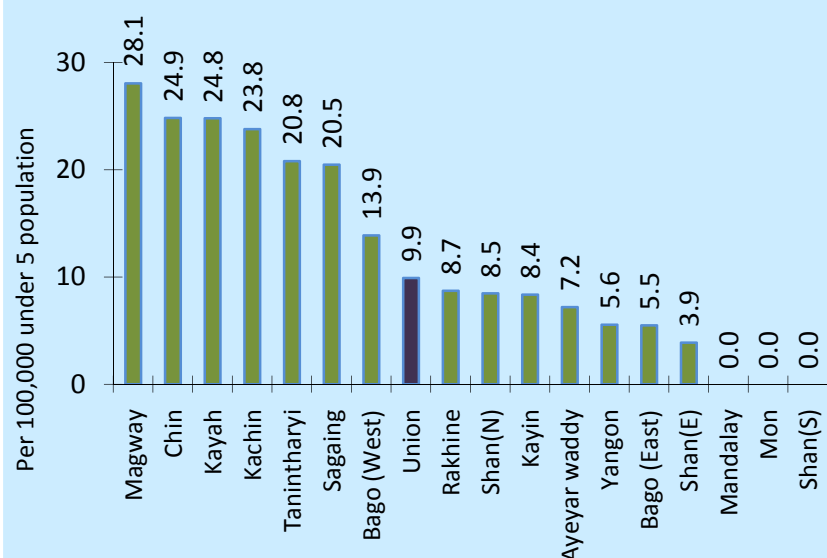
Figure (23-b) Mortality of ARI by Regions and States (2009)

Malaria cases

1-50000
50001-100000
>100000

Morbidity per 1000 population

1-20
20.01-40
>40

Mortality per 100,000 population

<1
1-3
3.01-6
>6

Regarding to malaria cases, there were more than 600,000 cases all over the country; one-fifth of those were in Rakhine State. Cases in Kachin and Sagaing were between fifty thousands and one hundred thousand.

Based on Population, morbidity in Kachin and Chin showed more than 40 per 1000 populations. Union average was 13.27.

According to Mortality per 100,000 populations, Shan(E), Ayeyarwady and Yangon had less than one death; Chin, Sagaing, Shan(N), Kayah and Tanintharyi had between 3.01 to 6. Union average was 2.24.

Highest morbidity and mortality was recorded in Kachin State.

Figure(24) Number of malaria cases and its Morbidity and Mortality in 2009

## Table(7)Indicators for Morbidity and Mortality of Diseases Under National Surveillance

| i | Epidemiological Surveillance and Response (2009) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Regions and States | Diarrhoea | | Dysentery | | Food poisoning | | Enteric Fever | | Measles | | Diphtheria | |
| | (1) | (2) | (1) | (2) | (1) | (2) | (1) | (2) | (3) | (2) | (3) | (2) |
| Kachin | 1092.5 | 16 | 367.1 | 3 | 23.3 | 5 | 6.4 | 0 | 0.0 | 0 | 0.0 | 0 |
| Kayah | 1596.4 | 24 | 819.9 | 1 | 12.6 | 0 | 7.8 | 0 | 80.6 | 0 | 3.1 | 1 |
| Kayin | 900.6 | 6 | 276.4 | 2 | 12.2 | 2 | 2.6 | 0 | 2.4 | 0 | 0.0 | 0 |
| Chin | 1828.3 | 36 | 645.0 | 1 | 12.7 | 5 | 69.5 | 1 | 0.0 | 0 | 0.0 | 0 |
| Sagaing | 917.9 | 29 | 317.9 | 0 | 7.2 | 6 | 15.9 | 0 | 0.0 | 0 | 0.0 | 0 |
| Tanintharyi | 691.1 | 9 | 257.4 | 0 | 46.2 | 4 | 9.9 | 0 | 0.0 | 0 | 0.0 | 0 |
| Bago (East) | 753.3 | 20 | 306.1 | 0 | 16.0 | 3 | 5.2 | 0 | 0.0 | 0 | 0.0 | 0 |
| Bago (West) | 409.4 | 2 | 232.2 | 0 | 11.0 | 4 | 23.8 | 1 | 2.2 | 0 | 0.0 | 0 |
| Magway | 810.8 | 14 | 384.3 | 1 | 4.2 | 5 | 6.3 | 0 | 15.9 | 0 | 0.0 | 0 |
| Mandalay | 582.5 | 33 | 221.8 | 0 | 7.8 | 10 | 9.1 | 1 | 6.3 | 0 | 0.0 | 0 |
| Mon | 978.6 | 8 | 321.0 | 0 | 15.2 | 9 | 1.2 | 0 | 0.9 | 0 | 0.0 | 0 |
| Rakhine | 1111.1 | 19 | 495.4 | 0 | 13.5 | 5 | 16.7 | 2 | 0.5 | 0 | 0.0 | 0 |
| Yangon | 231.1 | 6 | 106.9 | 0 | 7.8 | 6 | 1.4 | 1 | 1.0 | 0 | 0.5 | 0 |
| Shan(S) | 707.4 | 35 | 284.1 | 1 | 12.2 | 15 | 6.8 | 0 | 4.6 | 0 | 0.0 | 0 |
| Shan(N) | 678.1 | 9 | 199.2 | 1 | 15.3 | 4 | 8.3 | 0 | 1.5 | 0 | 0.0 | 0 |
| Shan(E) | 1119.5 | 0 | 429.9 | 0 | 17.4 | 0 | 7.3 | 0 | 5.2 | 0 | 0.0 | 0 |
| Ayeyarwaddy | 545.1 | 11 | 300.9 | 0 | 13.6 | 9 | 6.6 | 1 | 0.0 | 0 | 0.0 | 0 |
| Union | 707.8 | 277 | 290.6 | 10 | 12.1 | 92 | 9.1 | 7 | 3.2 | 0 | 0.1 | 1 |

(1)     Number of cases per 100,000 Population
(2)     Total number of death
(3)     For vaccine preventable diseases and ARI, number of cases per
100000 under five years children are mentioned in the table

## Table(7) Indicators for Morbidity and Mortality of Diseases Under National Surveillance

| ii | Epidemiological Surveillance and Response (2009) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Regions and States | Whooping cough | | Neonatal tetanus | | Tetanus | | Meningitis | | ARI | | Viral Hepatitis | |
| | (3) | (2) | (4) | (2) | (1) | (2) | (1) | (2) | (1) | (2) * | (1) | (2) |
| Kachin | 0.0 | 0 | 0.0 | 0 | 1.2 | 4 | 1.0 | 3 | 6895.0 | 23.8 | 21.8 | 3 |
| Kayah | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 2.2 | 1 | 7735.5 | 24.8 | 8.5 | 0 |
| Kayin | 0.0 | 0 | 0.0 | 0 | 0.4 | 2 | 2.2 | 1 | 5023.7 | 8.4 | 21.2 | 2 |
| Chin | 1.7 | 0 | 0.0 | 0 | 0.0 | 0 | 2.0 | 1 | 9826.5 | 24.9 | 33.1 | 0 |
| Sagaing | 0.0 | 0 | 5.6 | 0 | 1.4 | 6 | 3.7 | 9 | 7539.1 | 20.5 | 33.5 | 14 |
| Tanintharyi | 0.0 | 0 | 3.2 | 0 | 0.1 | 0 | 2.6 | 4 | 4941.7 | 20.8 | 14.2 | 2 |
| Bago (East) | 0.0 | 0 | 4.9 | 2 | 0.7 | 0 | 1.8 | 7 | 4094.4 | 5.5 | 14.2 | 4 |
| Bago (West) | 0.6 | 0 | 6.2 | 2 | 0.4 | 4 | 4.2 | 2 | 4432.6 | 13.9 | 24.1 | 4 |
| Magway | 0.0 | 0 | 0.0 | 0 | 0.2 | 1 | 0.4 | 2 | 7428.6 | 28.1 | 11.7 | 2 |
| Mandalay | 3.5 | 0 | 5.9 | 4 | 0.6 | 4 | 2.8 | 3 | 3341.9 | 0.0 | 14.8 | 8 |
| Mon | 0.0 | 0 | 2.7 | 0 | 0.3 | 2 | 1.3 | 5 | 3926.3 | 0.0 | 13.2 | 2 |
| Rakhine | 1.2 | 0 | 1.4 | 1 | 1.0 | 8 | 1.0 | 1 | 5861.9 | 8.7 | 15.5 | 1 |
| Yangon | 0.2 | 0 | 1.1 | 0 | 0.1 | 1 | 0.2 | 4 | 2053.3 | 5.6 | 3.6 | 7 |
| Shan(S) | 0.0 | 0 | 0.0 | 0 | 0.4 | 1 | 1.1 | 5 | 4099.6 | 0.0 | 22.2 | 10 |
| Shan(N) | 0.0 | 0 | 0.0 | 0 | 0.3 | 2 | 0.7 | 5 | 3884.1 | 8.5 | 23.3 | 10 |
| Shan(E) | 1.3 | 0 | 0.0 | 0 | 0.2 | 0 | 1.4 | 0 | 8259.0 | 3.9 | 18.6 | 0 |
| Ayeyarwaddy | 0.1 | 0 | 0.9 | 0 | 0.7 | 4 | 1.8 | 2 | 4502.8 | 7.2 | 18.1 | 14 |
| Union | 0.6 | 0 | 2.6 | 9 | 0.6 | 39 | 1.8 | 55 | 4827.9 | 9.9 | 17.1 | 83 |

(1)     **Number of cases per 100,000 Population**

(2)     **Total number of death**

(2) *   **Number of deaths per 100000 under five years children**

(3)     **For vaccine preventable diseases and ARI, number of cases per 100000 under five years children are mentioned in the table**

(4)     **For Neonatal Tetanus, number of cases per 100000 live birth are mentioned in the table**

## Table(7) Indicators for Morbidity and Mortality of Diseases Under National Surveillance

| iii | Epidemiological Surveillance and Response (2009) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Regions and States** | **Rabies** | | **Malaria** | | **Snake bite poisonous** | | **TB: Sputum +ve** | | **TB: Sputum -ve** | | **TB: Extrapulmonary** | |
| | (1) | (2) | (1) | (2) * | (1) * | (2) | (1) | (2) | (1) | (2) | (1) | (2) |
| *Kachin* | 0.4 | 5 | 6259.0 | 16.0 | 21 | 0 | 57.8 | 4 | 53.9 | 1 | 64.6 | 4 |
| *Kayah* | 0.0 | 0 | 3272.8 | 5.9 | 14 | 1 | 20.4 | 0 | 23.3 | 1 | 29.6 | 0 |
| *Kayin* | 0.5 | 7 | 1562.4 | 2.2 | 121 | 4 | 71.2 | 15 | 163.2 | 4 | 22.0 | 0 |
| *Chin* | 0.2 | 1 | 5467.0 | 5.1 | 40 | 1 | 20.4 | 1 | 61.1 | 0 | 103.7 | 0 |
| *Sagaing* | 0.6 | 30 | 1962.4 | 3.7 | 1570 | 138 | 42.0 | 13 | 26.1 | 9 | 40.6 | 2 |
| *Tanintharyi* | 0.3 | 4 | 2504.0 | 3.3 | 42 | 0 | 49.9 | 0 | 130.7 | 4 | 139.9 | 25 |
| *Bago (East)* | 0.5 | 15 | 1195.5 | 2.0 | 434 | 50 | 43.7 | 16 | 52.6 | 38 | 15.2 | 9 |
| *Bago (West)* | 0.5 | 11 | 1021.1 | 1.9 | 952 | 52 | 83.2 | 14 | 118.3 | 12 | 34.4 | 0 |
| *Magway* | 0.2 | 9 | 873.1 | 1.0 | 1307 | 129 | 47.8 | 19 | 51.1 | 23 | 62.0 | 7 |
| *Mandalay* | 0.8 | 53 | 353.2 | 1.1 | 1934 | 142 | 50.1 | 66 | 44.4 | 68 | 55.0 | 21 |
| *Mon* | 1.0 | 21 | 1161.6 | 2.0 | 234 | 21 | 84.7 | 18 | 183.1 | 40 | 34.0 | 1 |
| *Rakhine* | 0.1 | 4 | 3736.0 | 2.3 | 24 | 3 | 54.0 | 14 | 67.0 | 13 | 39.5 | 4 |
| *Yangon* | 0.2 | 10 | 91.1 | 0.5 | 438 | 53 | 129.2 | 20 | 126.2 | 20 | 54.1 | 2 |
| *Shan(S)* | 0.0 | 0 | 994.8 | 2.9 | 144 | 4 | 33.0 | 1 | 33.8 | 2 | 19.2 | 0 |
| *Shan(N)* | 0.0 | 0 | 2261.2 | 4.2 | 24 | 0 | 57.6 | 2 | 62.2 | 4 | 64.2 | 1 |
| *Shan(E)* | 0.0 | 0 | 738.1 | 0.2 | 17 | 0 | 69.6 | 1 | 98.5 | 1 | 40.9 | 0 |
| *Ayeyarwaddy* | 0.1 | 9 | 301.1 | 0.8 | 681 | 163 | 60.3 | 18 | 55.3 | 13 | 31.6 | 3 |
| *Union* | 0.4 | 179 | 1327.3 | 2.2 | 7997 | 761 | 63.2 | 222 | 73.5 | 253 | 46.6 | 79 |

(1)　　Number of cases per 100,000 Population

(2)　　Total number of death

(1) *　Number of cases

(2) *　Number of deaths per 100,000 Population

(3)　　For vaccine preventable diseases and ARI, number of cases per 100000

　　　　under five years children are mentioned in the table

## 2.2    Expanded Programme on Immunization

Expanded Programme on Immunization was launched to immunize the children against the six childhood diseases so as to raise the health status of the community and achieving the millennium development goals.
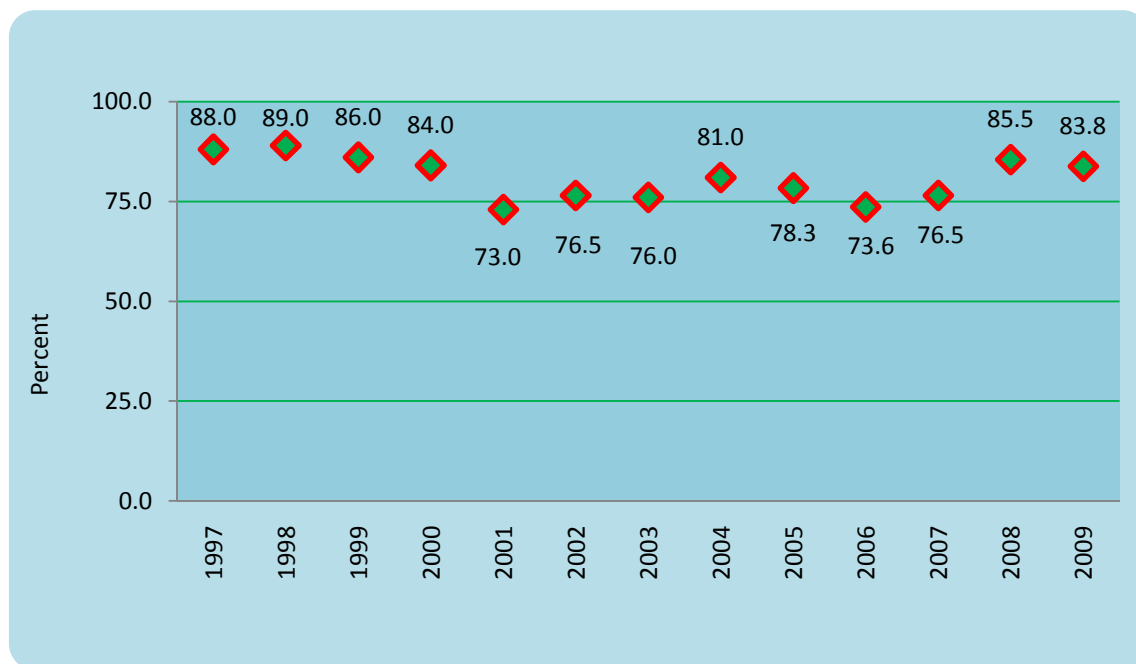


Figure (25) Trend of Measles immunization coverage (1997-2009)

Proportion of under one year old children immunized against measles was one of the indicators for Millennium Development Goal. The trend of measles coverage all over the country varied within thirteen years duration. It was 83.8% in 2009; and it is necessary to strengthen to achieve 100% coverage in 2015.

