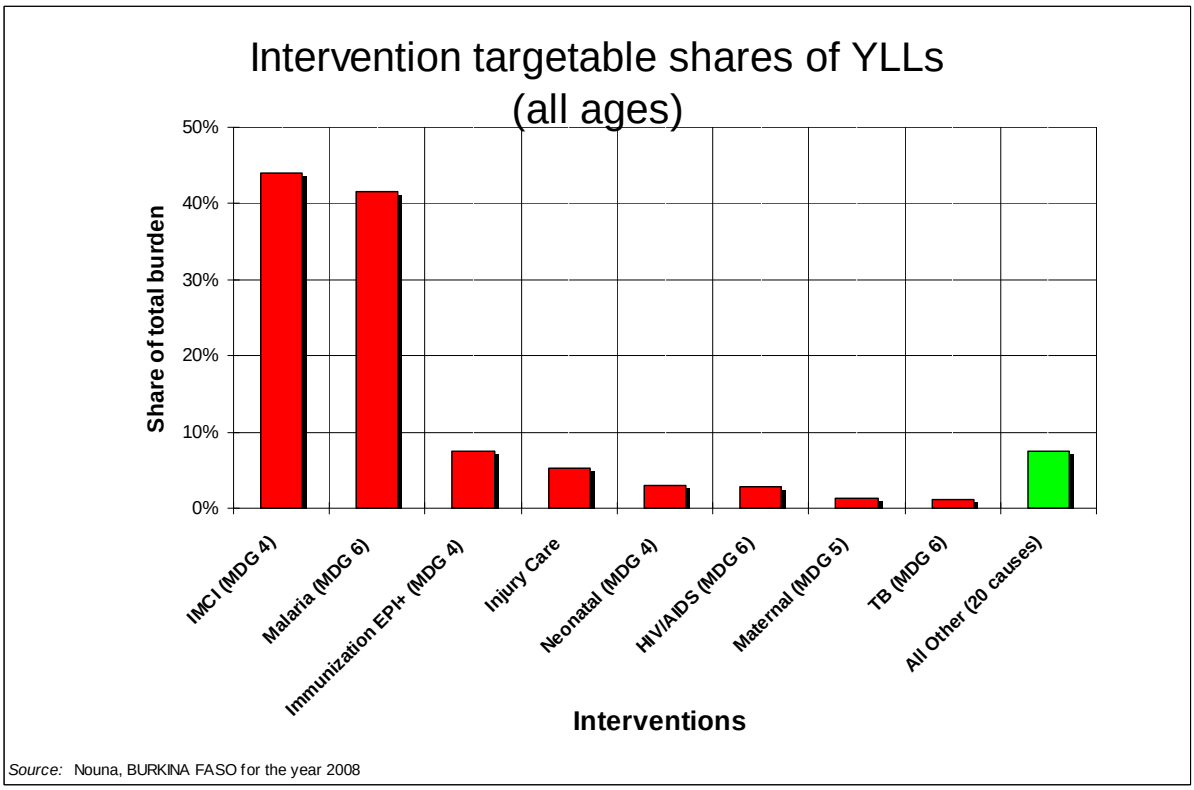
BURKINA FASO

Ministry of Health

DISTRICT HEALTH PROFILE 2008

A Chart Book of Selected Health and Demographic indicators



Source: Nouna, BURKINA FASO for the year 2008

Health Information for District Health Management Teams 2008
District Health 2008 and 2008 Planning Cycle

- For District in Nouna -
Boucle du Mouhoun Region

Based on the Nouna Sentinel Demographic Surveillance System

Data Source:	Nouna Demographic Surveillance System data from 2008 Burkina Faso Ministry of Health: HMIS National Sentinel Surveillance System (NSS)
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DISTRICT HEALTH PROFILE – 2008
NOUNA DISTRICT

Sentinel District Information for Rural Districts of Boucle du Mouhoun Region

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DISTRICT HEALTH PROFILE 2008

HDSS Sentinel District Information for District of Boucle du Mouhoun Region

Part 1: Introduction

The purpose of this document is to simplify, package, and communicate compile Nouna information on vital statistics and the local burden of disease in a practical, accessible format for district health planning. It is intended for use by District Health Management Teams who serve several million people in rural district of Nouna in the Boucle du Mouhoun Region and other parts of BURKINA FASO having socio-economic, cultural, and ecologic circumstances broadly similar to those of the rural sentinel HDSS district. This information should be considered as part of the situation analysis for the annual District Health Planning cycle. All information is provided in a graphical format with short explanatory captions and minimum text to provide "pictures" of the current demography and disease burden.

The data source is the BURKINA FASO Ministry of Health's National Sentinel Surveillance System (NSS). The specific data in this profile comes from the Sentinel Health and Demographic Surveillance System located in Nouna District for the year 2008. This sentinel profile provides over 1000 health facilities and demographic statistics and is updated annually. In the 2008, the Nouna Health and Demographic Surveillance System monitored a population recording Nouna person-years lived in Nouna households. This sample is very much larger than the DHS and other national household surveys. In the 2008, the system documented Nouna, births and Nouna deaths, including the causes, rates and trends of these deaths.

