

Tanzania

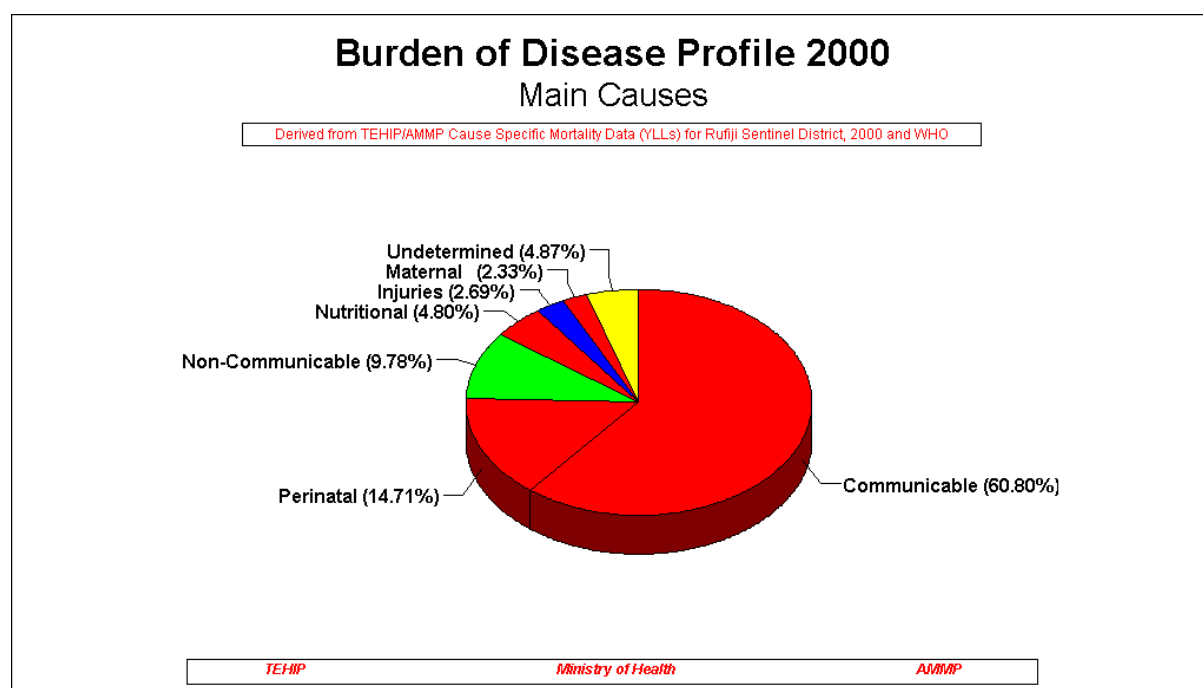


Ministry Of Health

# **BURDEN OF DISEASE PROFILE 2000**

## **Graphs of Selected Health and Demographic Indicators**

### **- Coastal Zone - For Rural Coastal Districts in Coast, Lindi, Mtwara, and Tanga Regions**



*A Source of Information for CHMTs for the  
2001 District Health Plan and  
2002 District Health Planning Cycle*  
Taarifa hii inapatikana kwa kiswahili pia

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# ***BURDEN OF DISEASE PROFILE 2000***

## **Rufiji DSS Sentinel District Information for Coast, Lindi, Mtwara and Tanga Regions**

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# **BURDEN OF DISEASE PROFILE 2000**

## **Rufiji DSS Sentinel District Information for Coast, Lindi, Mtwara and Tanga Regions**

### **Part 1: Introduction**

The purpose of this document is to simplify, package, and communicate complex information on vital statistics and the local burden of disease in a practical and readily accessible format for planning purposes. It is intended for use by Council Health Management Teams in Coast, Lindi, Mtwara and Tanga Regions and other parts of Tanzania having socio-economic, cultural, and ecologic circumstances broadly similar to those of Rufiji District. This information should be considered for use as part of the situation analysis for the annual District Health Planning cycle. Almost all the information is provided in a graphical format with short explanatory captions and a minimum of text to provide a "picture" of the current disease burden and demographic profile.

The source of this information is the Tanzania National Sentinel Surveillance System (NSS). The specific data in this profile comes from the TEHIP / AMMP Rufiji Sentinel Demographic Surveillance System for the year 2000. This sentinel profile is updated annually. In the year 2000, the Rufiji Demographic Surveillance System monitored a population of over 93,000 people within 19,000 households. This sample is very much larger than the DHS and other national surveys. In the year 2000, the system documented 3,053 births and 1,046 deaths, including the causes of these deaths.

Health reforms in Tanzania expect Districts to move beyond just managing diseases, to managing health systems from a perspective of health equity. In all societies, the poor carry the heaviest burden of disease. It is difficult for health systems to accurately target the poor. But it is possible to target major components of the Burden of Disease (BOD) and thus increase equity in resource allocation with more emphasis on the poor. For districts, this means a greater focus on cost effective interventions that address the largest shares of the burden of disease. In Africa, 80% of the BOD<sup>1</sup> comes from premature mortality. The causes of this mortality also cause most of the disability that makes up the remaining 20%. Therefore we can use mortality as a guide to setting priorities based on the burden of disease. Since most mortality occurs at home or outside of health facilities, we cannot rely on conventional, health facility based, Health Management Information Systems' attendance data as the source of information on the burden experienced by communities and households. Instead we use household derived demographic and mortality surveillance data from the National Sentinel Surveillance System for understanding the real burden in various parts of the country.

In **Part 2** of this document we convert disease specific mortality into *intervention addressable* shares of the total burden of disease and present this in a pictorial format as follows:

Distribution of the total household burden of disease:

- By broad causes (e.g. Communicable; Non-Communicable; and External causes);
- By main causes (e.g. Communicable; Perinatal, Maternal, Nutritional; etc.)
- By broad age groups (e.g. under-fives, five and over, and women of child-bearing age);
- By cost-effective interventions available to CHMT's and rural district health services;
- By individual conditions addressed by each of nine cost-effective intervention strategies.

The above information is essential for identifying the most important health intervention priorities (as opposed to disease priorities) and in allocating appropriate and proportionate resources for the support of selected interventions at district level.

In **Part 3** we provide additional graphical information for planning the health system such as:

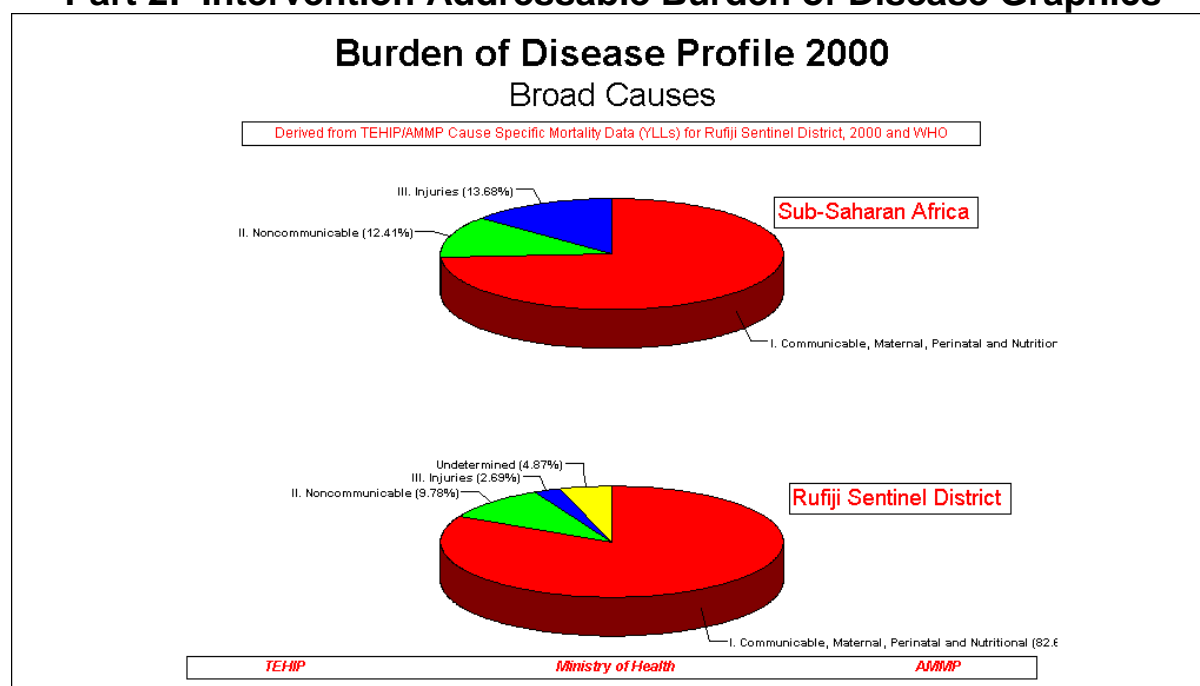
Distribution of births and deaths:

- By month and season;
- By place of birth or death;
- By health seeking behaviour in the condition leading to death.

In **Part 4** we recognize that there has not been a national census in Tanzania since 1988. We therefore provide a demographic breakdown of the sentinel population structure by age and sex, current fertility and age specific mortality rates. These can be applied to the current district populations to predict the numbers of births, deaths, infants, under-fives, pregnancies, etc. to be expected at district level in the next planning year.

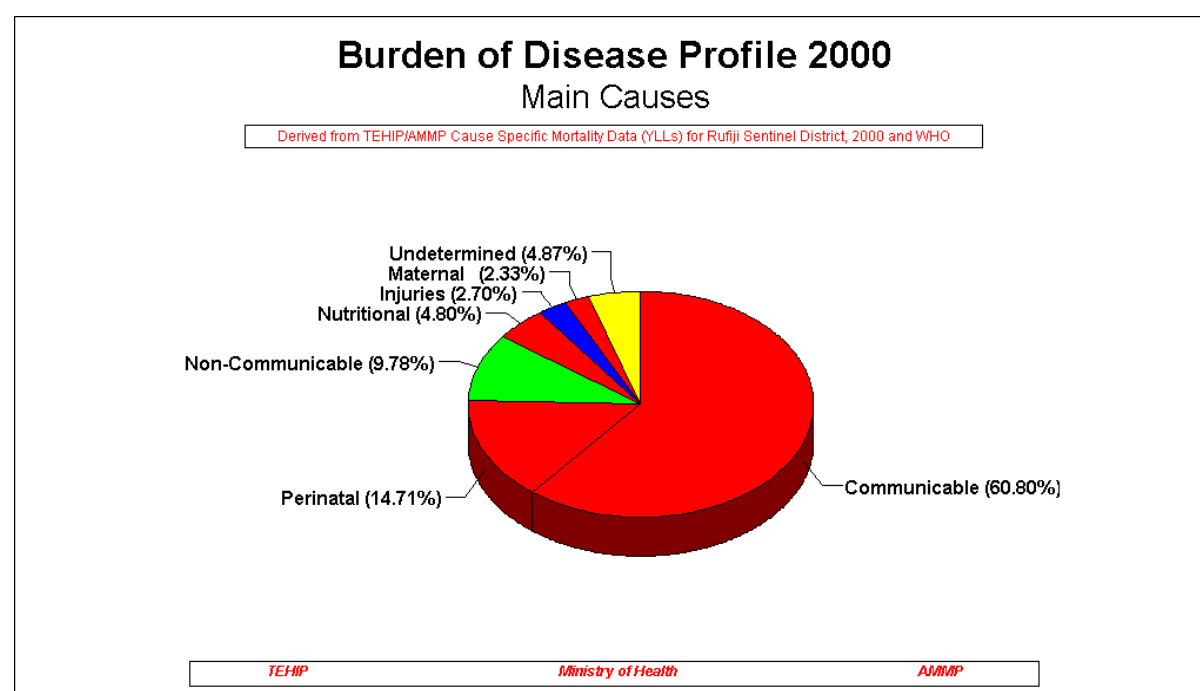
In **Part 5** we provide contacts for further information on the NSS and the Rufiji DSS.

