

Returning Home to Die

Circular Labor Migration and Mortality in Northeast South Africa

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Labor Migration in South Africa

- ▶ Population and settlement patterns in South Africa are strongly influenced by history of the mining industry
- ▶ Labor supply during Apartheid tightly controlled by
 - Influx Control,
 - Group Areas Act, and
 - Other mechanisms
- ▶ Resulted in deliberate impermanence in the urbanization process of black South Africans
- ▶ Population of South Africa forced to live in ‘homeland’ areas based on ethnic identity
- ▶ ‘Villigization’ further forced people to move to peri-urban villages

- ▶ Result: shortage of land for villagers and transition from agrarian to cash-based economy
- ▶ **Cash-based economy critically dependent on migrant labor**
- ▶ Labor migration:
 - Has primarily involved males
 - Requires long periods of temporary residence in urban centers away from rural homes
 - Sometimes termed 'circular' because laborers circulate between rural homes and urban centers where they are employed

HIV & Migration

- ▶ There is widespread evidence for a relationship between temporary migration and the risk of acquiring HIV
- ▶ In South Africa a study in KwaZulu-Natal province measured a three-fold increase in the risk of infection associated with recent migration:
 - It is possible that migrants have more opportunities to practice unsafe sex with a wider variety of partners
 - These factors can be exacerbated for migrants experiencing emotional instability in a complex and less familiar urban environment

Aims

- ▶ Endemic circular labor migration ensures large fraction of men (and now women) spend most of the year away from their rural homes
- ▶ With the significant HIV epidemic in South Africa these migrants are at increased risk of infection
- ▶ **Hypothesis:** circular labor migrants who become seriously ill while living away from home return to their rural homes to convalesce and possibly to die

Data

- ▶ Data come from the Agincourt Health and Demographic Surveillance System (AHDSS):
 - Run by Wits School of Public Health
 - Rural northeast South Africa
 - Monitors ~70,000 individuals: 1992 to present
 - Records all vital events:
 - Assigns cause of death using a *verbal autopsy*
 - Records movements:
 - Within site
 - Permanent in/out of site
 - Temporary absence associated with employment outside of site, *circular labor migration*

Statistical Analysis

- ▶ The hypothesis predicts a *differential* in the likelihood of dying between residents of the study area and recently returned circular labor migrants
- ▶ Discrete time event history analysis used to estimate and compare the likelihood of dying for:
 - Permanent residents of the study area,
 - Recently returned migrants, and
 - Migrants who permanently returned some time ago
- ▶ Controlling for:
 - Sex,
 - Age, and
 - Historical period

- ▶ Analysis conducted on a person-year file:
 - Working-age adults: ages 20-80
 - Period 1992-2004
 - 2,952 deaths
 - 291,713 person-years

 - Sex: female and male
 - Age groups: 20-39, 40-59 and 60-79
 - Periods: 1992-1997 [no HIV] and 1998-2004 [HIV]
 - Migrant status:
 - Resident
 - Recently returned [returned permanently within the past five years]
 - Long-term returned [returned permanently more than five years ago]

- ▶ Ordinary logistic regression used to estimate annual hazard of death in each sex-age category
- ▶ Resulting hazards converted to life table ${}_nq_x$ values
- ▶ Results presented by:
 - Period,
 - Sex,
 - Age, and
 - Migrant status
 - Recently returned vs. all others