Health reforms in BURKINA FASO expect Districts to go beyond just managing diseases, to managing health systems from a perspective of health equity. It is difficult for health systems to target the poor accurately. However in all societies, the poor carry the heaviest burden of disease and it is possible to target major components of the Burden of Disease (BOD), thus increasing 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, 78% of the burden[1] 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 cause-specific mortality burden as a guide to setting priorities. Since most mortality occurs at home or outside of health facilities, we cannot rely entirely on health facility-based Health Management Information Systems' attendance data for information on the burden experienced by communities and households. Instead we can use household derived demographic surveillance data from the National Sentinel Surveillance System for understanding the current burden and its trends in various parts of the BURKINA FASO.

In **Part 2** of this document we convert current remaining 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; perinatal, maternal, nutritional; external; etc.)
- Broad population groups (e.g. under-fives, adults, and women of child-bearing age);
- Cost-effective interventions available to DHMTs and rural district health services;
- Individual conditions addressed by 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, and by place of birth or death.

In **Part 4** we provide a demographic breakdown of the sentinel population structure by age, sex, current fertility and age specific mortality rates. These are applied to the current district populations to predict the numbers of births, infants, under-fives, pregnancies, and deaths to be expected at district level in the next planning 2009.

In **Part 5** we provide a one-page summary and conclusions, as well as contacts for further information on the NSS and the Nouna HDSS.

Part 2: Intervention Addressable Burden of Disease Graphics

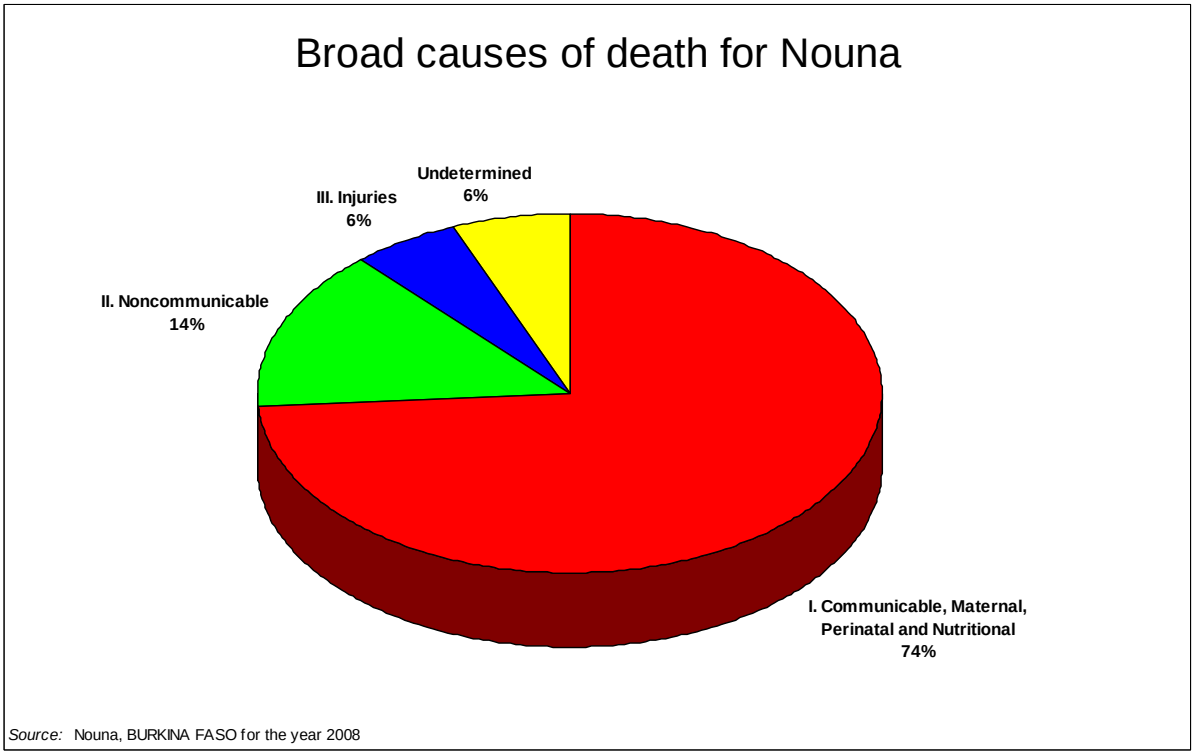

Figure 1. Broad Causes of the Burden of Disease in 2008

In Figure 1 above, the total burden of disease in the Nouna district is divided into three broad groups of causes. Group I (red) contains all communicable, maternal, perinatal and nutritional causes. In the district, these account for 74% of the total burden. Group II (green) represents the non-communicable diseases and accounts for 14% of the total burden. Group III (blue) is all external causes such as injuries and contains about 6% of the burden. The remaining 6% 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 Boucle du Mouhoun region of BURKINA FASO and that there is a large unfinished agenda of preventable conditions to address. The Mouhoun 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 BURKINA FASO.