Immunization coverage for DPT-3, Polio-3 and Hepatitis B-3 are shown in Figure (26) and it was found that Yangon, Kayin, Kayah, Ayeyarwady,Shan(North), Shan (South) and Chin had lower DTP-3, Polio-3 and Hepatitis B-3 coverage than Union level and also in TT2 immunization coverage from figure(27).

| | BW | Mn | BE | Mag | Sag | Kac | Man | Tan | Rak | SE | Uni | Yan | Kah | Kyn | Aye | SN | SS | Chi |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DPT 3rd | 95.6 | 94.1 | 91.6 | 91.1 | 91.8 | 90.8 | 89.7 | 89.3 | 89.5 | 86.8 | 86.6 | 84.0 | 83.1 | 81.3 | 80.9 | 74.7 | 68.9 | 62.6 |
| Polio 3rd | 95.0 | 94.1 | 91.4 | 91.1 | 90.9 | 90.7 | 89.6 | 89.3 | 88.6 | 87.0 | 86.0 | 81.7 | 81.7 | 81.4 | 81.2 | 73.8 | 66.8 | 62.1 |
| Hepatitis B 3rd | 92.4 | 94.1 | 91.2 | 91.1 | 91.9 | 89.5 | 89.5 | 89.2 | 88.3 | 87.1 | 86.1 | 83.6 | 80.6 | 80.2 | 81.1 | 73.7 | 67.9 | 62.5 |

Figure (26) DPT 3rd dose, Polio 3rd dose and Hepatitis B 3rd dose coverage (2009)
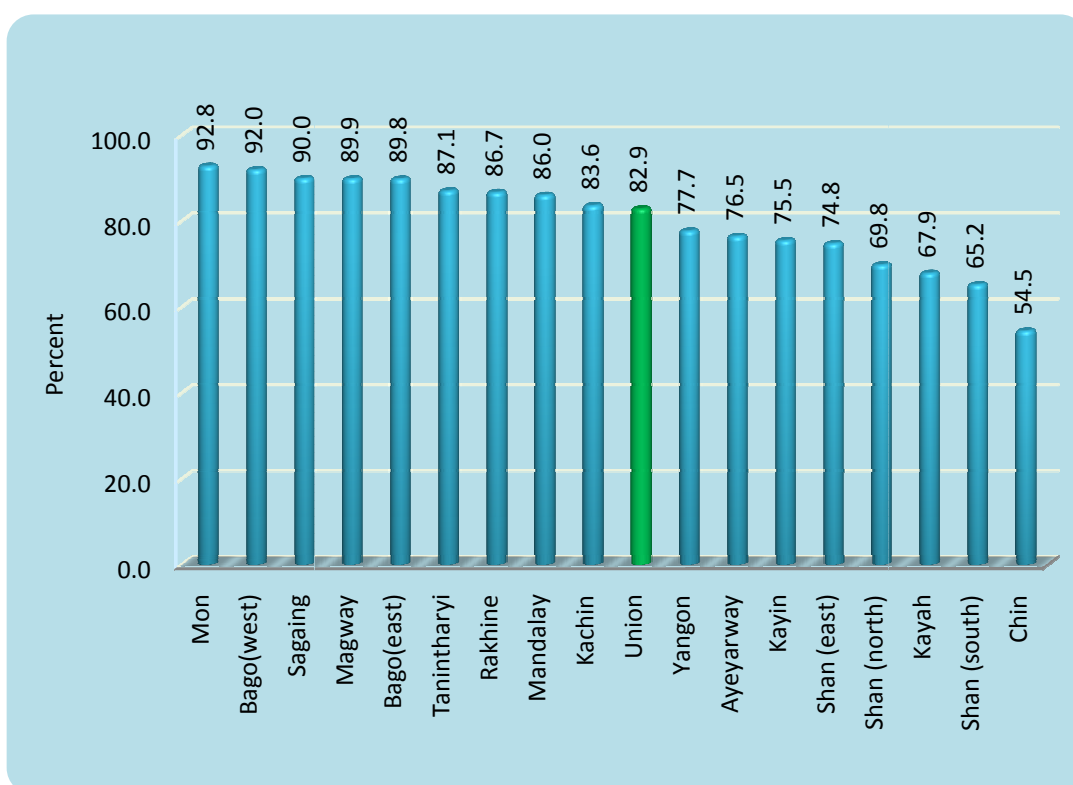


Figure (27) TT 2nd dose coverage of pregnant mother (2009)

## Table(8)Indicators for Immunization Coverage

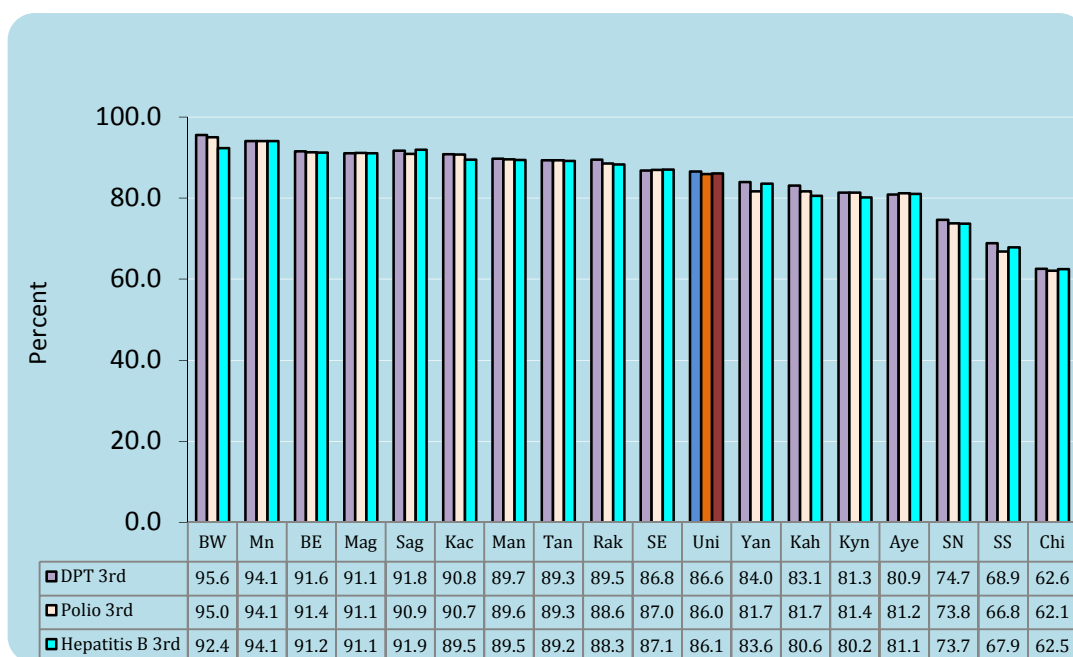| Regions and States | Expanded Programme on Immunization (2009) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DPT Coverage (%) | | | Polio Coverage (%) | | | Hepatitis B Coverage (%) | | | BCG | Measles | TT Coverage (%) | |
| | 1st Dose | 2nd Dose | 3rd Dose | 1st Dose | 2nd Dose | 3rd Dose | 1st Dose | 2nd Dose | 3rd Dose | Coverage (%) | Coverage (%) | 1st Dose | 2nd Dose |
| Kachin | 93.0 | 92.1 | 90.8 | 93.8 | 92.4 | 90.7 | 94.1 | 92.2 | 89.5 | 93.7 | 88.0 | 88.3 | 83.6 |
| Kayah | 85.1 | 84.4 | 83.1 | 83.6 | 82.9 | 81.7 | 80.6 | 82.6 | 80.6 | 85.1 | 82.0 | 71.2 | 67.9 |
| Kayin | 87.0 | 84.5 | 81.3 | 87.0 | 84.5 | 81.4 | 86.7 | 84.2 | 80.2 | 87.0 | 78.0 | 79.1 | 75.5 |
| Chin | 58.6 | 58.3 | 62.6 | 63.1 | 58.2 | 62.1 | 58.7 | 60.2 | 62.5 | 64.0 | 53.4 | 50.7 | 54.5 |
| Sagaing | 93.0 | 92.4 | 91.8 | 91.6 | 91.6 | 90.9 | 91.8 | 92.5 | 91.9 | 93.0 | 88.5 | 90.4 | 90.0 |
| Tanintharyi | 91.5 | 90.7 | 89.3 | 91.7 | 90.7 | 89.3 | 92.4 | 90.6 | 89.2 | 91.6 | 87.8 | 89.3 | 87.1 |
| Bago (East) | 95.1 | 93.4 | 91.6 | 95.0 | 93.2 | 91.4 | 94.8 | 93.3 | 91.2 | 94.6 | 88.7 | 91.4 | 89.8 |
| Bago (West) | 98.2 | 97.2 | 95.6 | 94.7 | 93.8 | 95.0 | 94.7 | 93.6 | 92.4 | 94.7 | 90.7 | 93.2 | 92.0 |
| Magway | 93.5 | 92.4 | 91.1 | 92.9 | 92.3 | 91.1 | 93.8 | 92.3 | 91.1 | 93.4 | 91.1 | 91.1 | 89.9 |
| Mandalay | 91.8 | 90.8 | 89.7 | 91.6 | 90.6 | 89.6 | 91.7 | 90.4 | 89.5 | 92.3 | 88.0 | 86.6 | 86.0 |
| Mon | 96.2 | 95.3 | 94.1 | 96.2 | 95.3 | 94.1 | 96.2 | 93.3 | 94.1 | 96.2 | 93.6 | 93.3 | 92.8 |
| Rakhine | 93.8 | 90.3 | 89.5 | 93.8 | 91.3 | 88.6 | 93.4 | 91.0 | 88.3 | 93.5 | 86.1 | 90.9 | 86.7 |
| Yangon | 86.1 | 84.7 | 84.0 | 85.1 | 82.7 | 81.7 | 86.6 | 84.7 | 83.6 | 87.0 | 81.7 | 79.3 | 77.7 |
| Shan(S) | 72.0 | 70.2 | 68.9 | 69.2 | 67.8 | 66.8 | 70.4 | 69.0 | 67.9 | 71.9 | 65.6 | 68.2 | 65.2 |
| Shan(N) | 80.3 | 77.0 | 74.7 | 79.3 | 76.0 | 73.8 | 78.2 | 76.3 | 73.7 | 80.1 | 71.2 | 73.9 | 69.8 |
| Shan(E) | 91.0 | 87.7 | 86.8 | 91.1 | 87.9 | 87.0 | 86.6 | 88.4 | 87.1 | 90.7 | 87.2 | 78.7 | 74.8 |
| Ayeyarwaddy | 82.3 | 81.3 | 80.9 | 82.9 | 81.9 | 81.2 | 83.0 | 81.8 | 81.1 | 82.3 | 76.0 | 77.9 | 76.5 |
| Union | 89.0 | 87.6 | 86.6 | 88.5 | 87.1 | 86.0 | 88.7 | 87.4 | 86.1 | 89.1 | 83.8 | 84.6 | 82.9 |

## 2.3   Zoonotic Diseases Control Services

Zoonotic diseases control project primarily tackle Plague and Rabies but any reemerging, resurging and emerging zoonotic diseases will be put under surveillance, and containment of them will be executed whenever necessary. Currently, altogether four diseases are covered in this project.
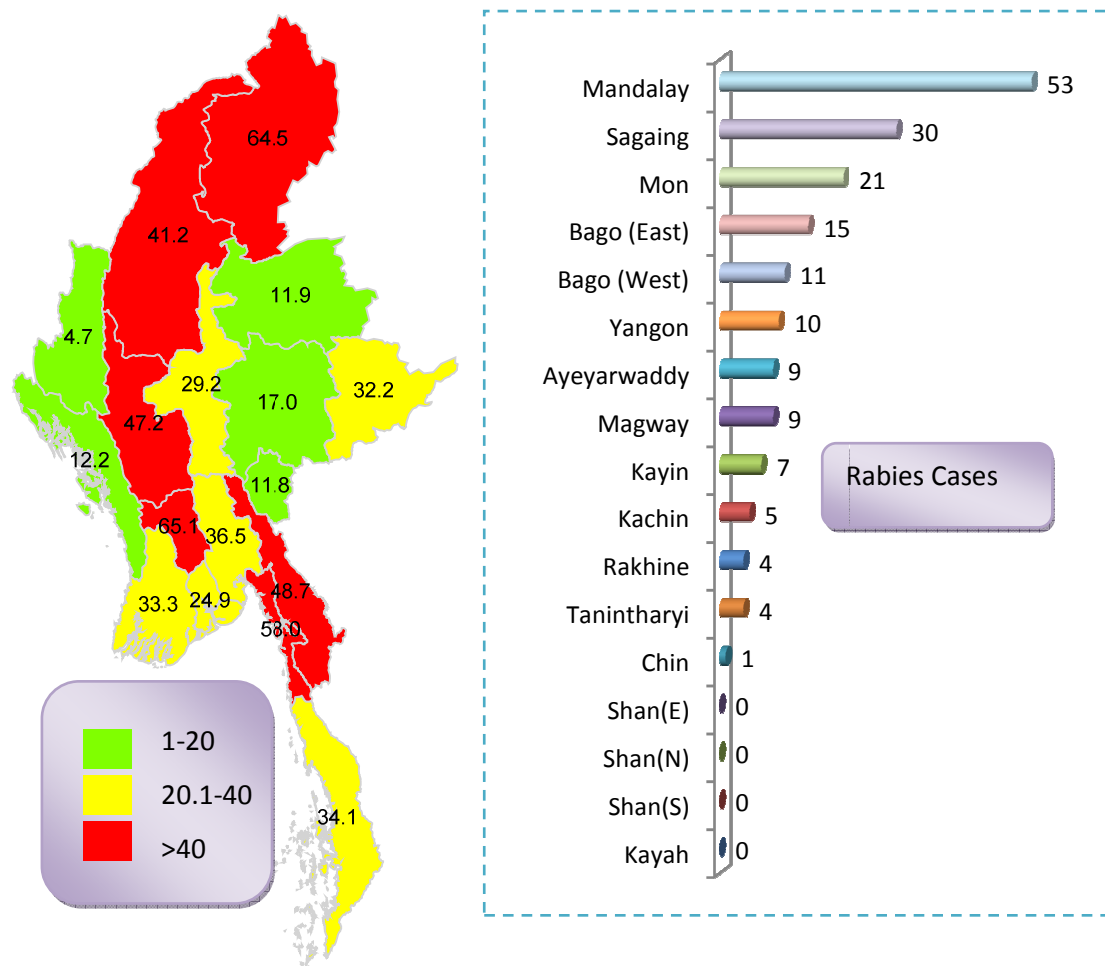