Cause of Death Analysis

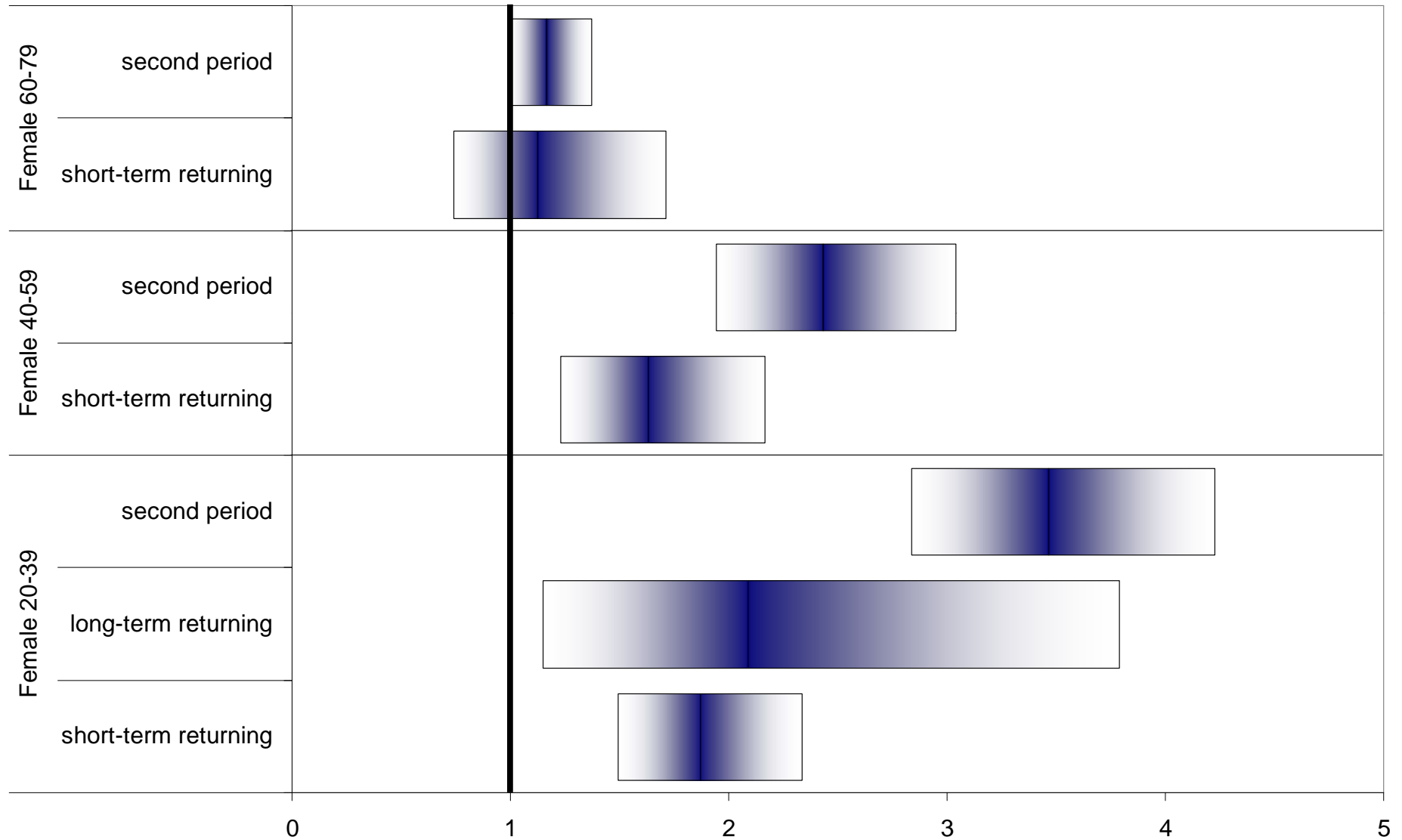
- ▶ Deaths classified and tabulated by period, sex, age, migrant status and cause
- ▶ Assigned causes available through 2002, so periods for this analysis 1992-1997 and 1998-2002
- ▶ Causes:
 - HIV/TB [verbal autopsy cannot easily distinguish these],
 - Non-communicable,
 - External, and
 - All others