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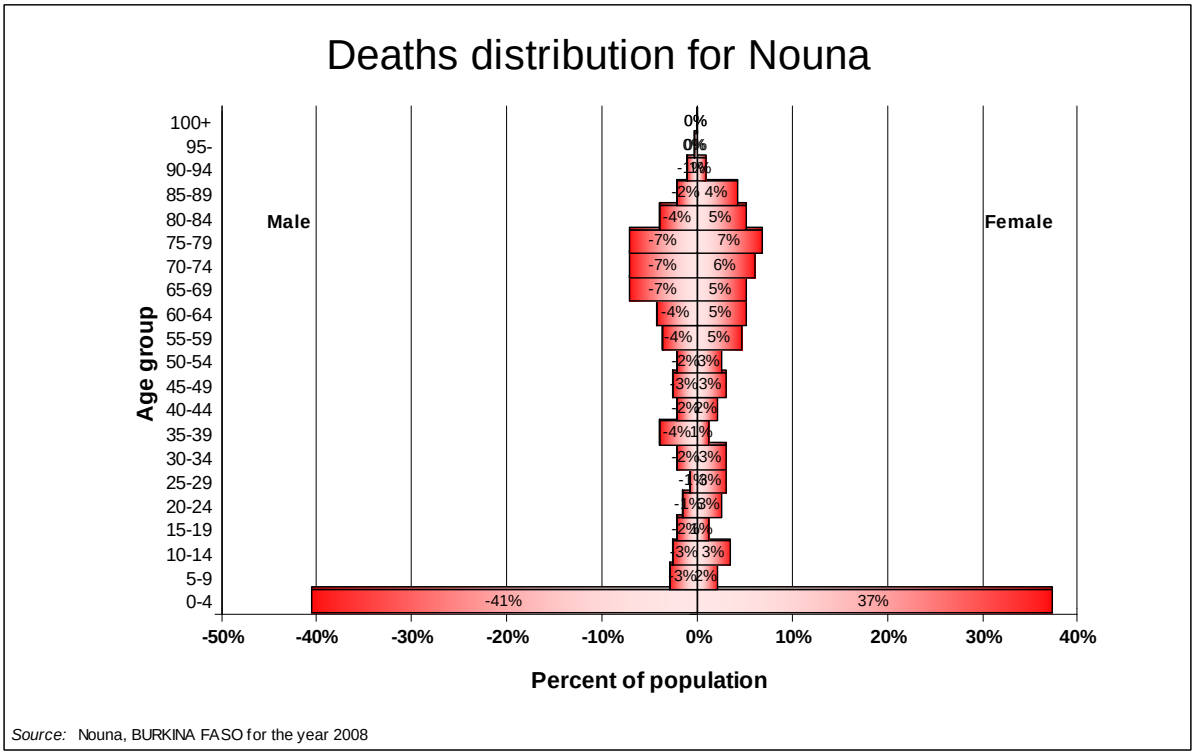

Figure 2. Mortality by Age Group

Figure 2 above shows that much of the total population's mortality is still experienced during the first five years of life. This is due to preventable child illnesses. HIV/AIDS, TB and maternal mortality if they do not provoke any specific peak, still remain a major cause of death in young adults.