## Part 2: Intervention Addressable Burden of Disease Graphics



**Figure 1. Broad Causes Of The Burden Of Disease In 2000**

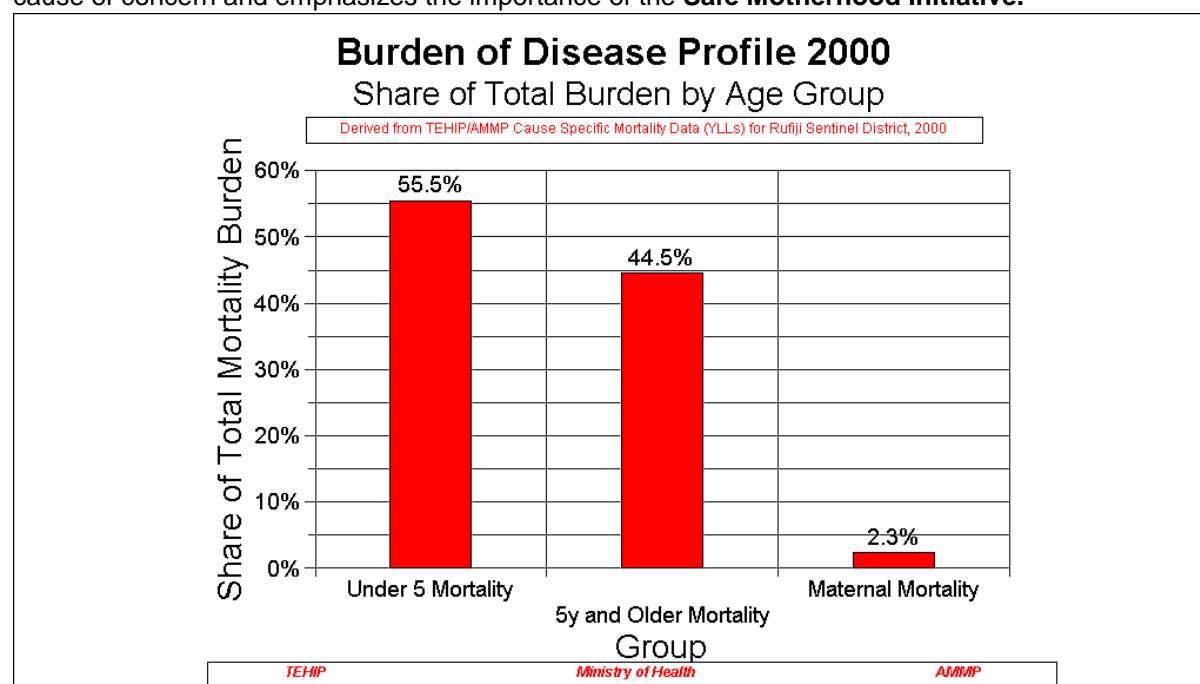
In Figure 1 above, the total burden of disease in the Rufiji Sentinel (lower pie) is divided into three broad groups of causes. Group I (red) contains all communicable, maternal, perinatal and nutritional causes. In the Rufiji sentinel district, these account for over 82% of the total burden. Group II (green) represents the non-communicable diseases and accounts for about 10% of the total burden. Group III (blue) is all external causes such as injuries and contains about 3% of the burden. The remaining 5% of the burden is undetermined by available methods (yellow). This overall pattern indicates that the health transition towards non-communicable and life style diseases is not yet very advanced in coastal regions of Tanzania and that there is a large unfinished agenda of preventable conditions to address. For comparison purposes, we also provide the WHO sub-Saharan Africa estimates for these three broad causes (upper pie). The Rufiji pattern is similar to the rest of Africa, except that the proportion due to injuries is much less. This is due to the current heavy burden of injury inflicted by war and civil conflicts in several African countries, which does not occur in Tanzania.



**Figure 2. More Detailed Main Causes**

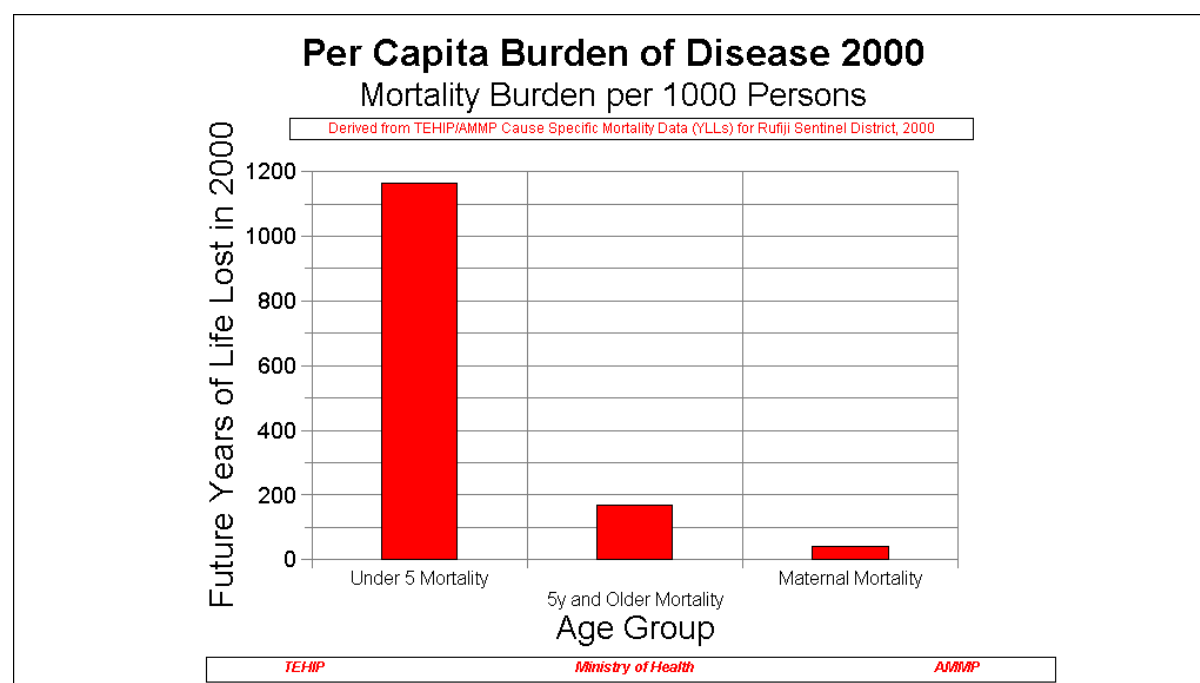
In figure 2 (above), Group I (red) is further divided into its components to show the communicable, perinatal, maternal and nutritional shares for the Rufiji sentinel district. Communicable diseases

dominate the pattern and contribute over 60% of the total burden. Malnutrition as a direct cause of mortality is relatively uncommon in Tanzania, but it should be appreciated that malnutrition is a common underlying cause of other mortality and deserves more attention than this picture might suggest. The relatively large share (15%) of the burden of disease due to perinatal mortality is a cause of concern and emphasizes the importance of the **Safe Motherhood Initiative**.



**Figure 3. Total Mortality Burden By Age Group**

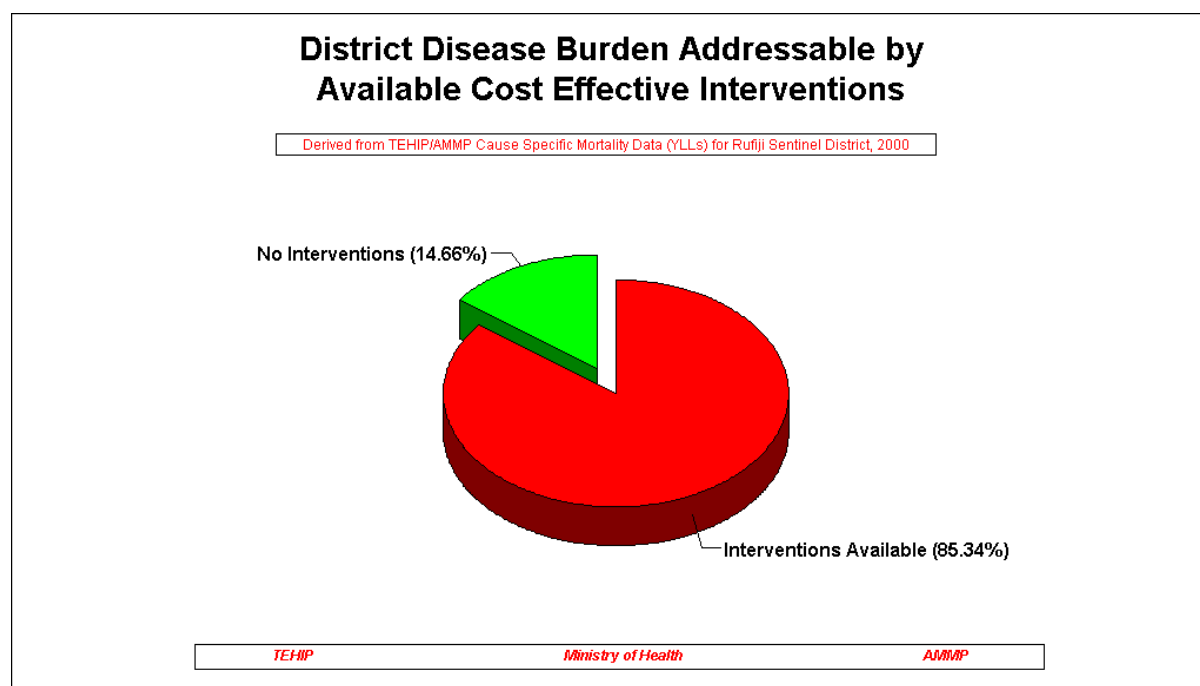
Figure 3 above shows that about 55% of the total population's burden of disease is experienced during the first five years of life. This is a decline from 1999 when it was 62%. These levels are consistent with what is seen in other parts of rural Africa. The risk of maternal mortality is also provided for perspective.



**Figure 4. Per Capita Mortality Burden By Age Group**

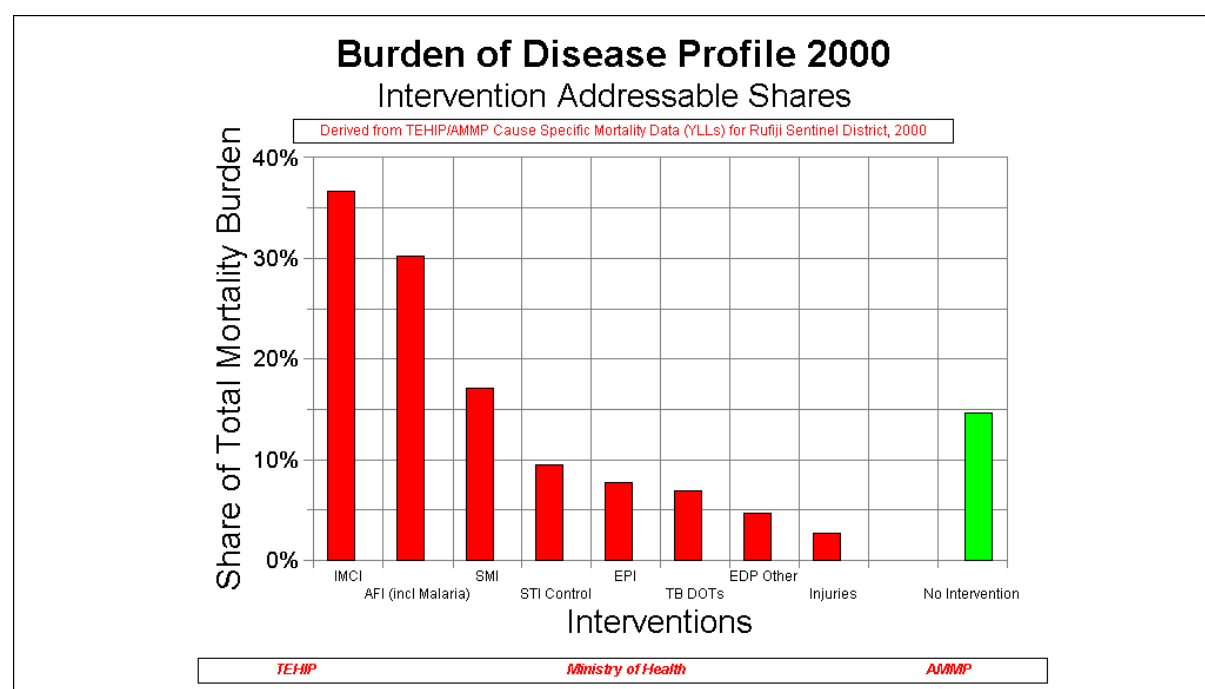
Both Figures 3 and 4 illustrate the disproportionately high risk of disease burden carried by children. Figure 4 shows the relative burden of disease on a per capita basis for each of the three age categories since the age categories are unequal in size. i.e. The under fives represent a 5 year age class and contain only 16% of the population, yet carry about 55% of the disease burden. The 5-year and older age group spans over 80 years and includes 84% of the population but carries only 45% of the burden. Included in this group is the maternal age group that spans 35 years and includes 21% of

the total population. The per capita shares represent the relative risk of burden of disease for those in each age category. Under five mortality clearly demands high priority.



