Prime Age Adult Mortality and Household Livelihood in Rural Mozambique: Preliminary Results and Implications for HIV/AIDS Mitigation Efforts

D. Mather, C. Donovan, M. Weber, H. Marrule, A. Alage

Ministry of Agriculture and Rural Development
Michigan State University

November 20, 2003

1

Objectives

1. To evaluate the response of households to prime-age mortality, using nationally representative household survey data
2. To determine the strategies used by households to respond to illness/death
3. To identify implications for design of agricultural programs and policies

2

Methods

- Based on TIA surveys, add demographic and mortality component: TIA 2002
- Asked HHs about individuals who died over past ~4 years, time, illness, etc.
  - Non-afflicted households
  - Afflicted households
- Using adult deaths by illness as a proxy for HIV/AIDS deaths
- Undertaken with agricultural sector funding

3

Terminology to Facilitate Communication Between Agriculture & Health Sectors

1. **Prevalence of HIV/AIDS: (Health & Demographic sector term)**
   A. Percentage of active age adults infected with HIV/AIDS (**Active age is defined differently across countries. Moz = 15-49 years old:** Rwanda = 15-59

2. **Mortality rate per 1000 persons: (Health Sector term) Sometimes refereed to as death rate**. (Must make it clear in each case which persons: children under 5, infant mortality)
   A. Mortality rate or death rate per 1000 person per year.
   B. Mortality rate as a percentage of adults with a death from illness during a given period.   (TIA 3.75 yrs)

3. **Percentage of households with a death of an active-age adult from any illness during a given reference period: (TIA 3.75 years)**

4

TIA 2002 Basic Findings: Prime-Age Adult Death From Illness – 1999 to 2002

- Found 217 HH's reporting a prime-age (PA) death from any illness = 3.75 % (See Table 1 Annex for details)
  - (230 PA deaths from any cause = 4.2 %)
- Basic findings are consistent with expectations
  - More deaths -newborn/infant
  - Fewer deaths –children
  - Without HIV/AIDS deaths among elderly should be largest
- What do these finding tell us about possible levels of HIV/AIDS in rural areas?
- Need to know what "normal" levels of prime-age adult death would be without HIV/AIDS

5

Basic Demographic Information - Mozambique

**Table 1. Key Mozambique Demographic Characteristics With and Without AIDS - 2002**

Characteristic	Without AIDS	With AIDS	Net Change
Population Growth Rate	2.4	1.5	- 0.9
Life Expectancy	46.4	40.6	- 5.8
Crude Death Rate	14.0	23.0	+ 9.0

6

3

Figure 1. Illustration of Effects of HIV/AIDS on Male Prime-Age Death (Mozambique is included in Group 2 along with Kenya, Malawi, etc)
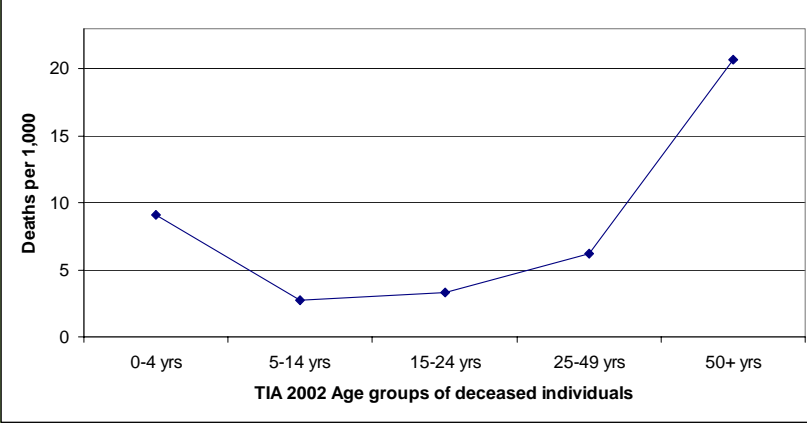
Median UN Projected Male Age-Specific Probability of Dying 2000-2005 by HIV Prevalence Group for 35 Countries in Africa with HIV Prevalence Estimates of 1.0 percentor Greater. (source: UN AIDS Wall Chart, accessed July, 2003, UN Population Prospects 2002 Revision, and the UNAIDS 'Barcelona Report' Report on the Global HIV/AIDS Epidemic, 2002)
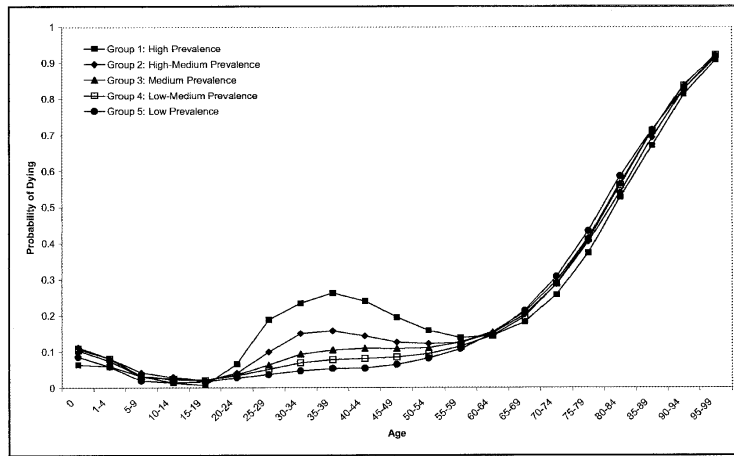
7