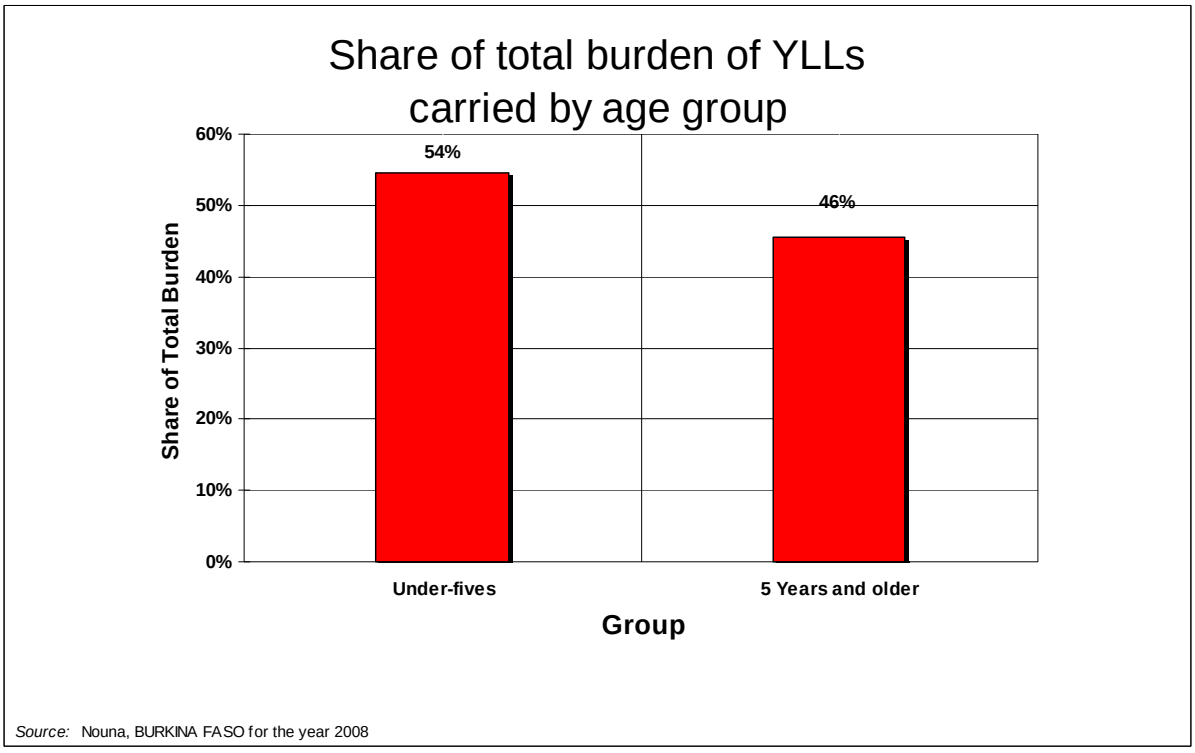

Figure 3. Per Capita Mortality Risk by Age Group

Both Figures 2 and 3 illustrate the disproportionately high risk of disease burden carried by children. Figure 3 shows the relative burden of disease (risk) on a *per capita* basis for each of the three categories. This graph adjusts for the fact that age categories are unequal in size. The under-fives represent a 5 years age class and contains only 17.88% of the population, yet carry about 54% of the mortality (YLL) burden. The 5 years and older age group spans over 80 years and includes 83% of the population but carries only 46% of the burden. Included in this group is the maternal age group that spans 35 years and includes 21% of the total population and suffers a loss of 1.8% of total life

years due to maternal mortality. Under-five mortality clearly demands high priority. (Maternal mortality is also part of the 5-year and older mortality).

Figure 4. Top 20 Diseases Across all Ages

This graph displays the top 20 conditions contributing to the burden of disease in terms of lost disability adjusted life years (DALYs) in 2008 in the sentinel population. Malaria mortality, pneumonia, meningitis diseases and diarrhea disease dominate, followed by a variety of peri-natal, neonatal and under-five problems such as malnutrition congestive cardiac failure, injury, still birth. HIV/AIDS related burden rank 12th due to the low prevalence of HIV in the country . Most of the top causes occur in children under five. The main causes of the under five mortality are therefore shown below.

Figure 5. Main Causes of Death in Children Under Five.

Given the high burden of preventable mortality in children under-five, we show here the proportions for the main causes of death across this age group. Malaria dominates (63%), followed diarrhea diseases which still account for 8% and by conditions in the perinatal and neonatal period. HIV/AIDS and measles are now well controlled and at relatively low proportion. Interventions for neonatal, child and maternal causes are critical. To address this largely preventable burden it is difficult to plan health services from a disease-by-disease perspective. Strategies and packages that integrate across causes and age groups are more effective to manage and prioritize. The remainder of this profile focuses on such intervention strategies rather than individual diseases. These interventions are described in the following graphics.

Figure 6. 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 99% of the 2008 remaining disease burden is amenable to health care and addressable by cost-effective interventions available through District Heath Plans. As new cost-effective interventions become available for the non-addressed 1% of the burden, these can eventually be considered for inclusion in the National Package of Essential Health Interventions for rural districts.