**Figure 5. District Disease Burden Addressable by Available Cost-Effective Interventions**

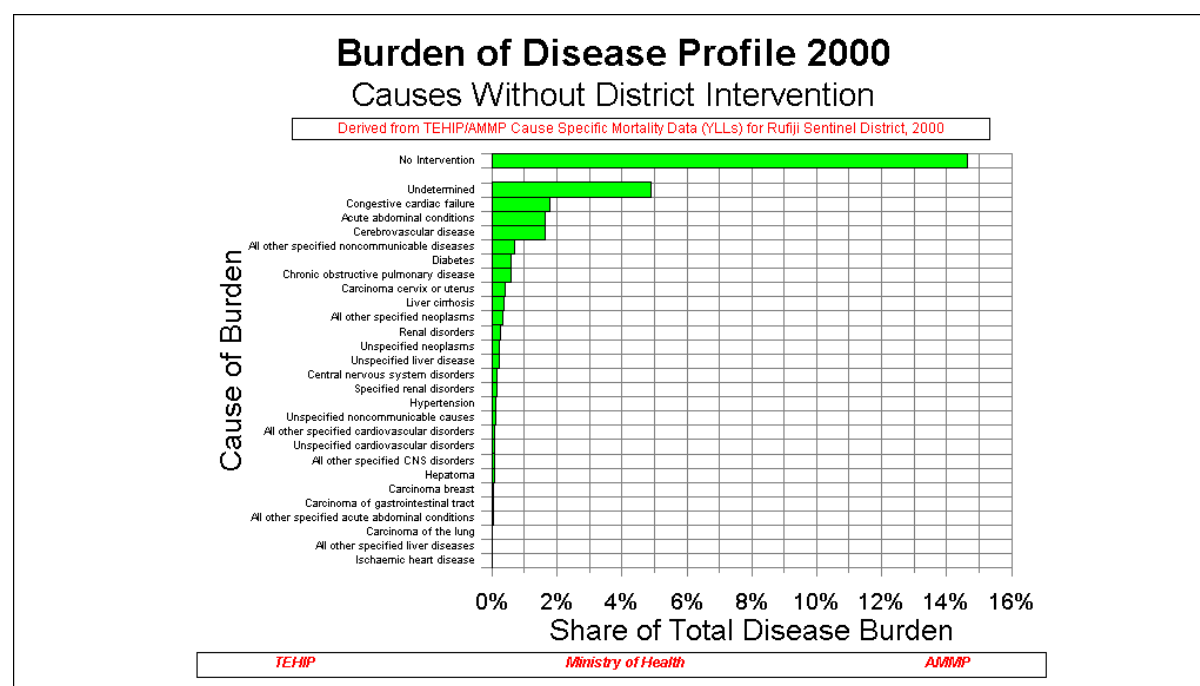
Although it is not possible to prevent all premature mortality, the above graph shows the good news that 85% of the year 2000 disease burden can be addressed by available, cost effective interventions supported by Council Health Plans. As new cost-effective interventions become available for the non-addressed 15% of the burden, these can also be considered for inclusion in the National Package of Essential Health Interventions for rural districts.



**Figure 6. Intervention Addressable Shares of the Burden of Disease**

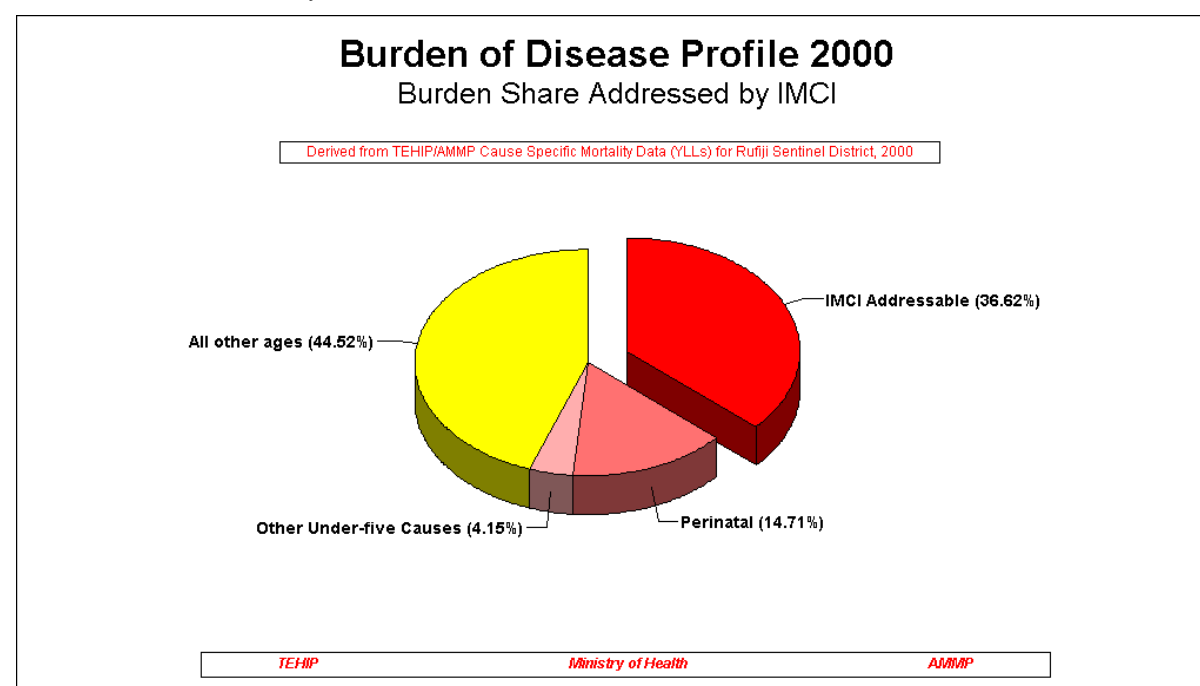
The above graph shows how much of the total burden of disease is addressed by each essential health intervention strategy currently available at District level. This core package includes all interventions that address at least 2% of the burden of disease and which are considered cost effective. Together these represent a minimum package for such districts and include: **Integrated Management of Childhood Illnesses (IMCI)**; **Case management and prevention for acute febrile illnesses (AFI) including malaria**; **Insecticide Treated Nets (ITNs) for prevention of malaria**; **Intermittent Presumptive Therapy (IPT) for Malaria in Pregnancy**, **Safe Motherhood Initiative (SMI)**; **STD Syndromic Management**; **EPI**; **EDP**; **TB DOTs**; and **Injury Care**. Since some diseases

are addressed by more than one intervention package, these shares are not intended to be additive. The category labeled *No Intervention* (15%) is all remaining disease burden not yet addressable by any cost-effective essential health intervention.



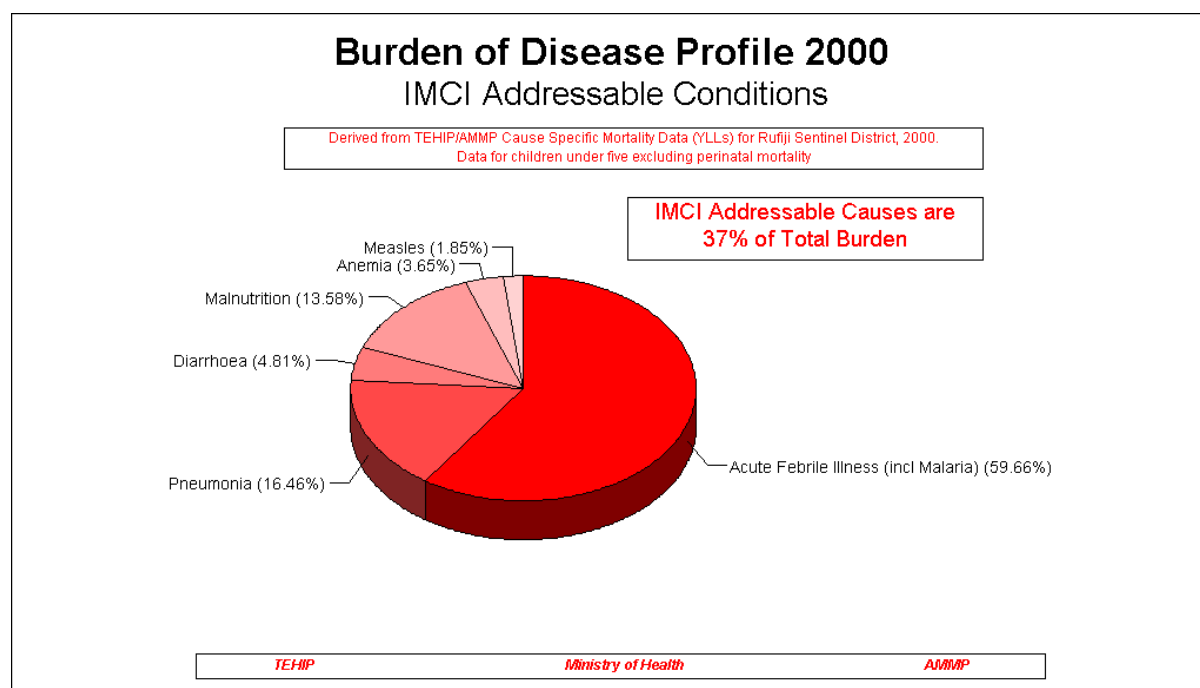
**Figure 7. Causes without District Intervention**

The causes of death that make up the 15% share currently not yet addressable by cost-effective essential health interventions at rural level are shown in the above graph. Most of these causes individually constitute less than 1% of the total burden of disease in the population and will be difficult to address cost-effectively.



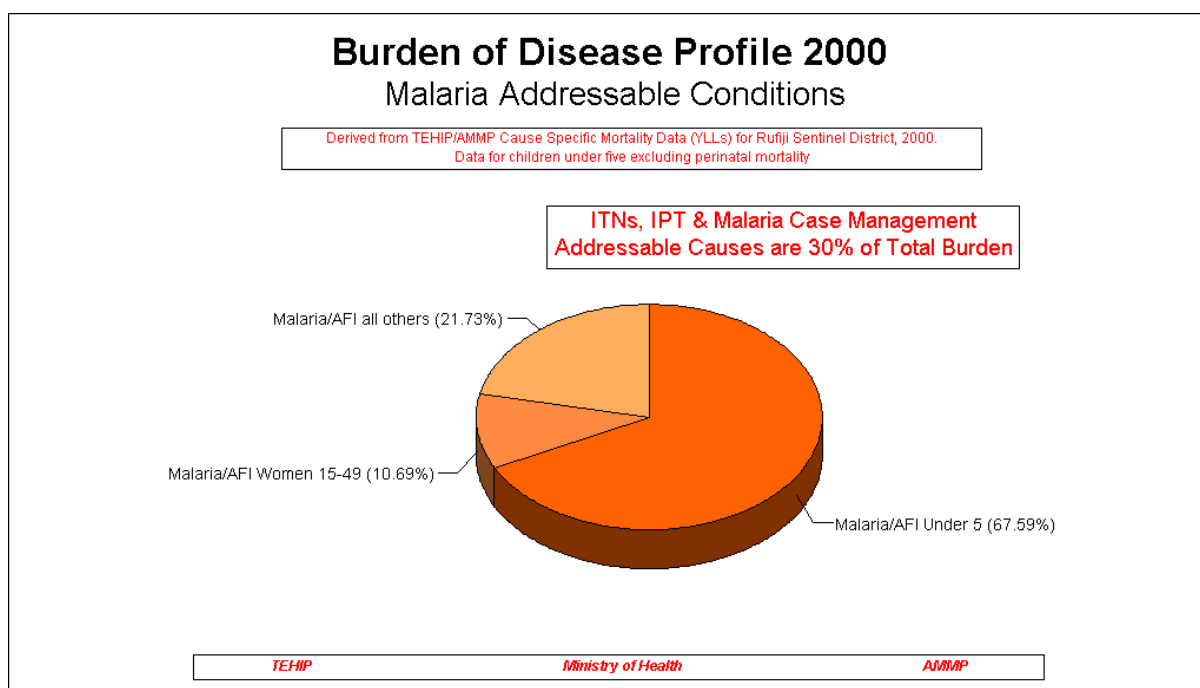
**Figure 8. Disease Burden Share Addressed by IMCI**

Children under the age of five carry the highest per capita share of the total burden. The above graph shows that about 37% of the total burden of disease can be addressed by a single intervention investment in **IMCI**, an integrated essential health strategy targeted to under-fives. No other single intervention addresses such a large portion of the burden of disease, thus this package merits intensive support and efforts to reach high levels of coverage. In the year 2000, the share of the burden addressable by IMCI has decreased by about 5% since 1999 (from 41.3% to 36.6%), possibly as a response to the wide access to IMCI that was recently achieved in Rufiji District.