Figure(28) Dog Bite cases per 100,000 populations and their Rabies cases

The prevalence of dog bite per 100,000 population in 2009 ranged from 4.7 to 65.08 i.e., Chin to Bago (West) in ascending order. Kachin, Sagaing, Magway, Bago(West), Mon and Kayin had dog bite cases more than 40. Number of Rabies was reported highest in Mandalay Region followed by Sagaing and Mon.
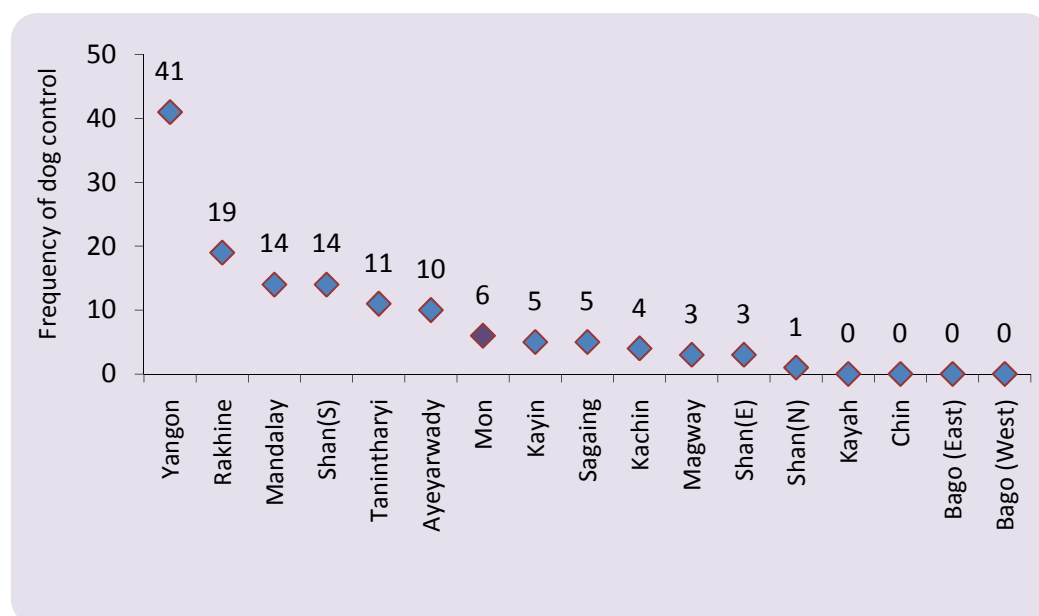
Figure (29) Frequency of organized control of stray dogs (2009)

There was a great relation between morbidity from dog bite and frequency of organized control of stray dogs; i.e., regions and states of highest morbidity of dog bite were inversely proportionate to the frequency of control of stray dogs, such as Bago (West), Kachin, Mon, etc.
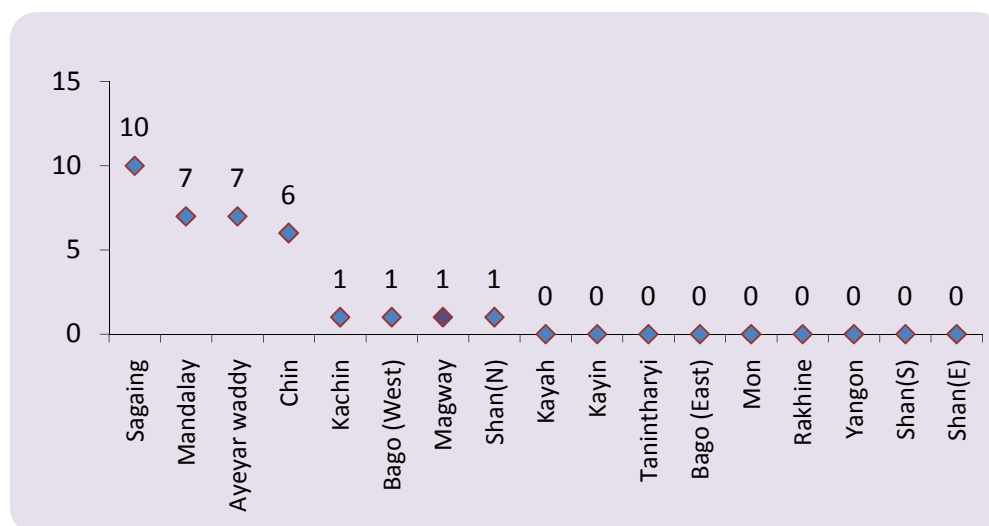


Figure (30) Reported case of Leptospirosis (2009)

Depending on reported data, the maximum case of Leptospirosis was found in Sagaing, even though nine out of seventeen regions and states were zero reporting. And also for Anthrax, Mandalay and Sagaing only had reported(Table9).

## *Table(9) Indicators for Zoonotic Disease*

| Zoonotic Diseases Control (2009) | | | | |
|---|---|---|---|---|
| Regions and States | 1. Number of dog bite cases | 2. Number of Anthrax cases | 3. Number of leptospirosis cases | 4. Number of organized control of stray dogs |
| Kachin | 892 | 0 | 1 | 4 |
| Kayah | 32 | 0 | 0 | 0 |
| Kayin | 676 | 0 | 0 | 5 |
| Chin | 23 | 0 | 6 | 0 |
| Sagaing | 2065 | 3 | 10 | 5 |
| Tanintharyi | 541 | 0 | 0 | 11 |
| Bago (East) | 1041 | 0 | 0 | 0 |
| Bago (West) | 1314 | 0 | 1 | 0 |
| Magway | 1899 | 0 | 1 | 3 |
| Mandalay | 1857 | 4 | 7 | 14 |
| Mon | 1206 | 0 | 0 | 6 |
| Rakhine | 409 | 0 | 0 | 19 |
| Yangon | 1475 | 0 | 0 | 41 |
| Shan(S) | 352 | 0 | 0 | 14 |
| Shan(N) | 207 | 0 | 1 | 1 |
| Shan(E) | 207 | 0 | 0 | 3 |
| Ayeyarwaddy | 2178 | 0 | 7 | 10 |
| Union | 16374 | 7 | 34 | 136 |

## 2.4   Tuberculosis Control Services

Myanmar is still one of the 22 TB high burden countries in the world. HMIS collect the tuberculosis data aiming to provide needed information in reducing the mortality, morbidity and transmission of TB, until it is no longer a public health problem and to help prevent the development of drug resistant TB.

**TB Cases by age group**



**TB Deaths by age group**
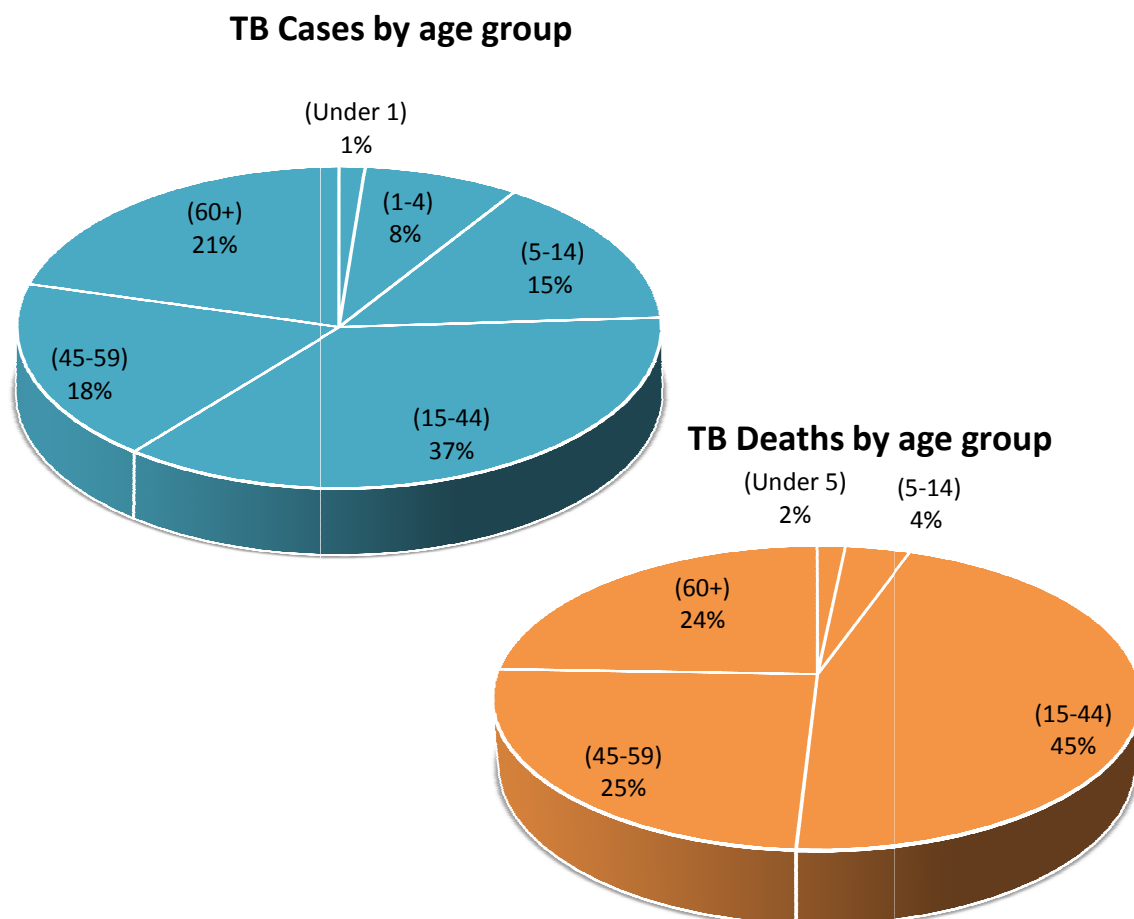
Figure (31) Cases and Deaths of Tuberculosis by age group(2009)

Regarding to reported cases and deaths of tuberculosis, under five tuberculosis cases was 9% while deaths was 2%. Productive age group (15-44) years contributed 37% of cases and 45% of deaths.
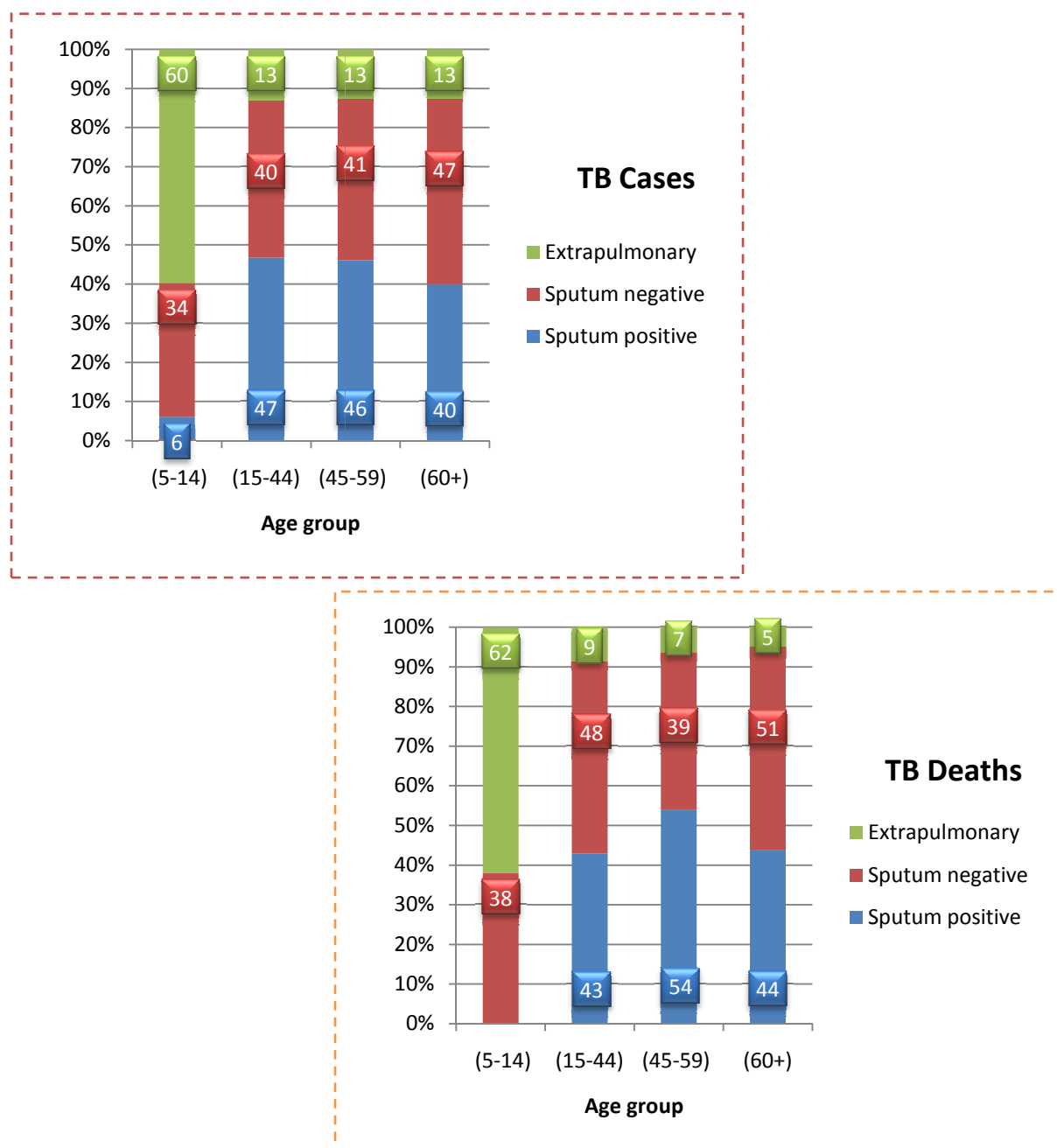
Figure(32) Tuberculosis Cases and Deaths by types and by age group (2009)

