
paper presented to

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Introduction

It is now well known that many countries in Africa lack high quality data for conducting a rational evaluation of policies and programmes for health improvement. Premature adult mortality in developing countries continues to be a large and neglected problem. Little has been known about the causes of adult death in most developing countries especially those of sub-Saharan Africa. Yet the death of adults has severe consequences for families, dependants and the community. Improved knowledge is thus of great potential value for health policy, allocation of resources, and formulation of intervention strategies. Demographic trends increase the absolute and relative importance of adults and their health problems. In sub-Saharan Africa 49% of the population is adult, and by 2015 the number of adults will increase 160% (Feacham et al. 1992). Tanzania’s concept of Health Sector Reform is rooted in a decentralised system and an evidence-based approach. Thus there is a clear need for accurate sources of data for health planning and policy at the district level. This paper discusses the achievements of one effort to provide such information, and to link findings to policy.

According to Jamison and Jardel (1994:v), the four sources of data required for a reasoned appraisal of health interventions and packages are:

1. a detailed and reliable assessment of demographic conditions and the burden of disease;
2. a complete inventory of available resources for health;
3. an assessment of the institutional and policy environment; and
4. information about the cost-effectiveness of available techniques and strategies for improving health.

In 1992 the Adult Morbidity and Mortality Project (AMMP) of the United Republic of Tanzania’s Ministry of Health began to address the first of these informational needs. AMMP undertook prospective monitoring of all cause mortality at a district level among a population of 300,000
people in three areas of Tanzania: a poor rural district, a wealthy rural district, and a densely populated urban location (Table 1). Between 1992 and 1995 the project recorded information on more than 14,000 deaths (Table 2). Results and methods from the project’s first phase (AMMP-1) have been published elsewhere and will not be discussed in detail here (see e.g. Ministry of Health and AMMP Team 1997 and Kitange et al. 1996). Instead, our presentation will concentrate on the ‘process of translating results into policy for implementation.’ We will also discuss the importance of the project’s population- and district-based approaches in the context of Health Sector Reform in Tanzania, and how AMMP’s work has begun to be taken up by policy makers. Finally, we shall discuss the policy and health service-related directions for AMMP’s second phase, which will commence in 1998.

**AMMP in the context of Health Sector Reform**

It is important to view AMMP in the wider context of the policy environment and health trends in sub-Saharan Africa and in Tanzania, in specific. In the 1980s structural adjustment programs (SAPs) forced many developing countries to re-examine the role of the state in the provision of basic social services, including health care (Sikosana et al. 1997:11). Decentralisation of service provision and planing to the district level emerged early on as a hallmark theme of this move toward health sector reform. At the same time, the need to approach this reform from an evidence-based perspective was brought home through efforts to quantify the global burden of disease and to introduce rational measures by which health priorities could be established. The paucity of data for conducting such exercises in sub-Saharan Africa became ever clearer, and some specific information needs for evidence-based Health Sector Reform were set out at an inter-country meeting hosted by Tanzania in 1995. At the same time, it was becoming apparent that many health status indicators in Africa were declining during the 1980s and 90s. This was true despite the fact that the era of the SAP did not always entail cuts to public health

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1 AMMP is a bilateral development assistance project of the governments of Tanzania and the United Kingdom, implemented by the University of Newcastle upon Tyne and funded by the Department for International Development of the United Kingdom.
expenditures, (Sahn & Bernier 1995). Thus AMMP began to operate at a time when policy makers were becoming more aware of the importance of the community-based information it could generate about all cause mortality and the use of health services before death.  

AMMP is based upon a demographic surveillance system (DSS) that entails the maintenance of a minimal census and the prospective monitoring of mortality at a district level. In each of three locations, approximately 100,000 individuals in 20,000 households have been enumerated in annual and semi-annual censuses. Incident deaths are reported through a network of key informants, and Verbal Autopsy Supervisors conduct interviews with the carers of the deceased. In most cases the recall period is less than four weeks. Cause of death is determined by broad and specific cause by a team of physicians who code the verbal autopsy forms.

It is also worth noting that while the first phase of AMMP-1 was primarily concerned with adult health we have collected data on all deaths including those occurring among children. In order to generate a complete picture of the Burden of Disease, all deaths from all causes at all ages must be enumerated. During repeat censuses all births, deaths, and movements in and out of each household are recorded in order to maintain an accurate population denominator. Childhood deaths are therefore automatically recorded. Project areas include many villages where Child Survival and Development (CSPD) Programmes are currently in operation. AMMP’s community-based data can thus be important to provide for monitoring and evaluation.