**Figure 9. IMCI Addressable Conditions**

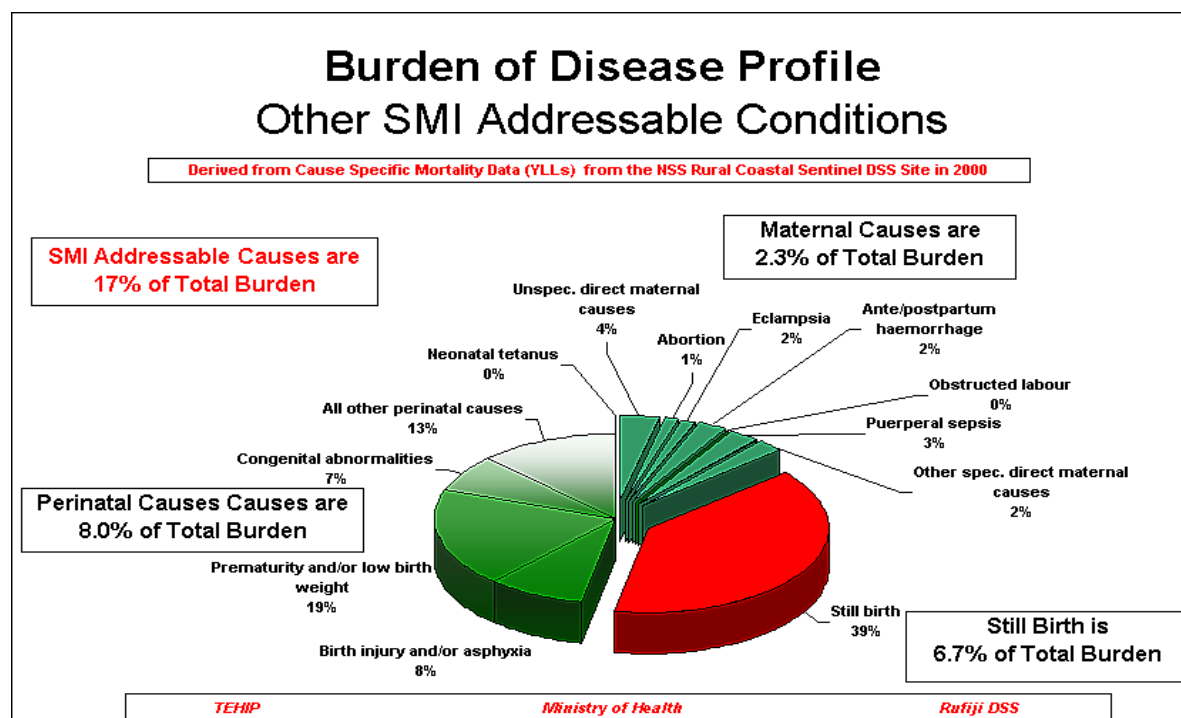
The **IMCI** strategy addresses the largest single share of the District disease burden. The above graph illustrates the relative contribution of the individual component conditions addressed by IMCI. Acute febrile illness including malaria constitutes about 60% of this burden and this emphasizes the importance of providing efficacious preventive and curative interventions for malaria. The transition from chloroquine to SP in 2001 can be expected to improve dramatically the performance of IMCI.



**Figure 10. Malaria and Acute Febrile Illness Addressable Conditions**

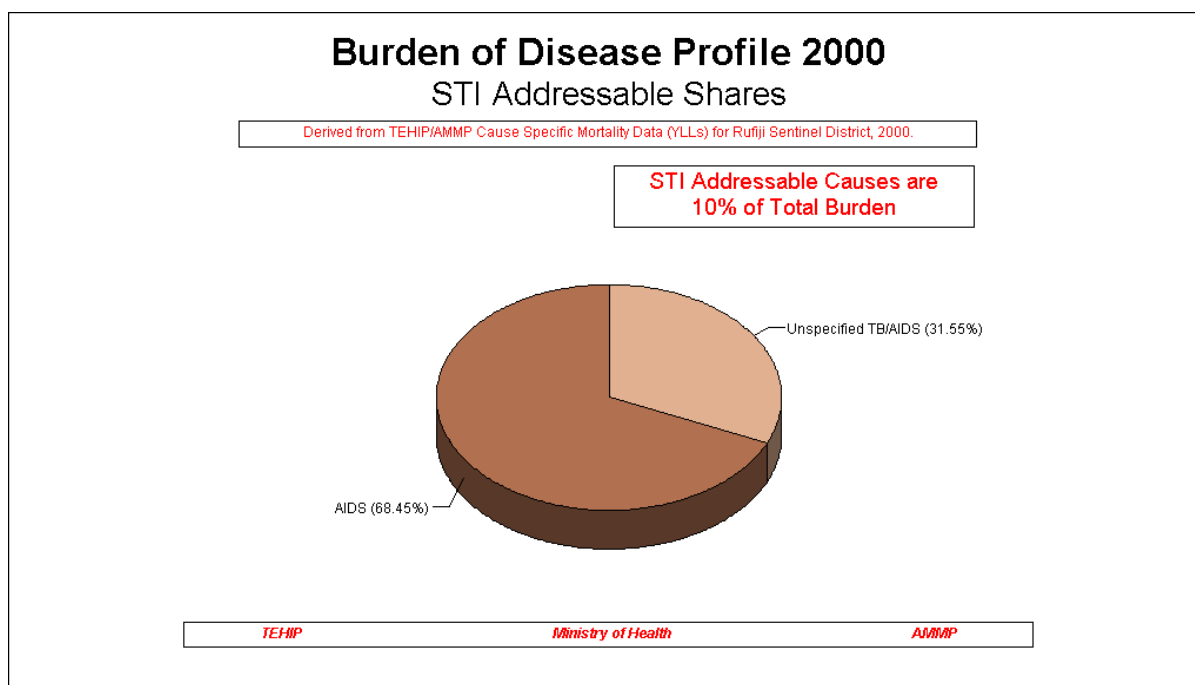
30% of the total burden of disease of the whole population is driven by acute febrile illness, which is predominantly malaria. Of this, about two thirds is suffered by children under five. The other important risk group is pregnant women. Women 15-49 carry about 10% of the malaria burden. This illustrates the importance of prompt and effective **Malaria Case Management with SP** according to the new National Guidelines, and preventive interventions such as **Insecticide Treated Nets (ITNs)**, especially for mothers and young children, and **Intermittent Presumptive Treatment (IPT)** during pregnancy.





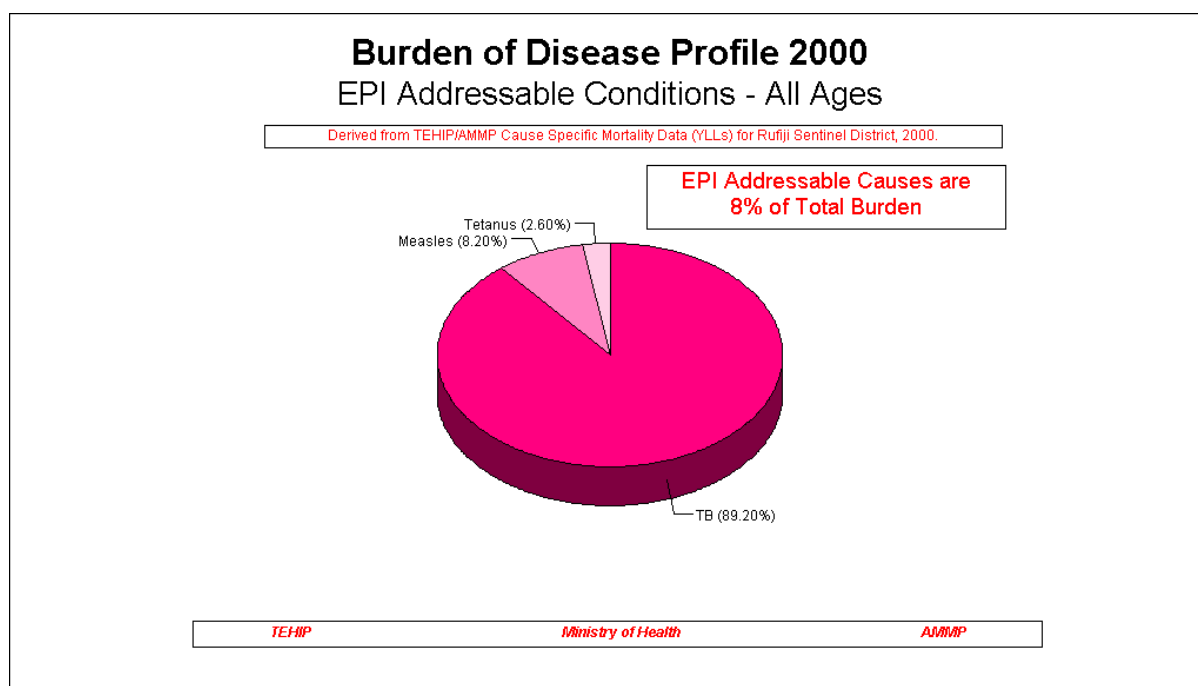
**Figure 11. Safe Motherhood Addressable Conditions**

The above graph illustrates the portions of mortality addressed by the **Safe Motherhood Initiative** that are either perinatal or maternal, and their component causes. Again perinatal mortality dominates. Neither Perinatal nor Maternal Mortality is addressed directly by IMCI, hence the importance of selecting efficacious interventions from **SMI** such as **Family Planning**, **Antenatal Care**, **IPT for Malaria**, **Essential Obstetric Care**, **Postpartum care**, **Post abortion care**, **STD Syndromic Management**, **RPR Screening for Syphilis**, etc.



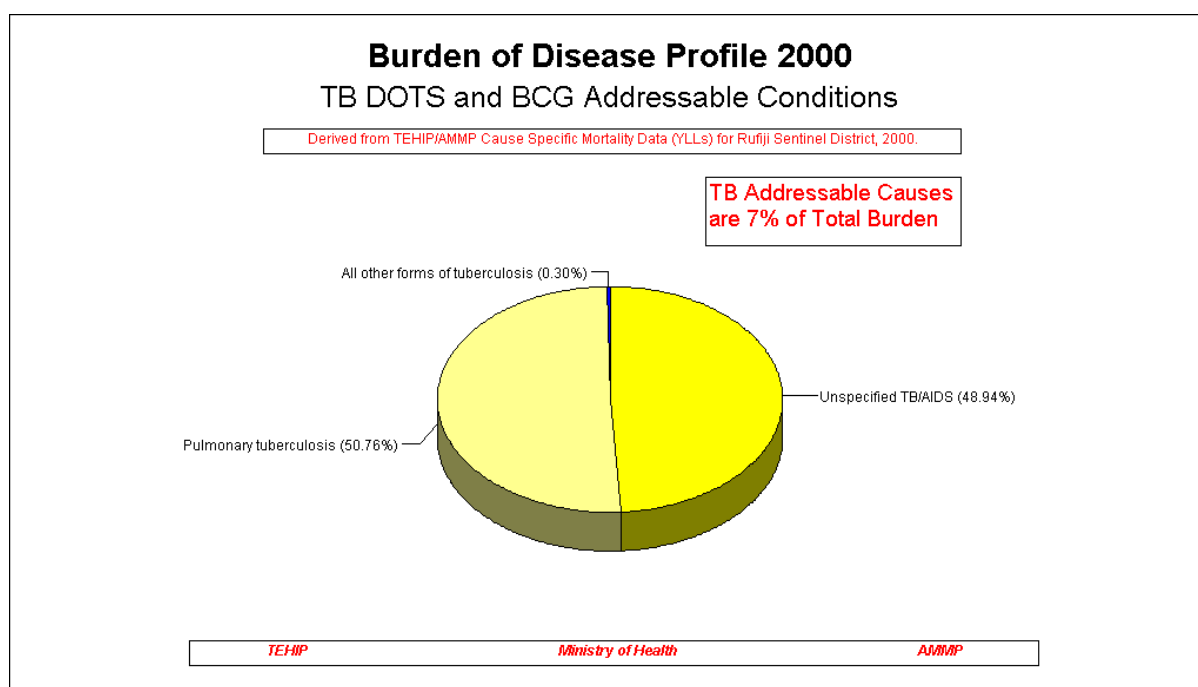
**Figure 12. STD Addressable Conditions**

The above graph illustrates that HIV infection and AIDS cause much of the sexually transmitted disease mortality. This constitutes about 10% of the total disease burden in 2000, an increase from 7% in 1999. This can be partially addressed by carefully selected **Reproductive Health** interventions such as **STD Syndromic Management**, **Family Planning**, etc. This does not include a large share of stillbirths consequent to syphilis in pregnancy that can be addressed by SMI with RPR screening and treatment.