Source: Ngom & Clark. Adult Mortality in the Era of HIV/AIDS: Sub-Saharan Africa

8

4

Figure 2. Adult Mortality for Rural Adults, 1999-2002 average

Note: The green line represents an approximate illustration of what the age group mortality might look like without deaths from HIV/AIDS

Figure 3. Rural Mortality Rates by Age Group, 1999-2002
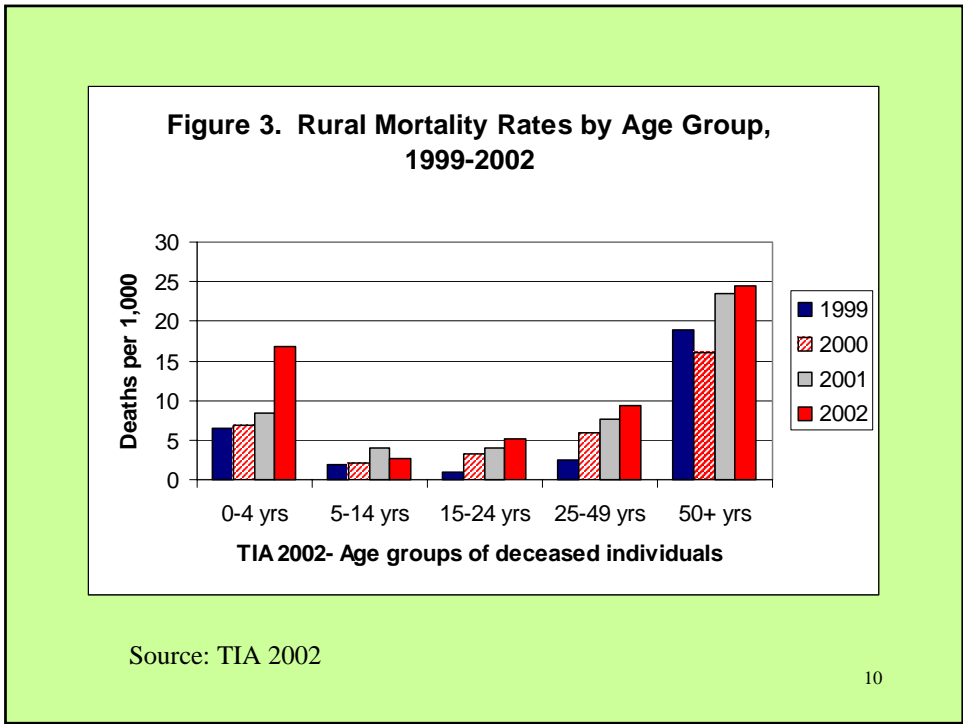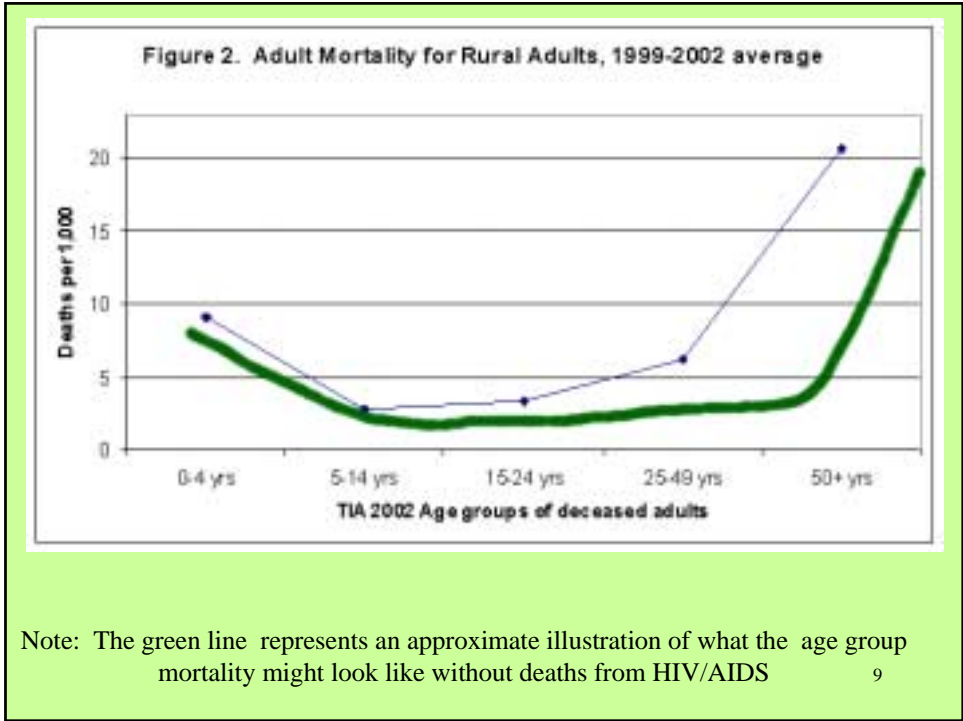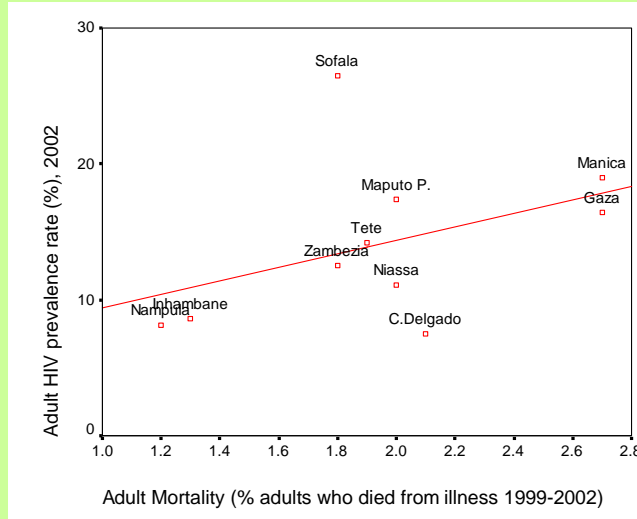
Source: TIA 2002

Figure 4. Adults 15-49 Years Old: Provincial HIV Prevalence Rates for 2002 (Urban and Rural) and Rural Adult Mortality 1999-2002

Source: Ministry of Health, November 2003 and TIA, 2002 (See Annex Table 2.)

11

Findings: TIA 2002 Rural Mortality Information

Table 2. Distribution of Adults Who Died of Illness Compared to Other Adults, According to Their Role In Households And Age Groups, TIA 2002

Category	% of Non-Affected PA Adults		% of Deceased PA Adults	
	Head / Spouse	Other	Head /Spouse	Other
All PA Adult Age Groups	65 %	35 %	27 %	73 %
15-24 yrs	34 %	66 %	7 %	93 %
25-49 yrs	86 %	14 %	35 %	65 %

Key Finding: Prime-age adult death in rural areas is relatively concentrated among non-head/spouse adults in 25-49 yr age group.