The AMMP-1 DSS has not been designed for pure research, but as the basis for a routine policy tool. The system has been specifically designed with an eye toward affordability and

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2 In brief, the objectives of AMMP-1 were as follows:
1. To define the causes and rates of mortality in rural and urban communities in Tanzania.
2. To define the causes, prevalence and incidence of illness in adults (and children).
3. To define biological, social, economic and environmental determinants of ill-health and death which will assist in the identification of vulnerable groups.
4. To assess the impact of the existing health care system on health problems faced by adults.
5. To assess the social and economic consequences of these illnesses, by estimation of their direct and indirect (medical and non-medical) costs.
6. To test and implement cost-effective interventions which will reduce the burden of disability in the adult workforce and which will, in turn, lead to improved economic and domestic productivity and individual and household well-being.
7. To strengthen existing disease interventions in primary health care.
8. To provide data which may assist the Ministry of Health in establishing and setting priorities for cost-effective methods of health care delivery to adults.
9. To provide information which may assist officials concerned with the formulation of social policy.
sustainability—to obtain high quality data for policy and planning at a low cost.\textsuperscript{3} To our knowledge all other DSS’s in sub-Saharan Africa are primarily research, not policy, undertakings (LSHTM/University of Witwatersrand 1997), and are usually linked to the impact assessment or evaluation of a particular health intervention. Although AMMP has sometimes been perceived as a research project, its links to the Ministry at the central and district level, and its reliance on government health workers to carry out its functions place it in an excellent position to maximise the policy impact of its findings.

**Policy Implications and Uses of AMMP-1**

Because AMMP was set up with one base in the Department of Preventive Services in the Ministry of Health, it had the ear of policy makers from the outset. Senior ministry personnel, donor agencies, partner projects, and regional and district primary health care committees were apprised of the early findings of AMMP-1 during mid-term workshops and through the release of a preliminary report. At the district level, the project relied upon District Medical Officers (DMOs) for oversight. DMOs, District Health Management Teams (DHMTs) and Health Boards (DHBs) are the linchpins in Tanzania’s health sector reform plans. Thus, their participation has been vital to the success of the first phase. Although the first priority has been to release and distribute the final report, AMMP will now concentrate on feeding results and information for planning back to the district level.

The final report focussed on policy implications and was presented in draft form to a meeting that included the Permanent Secretary, Chief Medical Officer, and all Ministry of Health Department Heads. In its final version the report was published under the ministry’s seal and was presented at a major dissemination event attended by senior ministry officials, representatives from the academic and research communities, donors, NGOs, and delegates from the regions and districts where the project was conducted. These parties were very receptive to the idea that the data provided by AMMP should form a part of a basis for health

\textsuperscript{3} The project estimates that the recurrent costs of surveillance are in the range of US$0.50 per capita per year.
planning and service provision decisions. The first policy implication of AMMP-1, then, has been to enable the Tanzanian Ministry of Health to rely on real burden of disease data, rather than upon model-based estimates available from other sources (Murray & Lopez 1996a; Murray & Lopez 1996b). While AMMP-1 has been able to help establish the size of burden caused by particular diseases, injuries and risk factors, the cost effectiveness of interventions to deal with them will be a focus of AMMP-2.

Another basic implication of the AMMP-1 findings stems from the significant variation in epidemiological profiles among the three districts under surveillance. Given that health sector reform in Tanzania is based on decentralisation of planning and service provision to the district level, this finding is of particular importance. The establishment of a nationally representative sentinel district system to accurately reflect this diversity will be a major output of the second phase. This will allow each district in the country to tailor plans and packages to a best-guess estimate of local conditions. The third overriding policy-related finding pertains to the great number of deaths that take place outside of health facilities and that take place without any contact with health services before the terminal event.

Although AMMP results were only released in August of last year, they are already having an impact on national health policy and district health planning. The policy uses of AMMP data recorded from August 1997 and January 1998 are summarised in Table 3. First phase results have been incorporated into the District Health Plans of Morogoro Rural and Temeke (Dar es Salaam), and have formed the basis of a policy briefing to Cabinet. This single data source has begun to influence health matters from patient perceptions of quality of care at urban service delivery points, to district health budgets, and national legislation.

**Future Directions for AMMP**

In its second phase (AMMP-2), AMMP will be assisting the ministry and the districts to realise more fully the policy implications of the data gathered to date. We shall accomplish this through a number of dissemination activities, by building DHMT capacity to integrate burden of disease
data into planning, and by assisting in the establishment of health boards in two of the AMMP areas. We will also provide DHMTs with a computerised burden of disease analysis tool that will allow them to conduct their own analyses of local conditions. Ultimately the project seeks to strengthen evidence-based planning and development of cost-effective health services in project districts and MoH. This is to be accomplished within the context of health sector reform. As an integral part of the ministry, AMMP-2 also represents a move toward the capacity building necessary for the ‘sector-wide approach’ to health development supported by donors such as DFID.