**Figure 13. EPI Addressable Conditions**

The above graph illustrates the success of **EPI** as an essential health intervention. The current high coverage of **EPI** has reduced a previously high burden to only 8% of the total burden. Remaining causes are tetanus and measles, however TB is rising due to HIV. This illustrates the importance of maintaining **EPI** at high coverage and supporting additional interventions for measles (e.g. **IMCI**), Tetanus (e.g. **SMI**), TB (e.g. **TB DOTS**) and **EPI+ with Vitamin A Supplementation**.



**Figure 14. TB DOTS and BCG addressable conditions**

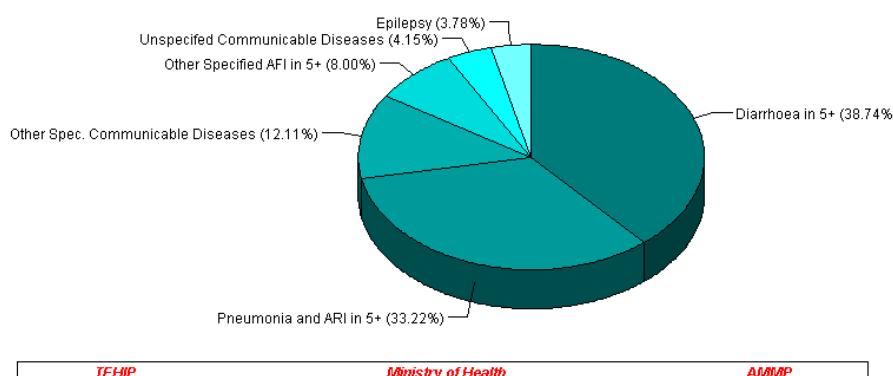
TB accounts for 7% of the burden of disease in 2000, up from 5% in 1999. HIV is believed to increase the risk of TB mortality. This illustrates the importance of increasing the coverage and integration of both **TB DOTS** and **STD Syndromic Management** as well as maintaining high **BCG** coverage in newborns.

## Burden of Disease Profile 2000

### Other EDP Addressable Conditions

Derived from TEHIP/AMMP Cause Specific Mortality Data (YLLs) for Rufiji Sentinel District, 2000.

Other EDP Addressable Causes are  
4.7% of Total Burden



**Figure 15. Other EDP Addressable Conditions**

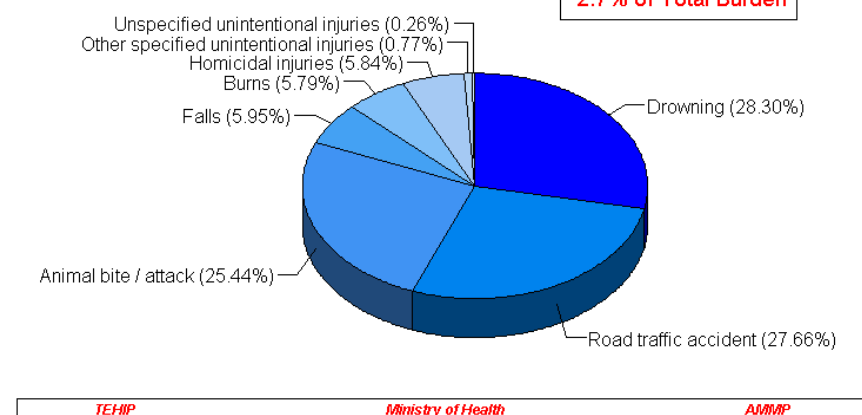
Contents of the Essential Drug Programme (EDP) kits are used extensively for essential health interventions already covered elsewhere in this document (e.g. IMCI, Malaria, SMI, Injury Care, etc.). The remainder of the EDP kit also contains drugs and materials useful for additional care aimed at morbidity reduction and mortality. These additional causes amount to about 4.7% of the total burden of disease and include diarrhoea, pneumonia and ARI in people five years and older as well as a number of communicable and non-communicable diseases such as helminthic infections or epilepsy.

## Burden of Disease Profile 2000

### Injury Care Addressable Conditions

Derived from TEHIP/AMMP Cause Specific Mortality Data (YLLs) for Rufiji Sentinel District, 2000.

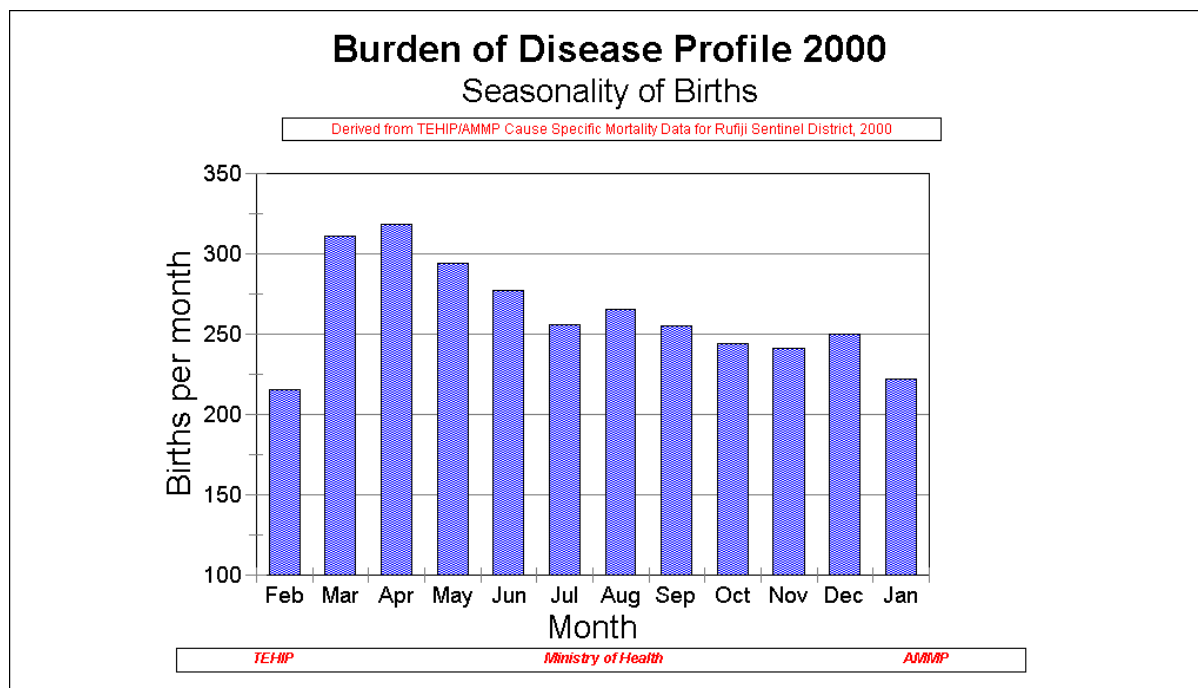
Injury Causes are  
2.7% of Total Burden



**Figure 16. Injury Care Addressable Conditions**

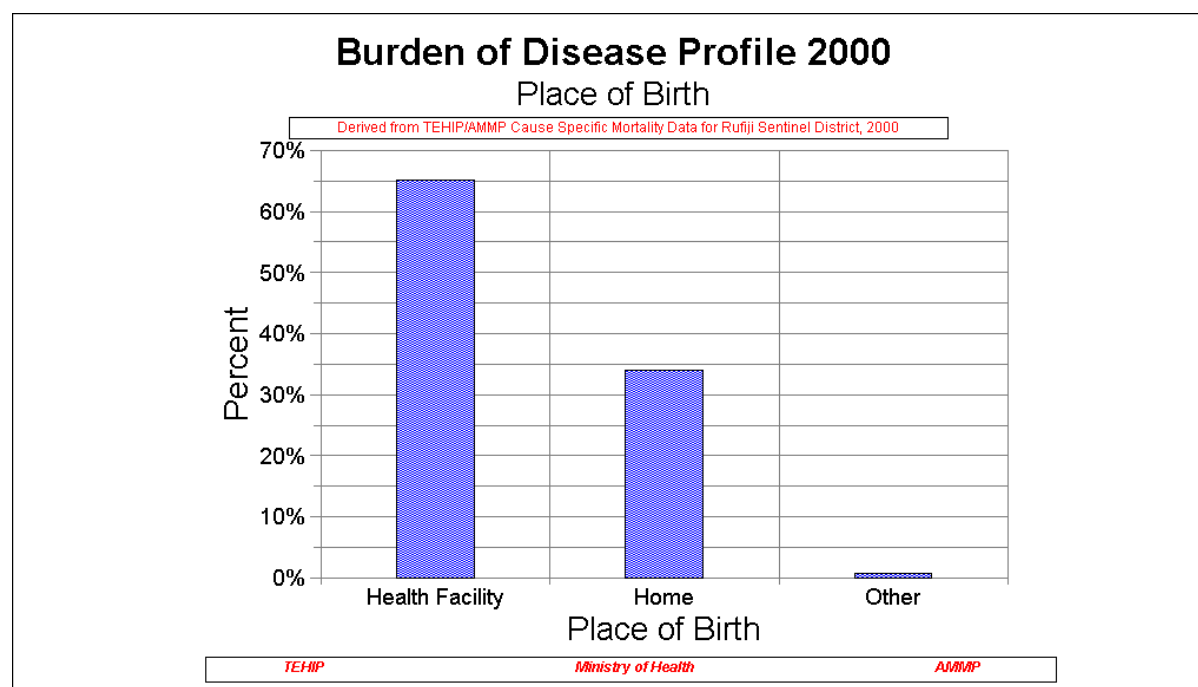
The above graph illustrates the relatively low (2.7%) but important burden of disease that can be addressed through life-saving interventions brought to bear on injuries through adequate risk avoidance and injury care. This shows the importance of maintaining a regular supply of **Essential Drug Kits** and other supplies that include materials for **Injury Care**. It also suggests the need for appropriate **Intersectoral Interventions**, e.g. to address the risk of road traffic accidents. The pattern of injuries will vary greatly between districts depending on the nature of roads, which affects road traffic accidents, and the proximity to wild life, which determines risk of animal attacks. Drowning is a common cause of fatal injury. **School Health Programs** should consider rescue, first aid, and swimming instruction at primary school level. The fatal animal attacks in the DSS area were predominantly snakebite. Adequate stocks of **Anti-venom** should be kept available at dispensaries. Animal attacks in the sentinel population also included crocodile and elephant attacks.