The above two figures showed that three-fifth of cases and deaths in (5-14) years age group were due to extrapulmonary TB. In the figure showing TB cases, percent of sputum positive TB was declining from (15-44) group to older age group. More than half of deaths in (45-59) years age group were found in sputum positive cases.
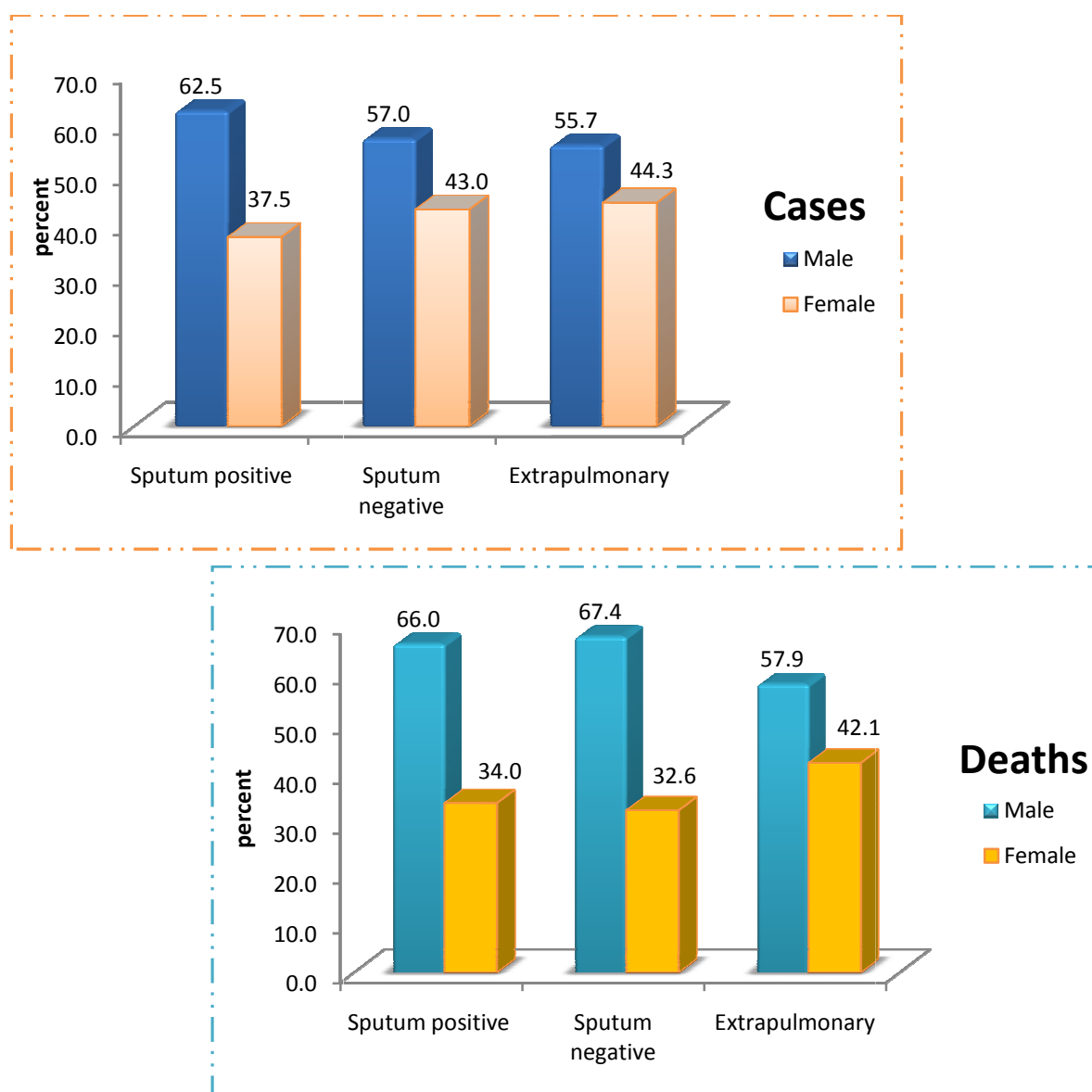
Figure(33) Tuberculosis Cases and Deaths by types and by gender (2009)

Distribution was higher in male than female in all categories of tuberculosis. In female, most cases were extrapulmonary category. In Male, most cases were sputum positive category and most deaths were found in sputum negative category.

## 2.5    Leprosy Elimination Activities

Leprosy was eliminated in 2003 and yet it is still needed to reduce further burden and to provide access to quality leprosy control services for all affected communities focusing on prevention of disability and rehabilitation in the context of community based approach.
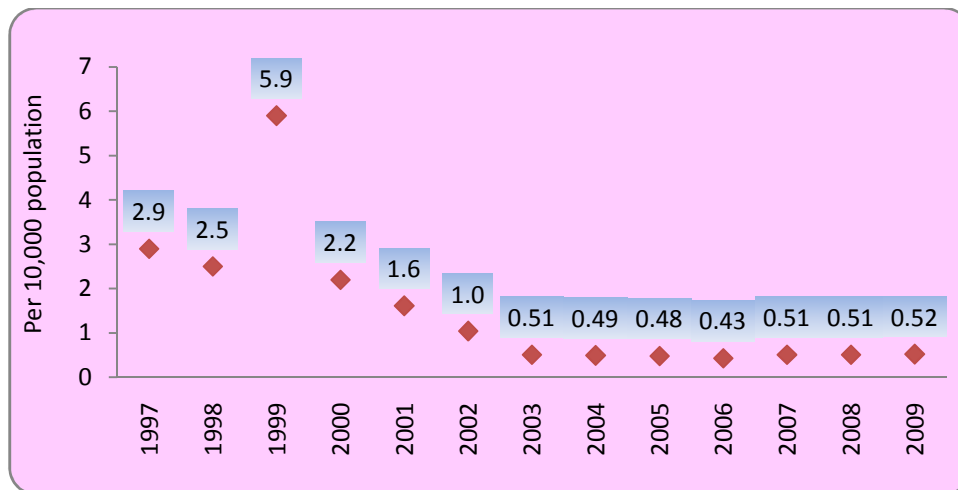


Figure (34) Leprosy Prevalence per 10,000 population (1997-2009)

The trend showed prevalence of leprosy from 1997 to 2009. Prevalence at the year 2003 announced for elimination 0.51 per 10,000 population was sustained till 2009.
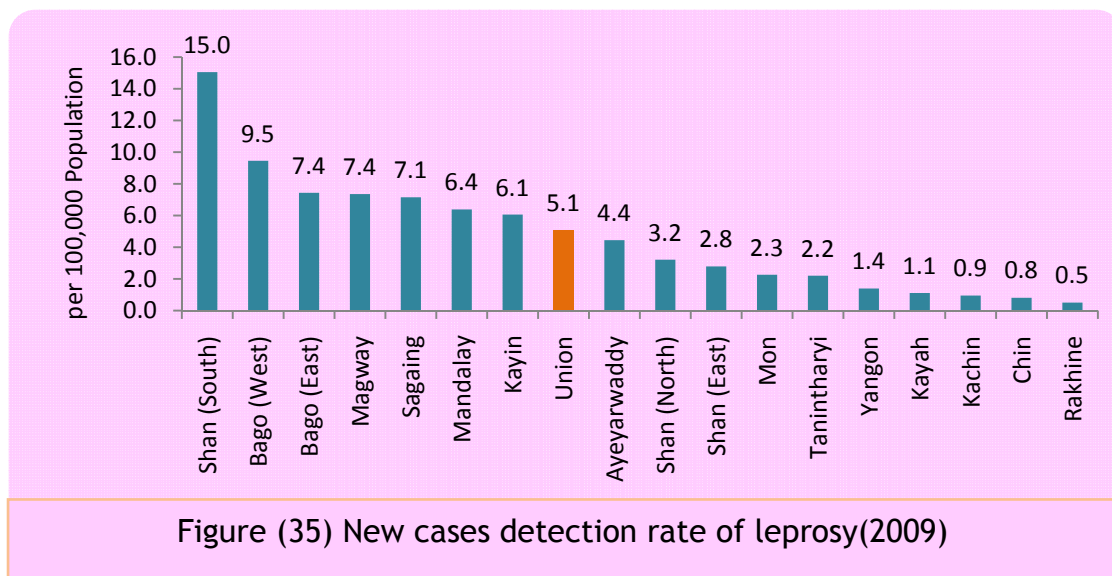


Figure (35) New cases detection rate of leprosy(2009)

New case detection rate of leprosy in 2009 ranged 0.5 to 15 per 100,000 populations in all regions and states. Shan (South) and Bago (West) were being paid special attention because of their highest rate of 15 and 9.5 respectively.

| | |
|---|---|
| Nil reporting | |
| <1 per 10,000 population | |
| ≥ 1 per 10,000 population (44 townships) | |

| Region/State | Number of townships |
|---|---|
| Shan (South) | 12 |
| Bago (West) | 7 |
| Magway | 6 |
| Sagaing | 6 |
| Mandalay | 5 |
| Shan (North) | 3 |
| Bago(East) | 2 |
| Yangon | 1 |
| Shan (East) | 1 |
| Kayah | 1 |
| Total | 44 |
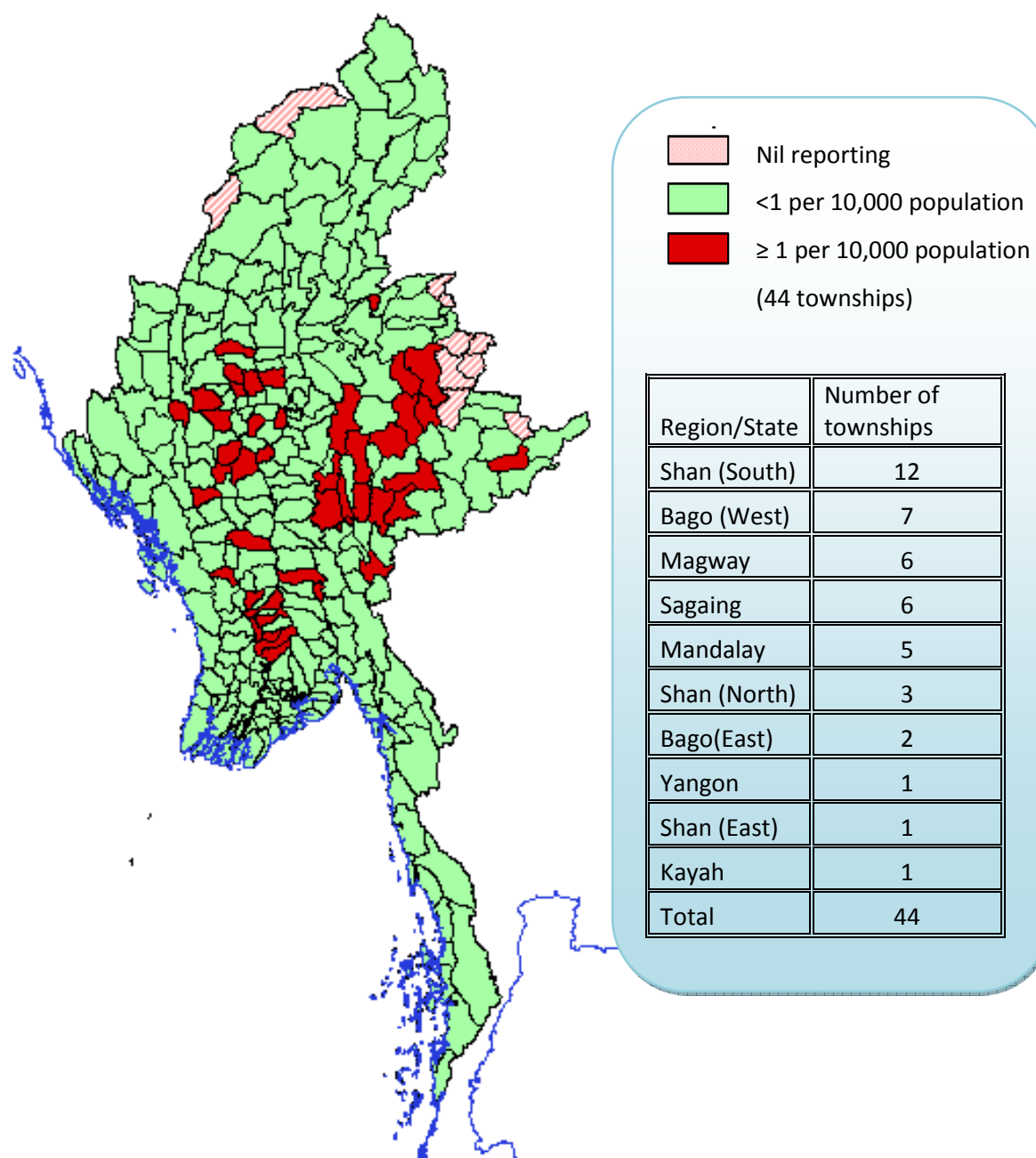
Figure (36) Leprosy Prevalence per 10,000 populations by townships (2009)

Although leprosy was eliminated at national level, some townships had to emphasize preventing transmission and promoting for detection of new case.