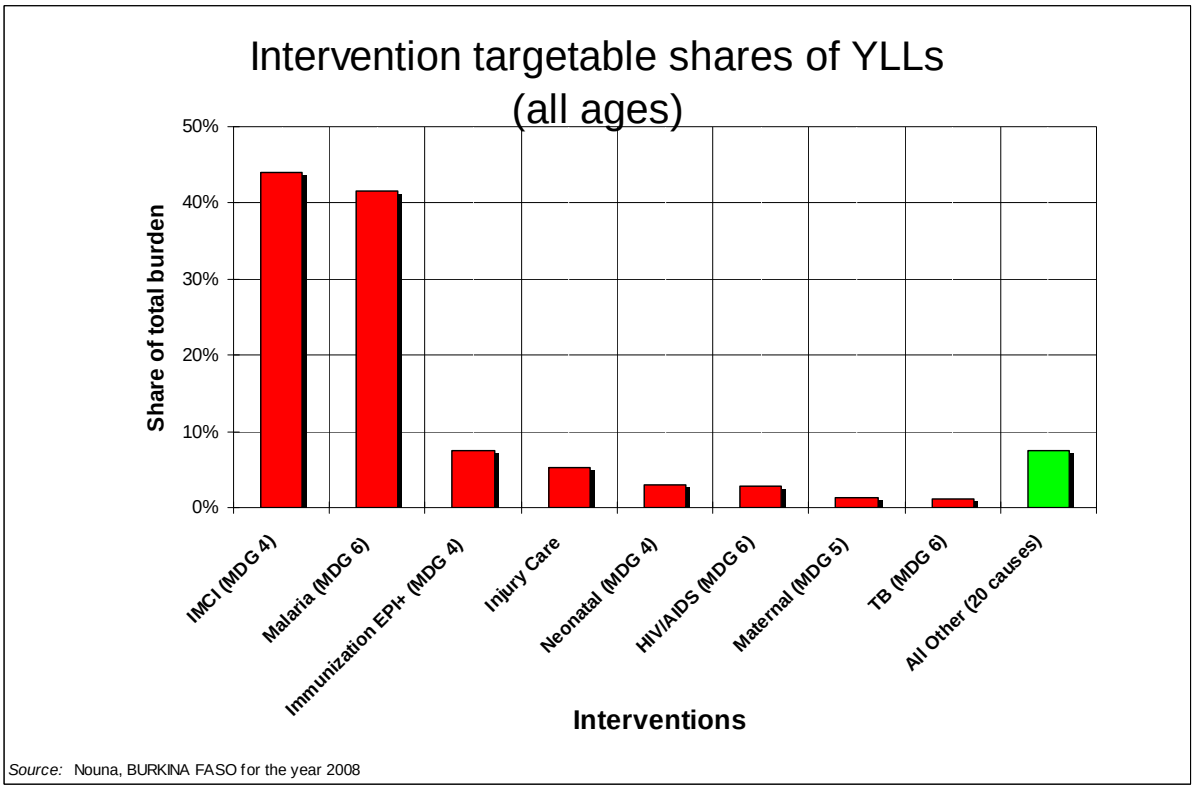

Figure 7. Intervention Addressable Shares of the Burden of Disease

The above graph shows how much of the total burden of disease is addressed by each individual cost-effective essential health intervention strategy currently available at District level. This core package includes nine groups of interventions and strategies, each of which are considered cost-

effective and address at least 2% of the burden of disease. Together these represent a minimum package for such districts and include: **Integrated Management of Childhood Illnesses (IMCI) including new interventions for neonatal mortality; Malaria case management with artemisinin combination therapy (ACT), plus insecticide treated nets (ITNs) or indoor residual spraying (IRS), and intermittent preventive therapy (IPTp) for prevention of malaria; HIV/AIDS by antiretroviral therapy (ART), voluntary counseling and testing (VCT), prevention of mother-to-child transmission (PMTCT), STD syndromic management and Integrated Management of Adolescent and Adult Illness (IMAI); Essential Drugs Program (EDP); Immunization (EPI+); TB DOTS; Injury Care; and Safe Motherhood Initiatives (SMI) for maternal mortality**. Eight of these nine groups directly address Millennium Development Goals for health (MDG 4 Child Mortality; MDG 5 Maternal Mortality; MDG 6 HIV/AIDS, TB and Malaria). Since some diseases are addressed by more than one intervention package, these shares add to more than 100%. The category labeled *All Other* (8%) is all remaining disease burden not yet addressable by any of the listed cost-effective essential health interventions (see below).

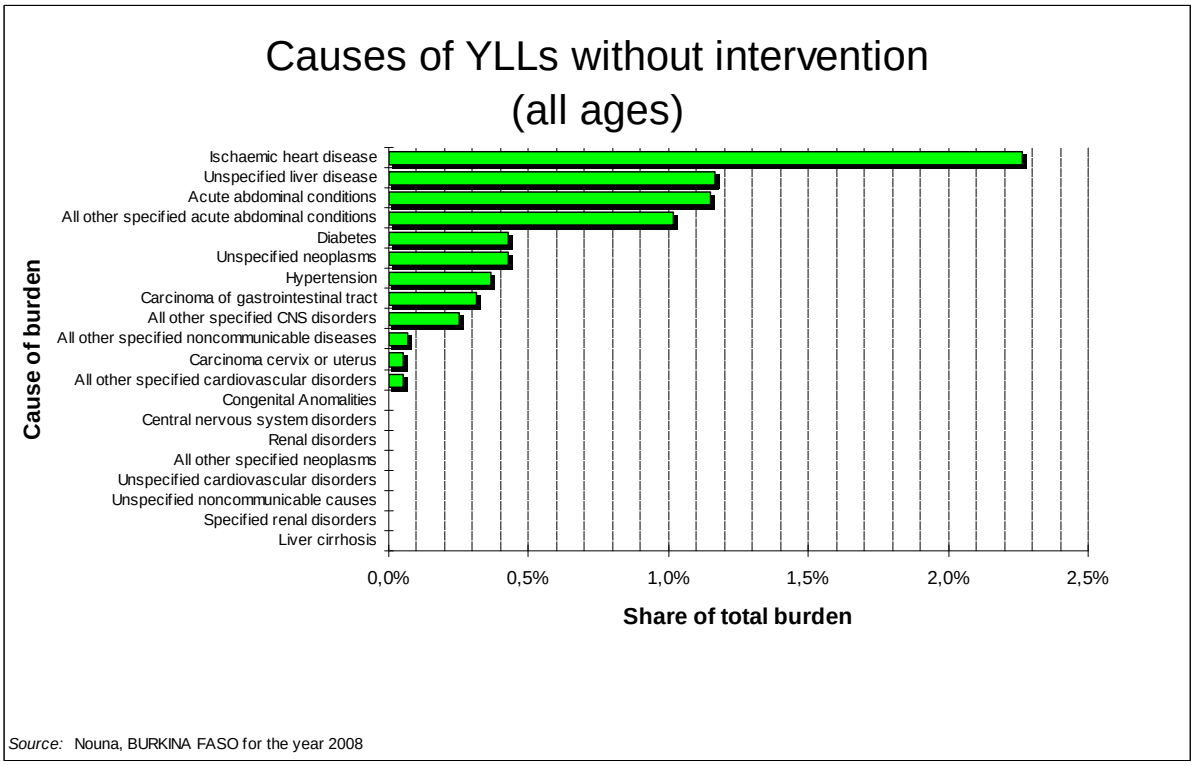

Figure 8. Causes without Cost-Effective District Intervention

There are 12 causes of death that make up the 8% share that is currently not yet addressable by cost-effective essential health interventions at rural level. 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 without high opportunity costs.