## Part 3: Other DSS Data Useful for Planning Purposes



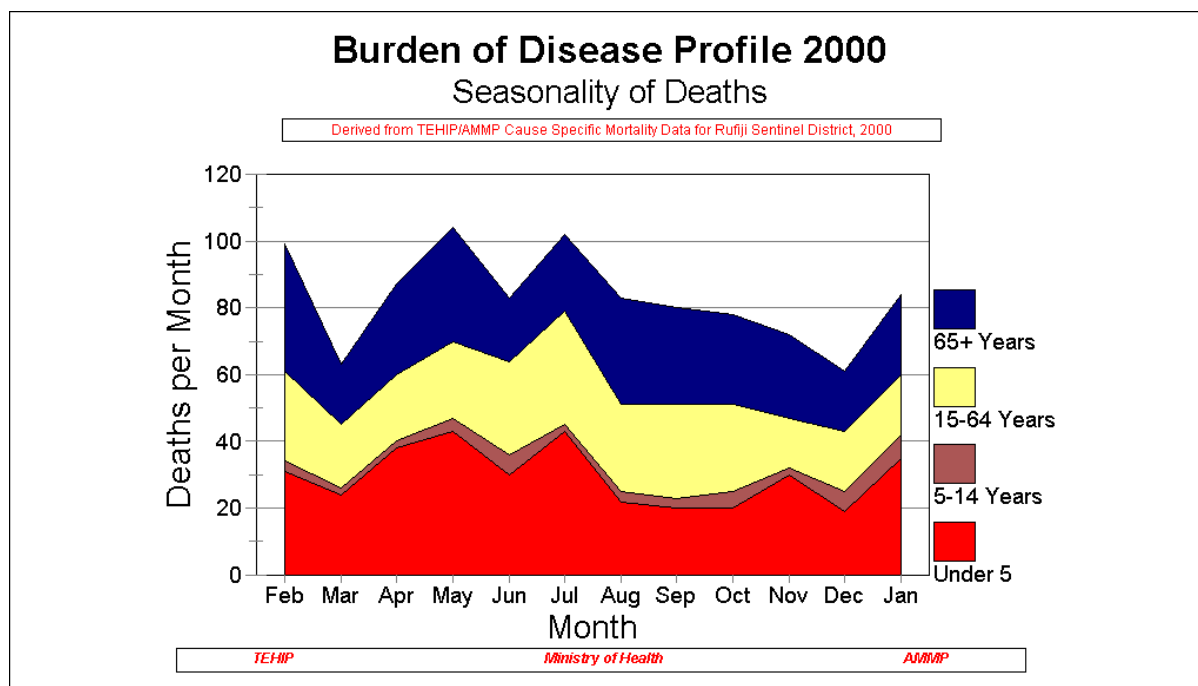
**Figure 17. Seasonality of Births**

The above graph shows the number of monthly births between February 2000 and January 2001 and illustrates a strong seasonality for fertility and births. March, April and May see a high frequency of births. Conversely, relatively few births occur in January and February. Since birth is also associated with the risk of maternal and perinatal mortality, some of the peak of mortality seen in April and May could be due to these causes (see Figure 19).



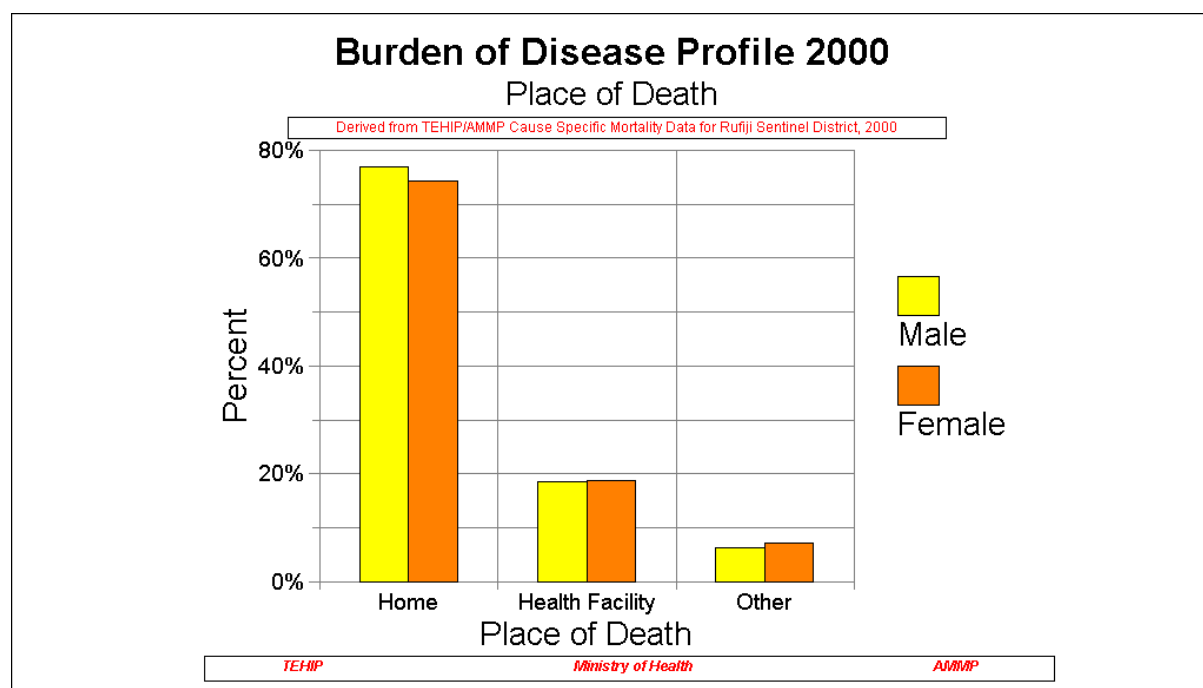
**Figure 18. Place of Birth**

The above figure illustrates that approximately two thirds of births occur in health facilities and about one third at home. This rate of births in health facilities is much higher than the national average of 44% for rural mainland Tanzania recorded in the 1999 TRCHS (DHS) survey.



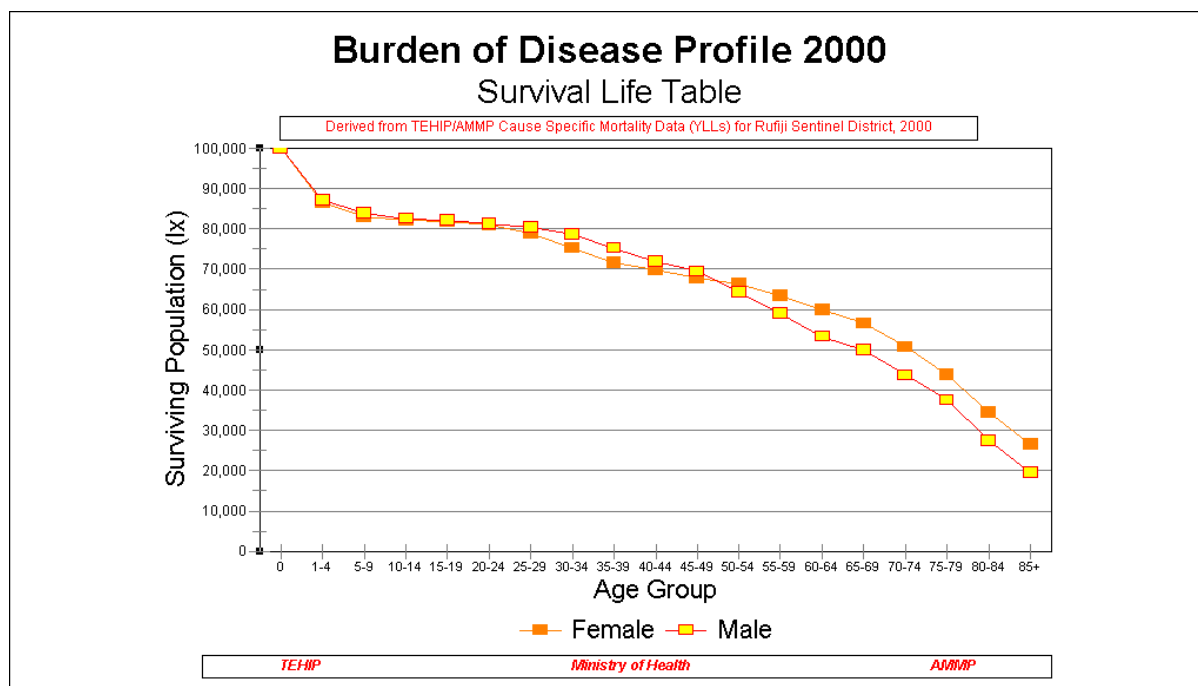
**Figure 19. Seasonality of Deaths**

The above graph shows the number of monthly deaths in young children under 5 years; school aged children 5-14 years; adults 15-64 years; and the elderly 65 years of age and older, by season from February 2000 to January 2001. Mortality rises to a peak at the end of the short rains, declines in March, rises to higher peaks during and at the end of the long rains, and then declines in the dry season. This is consistent with the fact that malaria, which also peaks in the short and long rains, is the single largest disease contributing to the burden of disease. Children 5 to 14 years of age are least subject to mortality, and the seasonality of mortality. In 2000, the DSS area experienced an average of 2.9 deaths per day, or 87 deaths per month. Deaths ranged from a low of 61 deaths in December to a peak of 104 deaths in May.



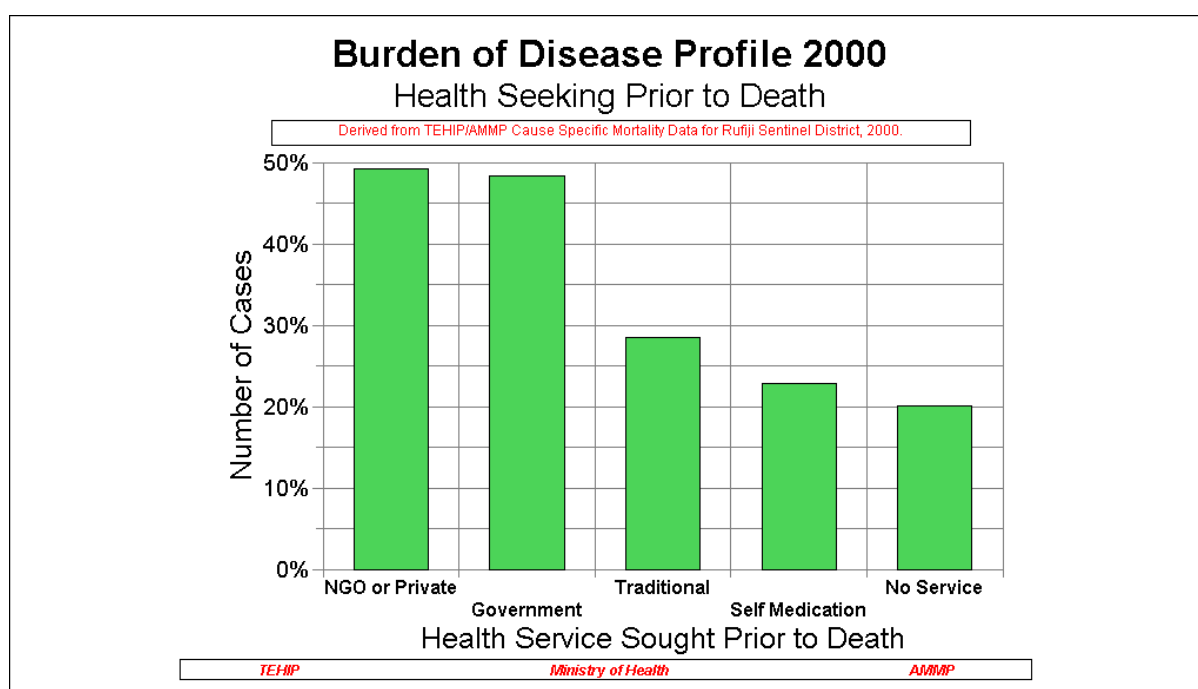
**Figure 20. Place of Death**

The above graph shows that almost 80% of all deaths occur at home for both males and females. This emphasizes the need to consider household based data when assessing the burden of disease in the population, and not only HMIS health facility data.



**Figure 21. Life Table Survival Curve**

The above figure shows the survival of a hypothetical cohort of 100,000 males and females, if born in 2000 and exposed to the same risks of mortality as the sentinel population. Males and females have similar survival until age 25 to 49 when current reproductive health burdens put women at higher risk of death than men. Thereafter, the normal biological survival advantage of women over men returns.