## Table(10) Indicators for Leprosy

| Regions and States | Registered Leprosy cases per 10000 Population | New case detection rate per 100,000 Population | No: of cases released from treatment | Percentage of Disability Grade 2 among new cases | Prevalence Detection Ratio |
|---|---|---|---|---|---|
| | | Leprosy Elimination Activities (2009) | | | |
| Kachin | 0.1 | 0.9 | 22 | 7.7 | 1.3 |
| Kayah | 0.2 | 1.1 | 1 | 33.3 | 1.7 |
| Kayin | 0.6 | 6.1 | 62 | 6.0 | 1.0 |
| Chin | 0.1 | 0.8 | 2 | 0.0 | 1.5 |
| Sagaing | 0.6 | 7.1 | 406 | 4.2 | 0.9 |
| Tanintharyi | 0.2 | 2.2 | 35 | 22.9 | 1.0 |
| Bago (East) | 0.7 | 7.4 | 202 | 8.0 | 1.0 |
| Bago (West) | 1.0 | 9.5 | 213 | 12.6 | 1.0 |
| Magway | 0.7 | 7.4 | 331 | 2.4 | 1.0 |
| Mandalay | 0.6 | 6.4 | 438 | 3.9 | 0.9 |
| Mon | 0.2 | 2.3 | 36 | 17.0 | 1.0 |
| Rakhine | 0.1 | 0.5 | 12 | 0.0 | 2.4 |
| Yangon | 0.3 | 1.4 | 70 | 19.3 | 1.8 |
| Shan(S) | 1.8 | 15.0 | 139 | 1.6 | 1.2 |
| Shan(N) | 0.4 | 3.2 | 54 | 8.9 | 1.1 |
| Shan(E) | 0.3 | 2.8 | 22 | 5.6 | 1.1 |
| Ayeyarwaddy | 0.4 | 4.4 | 237 | 10.3 | 0.9 |
| Union | 0.5 | 5.1 | 2282 | 6.6 | 1.0 |

## 2.6    AIDS/STI Prevention and Control Services

Management of sexually transmitted infection was one of the activities to prevent transmission of HIV infection/AIDS.

| Regions/ States | Registered AN ( New ) | Number of primigravida who tested VDRL (syphilis) | Percent | |
|---|---|---|---|---|
| Kachin | 30742 | 4109 | | 13.4 |
| Kayah | 5773 | 22 | | 0.4 |
| Kayin | 26739 | 3020 | | 11.3 |
| Chin | 7682 | 302 | | 3.9 |
| Sagaing | 96705 | 7997 | | 8.3 |
| Tanintharyi | 38722 | 2070 | | 5.3 |
| Bago (E) | 59025 | 4447 | | 7.5 |
| Bago (W) | 37982 | 2474 | | 6.5 |
| Magway | 78320 | 4807 | | 6.1 |
| Mandalay | 130971 | 13928 | | 10.6 |
| Mon | 47428 | 4441 | | 9.4 |
| Rakhine | 62591 | 253 | | 0.4 |
| Yangon | 109199 | 29610 | | 27.1 |
| Shan(S) | 40957 | 3433 | | 8.4 |
| Shan(N) | 29050 | 3871 | | 13.3 |
| Shan(E) | 9577 | 1799 | | 18.8 |
| Ayeyarwaddy | 132056 | 3566 | | 2.7 |

Figure (37) Primigravida mothers who tested VDRL (syphilis) among registered new pregnant mothers

VDRL tested in primigravida mother was important issue for determination of prevalence of STI. Overall 9.6% of pregnant mothers were primigravida who are to be checked VDRL test, it is also important for prevention of congenital syphilis. Highest percentage (27.1%) was found in Yangon region followed by Shan(E) and Kachin State.
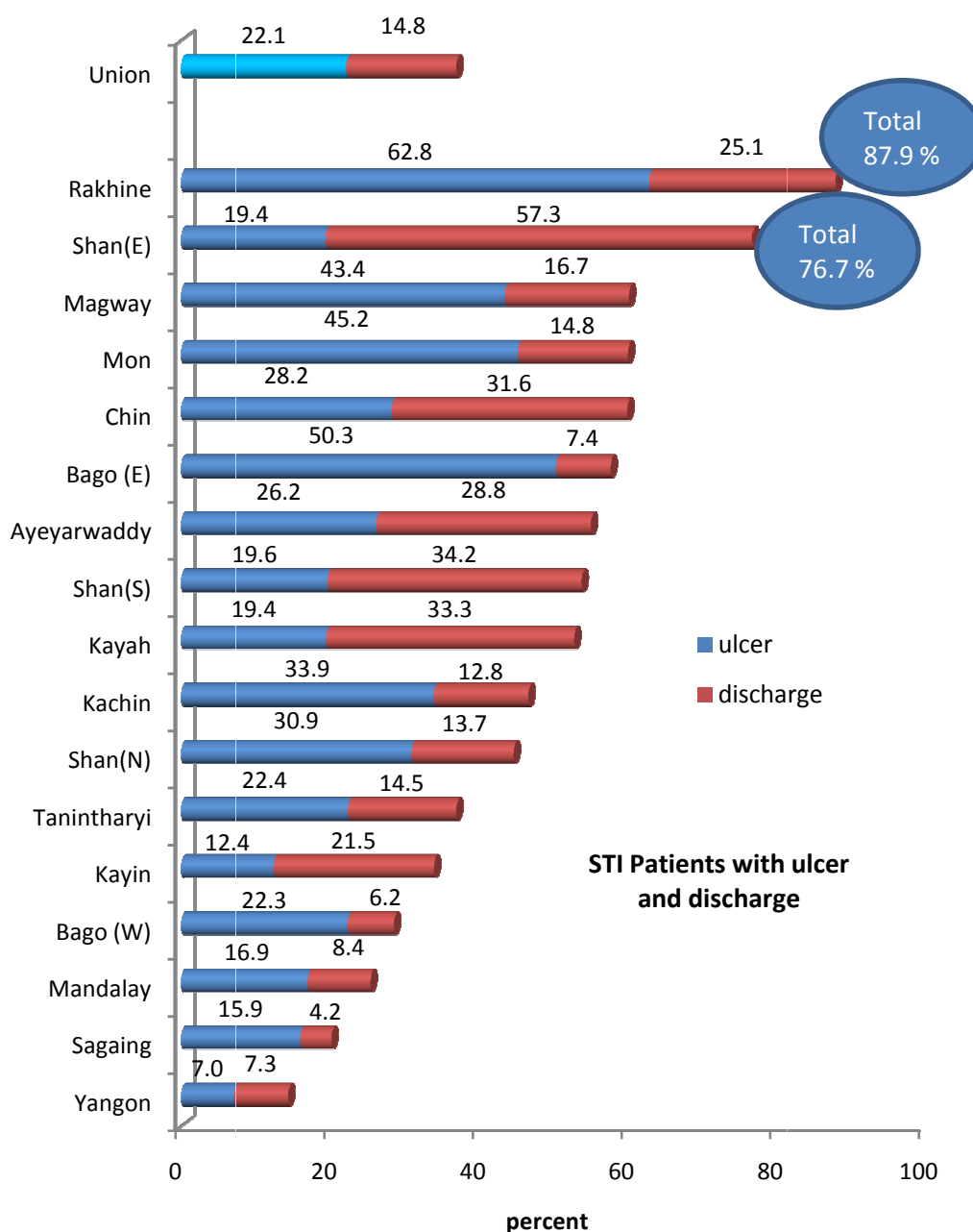
**Figure (38) Percent distribution of patients with ulcer and discharge among all types of STI patients**

Common symptoms for sexually transmitted infection were genital ulcers and urethral discharge. Basic Health Staff had to diagnose and manage sexually transmitted infection as syndromic management approach. Above figure showed that percent distribution of patients with ulcer and discharge among all types of STI patients. In Rakhine and Shan(E) states, more than three-fourth of STI patients were coming to health staff presenting with ulcers and discharge.

## Table(11) Indicators for Sexually Transmitted Infection

| | AIDS/ STI Prevention and Control (2009) | | | |
|---|---|---|---|---|
| Regions and States | VDRL positive rate in tested Primigravida (%) | Genital Ulcer Rate (per 100,000 Pop:) | Urethral discharge rate (male) (per 100,000 Pop:) | New STI Patient rate (%) |
| Kachin | 0.9 | 7.3 | 2.7 | 0.1 |
| Kayah | 0.0 | 10.4 | 17.8 | 0.2 |
| Kayin | 0.1 | 9.9 | 17.3 | 0.6 |
| Chin | 0.3 | 10.2 | 11.5 | 0.2 |
| Sagaing | 0.3 | 2.7 | 0.7 | 0.1 |
| Tanintharyi | 0.5 | 24.9 | 16.2 | 0.9 |
| Bago (East) | 0.5 | 12.0 | 1.8 | 0.2 |
| Bago (West) | 0.3 | 3.9 | 1.1 | 0.1 |
| Magway | 0.4 | 7.9 | 3.0 | 0.1 |
| Mandalay | 0.4 | 4.8 | 2.4 | 0.3 |
| Mon | 1.0 | 22.8 | 7.5 | 0.2 |
| Rakhine | 3.2 | 3.7 | 1.5 | 0.0 |
| Yangon | 0.9 | 4.0 | 4.2 | 0.5 |
| Shan(S) | 0.2 | 5.0 | 8.7 | 0.3 |
| Shan(N) | 0.3 | 4.1 | 1.8 | 0.1 |
| Shan(E) | 0.1 | 7.0 | 20.7 | 0.2 |
| Ayeyarwaddy | 0.9 | 5.3 | 5.8 | 0.2 |
| Union | 0.6 | 6.9 | 4.6 | 0.2 |

## 2.7    Malaria Control Services

National malaria control program is set up by aiming to achieve Millennium Development Goal; to be halted by 2015 and begun to reverse the incidence of malaria.
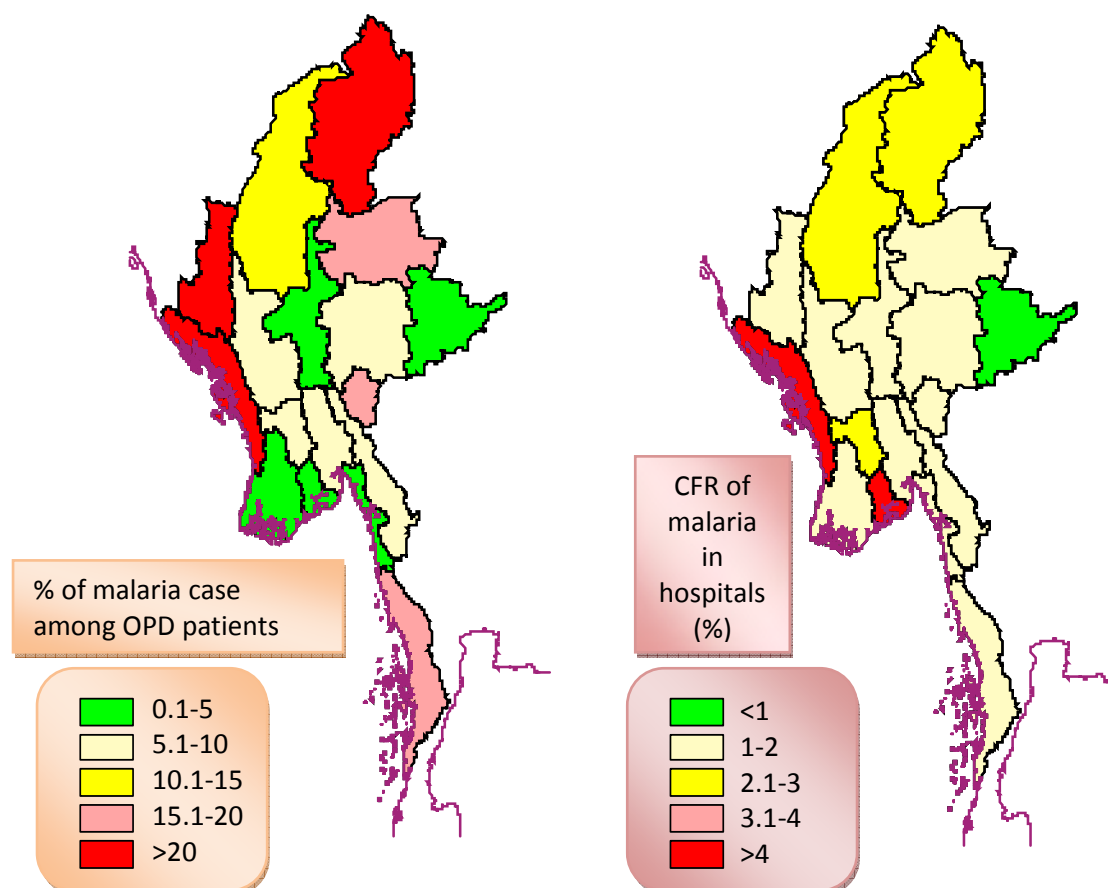


Figure (39) Percent of malaria cases among OPD patients and Case Fatality Rate of inpatients at hospitals

Regarding institutional based data from out-patient departments of township/ station hospitals and health centers, the percentage of malaria cases among OPD patients was highest in Kachin followed by Chin and Rakhine. Case fatality rate of malaria admissions was highest in Rakhine comparing to other regions and states.

Yangon region was the one with lowest percentage (0.7%) of malaria case among OPD patients and second highest case fatality rate because Yangon region was one of low endemic area and non-immune.

Townships with case fatality rate of malaria inpatients(4%) and above were explored in the following figure. Half of the townships over the country had CFR zero. Number of townships with CFR 4% and above were 36(11%) of the country.

| Regions/ States | Number of Townships |
|---|---|
| Sagaing | 6 |
| Kachin | 5 |
| Rakhine | 5 |
| Shan  (North) | 4 |
| Ayeyarwady | 3 |
| Bago (East ) | 2 |
| Bago(West) | 2 |
| Shan  (South) | 2 |
| Yangon | 2 |
| Chin | 1 |
| Kayah | 1 |
| Magway | 1 |
| Mandalay | 1 |
| Tanintharyi | 1 |
| Total | 36 |

Legend:
- Nil reporting
- CFR - Zero
- 0.1 % - 4 %
- >4%(36 townships)
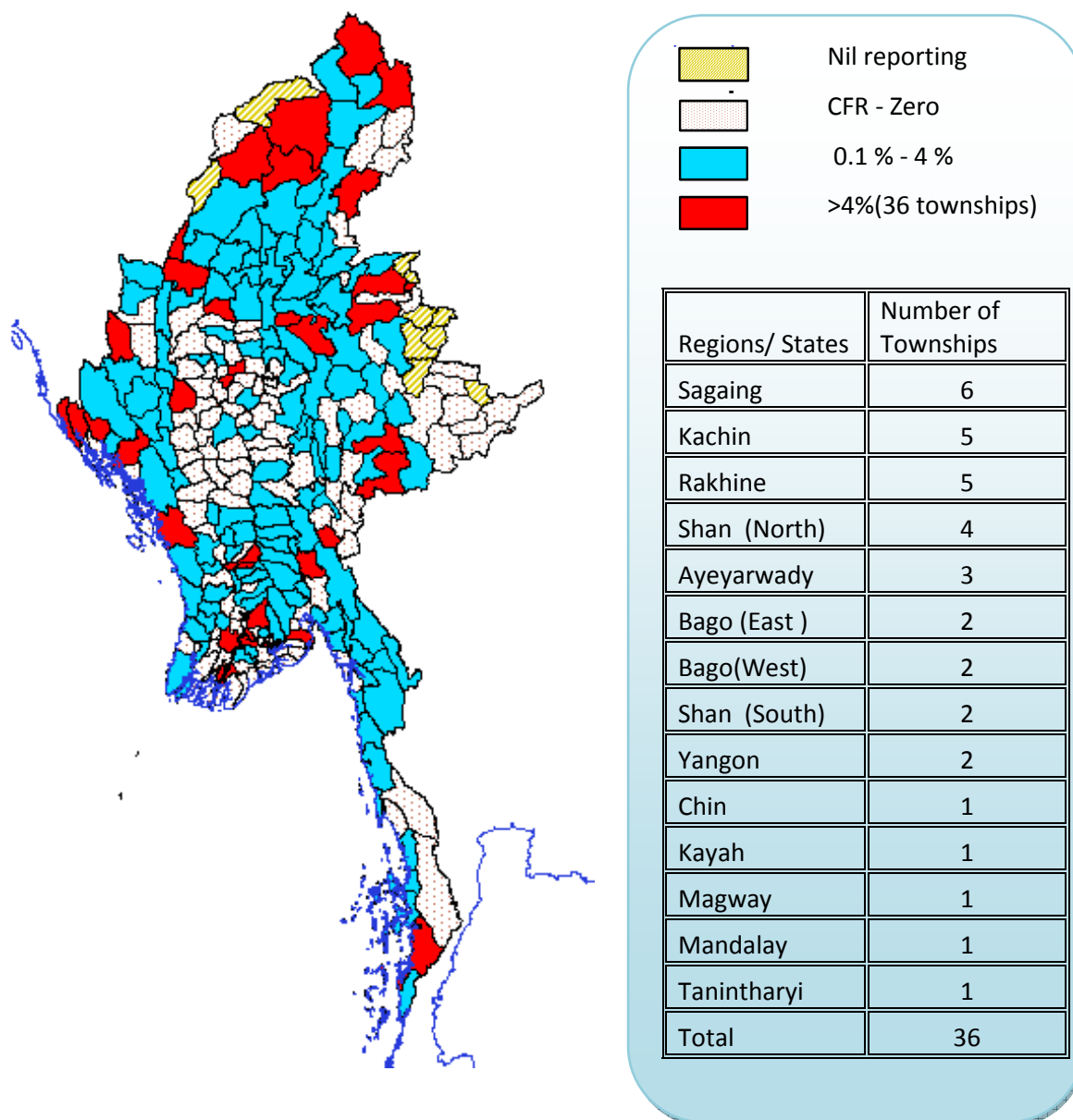
Figure (40) Townships with Malaria Case Fatality Rate (>4%) at hospitals

There were 3 states, Kayin, Mon and Shan(E) with no townships more than CFR >4%. Townships with more than CFR 4% in Yangon region were Taikkyi and Hlaingtharyar.

