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Epidemiological study on mortality patterns and trends in a malaria endemic area of Burkina Faso, West Africa

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Descriptive epidemiological studies play an important role in medical research. Information on mortality patterns are helpful for the evaluation of health politics, identification of health hazards, planning of public health activities, and for many other needs. Such studies are very valuable especially in those countries in Sub-Saharan Africa (SSA), where few epidemiological and demographic data exists. This study enhances the knowledge on mortality in Burkina Faso and underlines a general relevance of demographic surveillance systems (DSSs) in rural Africa. The DSSs are a means for collecting valid data on Africa's rural populations. Since many such systems are established in Africa, new sets of data with reliable estimates are published on African populations. They are replacing the mere guess estimates which have until now been characteristic of international publications concerning African populations.

Findings of this current study are based on the study area of the Nouna DSS run by the "Centre de Recherche en Santé de Nouna" (CRSN) of rural Burkina Faso, where a population of currently more than 60 000 persons is under constant demographic surveillance. The advantage of the study is the long observation period of 11 years, using data of the Nouna DSS from 1.1.1993 until 31.12.2003. This is the first study to report cause-specific mortality separated for the age groups infants, childhood, youths, adults, and older people from a malaria endemic area of SSA, based on verbal autopsy (VA) methodology used within DSS populations. The following main results were found:

1. The most frequent cause of death in all age groups was malaria, except for adults; here HIV/AIDS has become a leading cause of mortality.
2. For children less than five years mortality rates were significantly higher in the rainy season. The observed excess mortality in young children at or around the end of the rainy season can be explained by the effects of malaria during this time period.
3. In contrast, the excess mortality seen in older people during the early dry season remains largely unexplained, just as well as the high impact on malaria in this age group.
4. Other causes of death than malaria show higher mortality in the dry season both for younger children and for older people.
5. This analysis supports the seasonal trends in mortality. They were described by detailed analytical methods; the seasonal pattern fits well parametrically with a sinusoidal function.

The results will help to improve quality of data reporting and ultimately the health of the population. These clear patterns in cause-specific mortality could potentially be used to guide targeted health-related interventions. Despite limitations, verbal autopsies are the only way to study causes of deaths in rural SSA and have consequently been applied in several other studies. The VA questionnaire used here is consistent in itself and one can assume reasonable estimates.

There is still an urgent need to help young children living in malaria high transmission areas of SSA by reinforcement the existing effective malaria control tools such as insecticide-treated bed nets (ITN) and to make artemisinin-based combination therapy (ACT) affordable for people living in Burkina Faso. Future analysis is needed to bring more light to mortality patterns of other causes than malaria, both, for children and adults, taking differences in rural and urban areas into account.