The establishment of a nationally representative sentinel district system within the Ministry of Health’s Policy and Planning Division is a primary objective of AMMP-2. This system will be integrated with the existing facility-based Health Management Information System to become the major source of data for policy making available at the central and district levels. The AMMP component of the system will be based on a DSS/verbal autopsy system streamlined for sustainability and optimum data quality at lowest cost per surveillance district. A planned Geographic Information System platform for the entire system will allow for greatest ease of use by policy makers. The project will also assist the surveillance districts to ‘close the iterative loop’ of health services planning and evaluation by supporting cost-effectiveness trials of health interventions selected by DHMTs on the basis of AMMP burden of disease data and evidence gained from community participation and priority-setting mechanisms.
References


LSHTM/University of Witwatersrand. 1997. Strengthening ties: The Agincourt field site in its African context. London School of Hygiene and Tropical Medicine and Faculty of Health Sciences, University of Witwatersrand.


Table 1: Distribution of study populations and number of households in each project area.

<table>
<thead>
<tr>
<th>Area</th>
<th>Population</th>
<th>Households</th>
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</thead>
<tbody>
<tr>
<td>Dar es Salaam</td>
<td>65,826</td>
<td>17,526</td>
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<tr>
<td>Hai</td>
<td>142,414</td>
<td>30,698</td>
</tr>
<tr>
<td>Morogoro Rural</td>
<td>99,672</td>
<td>25,048</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>307,912</strong></td>
<td><strong>73,272</strong></td>
</tr>
</tbody>
</table>

Table 2: Number and age distribution of deaths recorded in Dar es Salaam, Morogoro Rural and Hai District project areas between 1 July 1992 and 31 December 1995.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Dar es Salaam</th>
<th>Hai District</th>
<th>Morogoro Rural District</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>884</td>
<td>1,237</td>
<td>1,797</td>
</tr>
<tr>
<td>5-14</td>
<td>144</td>
<td>310</td>
<td>473</td>
</tr>
<tr>
<td>15-59</td>
<td>1,497</td>
<td>1,813</td>
<td>2,543</td>
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<tr>
<td>60+</td>
<td>415</td>
<td>1,665</td>
<td>1,483</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>2,940</strong></td>
<td><strong>5,024</strong></td>
<td><strong>6,297</strong></td>
</tr>
<tr>
<td>Level</td>
<td>AMMP Data Used</td>
<td>Policy/Planning Document</td>
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<td>-------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
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<tr>
<td><strong>National</strong></td>
<td></td>
<td></td>
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<tr>
<td>Dir. Preventive Services, MoH</td>
<td>smoking behaviour in AMMP areas.</td>
<td>Cabinet briefing paper on proposed tobacco legislation.</td>
<td></td>
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<tr>
<td><strong>District</strong></td>
<td></td>
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<td></td>
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<tr>
<td>District Health Management Team, Morogoro Rural District</td>
<td>population; household size; death rates &amp; major causes of death; prevalence of NCDs; prevalence of hepatitis-B markers; Burden of Disease as measured in YLLs.</td>
<td>1. 1997/98 District Health Plan: i. baseline demographics; ii. burden of disease; iii. priority lists of diseases and health problems for intervention; iv. health education priority areas; v. 'problem trees' for maternal and under-5 mortality; vi. health needs priorities.</td>
<td></td>
</tr>
<tr>
<td>District Health Management Team, Temeke (Dar es Salaam)</td>
<td>population; household size; death rates &amp; major causes of death; health facility use before death;</td>
<td>1. Minimum Package of Health Services to be offered at all levels of the health service; 2. priority interventions; 3. priorities for health education; 4. training for health workers on quality of care; 5. community IEC on health service use.</td>
<td></td>
</tr>
<tr>
<td><strong>NGOs &amp; Health Projects</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Population Services International</td>
<td>YLLs lost to malaria in Dar es Salaam and Morogoro Rural Districts (all ages).</td>
<td>1. design of Social Marketing of Insecticide Treated Nets for malaria control; 2. evaluation of project impact.</td>
<td></td>
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<tr>
<td>WHO and Ifakara Health Research and Development Centre ELCT Northern Diocese Primary Health Care Program</td>
<td>YLLs lost to malaria in children in Morogoro Rural District. information on risk of death due to non-communicable diseases</td>
<td>1. design of trial for use of artesunate suppositories in treating malaria in children during referral. 1. public health education and health promotion programme.</td>
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