## Table(12) Indicators for Malaria

| Institutional based Malaria  (2009) | | |
|---|---|---|
| **Regions and States** | **% of Malaria cases among overall out patients** | **Case Fatality Rate (Inpatient) (%)** |
| *Kachin* | *34.5* | *2.7* |
| *Kayah* | *16.2* | *1.6* |
| *Kayin* | *9.8* | *1.0* |
| *Chin* | *30.6* | *1.1* |
| *Sagaing* | *11.0* | *2.1* |
| *Tanintharyi* | *18.0* | *1.3* |
| *Bago (East)* | *8.2* | *1.6* |
| *Bago (West)* | *6.7* | *2.2* |
| *Magway* | *5.3* | *1.4* |
| *Mandalay* | *2.6* | *1.5* |
| *Mon* | *4.5* | *1.9* |
| *Rakhine* | *21.7* | *4.2* |
| *Yangon* | *0.7* | *4.0* |
| *Shan(S)* | *8.6* | *1.5* |
| *Shan(N)* | *18.2* | *1.8* |
| *Shan(E)* | *4.3* | *0.4* |
| *Ayeyar waddy* | *2.0* | *1.3* |
| *Union* | *8.9* | *1.9* |

## 2.8    Trachoma Control and Prevention of Blindness

The HMIS data on the activities of trachoma control and prevention of blindness is only based on primary care and not include tertiary care. Data covering tertiary care will be needed provide the complete information.

| Regions/ States | Eye patient ( New ) | General Clinic Attendances (New) | % of eye patients among all clinic attendances |
|---|---|---|---|
| Bago (E) | 5915 | 364561 | 1.6 |
| Sagaing | 12778 | 821061 | 1.6 |
| Mandalay | 9608 | 711026 | 1.4 |
| Tanintharyi | 1834 | 207573 | 0.9 |
| Kayin | 1637 | 198748 | 0.8 |
| Magway | 4938 | 615243 | 0.8 |
| Shan(S) | 1410 | 198024 | 0.7 |
| Mon | 2893 | 490631 | 0.6 |
| Bago (W) | 1508 | 283427 | 0.5 |
| Shan(E) | 391 | 93934 | 0.4 |
| Ayeyarwaddy | 2863 | 803709 | 0.4 |
| Kachin | 756 | 229839 | 0.3 |
| Chin | 233 | 84137 | 0.3 |
| Shan(N) | 477 | 173138 | 0.3 |
| Rakhine | 1185 | 556548 | 0.2 |
| Kayah | 86 | 58583 | 0.1 |
| Yangon | 828 | 622956 | 0.1 |

Figure (41) Percentage of eye patients cared by BHS among all patients

BHS had to provide primary eye care to patients with eye disease to prevent blindness and encourage early referral. Above figure showed percentage of eye patients among all clinic attendances taken care by BHS. Bago(E), Sagaing and Mandalay reported higher attendances.

Active trachoma (255 cases) were reported at the age group of under 10 years, which was very low percentage of total under 10 years children.

| Ophthalmia Neonatorum (New) | | | | | |
| --- | --- | --- | --- | --- | --- |
| | 2005 | 2006 | 2007 | 2008 | 2009 |
| Kachin | 9 | 5 | 1 | 1 | 5 |
| Kayah | 0 | 0 | 0 | 0 | 0 |
| Kayin | 1 | 0 | 1 | 3 | 7 |
| Chin | 0 | 2 | 2 | 1 | 6 |
| Sagaing | 21 | 14 | 7 | 13 | 9 |
| Tanintharyi | 3 | 0 | 0 | 0 | 5 |
| Bago (E) | 21 | 17 | 5 | 3 | 5 |
| Bago (W) | 4 | 19 | 4 | 2 | 3 |
| Magway | 2 | 13 | 4 | 5 | 17 |
| Mandalay | 13 | 6 | 25 | 17 | 3 |
| Mon | 9 | 8 | 9 | 4 | 1 |
| Rakhine | 15 | 6 | 11 | 3 | 4 |
| Yangon | 7 | 14 | 13 | 10 | 5 |
| Shan(S) | 3 | 23 | 9 | 10 | 1 |
| Shan(N) | 4 | 2 | 1 | 14 | 0 |
| Shan(E) | 0 | 35 | 0 | 0 | 0 |
| Ayeyarwaddy | 14 | 22 | 8 | 3 | 6 |
| Union | 126 | 186 | 100 | 89 | 77 |

Figure (42) Reported ophthalmia neonatorum within five years

Ophthalmia neonatorum was an important issue to consider in preventing blindness as well in preventing transmission of syphilis and elimination of congenital syphilis. The trend of reported case was decreasing in union level.

## Table(13) Indicators for Prevention of Blindness

| Regions and States | Trachoma Control and Prevention of Blindness (2009) | | | |
| --- | --- | --- | --- | --- |
| | New case of eye diseases per 100,000 Population | Active trachoma rate among 10 year old children (%) | People with blindness per 100,000 population | New cases of ophthalmia neonatorum per 1000 Live Birth |
| Kachin | 54.7 | 0.0 | 0.7 | 0.2 |
| Kayah | 31.8 | 0.0 | 0.4 | 0.0 |
| Kayin | 117.9 | 0.0 | 0.4 | 0.3 |
| Chin | 47.6 | 0.0 | 0.6 | 0.6 |
| Sagaing | 254.9 | 0.0 | 3.1 | 0.1 |
| Tanintharyi | 115.7 | 0.0 | 0.9 | 0.2 |
| Bago (East) | 207.2 | 0.0 | 18.0 | 0.1 |
| Bago (West) | 74.7 | 0.0 | 0.2 | 0.1 |
| Magway | 122.8 | 0.0 | 1.4 | 0.2 |
| Mandalay | 151.2 | 0.0 | 4.4 | 0.0 |
| Mon | 139.1 | 0.0 | 0.1 | 0.0 |
| Rakhine | 35.3 | 0.0 | 0.2 | 0.1 |
| Yangon | 14.0 | 0.0 | 0.2 | 0.1 |
| Shan(S) | 68.0 | 0.0 | 0.4 | 0.0 |
| Shan(N) | 27.4 | 0.0 | 0.3 | 0.0 |
| Shan(E) | 60.7 | 0.0 | 0.3 | 0.0 |
| Ayeyar waddy | 43.8 | 0.0 | 0.3 | 0.1 |
| Union | 103.4 | 0.0 | 2.3 | 0.1 |

Note : Data obtained from Basic Health Workers who made diagnosis in the community

# III. HOSPITAL CARE SERVICES

As the data are recorded and reported from the services provided by BHS at community level, these may not reflect the real situation of non-communicable disease in Myanmar.

## 3.1 Prevention of Cardiovascular Diseases

With the aim to reduce the incidence, morbidity and mortality of cardiovascular diseases and the prevalence of CVD risk factors, CVD control project was conducted.
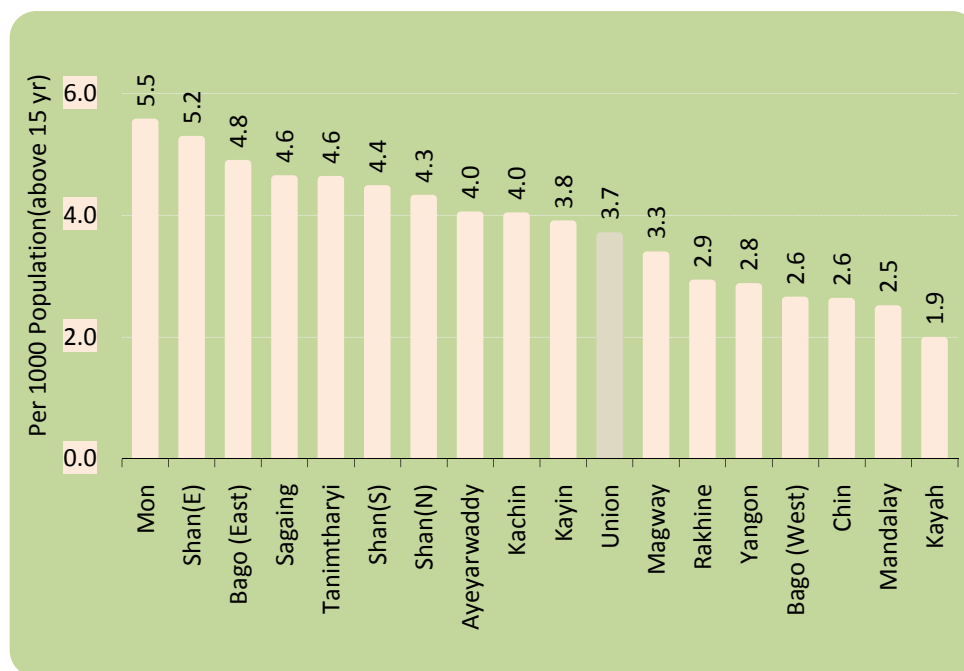
Figure (43) Reported hypertension per 1000 above 15 year population By Regions and States (2009)

On viewing the reported prevalence of hypertension by regions and states in 2009, the maximum was found in Mon(5.5 case per thousand above 15 years population) whilst minimum cases were recorded in Kayah, Mandalay, Chin, Bago (West), Yangon and Rakhine.

Prevalence of smoking and that of alcohol consumption was highest in Shan (South) and lowest in Kayah.

**Figure (45) Prevalence of Alcohol drinking(2009)**



Per 1000 Population(above 15 yr)

| Region | Value |
|--------|-------|
| Shan(S) | 87.8 |
| Bago (East) | 35.2 |
| Ayeyarwaddy | 35.0 |
| Yangon | 30.0 |
| Shan(E) | 22.7 |
| Rakhine | 21.4 |
| Union | 21.1 |
| Mandalay | 17.4 |
| Bago (West) | 15.1 |
| Tanintharyi | 14.5 |
| Shan(N) | 8.2 |
| Mon | 6.1 |
| Sagaing | 4.6 |
| Magway | 4.0 |
| Kayin | 4.0 |
| Chin | 3.9 |
| Kachin | 3.9 |
| Kayah | 2.2 |

**Figure (44) Prevalence of smoking (2009)**



Per 1000 Population(above 15 yr)

| Region | Value |
|--------|-------|
| Shan(S) | 92.2 |
| Rakhine | 50.6 |
| Ayeyarwaddy | 45.0 |
| Bago (East) | 44.9 |
| Bago (West) | 40.3 |
| Yangon | 34.9 |
| Union | 28.4 |
| Tanintharyi | 25.2 |
| Mandalay | 21.3 |
| Shan(E) | 14.4 |
| Shan(N) | 13.3 |
| Mon | 9.1 |
| Chin | 7.3 |
| Sagaing | 6.8 |
| Kachin | 5.1 |
| Magway | 4.3 |
| Kayin | 4.2 |
| Kayah | 3.4 |

## *Table(14) Indicators for Prevention of Cardiovascular Disease*

| Detection of Cardiovascular Diseases and risk behaviors (2009) | | | |
|---|---|---|---|
| **Regions and States** | **Hypertension per 1000 Population (above 15 years)** | **Smokers per 1000 Population (above 15 years)** | **Drinkers per 1000 Population (above 15 years)** |
| *Kachin* | *4.0* | *5.1* | *3.9* |
| *Kayah* | *1.9* | *3.4* | *2.2* |
| *Kayin* | *3.8* | *4.2* | *4.0* |
| *Chin* | *2.6* | *7.3* | *3.9* |
| *Sagaing* | *4.6* | *6.8* | *4.6* |
| *Tanintharyi* | *4.6* | *25.2* | *14.5* |
| *Bago (East)* | *4.8* | *44.9* | *35.2* |
| *Bago (West)* | *2.6* | *40.3* | *15.1* |
| *Magway* | *3.3* | *4.3* | *4.0* |
| *Mandalay* | *2.5* | *21.3* | *17.4* |
| *Mon* | *5.5* | *9.1* | *6.1* |
| *Rakhine* | *2.9* | *50.6* | *21.4* |
| *Yangon* | *2.8* | *34.9* | *30.0* |
| *Shan(S)* | *4.4* | *92.2* | *87.8* |
| *Shan(N)* | *4.3* | *13.3* | *8.2* |
| *Shan(E)* | *5.2* | *14.4* | *22.7* |
| *Ayeyarwaddy* | *4.0* | *45.0* | *35.0* |
| *Union* | *3.7* | *28.4* | *21.1* |