Figure 9. Integrated Management of Childhood Illness (IMCI) Addressable Conditions

Children under the age of five carry the highest per capita share of the total burden. The above graph shows that if **Integrated Management of Childhood Illness (IMCI)**, an integrated, cost-effective essential health strategy targeted to under-fives, was the only intervention offered, it would address almost three quarter of the total population burden of disease. No other single intervention addresses such a large portion of the remaining burden of disease, thus this package merits intensive support to reach high levels of coverage. Strengthening this package with more interventions for neonatal mortality in the first month of life (IMNCI) would increase its importance even further. The above graph illustrates the relative contribution of the individual component conditions addressed by IMCI. Acute febrile illness including malaria constitutes about 73% of the under-five burden and emphasizes the importance of providing efficacious preventive and curative interventions for malaria. The transition from chloroquine to ACT improves the effectiveness of IMCI.

Figure 10. Malaria and Acute Febrile Illness Addressable Conditions

41,5% of the total burden of disease of the population is driven by acute febrile illness, predominantly malaria. Of this, about 74% is suffered by children under-five (also counted in IMCI). The other important risk group is pregnant women. Women 15-49 are 3% of the population and carry about 4% of the malaria burden. This risk increases during pregnancy. This illustrates the importance of prompt and effective **Malaria Case Management with ACT** according to the new National Guidelines, and preventive interventions such as **Insecticide Treated Nets (ITNs)**, especially for mothers and young children via the BURKINA FASO National Voucher Scheme, and **Intermittent Preventive Treatment (IPT)** with SP at antenatal care during pregnancy, and safe motherhood running in the district hospital.

Figure 11. Sexually Transmitted Infection (STI) Addressable Conditions

Sexually Transmitted Infections (STIs), including HIV/AIDS, constitute about 3% of the total disease burden in 2008 (up from 14% in 1999). They are the third largest addressable component of the burden of disease. HIV/AIDS is a major component of the mortality due to STIs, either directly or indirectly through increasing the risk of TB. Other major contributors are stillbirths (mainly associated with syphilis), low birth weight, and maternal conditions (possibly associated with chlamydia and gonorrhoea). STIs can be partially addressed by carefully selected **Reproductive Health** and **Integrated Management of Adolescent and Adult Illness (IMAI)** interventions such as **Antiretroviral Therapy (ART), Prevention of Mother-to-Child Transmission of HIV (PMTCT), Voluntary Testing and Counseling (VCT), Condom Promotion, STD Syndromic Management, RPR Screening in Pregnancy, Family Planning, Strengthening Blood Transfusion Safety, School Health and Youth Interventions, Safe Motherhood Initiatives,** etc**.**

Figure 12. Perinatal Addressable Conditions

The above graph shows perinatal mortality. Stillbirths are the largest share, followed by birth injury or asphyxia, prematurity. Stillbirths can be partially addressed by **RPR Screening for Syphilis** during pregnancy. Neonatal tetanus was not observed, suggesting that **EPI** is performing well. Birth injury, asphyxia, and stillbirth demands more attention on **quality obstetrical care**. Low birth weight demands further attention on both **maternal nutrition** and on malaria prevention in pregnancy (**IPTp**). This graph illustrates the growing importance for dealing with neonatal mortality. The expect is that startup the IMCI will make such good by reducing post neonatal under five mortality now that IMCI has made such good progress in reducing post-neonatal under-five mortality.

Figure 13. Maternal Addressable Conditions

Although the relative burden due to maternal morbidity and mortality appears comparatively low, it must be appreciated that this is concentrated in the 21% of the population who are female between the ages of 15 and 45. Furthermore, if morbidity is added, this burden almost doubles (see figure 27). Maternal morbidity and mortality therefore deserve higher priority than this burden share suggests and it is an imperative to address. The above graph shows the causes for the more than 1.3% of total burden due to maternal mortality. These are usually eclampsia, haemorrhage, sepsis, and obstructed labour. Malaria, anemia and HIV/AIDS are also important indirect causes of this burden. These causes can be addressed by a priority package for **Emergency Obstetric Care (EmOC) and Skilled Birth Attendance** including essential obstetric drugs (e.g. oxytocins), equipment (e.g. resuscitation), supplies (e.g. oxygen and blood), post-abortion care, access, referral, quality assurance and training. Other key packages are: **Family Planning** (spacing, men as partners, youth friendly services, treatment of unwanted pregnancies); and **Antenatal Care and Birth Preparedness** (ITNs, IPTp, nutrition, maternal anemia, STD syndromic management, and post delivery care).