Results

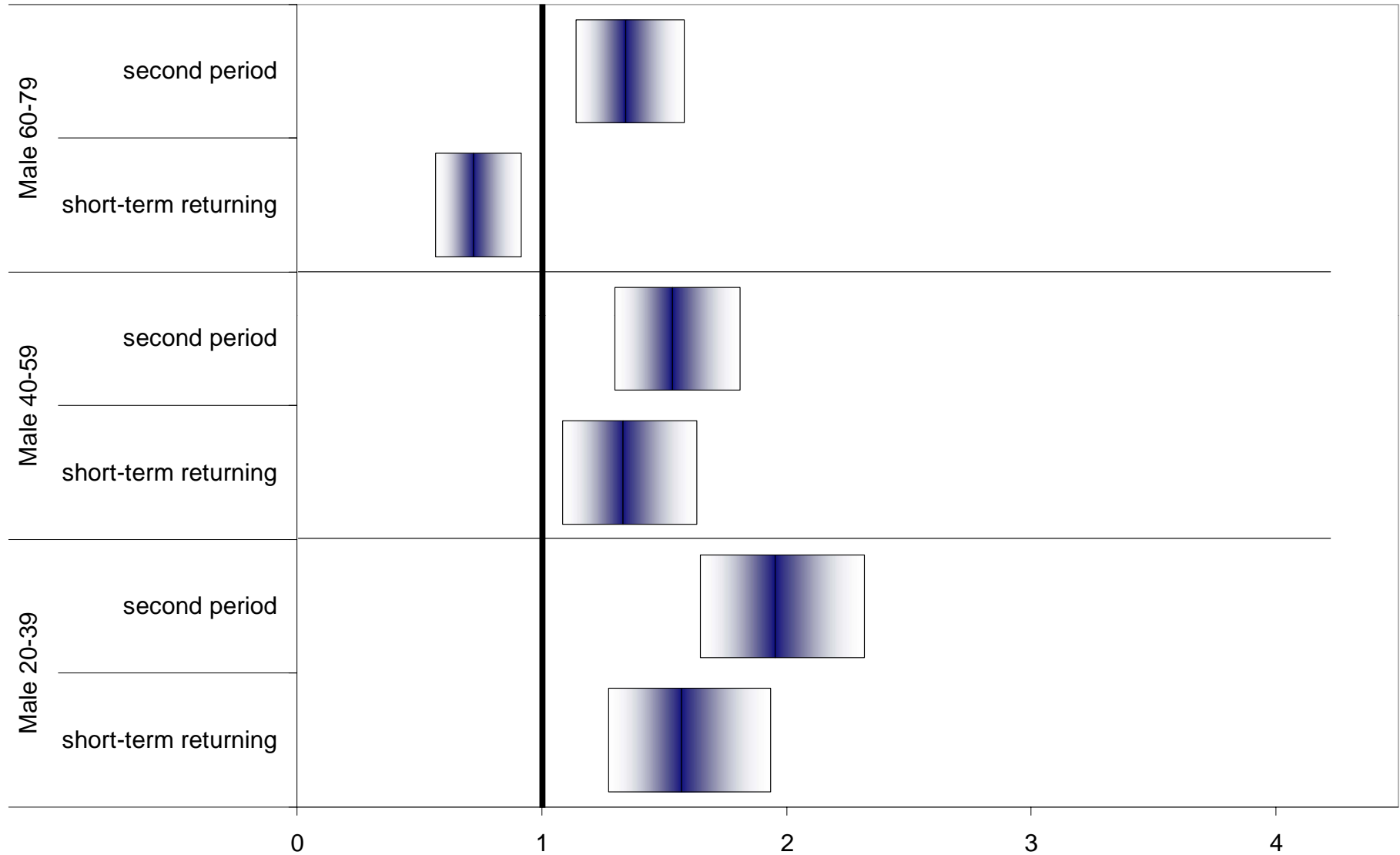
▶ Summary:

- Annual odds of dying for recently returned migrants are generally 1.1 to 1.9 times (depending on period, sex and age) higher than those of residents and long-term returned migrants
- The proportion of HIV/TB deaths among recently returned migrants increases dramatically as time progresses, and recently returned migrants account for an increasing proportion of all HIV/TB deaths