## 3.2    Accident and Injury Prevention

Aiming to reduce the incidence of all kinds of accidents all over the country, activities of accident prevention have been implemented since 1990 in cooperation between Ministry of Health and WHO. The data on eight different types of accident and injury have been collected in HMIS.
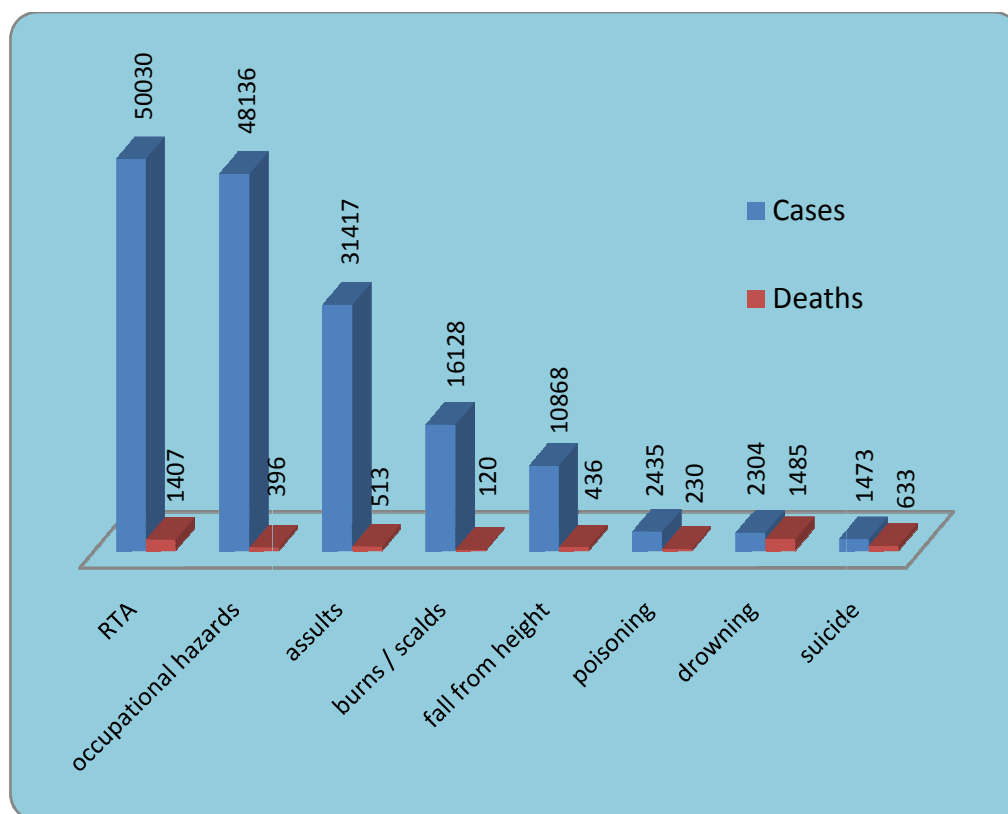


Figure (46) Case and Deaths of various types of accidents and injuries(2009)

In 2009, transport and occupational injuries were the most reported causes of morbidity whereas suicide was the least. As the same time, data showed that the first leading cause of death was drowning and second, road transport accident.
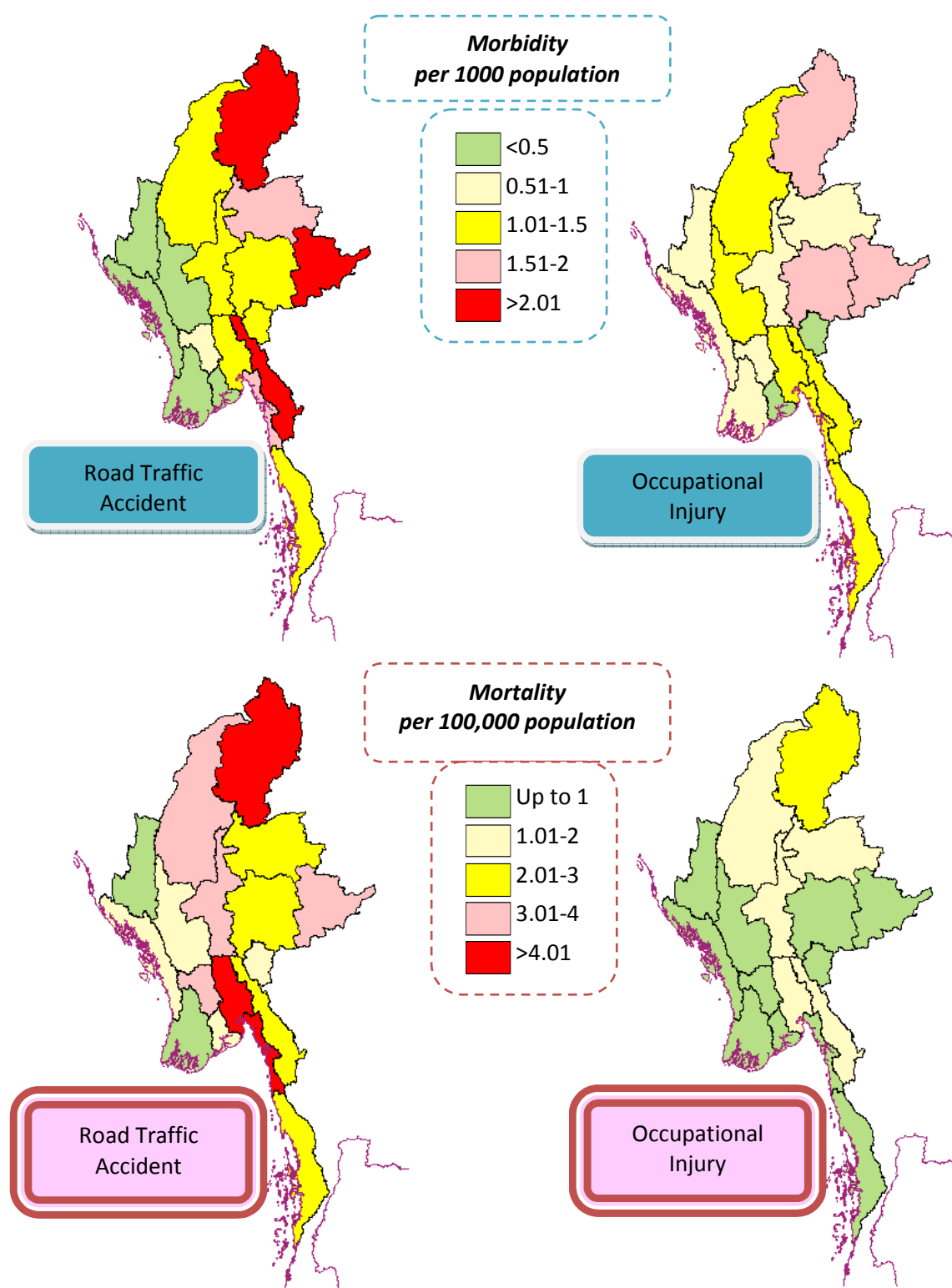
Figure (47) Morbidity, Mortality pattern of Road Traffic Accident and
Occupational Injury


According to figure, the special attention should be given to Kachin
because its morbidity and mortality was highest, not only in road traffic accident

but also in occupational injury. Yangon showed low morbidity in both injuries with low mortality of occupational injury. It is observed that Ayeyarwaddy and Chin had low mortality of both injuries with low morbidity of RTA.

| Regions/States | Drowning (per 100,000 population) |
|---|---|
| Kachin | 5.2 ⬆ |
| Kayah | 3.7 ➡ |
| Kayin | 6.0 ⬆ |
| Chin | 0.8 ⬇ |
| Sagaing | 3.0 ➡ |
| Tanintharyi | 4.6 ⬆ |
| Bago (E) | 5.0 ⬆ |
| Bago (W) | 2.9 ➡ |
| Magway | 2.1 ⬇ |
| Mandalay | 2.3 ⬇ |
| Mon | 5.2 ⬆ |
| Rakhine | 3.1 ➡ |
| Yangon | 2.4 ⬇ |
| Shan(S) | 2.1 ⬇ |
| Shan(N) | 1.5 ⬇ |
| Shan(E) | 1.2 ⬇ |
| Ayeyarwaddy | 3.5 ➡ |
| Union | 3.1 ➡ |

Figure (48) Mortality of drowning

Drowning was highest cause of mortality among various types of injuries, it was observed that Kachin, Kayin,Tanintharyi, Bago(E) and Mon reported higher mortality. Mortality was highest in Kayin while lowest in Chin. It is necessary to study which age group had higher morbidity and mortality to draw plan of action effectively.

## Table(15) Indicators for Prevention of Accidents and Injuries

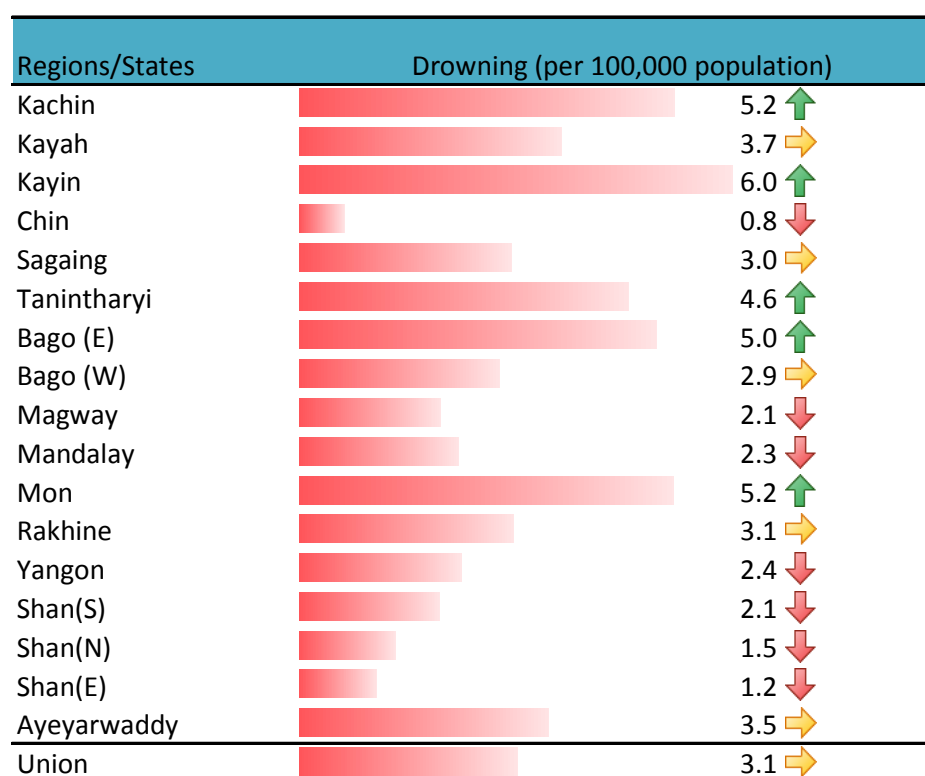| i | | Prevention of Accident and Injury (2009) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Regions and States | | Road Traffic Accident injury | | Occupational injury | | Poisoning | | Fall from height | |
| | | (1) | (2) | (1) | (2) | (1) | (2) | (1) | (2) |
| Kachin | | 2.84 | 9.11 | 1.95 | 2.24 | 0.09 | 0.58 | 0.34 | 1.73 |
| Kayah | | 1.28 | 1.11 | 0.55 | 0.74 | 0.03 | 0.37 | 0.23 | 1.11 |
| Kayin | | 2.33 | 3.03 | 1.45 | 1.08 | 0.09 | 0.14 | 0.38 | 1.01 |
| Chin | | 0.43 | 0.41 | 0.76 | 0.41 | 0.01 | 0.00 | 0.30 | 1.64 |
| Sagaing | | 1.40 | 3.49 | 1.51 | 1.20 | 0.06 | 0.58 | 0.35 | 1.58 |
| Tanintharyi | | 1.39 | 2.27 | 1.11 | 0.95 | 0.05 | 0.19 | 0.28 | 0.44 |
| Bago (East) | | 1.30 | 4.94 | 1.13 | 1.65 | 0.08 | 0.49 | 0.26 | 0.91 |
| Bago (West) | | 0.97 | 3.27 | 0.82 | 0.35 | 0.07 | 1.24 | 0.24 | 1.19 |
| Magway | | 0.53 | 1.87 | 1.30 | 0.45 | 0.03 | 0.40 | 0.25 | 1.74 |
| Mandalay | | 1.20 | 4.04 | 0.82 | 1.15 | 0.05 | 0.50 | 0.20 | 0.99 |
| Mon | | 1.88 | 7.02 | 1.17 | 0.87 | 0.05 | 0.82 | 0.29 | 1.20 |
| Rakhine | | 0.30 | 1.19 | 0.99 | 0.54 | 0.06 | 0.33 | 0.25 | 0.45 |
| Yangon | | 0.50 | 1.76 | 0.36 | 0.64 | 0.03 | 0.39 | 0.08 | 0.14 |
| Shan(S) | | 1.35 | 2.80 | 1.61 | 0.43 | 0.07 | 1.16 | 0.29 | 0.92 |
| Shan(N) | | 1.67 | 2.70 | 0.92 | 1.09 | 0.05 | 0.34 | 0.23 | 1.09 |
| Shan(E) | | 2.17 | 4.04 | 1.97 | 0.62 | 0.03 | 0.00 | 0.25 | 0.00 |
| Ayeyarwaddy | | 0.40 | 0.96 | 0.64 | 0.31 | 0.03 | 0.29 | 0.12 | 0.49 |
| Union | (3) | 1.05 | 2.95 | 1.01 | 0.83 | 0.05 | 0.48 | 0.23 | 0.91 |
| | (4) | 50030 | 1407 | 48136 | 396 | 2435 | 230 | 10868 | 436 |

(1)     Morbidity rate per 1000 Population
(2)     Mortality rate per 100,000 Population
(3)     Rate for Union
(4)     Actual number for Union