12

6

Age and Sex Distribution of Adults Who Died of Illness Compared to Non-Affected Adults

1. Non-Affected Adults:
    15-24 yrs. M=41%   F=42%   Total=41%
    25-49 yrs   M=59%   F=58%   Total=59%

2. PA Adults Who Died of Illness:
    15-24 yrs. M=21 %   F=31 % Total= 27 %
    25-49 yrs   M=79 %   F=69 % Total= 73%

Key Finding: Prime-age adult death in rural areas is relatively concentrated among both male and female adults in the 25-49 yr. age group.

13

Analyze TIA 2002 Mortality Data Jointly With Other TIA Household Information

Characteristics of Affected & Non-Affected Rural Households

- Review HH income & land quartiles: non-affected and affected.
    - Note very wide range from bottom to top quartiles (Annex Table 3)
- HH Per Capita Income:
    - Total & per AE income lower for death affected HH's
    - With Male Death: Affected HHs more prevalent in lower income quartiles, but in South, fewer in lowest quartile, more in mid-low range
    - With Female Death: Affected HHs distributed fairly evenly among income quartiles, but in South, fewer in lowest quartile, more in mid-low range
- HH Landholdings :
    - Male and Female Death: Affected HHs have lower total and cultivated land area, but cultivated area/AE is very similar to non-affected HHs
    - HH's with female death tend to be more concentrated in lower land pc quartiles, probably reflecting lower land access prior to death [14]

Demographic Changes in Affected and Non-Affected Households

- TIA: Identified many arrivals and departures in both affected and non-affected households:
  - analysis can compare patterns for affected and non-affected HH's

- HHs with a PA Female Death: (Annex Table 4)
  - more likely to have children leaving HHs, especially with female death
  - more likely to have a new female adult arrive (more than double the rate of arrival for non-affected HHs)
- HHs with a PA Male Death:
  - Similar rate of new PA male arrivals as non-affected HHs

- Thus, while a PA Death results in considerable reduction in HH size, HH's with a PA female death are better able to adjust (Annex Table 5)
  - Female death: New females enter; children depart ➜ Smaller increase in dependency ratio (+0.41)
  - Male death: No new males; children remain ➜ Larger increase in dependency ratio (+0.70)

15

Literacy of Chronic Ill Members as Proxy for Deceased Individuals *

- Literacy of Currently Ill Prime-age Men:
  - more likely to be illiterate (32%) than non-affected PA men (20%)
  - Just as likely to have finished primary school

- Literacy of Currently Ill Prime-age Women:
  - Just as likely as non-affected PA women to be illiterate or to have finished school

- Implication:
  - HIV Educational materials developed for rural areas should target multiple education levels

(*No questions on literacy of deceased individuals were allowed)[16]

Findings-1: Strategies to Mitigate the Effects of a Prime-Age Death on Agricultural Activities

- Open-ended question to respondent: maximum of three responses allowed in reference to each deceased individual (Annex Table 6 basic strategies identified)

- Actual Question: "Identify the 3 most important strategies undertaken by your household in order to minimize the effects of the death (departure) of this person on your agricultural and livestock activities"

17

Findings-2: Strategies to Mitigate the Effects of a Prime-Age Death on Agricultural Activities

- Post-coded adjustment strategy groups:
  - Labor replacement
  - Reduce area cultivated or labor used
  - Asset reduction
  - Child-related strategies (may be underestimated)
  - Consumption reduction strategies
  - No strategy identified
- Analysis strategy-among hh's with a death (n=217), compare characteristics of those who used a strategy against those who did not use that strategy
- Annex Tables 7 & 8 show comparison results
- Figure 5 shows strategies grouping by gender of deceased

18

Figure 5. Strategies Chosen by Households with Adult Death Due to Illness: By Gender of Deceased Person
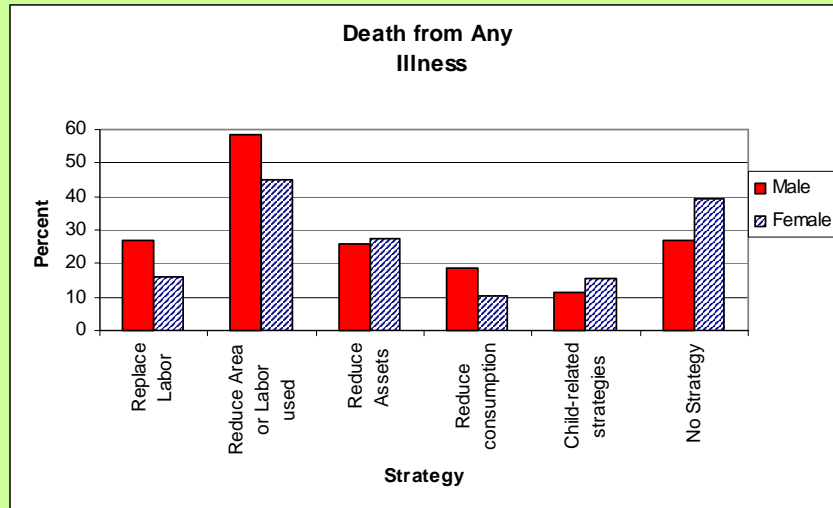
19