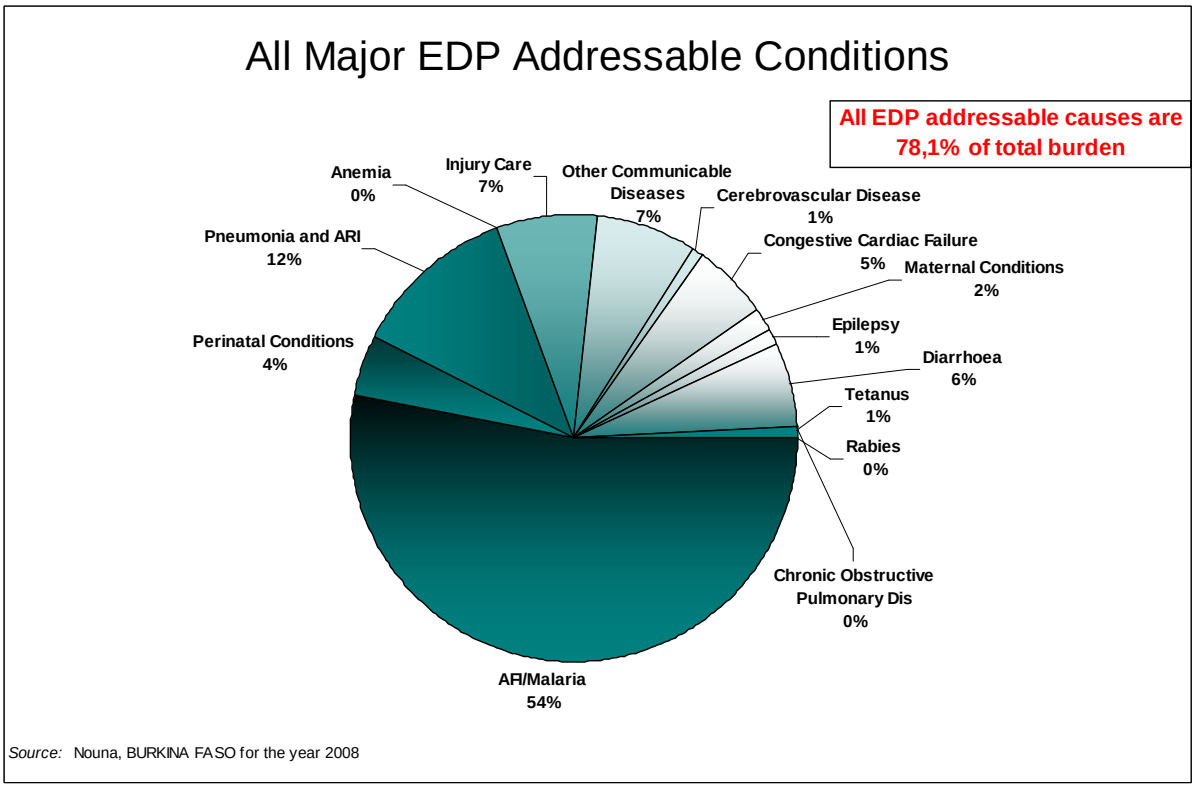

Figure 14. Essential Drug Program (EDP Lists for Kit or Indent) Addressable Conditions

Here we show the graph for essential drug lists to emphasize the profound importance of maintaining adequate supplies. The EDP list for BURKINA FASO has been well designed for the existing burden of disease and addresses 78.1% of the total burden (top graph). Most essential drugs are delivered through essential health interventions already listed in this document, but some have no specific package. This remainder of the EDP kit contains drugs and materials useful for additional care aimed at morbidity reduction and mortality. These additional causes amount to about 8% of the total burden of disease and include diarrhoea, pneumonia and ARI in people five years and older as well as a number of **neglected communicable and non-communicable diseases** such has **helminthic infections, epilepsy, hypertension and cardiovascular conditions.** These considerations are important to bear in mind for those districts converting to the Indent System for essential drugs.

Figure 15. Expanded Program on Immunization Plus (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 8.6% of the total burden. Remaining causes are diarrhea, pertussis and ARI, tetanus and hepatitis; however TB is rising due to HIV. This illustrates the importance of maintaining **EPI+** at high coverage and supporting additional interventions for pertussis and ARI, measles (e.g. **IMCI**), Tetanus (e.g. **SMI**), TB (e.g. **TB DOTS**) and **EPI+ with Vitamin A Supplementation** for diarrhea and measles mortality reduction in under-fives.

Figure 16. TB Directly Observed Treatment – Short Course (TB DOTS) addressable conditions

TB accounts for about 1,1% of the burden of disease in 2008 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 **TB DOTS** and **STD Syndromic Management** as well as maintaining high **BCG** immunization coverage in newborns.

Figure 17. Injury Care Addressable Conditions

The above graph illustrates the relatively low (5.3%) but important burden of disease that can be addressed through life-saving interventions for 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 **Inter-sectoral Interventions**, e.g. to address the rising 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. Few cases of drowning have been reported in artificial pits after road construction in the district. Accordingly **School** Health Programs should consider rescue, first aid, and swimming instruction at primary school level. There were also several fatal animal attacks in the HDSS area in this year 2009. Previous years have shown snakebite mortality. Adapted and adequate stocks of anti-venom should be kept available and affordable at dispensaries. In districts where suicide or homicide are occurring, health planners may need to consider mental health interventions.