## *Table(15) Indicators for Prevention of Accidents and Injuries*

| ii | | Prevention of Accident and Injury (2009) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Regions and States** | | **Thermal injury** | | **Drowning** | | **Suicide** | | **Assault** | |
| | | (1) | (2) | (1) | (2) | (1) | (2) | (1) | (2) |
| **Kachin** | | 0.35 | 0.94 | 0.08 | 5.20 | 0.04 | 1.23 | 0.71 | 1.52 |
| **Kayah** | | 0.11 | 0.00 | 0.11 | 3.70 | 0.01 | 0.00 | 0.06 | 0.00 |
| **Kayin** | | 0.45 | 0.22 | 0.08 | 5.98 | 0.07 | 2.95 | 0.52 | 0.65 |
| **Chin** | | 0.26 | 0.00 | 0.02 | 0.82 | 0.01 | 0.41 | 0.19 | 0.20 |
| **Sagaing** | | 0.52 | 0.18 | 0.05 | 3.03 | 0.03 | 1.20 | 0.67 | 1.06 |
| **Tanintharyi** | | 0.27 | 0.32 | 0.07 | 4.60 | 0.03 | 2.59 | 0.42 | 1.45 |
| **Bago (East)** | | 0.48 | 0.42 | 0.07 | 4.97 | 0.03 | 1.82 | 1.26 | 1.65 |
| **Bago (West)** | | 0.29 | 0.15 | 0.04 | 2.87 | 0.06 | 2.82 | 1.12 | 2.77 |
| **Magway** | | 0.40 | 0.22 | 0.03 | 2.09 | 0.02 | 1.27 | 0.38 | 1.07 |
| **Mandalay** | | 0.27 | 0.22 | 0.03 | 2.33 | 0.04 | 1.45 | 0.74 | 1.21 |
| **Mon** | | 0.44 | 0.43 | 0.08 | 5.19 | 0.04 | 1.83 | 0.52 | 1.30 |
| **Rakhine** | | 0.38 | 0.18 | 0.08 | 3.07 | 0.04 | 1.16 | 0.50 | 1.13 |
| **Yangon** | | 0.12 | 0.08 | 0.03 | 2.36 | 0.01 | 0.71 | 1.02 | 0.64 |
| **Shan(S)** | | 0.39 | 0.39 | 0.05 | 2.07 | 0.04 | 1.49 | 0.39 | 0.34 |
| **Shan(N)** | | 0.27 | 0.29 | 0.03 | 1.49 | 0.02 | 0.69 | 0.25 | 0.69 |
| **Shan(E)** | | 0.28 | 0.16 | 0.02 | 1.24 | 0.02 | 0.31 | 0.34 | 0.78 |
| **Ayeyarwaddy** | | 0.33 | 0.28 | 0.05 | 3.53 | 0.02 | 0.86 | 0.49 | 0.86 |
| **Union** | (3) | 0.34 | 0.25 | 0.05 | 3.11 | 0.03 | 1.33 | 0.66 | 1.07 |
| | (4) | 16128 | 120 | 2304 | 1485 | 1473 | 633 | 31417 | 513 |

(1)    Morbidity rate per 1000 Population
(2)    Mortality rate per 100,000 Population
(3)    Rate for Union
(4)    Actual number for Union

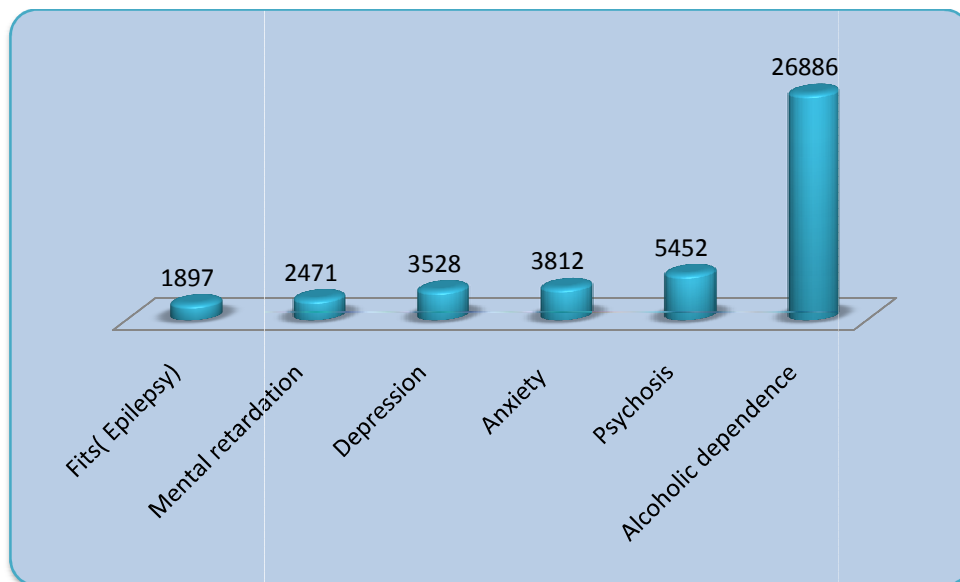## 3.3    Mental Health

Since 2005, six mental and neurological disorders had been collected in HMIS. The reported data was community based and not from specialist hospitals.



Figure(49) Reported Number of Mental Disorders (2009)

Among them, alcohol dependence and psychosis were the most widespread disorders in the union level of 2009.



Figure (50)

Reported number of alcoholic dependence by Regions and States

Sagaing, Magway and Ayeyarwady were first, second and third regions for maximum reported alcoholic dependence as shown in the above figure.

## Table(16) Indicators for Mental Health

| Regions and States | Mental Health (2009) | | | | | |
|---|---|---|---|---|---|---|
| | Reported Number | | | | | |
| | Psychosis | Depression | Anxiety Neurosis | Alcoholic Dependence | Epilepsy | Mental retardation |
| Kachin | 107 | 12 | 97 | 1017 | 74 | 59 |
| Kayah | 19 | 2 | 2 | 34 | 4 | 8 |
| Kayin | 153 | 122 | 139 | 2128 | 97 | 69 |
| Chin | 148 | 77 | 59 | 139 | 26 | 104 |
| Sagaing | 1021 | 381 | 457 | 4066 | 258 | 326 |
| Tanintharyi | 317 | 493 | 137 | 2079 | 74 | 83 |
| Bago (East) | 199 | 135 | 188 | 1603 | 100 | 171 |
| Bago (West) | 156 | 72 | 82 | 550 | 51 | 58 |
| Magway | 641 | 277 | 324 | 3563 | 188 | 342 |
| Mandalay | 354 | 192 | 248 | 1102 | 109 | 120 |
| Mon | 170 | 63 | 139 | 693 | 50 | 42 |
| Rakhine | 863 | 563 | 338 | 1198 | 173 | 239 |
| Yangon | 399 | 313 | 430 | 2519 | 188 | 185 |
| Shan(S) | 251 | 297 | 372 | 2660 | 108 | 245 |
| Shan(N) | 159 | 132 | 230 | 600 | 99 | 49 |
| Shan(E) | 22 | 10 | 9 | 71 | 78 | 23 |
| Ayeyarwaddy | 473 | 387 | 561 | 2864 | 220 | 348 |
| Union | 5452 | 3528 | 3812 | 26886 | 1897 | 2471 |

Note :    Midwives made diagnosis by taking history from friends and neighbours.

# IV.     ENVIRONMENTAL HEALTH SERVICES

Uplift of health, fitness and education standards of the entire nation is one of the four social objectives laid down by State. To fulfill this state's objective, the objectives and activities of environmental sanitation are formulated.

Therefore, data relating to water and sanitation was one of the social indicators & plays an important and crucial role. The percentage of access to improved sanitary latrines was totally different between before and after 2000 year and its final achievement was 83% in 2009. Among regions and states, the highest performance was found in Yangon (90.6%), on the other hand, the lowest was in Rakhine (57.6%).
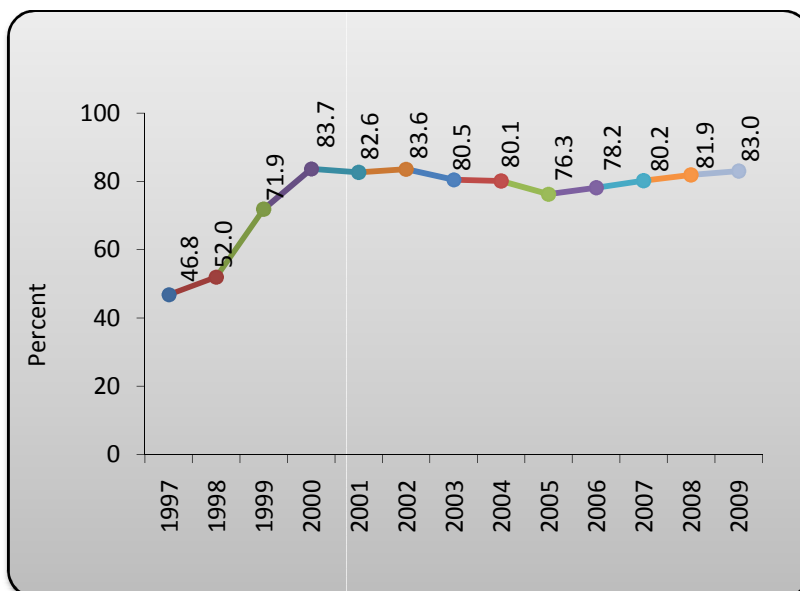


Figure (51)

Access to improved sanitary latrines (1997-2009)



Figure (52)
Coverage of
Sanitary Latrines
(2009)

## Table(17) Indicators for Environmental Sanitation

| Environmental Sanitation (2009) | | | | |
|---|---|---|---|---|
| Regions and States | No. of mass Environmental Sanitation activities per ward and village | Access to improved sanitary latrines (%) | | | Freq: of food stalls inspection in a year |
| | | Union | Urban | Rural | |
| Kachin | 3.8 | 85.8 | 83.5 | 86.7 | 2192 |
| Kayah | 1.3 | 79.4 | 80.3 | 79.0 | 122 |
| Kayin | 1.8 | 72.8 | 79.2 | 71.6 | 376 |
| Chin | 1.3 | 84.8 | 88.7 | 83.9 | 162 |
| Sagaing | 3.6 | 90.0 | 90.4 | 89.9 | 2137 |
| Tanintharyi | 6.2 | 72.9 | 76.7 | 62.5 | 3932 |
| Bago (East) | 4.9 | 84.0 | 87.2 | 83.3 | 1531 |
| Bago (West) | 3.4 | 87.6 | 91.2 | 86.8 | 1990 |
| Magway | 3.8 | 89.4 | 96.1 | 88.2 | 2208 |
| Mandalay | 3.3 | 86.9 | 91.5 | 85.1 | 3495 |
| Mon | 12.7 | 82.5 | 87.5 | 81.0 | 5362 |
| Rakhine | 2.9 | 57.6 | 71.3 | 56.8 | 2959 |
| Yangon | 7.6 | 90.6 | 92.6 | 86.7 | 4225 |
| Shan(S) | 1.3 | 79.8 | 92.6 | 75.8 | 714 |
| Shan(N) | 1.4 | 84.6 | 88.0 | 83.5 | 1301 |
| Shan(E) | 1.1 | 85.5 | 91.7 | 81.7 | 407 |
| Ayeyarwaddy | 2.6 | 78.7 | 85.1 | 77.8 | 3843 |
| Union | 3.3 | 83.0 | 89.2 | 80.7 | 36956 |

# V.   HEALTH EDUCATION SERVICES

Awareness of community on health behavior is a central issue to integrate and acquire comprehensive development of Health. Improvements of health education services promote community participation and social mobilization in health programs.

To promote the health status of the country and to strengthen supportive environment for adoption of healthy life style, the health education services were provided to the community in four areas of family health care, disease related health problems, immunization and environmental sanitation.

Total 372 health education activities were done monthly in each township. Among them, discussion on diseases and health problems was the commonest activity performed by BHS.
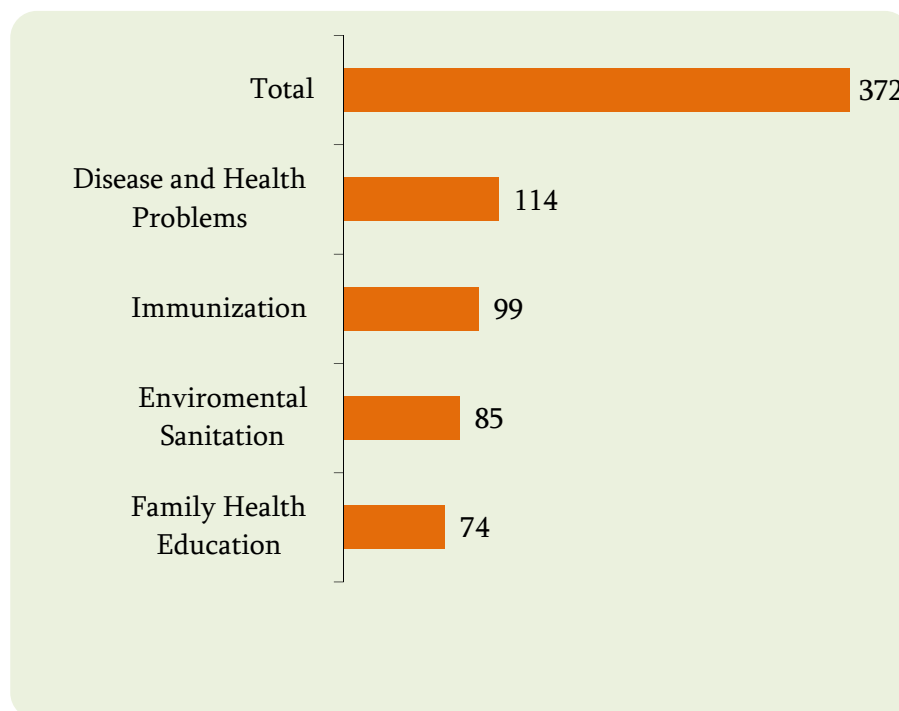
Figure (53) Number of health education service by BHS per month per township

## *Table(18) Indicators for Health Education*

| | Health Education Services (2009) | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Regions and States | Family Health | | Immunization | | Disease and Health Problem | | Environmental Sanitation | |
| | Average number of talk per month | Average number of talk per BHS | Average number of talk per month | Average number of talk per BHS | Average number of talk per month | Average number of talk per BHS | Average number of talk per month | Average number of talk per BHS |
| Kachin | 59 | 24 | 57 | 23 | 64 | 25 | 57 | 23 |
| Kayah | 11 | 4 | 18 | 6 | 16 | 6 | 11 | 4 |
| Kayin | 47 | 5 | 99 | 11 | 58 | 6 | 49 | 5 |
| Chin | 27 | 6 | 25 | 6 | 28 | 6 | 24 | 5 |
| Sagaing | 57 | 14 | 91 | 23 | 80 | 20 | 68 | 17 |
| Tanintharyi | 67 | 17 | 77 | 20 | 82 | 21 | 74 | 19 |
| Bago (East) | 81 | 15 | 124 | 24 | 97 | 18 | 92 | 17 |
| Bago (West) | 105 | 21 | 109 | 22 | 100 | 20 | 99 | 20 |
| Magway | 64 | 12 | 136 | 25 | 84 | 15 | 82 | 15 |
| Mandalay | 124 | 27 | 198 | 43 | 423 | 91 | 212 | 46 |
| Mon | 164 | 28 | 142 | 25 | 199 | 34 | 283 | 49 |
| Rakhine | 69 | 15 | 75 | 16 | 72 | 16 | 66 | 14 |
| Yangon | 67 | 29 | 60 | 26 | 83 | 36 | 52 | 22 |
| Shan(S) | 68 | 25 | 78 | 28 | 71 | 26 | 45 | 17 |
| Shan(N) | 45 | 23 | 48 | 24 | 49 | 25 | 35 | 18 |
| Shan(E) | 32 | 26 | 25 | 20 | 35 | 28 | 23 | 19 |
| Ayeyarwaddy | 115 | 18 | 185 | 28 | 130 | 20 | 120 | 18 |
| Union | 74 | 19 | 99 | 25 | 114 | 28 | 85 | 21 |