Analysis Results-1: Who is Adopting Which Strategies and What is Associated With This?

- 1-Hire labor or increase use of mutual help (Annex Tables 7 & 8)
  - This strategy more likely with male death than female death (**)
  - Users have higher income per capita, higher land/AE ( ) , more AE's (), and larger decline in HH AE's ()
- 2-Increased use of child labor
  - More likely with death of HH head, especially male head (**)
  - Users have lower income per capita (), more total land/AE (), and larger decline in AE
- 3-Reduce area cultivated-most common strategy but still only 44 % of cases
  - More likely with death of male, particularly male head (**)
  - Users have lower income per capita ( ) , lower AE's (*)
- 4-Reduce labor spent on weeding
  - More likely with death of male/spouse compared to other member (*)
  - Users have lower income per capita ( ), lower AE (*) ; higher land/AE ()

20

10

Analysis Results-2 : Who is Adopting Which Strategies and What is Associated With This?

- 5-Reduction of cash, livestock, or other assets
  - More likely with female death (*), death of a head/spouse (*)U, and especially male head
  - User have slightly higher income ()
- 6-Send children away
  - More likely with death of a female (*), especially death of a HH head/spouse (**)
  - Users have higher income (), lower land/AE (), lower AE's ()
- 7-No strategy declared
  - Very unlikely with death of male head/spouse (**),
  - more likely that no strategy was declared among HH with other member death (**) or female death (*)

21

Implications For MADER's Overall Mitigation Policy & Programs – I

- Estimates of rural adult deaths & chronic illness as a proxy for HIV/AIDS is a valuable research strategy, especially when used with other HH-level ag/income data
  - Inclusion of demographic/death enquiry section in TIA 2002 enables provides estimates of rural mortality rates and enables analysis of affects on households and their responses
- Rural HIV/AIDS levels are clearly problematical & growing---(higher than conventional wisdom suggests)
  - These problems need MADER's focus as well as health sector focus
  - But MADER also needs to stay committed to raising productivity among non-affected smallholder households as Mozambique's engine of growth

22

Implications For MADER's Overall Mitigation Policy & Programs - II

- Diverse adjustment strategies found among affected households & individuals indicates the need to develop a range of educational materials and methods
  - Provincial and/or regional differences in mortality rates suggest need for geographical targeting
  - Preponderance of PA deaths among non-HH heads/spouses implies some targeting emphasis on young adults if rates of increase in prevalence are to decrease
  - Wide levels of income and literacy among affected individuals requires appropriate and targeted education materials/strategies.

23

Implications For MADER's Overall Mitigation Policy & Programs - III

- Households with adult death shocks suffer unambiguous loss of labor, assets, and knowledge
  - There is little evidence that affected HHs are able to maintain prior levels of income and consumption
  - Some affected households are reducing area cultivated and/or reducing labor inputs (weeding) which will likely reduce productivity
  - Therefore, it is clear that MADER needs to consider appropriate responses to mitigate the negative effects at household and aggregate levels

24

Implications For MADER:
Technological Policy & Development - I

- Heterogeneity in adjustment strategy responses by characteristics of the affected households and the deceased members
  - This suggests caution in diversion of agricultural/livestock research funds to just labor-saving crop and input technologies
  - The loss of family labor due to a death in the household does not mean that ag. labor necessarily becomes the household's principal production constraint -- some HH's are able to replace ag. labor
  - In addition, not all affected HHs reduce area cultivated – less than half HH's indicate reduction in cultivated area or labor applied as an adjustment strategy