Part 3. Summary and Conclusions

Selecting from the National Package of Essential Health Interventions. This health profile from a typical rural district in BURKINA FASO demonstrates the importance of investing in a core group of Minimum Essential Health Interventions and encouraging service uptake, especially for the poor. For such rural districts, these include:

- **IMCI** (Integrated Management of Childhood Illnesses) and neonatal interventions for under fives);
- **Malaria Case Management** (using ACT in the new National Guidelines);
- **IPTp** (Intermittent Preventive Therapy) for malaria control in pregnancy);
- **ITNs** (Insecticide Treated Nets) for malaria prevention for all, especially children and mothers);
- **IRS** (Indoor residual spraying, where appropriate in highly seasonal transmission settings);
- **ART, PMTCT and other HIV/AIDS and STI Control** (Antiretroviral Therapy; Prevention of Mother-to-Child Transmission of HIV; Voluntary testing and Counseling; Sexually Transmitted Infection Syndromic Management; condom promotion, strengthening Blood Transfusion Services, School Health Education and Youth; Interventions for in-school and out-of-school youths, Sex Worker Interventions, etc.);
- **SMI** (Safe Motherhood Initiative including ante and postnatal care, IPT as above, delivery care, family planning, etc.)
- **EDP** (Essential Drugs Program) kits or Indent;
- **EPI Plus** (Expanded Program on Immunization with Vitamin A Supplementation);
- **TB DOTS** (Tuberculosis Directly Observed Therapy)
- **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,** deworming campaign, meningitis vaccination campaign etc) available in the district, these should also be considered as essential health interventions and deserve high priority, along with the interventions listed above.

It must be stressed that the burden of disease reflected in this profile is the burden remaining in the face of the current health system and interventions at their current levels of coverage. Where coverage of preventive interventions is high (such as with EPI) the remaining burden is low. Such interventions must be maintained at high coverage. Where other intervention coverages are low, such as interventions for HIV/TB in sexually marginalized groups, the remaining burden is still high. This illustrates the importance of using any new funding (e.g. Council Health Basket Grants) for such purposes, rather than redirecting funding from previously successful preventive

Potential Gains. Collectively, these essential interventions will address about 93% of the total burden of disease of the population. If coverage of these nine 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, or investing in less cost-effective interventions that target these high-burden conditions, will have only marginal impact on the overall burden of disease and will dilute and distract human and fiscal resources from more cost-effective interventions. In most cases, this will also divert resources away from the interventions that primarily benefit the poor and neediest and towards those that primarily benefit the relatively better-off members of the community. In other words, such investment decisions will usually be inequitable as well as inefficient.

Recent Trends. In Nouna Health District, coverage of EPI and IMCI is high, while coverage of ITNs is moderate but increasing. Health services are improving due to judicious use of health basket funding. Mortality in children is falling. Between 1999 and 2008 there was a 34% reduction in all-cause under-five mortality and a 43% reduction in infant mortality. Coverage of interventions for adults is unknown and is probably low for ART, PMTCT, STI Syndromic Management and TB DOTS. The burden of disease from HIV and TB is decreasing but remains high in sexually marginalized groups (men having sex with men). This has retarded some of the health gains; nevertheless, the net effect of improved services is that adult mortality has declined 10% over the past six years. The overall burden of disease for the whole population has declined by about 29% (from 333 YLLs per 1000 person years observed in 1999 to 238 YLLs per 1000 person years observed in 2008). As a consequence, life expectancy is increasing (53.0 years in 1999; 61.8 years in 2008). It should be noted that although child mortality is declining, it is still unacceptably high and is 20 times higher than maternal mortality, even though maternal mortality is also unacceptably high. It is increasingly likely that the decline in mortality is due to health system interventions although it may also be due to the variation in mortality risks moderated by climate, food security, or other socio-economic determinants. These figures will be compared with other HDSS sites, and will be followed annually over time to build up a stronger picture of trends. 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 4: Links for Further Information

For further information on this District Health Profile, contact:

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Attn:

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

HEALTH MANAGEMENT INFORMATION SYSTEM
Nouna District Medical Officer
Dr Brice Wilfried Bicaba
Po Box 34
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Tel: 00226 20 53 70 20 bicaba_brico@yahoo.fr

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

Reference

Or contact:

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Comments

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End Notes:

[1] Since premature mortality represents about 78% of the expected burden of disease in Burkina Faso as estimated by the WHO Global Burden of Disease estimates of Burkina Faso's Disability Adjusted Life 2008 (DALY), the District Health 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 (3%). Cause specific mortality and associated YLLs are generated through longitudinal demographic surveillance in Nouna District using the HRS Household Registration System and the NSS/AMMP verbal autopsy classification. The graphic on the front cover shows actual YLLs, and modeled YLDs to estimate the total intervention addressable DALYs. YLDs are modeled from the WHO 2002 YLL:YLD ratio for Africa E countries with very high child and very high adult mortality. It shows that adding disability does not change the intervention priorities as determined by YLLs alone.

[2]The next annual District Health Intervention Profile for the 2009 will be available soon. The Nouna HDSS is a member of the **INDEPTH Network of Demographic Surveillance Systems.**

[3]The Burkina Faso HDSS is funded in part by grants from the donors and work in collaboration with the Burkina Faso Ministry of Health. Nouna gratefully acknowledge the staff of the Nouna HDSS and the verbal autopsy coders for their efforts in producing the data on which this profile is based.

Visit: www.indepth-network.net for the INDEPTH Network
Visit: www.crsn-nouna.bf for the HDSS Host Institution

[4]**Poverty Monitoring.** The Health and Demographic Surveillance Systems in Burkina Faso can also report all indicators disaggregated by socio-economic status in order to determine both access to health services, and health outcomes of the poorest quintile in comparison to the rest of the population. Such results are specific to the setting in which they are collected and are therefore not included in this profile. Contact Nouna for specific reports on health inequalities as determined by HDSS.