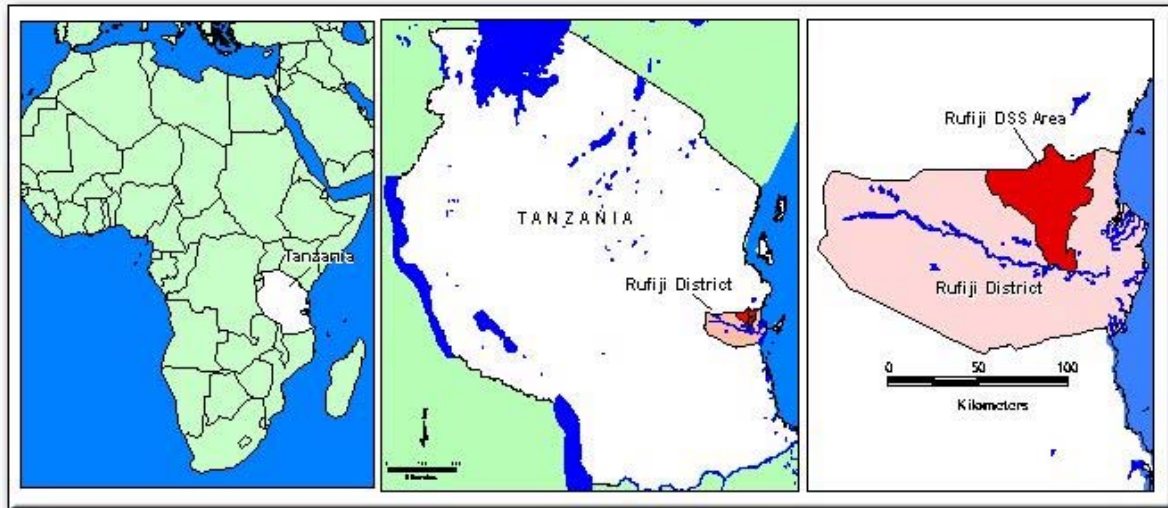


**Figure 22. Main Types of Health Services Sought in the Illness or Condition Leading to Death**

People often seek health services from more than one source during an illness. For serious illnesses or conditions leading to death, the above graph illustrates the distribution of services sought at least once. Many attended multiple sources of health service. 67.5% of deaths included formal health seeking behaviour (government, non-government, or private hospitals, health centers, dispensaries, pharmacies and/or village health workers) for such life threatening conditions. 32.5% of deaths included informal services (family members, traditional healers, and/or shops) while **20% used no service at all**. This pluralism in household level health seeking during life threatening illnesses and conditions illustrates the need for a **comprehensive District Health Plan** engaging all partner providers in order to ensure that the population has acceptable access to essential health interventions and information. This also illustrates the need to consider information from a broad range of health providers as part of the District's Health Management Information System (HMIS).

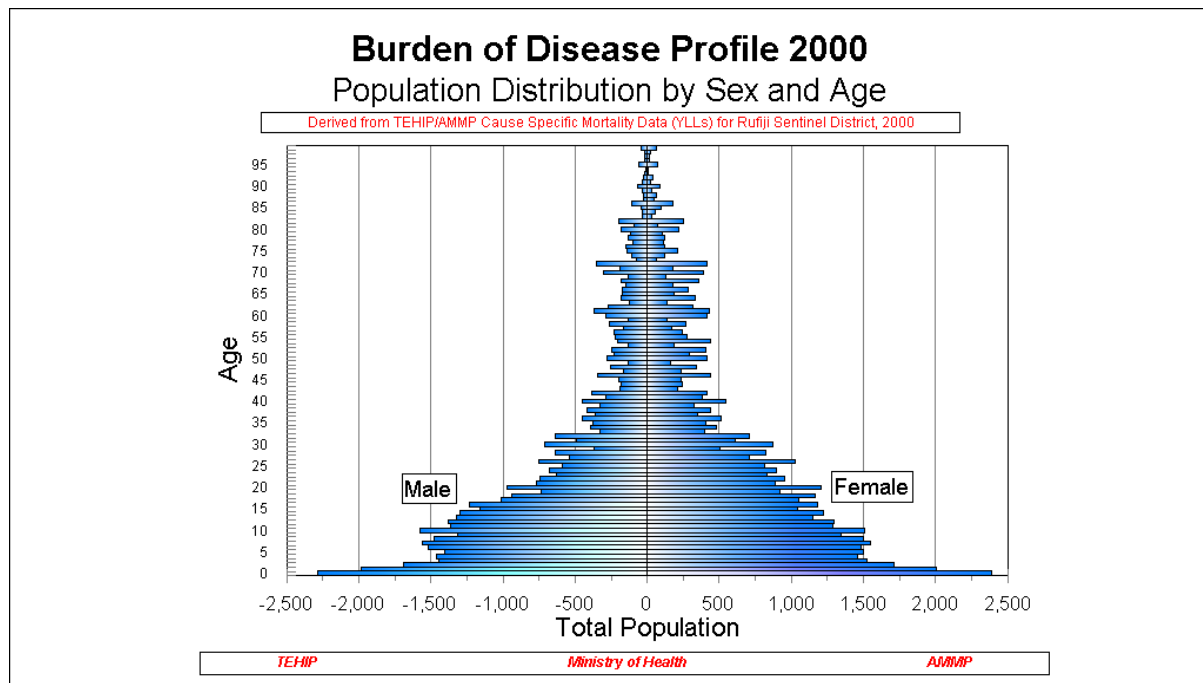
## Part 4. Projecting DSS Data to Other Districts

The information provided in Parts 2 and 3 can be used by Districts with socio-economic, epidemiologic, and health service profiles similar to Rufiji District. In Part 4, Rufiji District DSS rates are applied to the expected populations of Rufiji and other similar districts to derive district specific estimates in Coast, Lindi, Mtwara, and Tanga Regions. This section summarizes some key indicators generated by demographic surveillance that can be used for estimating local populations at risk of particular disease burdens, or in need of particular interventions.



**Figure 23. Map of Location of the Rufiji DSS Area in Rufiji District and Tanzania**

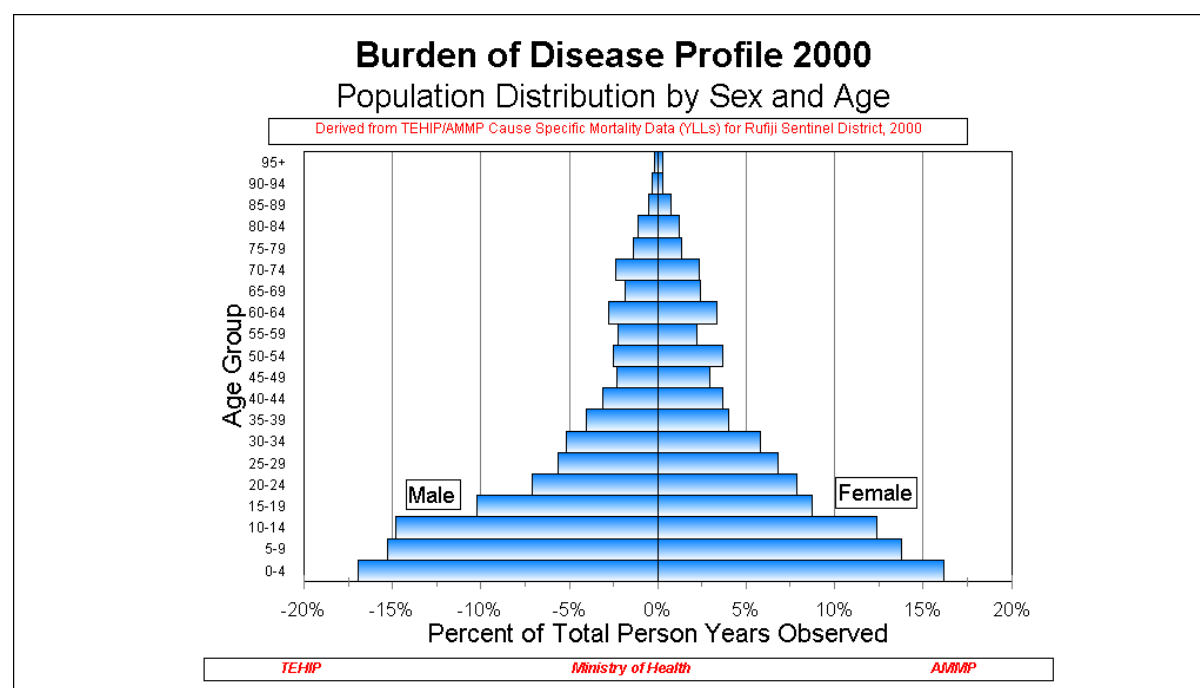
The above map indicates the location of the area in which the Rufiji DSS operates. The entire population of 93,000 people in 19,000 households in this area is monitored continuously for births, deaths, in-migrations and out-migrations, with verbal autopsies on all deaths. This area is at the mid-point of the coastal border of Tanzania and is selected to be representative of rural coastal districts of the country. See also Figure 26.



**Figure 24. Population Distribution by Sex and Age by 1 year Age Groups**

The above graph displays the age and sex distribution of the population during the year 2000 in the Rufiji DSS area. It is a reflection the combined impact of births, deaths and migration over the past 100 years on the structure of the currently living population. The wide base of the pyramid is characteristic of a population with a combination of both high fertility and high child mortality. It indicates that the majority of the population is children, and that there is a high dependency of large numbers of both children and the elderly on a relatively small adult population. Because of their large numbers, child and young adult health problems will continue to dominate the public health priorities

of this area for many years to come. It can also be seen that most of the child mortality occurs in the first three years of life. There appear to be bulges of adult population at five-year intervals. This is explained by digit preferences of adult interview respondents who tend to round off their own ages to the nearest five years when responding to census takers.



**Figure 25. Population Distribution by Sex and Age by 5 year Age Groups**

The above graph shows the same population distribution, but in five year age groups to minimize the effect of age reporting bias seen in Figure 23. Hence this structure is normally used for demographic calculations. In the absence of a recent national census, extrapolations from this structure can be used to estimate district-wide populations in different age groups in need of specific public health services. These are provided in Table 1 below.

**Table 1. Selected Rates, Indicators and Statistics**

Table 1 below compares a selection of demographic measures obtained in the Rufiji DSS to those obtained last year and in the most recent national DHS survey for rural Tanzania. The 2000 Rufiji crude birth, death, growth rates and maternal mortality rates are similar to national values. Infant and under five mortality rates are lower than the national values and falling. It should be appreciated that under five mortality in Rufiji has decreased over 14% since 1999 (from 140 to 120 deaths per 1000) and life expectancy has increased from 56 to 58 years since 1999 indicating movement in a positive direction.

#### Selected Rates and Statistics from the Coastal Sentinel DSS Area in 2000

Indicator	Units	Rural Tanzania Value** 1999	Coastal DSS Value* 1999	Coastal DSS Value* 2000
Crude Birth Rate	Births per 1,000 population	41	42.3	41.6
Crude Death Rate	Deaths per 1,000 population	13.0***	15.4	13.3
Crude Rate of Annual Increase	Change per 100 population excluding migration	2.8%	2.7%	2.8%
Infant Mortality	Probability of dying before 1st birthday / 1,000 births	113.4	97.9	71.8
Child Mortality	Probability of dying between 1st and 5th birthday / 1,000	60.2	34.0	47.8
Under Five Mortality	Probability of dying before 5th birthday / 1,000	166.8	139.7	119.6
Maternal Mortality Ratio	Maternal deaths per 100,000 live births	530***	523	573
Life Expectancy	Life expectancy at birth in years	53***	55.8	58.0
Total Fertility Rate	Children per woman 15-49 years old (avg)	6.5	6.2	6.2
Dependency Ratio	People <15 years or >64 years per 100 people 15 to 64	104	110	107
Average Household Size	People per household	5.0	4.8	4.9

\* Source: Rufiji Demographic Surveillance System data for 1999 and 2000 (Part of the National Sentinel Surveillance System)

\*\*Source: National Bureau of Statistics, and Macro International Inc. Tanzania Reproductive and Child Health Survey, 1999 (TRCHS DHS)

\*\*\*Source: National level values from Population Reference Bureau, 2001 World Population Data Sheet, Tanzania (PRB)



**Table 2. Projections to Rufiji District for 2002**

**Demographic Projections from the 2000 Coastal DSS Sentinel to Rufiji District for 2002**

Indicator	Source	Rufiji District from MOH Census	Rufiji District from DSS Census
Projected District Population	1988 Census projected to 2002 by MoH	184,483	210,007
Projected Population of Infants	Projected District Population x 4.54%	8,376	9,534
Projected Population 0-4 years (Children)	Projected District Population x 16.53% (DHS=18.0%)	30,108	34,273
Projected Population 5-14 years (School Aged)	Projected District Population x 28.08% (DHS=30.9%)	51,803	58,970
Projected Population 15-64 years (Adult)	Projected District Population x 47.15% (DHS=46.5%)	86,984	99,018
Projected Population 65+ years (Elderly)	Projected District Population x 08.24% (DHS=04.6%)	15,201	17,305
Projected Population Female 15-49 years (Maternal)	Projected District Population x 20.61% (DHS=21.6%)	38,022	43,282
Projected Number of Births	Birth Rate x Projected Population / 1,000	7,676	8,738
Projected Number of Deaths	Death Rate x Projected Population / 1,000	2,454	2,793
Projected Number of Under Five Deaths	Under five mortality x population <5 / 1,000 / 5	720	820
Projected Number of Maternal Deaths	Maternal Mortality Ratio x Births / 100,000	44	50

\* Percentages in brackets are national rural estimates from the 1999 TRCHS Survey (National Bureau of Statistics, Macro Int. Inc.).