25

Implications For MADER:
Technological Policy & Development - II

- Labor-saving innovations and investments that would reduce labor demands on women's HH activities (gathering cooking fuel / water, food processing) would likely be more beneficial for the majority of affected households than labor-saving crop/input technologies
  - In addition, these innovations would benefit ALL rural HHs -- especially the poorest -- not just the affected
- MADER must work to preserve balanced attention to non-affected as well as affected household
  - rural income of non-affected HH's is very low, especially in lower income quartiles
  - agriculture research and extension funds are scarce; overall productivity growth is needed for all rural households

26

Implications For MADER: Land, Food and Other Policy & Assistance to Affected HHs

- Households with a female death seem to be better able to replace labor (and retain assets ,especially land) than those with a male death
  - Some focus on households with a male illness or death
  - Consider home-based care and assistance for ill people combined with health care training for potential care givers
  - However, it is essential to target food assistance to reach the most vulnerable yet avoid market disincentive for non-affected households
- Critical to secure land rights for widows and/or her children so that HH assets are not further reduced and to allow secure land rental as an income strategy
- Consider using nutrition supplements and ARVs to keep people active as long as possible

27

Implications For MADER: Knowledge Policy & Transfer

- Premature adult death reduces inter-generational transfer of knowledge of agriculture and livestock production
  - Need for vocational agriculture training in rural schools
- However, some HH adjustment strategies include removal of children from school and/or using children more in income activities, reducing education levels
  - What can be done to keep children in school? Efficient targeting of free meals in rural schools to the most vulnerable would be difficult, but would free meals for all be an effective investment?

28

Implications For MADER: Child Welfare Policy & Programs

- Potentially negative effects on children sent away from households
  - Will adopted children receive schooling? Will this be a function of the child's gender?
  - Due to dissolution of some HHs, HH surveys will likely underestimate the number of children sent to other families (or orphaned) … also, TIA strategy question is likely to underestimate the effect of PA death on child welfare in general
- Children in the 0-4 and 5-14 age groups did show up on the TIA 2002 survey as new arrivals in non-affected households, coming due to death in another household and to live with an extended family member
  - What can be done to provide incentives for non-affected families to help these children gain access to education and good health care and good nutrition?

29

Which Pathway for Mozambique? Behavior Must Change Among both RURAL & Urban Populations

Figure 6. Estimated & Projected HIV Prevalence Among Persons in 15-49 Age Groups in Selected Countries 1980-2050(

30

15
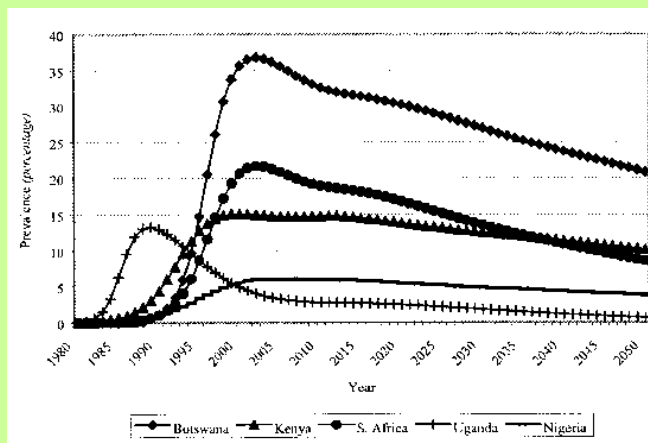
Changing Behavior: Roles for MADER National/Local Leaders & Agriculturalists?

- Inside MADER - Extension & Research agent awareness
- MADER- Client outreach materials - information about agricultural and rural household impacts of HIV/AIDS to facilitate discussion: Goal- **stimulate people to deal openly and locally with effects of illness and death from HIV/AIDS**
- How can MADER efforts reinforce other national and local efforts to de-stigmatize discussion of effects of HIV/AIDS?
- (What Can Moz. learn from the Uganda experience?)

  - tendency to talk openly with family & friends about effects of AIDS →

  - facilitated more realistic and open discussion of AIDS epidemic →

  - in turn encouraged people to take steps to protect themselves →

  - the above is a complement to health messages about how to protect against HIV infection – NOT a substitute

31