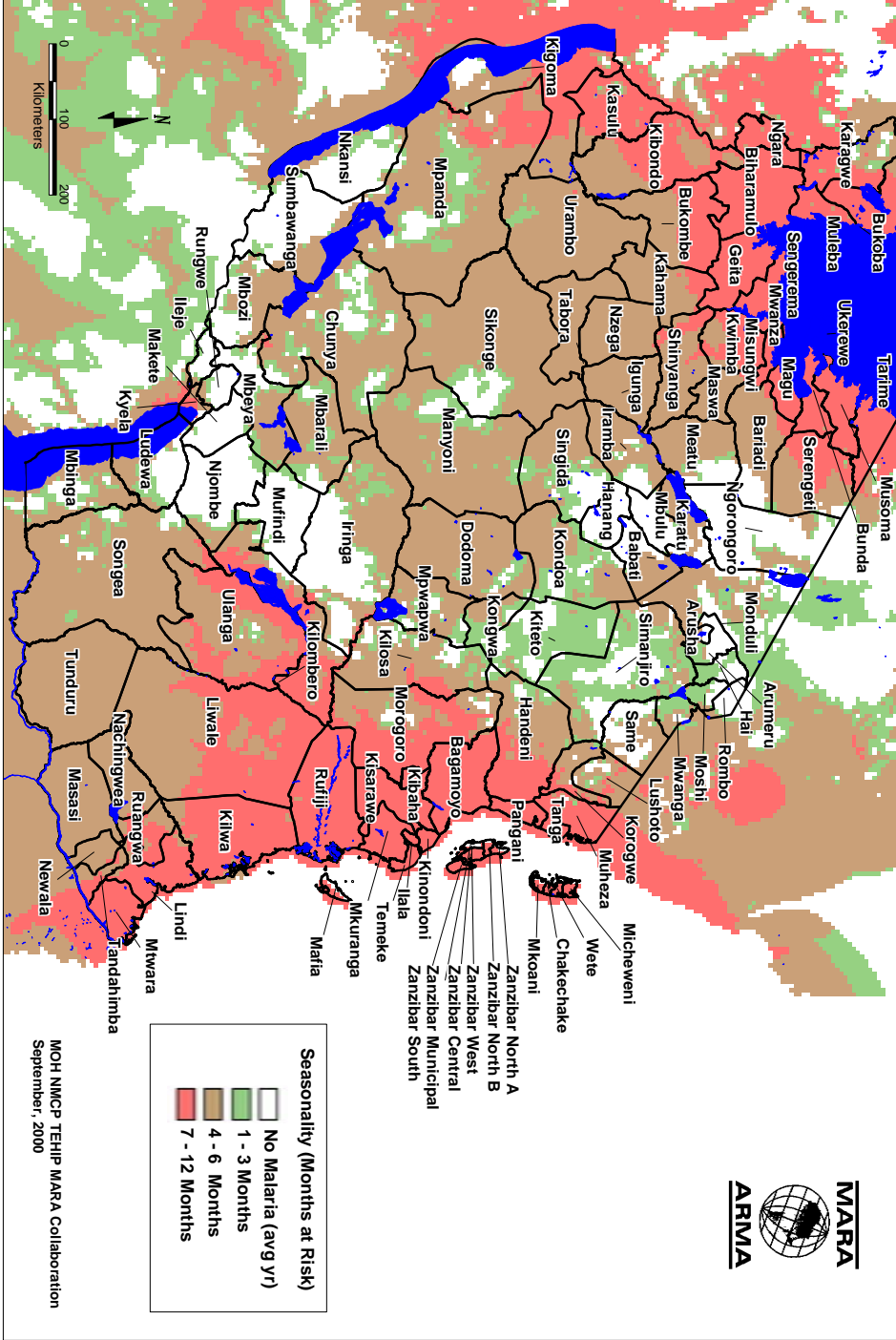
Note: MOH Census projections may underestimate the Rufiji population in 2002. The DSS-corrected estimate is also provided

**Table 3. Projections to Other Districts for 2002**

**Demographic Projections from the 2000 Coastal DSS Sentinel to Other Coastal Districts for 2002\***

Indicator	Demographic Projections to Coastal Districts (North to South)							
	Muheza	Pangani	Bagamoyo	Mkuranga	Mafia	Kilwa	Lindi	Mtwara
Projected District Population	278,728	45,096	246,197	187,498	47,400	225,443	196,532	205,739
Projected Population of Infants	12,654	2,047	11,177	8,512	2,152	10,235	8,923	9,341
Projected Population 0-4 years (Children)	45,488	7,360	40,179	30,600	7,736	36,792	32,074	33,577
Projected Population 5-14 years (School Aged)	78,267	12,663	69,132	52,649	13,310	63,304	55,186	57,772
Projected Population 15-64 years (Adult)	131,420	21,263	116,082	88,405	22,349	106,296	92,665	97,006
Projected Population 65+ years (Elderly)	22,967	3,716	20,287	15,450	3,906	18,577	16,194	16,953
Projected Population Female 15-49 years (Maternal)	57,446	9,294	50,741	38,643	9,769	46,464	40,505	42,403
Projected Number of Births	11,598	1,876	10,244	7,802	1,972	9,381	8,178	8,561
Projected Number of Deaths	3,707	600	3,274	2,494	630	2,998	2,614	2,736
Projected Number of Under Five Deaths	1,088	176	961	732	185	880	767	803
Projected Number of Maternal Deaths	66	11	59	45	11	54	47	49

\* Note: At time of printing, official district populations for 2002 were not yet available from the MOH and were therefore estimated from intercensal growth rates and are not official.



**Figure 26. Malaria Transmission Risk Map**

The above is a map of Tanzania showing the great similarity of Tanzanian coastal districts with respect to risk of malaria transmission. Malaria is the single largest component of the burden of disease in the Rufiji DSS sentinel data. This adds weight to the relevance of sharing Rufiji DSS data with other coastal districts.



## Additional Comments

**Selecting from the National Package of Essential Health Interventions.** This burden of disease profile from a typical rural coastal district in Tanzania demonstrates the importance of investing in a core group of Minimum Essential Health Interventions.

For such rural districts, these include:

- **IMCI** (Integrated Management of Childhood Illnesses) for under fives;
- **Malaria Case Management** (using the new National Guidelines including IPT, and ITNs);
- **IPT** (Intermittent Presumptive Therapy) for malaria control in pregnancy;
- **ITNs** (Insecticide Treated Nets) for malaria prevention in children and mothers;
- **SMI** (Safe Motherhood Initiative) including ante and postnatal care, IPT, delivery care, family planning, etc.;
- **STI Control** (Sexually Transmitted Infection Syndromic Management), including condom distribution, strengthening Blood Transfusion Services, School Health Education and Youth Interventions for in-school and out-of-school youths, Sex Worker Interventions, etc.);
- **EPI Plus** (Expanded Program of Immunization with Vitamin A Supplementation);
- **TB DOTS** (Tuberculosis Directly Observed Therapy)
- **EDP** (Essential Drugs Programme) kits or Indent
- **Injury Care** (Rule of Rescue, School Health Programs, etc.)

Disease elimination programs are also highly cost effective, even though the remaining burden of disease may be too small to appear significant in a burden of disease approach. Where there are national programs for disease elimination (e.g. **lymphatic filariasis, onchocerciasis, polio, trachoma, iodine deficiency disorder**, etc) available in the district, then these should also be considered essential health interventions and deserve high priority, along with the interventions listed above.

**Potential Gains.** Collectively, these interventions will address over 85% of the total burden of disease of the population. If coverage of these ten strategies can approach 80% of those at risk, substantial reductions in the burden of disease can be expected. Conversely, investing in interventions that do not address these conditions will have only marginal impact on the overall burden of disease and will dilute and distract human and fiscal resources from the poor.

**Recent Trends.** In Rufiji District, coverage of EPI is high, coverage of IMCI is moderate, and coverage of ITNs is low but increasing. The burden of disease for children under five is falling. Between 1999 and 2000 there was over 14% reduction in probability of death. Coverage of the other interventions is unknown and is probably very low for STI Syndromic Management and low for TB DOTS. The burden of disease from HIV and TB is increasing. The net effect is that the overall burden of disease for the whole population has declined only slightly (from 333 YLLs per 1000 person years observed in 1999 to 311 YLLs per 1000 person years observed in 2000). The gains from declining child mortality due to IMCI and other interventions are being lost due to increases in adult mortality from HIV and TB. Nevertheless, because child mortality has fallen, life expectancy is actually increasing (55.8 years in 1999; 58.0 years in 2000). It should be noted that although child mortality is declining, it is still unacceptably high and, as a rate, is 20 times higher than the maternal mortality, even though maternal mortality is also unacceptably high. It is still too soon to conclude that the decline in infant and child mortality is due to interventions. It may simply be due to the annual variation in child death risks moderated by climate, food security, or other socio-economic determinants. These figures will be compared with other DSS sites, and will be followed annually over time to build up a stronger picture of trends.

**Importance of Intervention Coverage Data.** The above observations point to the growing importance of including estimates of intervention coverage in the HMIS data set. Such information should prove an invaluable addition to burden of disease information in guiding the investment efforts necessary to extend the reach and access of essential health interventions to those in greatest need.

## Part 5: Contact Information

**For further information on this Burden of Disease Profile, contact:**

TEHIP  
TANZANIA ESSENTIAL HEALTH INTERVENTIONS PROJECT  
Ministry of Health  
Box 78487  
Dar es Salaam  
Tanzania  
Tel: 255 22 213 0627  
Eml: [info@tehip.or.tz](mailto:info@tehip.or.tz)  
Attn: Dr. Don de Savigny or Dr. Conrad Mbuya

**For further information on the use of DSS mortality data for other districts in the National Sentinel Surveillance System (NSS), contact:**

NATIONAL SENTINEL SURVEILLANCE SYSTEM  
Ministry of Health  
Box 9083  
Dar es Salaam  
Tanzania  
Tel: 255 22 216 0261  
Eml: [manumbu.moh@twiga.com](mailto:manumbu.moh@twiga.com)  
Attn: Dr. Henry Kitange or Mr. Fred Macha

**For further information on the Rufiji Demographic Surveillance System regarding characteristics of the population monitored, the methods used, and the basic outputs see:**

Mwageni, E., Momburi, D., Juma, Z., Irema, M., and Masanja, H. (2001). **The Rufiji Demographic Surveillance System.** In: *INDEPTH Monograph Series: Population and Health in Developing Countries, Volume 1: Population, Health and Survival at INDEPTH Sites*. International Development Research Centre, Ottawa, Canada.

Copies are available through the NSS or TEHIP.

**Or contact:**

Rufiji DSS  
Station Manager  
Box 40  
Ikwiriri, Rufiji District  
Tanzania  
Tel: 255 023 999 (ask for 31)  
Eml: [rufijidss@tehip.or.tz](mailto:rufijidss@tehip.or.tz) or [masanja@tehip.or.tz](mailto:masanja@tehip.or.tz) or [mwageni@suanet.ac.tz](mailto:mwageni@suanet.ac.tz)  
Attn: Dr. Eleuther Mwageni or Mr. Honorati Masanja

**End Notes:**

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<sup>1</sup> Since premature mortality represents almost 80% of the expected burden of disease in sub-Saharan Africa as estimated by the Disability Adjusted Life Year (DALY), the Burden of Disease Profile uses the mortality portion of the DALY (future years of life lost due to mortality or YLLs) as a proxy measure of the distribution of the burden of disease. All graphics showing the shares of the burden of disease are based on YLLs. These YLLs use standard DALY age weighting and discounting. Cause specific mortality and associated YLLs are generated through continuous, direct, demographic surveillance in Rufiji District using the HRS Household Registration System and the NSS/AMMP verbal autopsy classification.

<sup>2</sup>The Rufiji Burden of Disease Profile for the year 2001 will be available by June 2002. The Rufiji DSS is a member of the INDEPTH Network of Demographic Surveillance System sites.

<sup>3</sup>The Tanzania Essential Health Interventions Project (TEHIP) is funded in part by a grant from the International Development Research Centre, Canada (IDRC) and implemented in collaboration with the Tanzania Ministry of Health.

<sup>4</sup>The Adult Morbidity and Mortality Project (AMMP) is funded by the UK Department for International Development (DFID) and implemented in partnership with the University of Newcastle upon Tyne as a project of the Tanzania Ministry of Health.