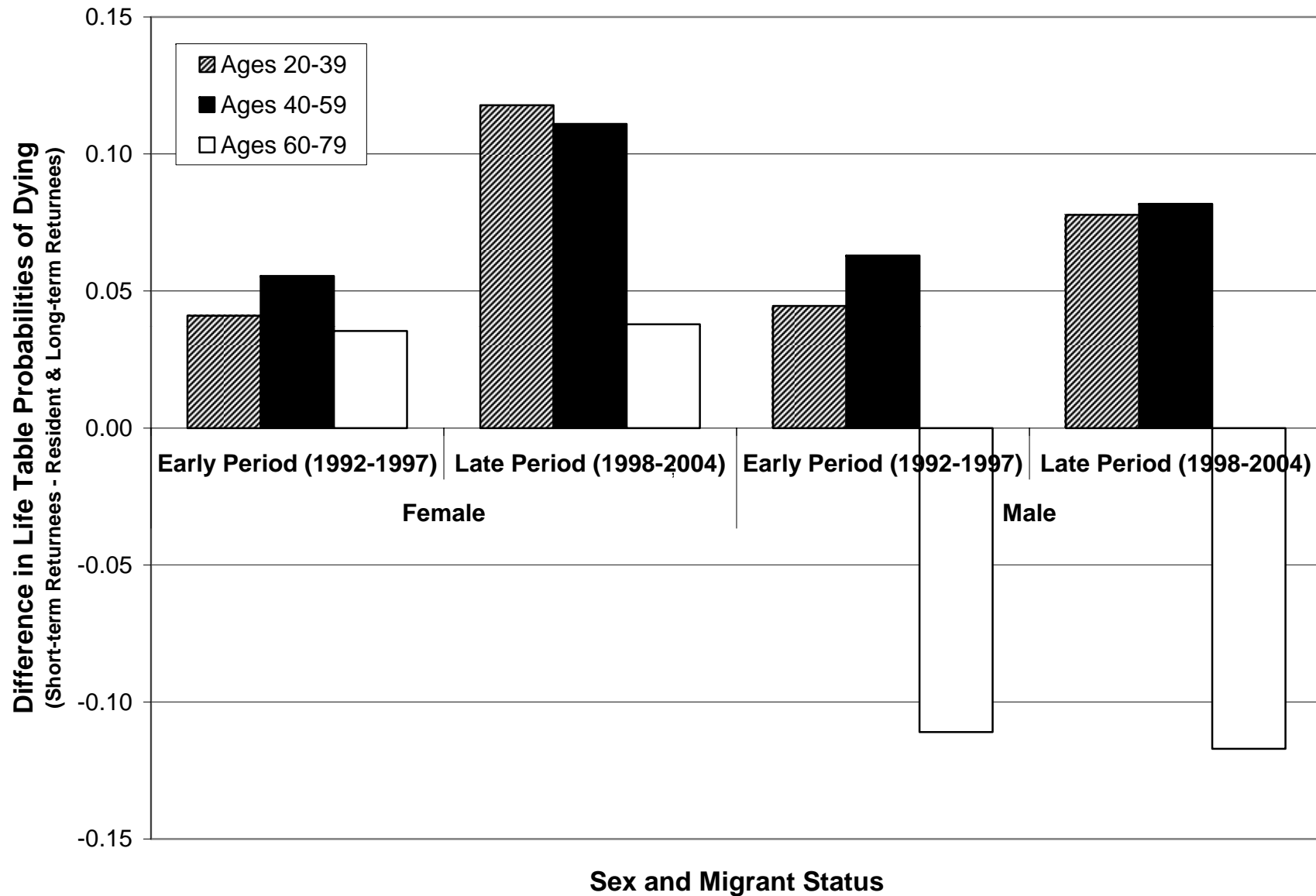
Female Odds Ratios



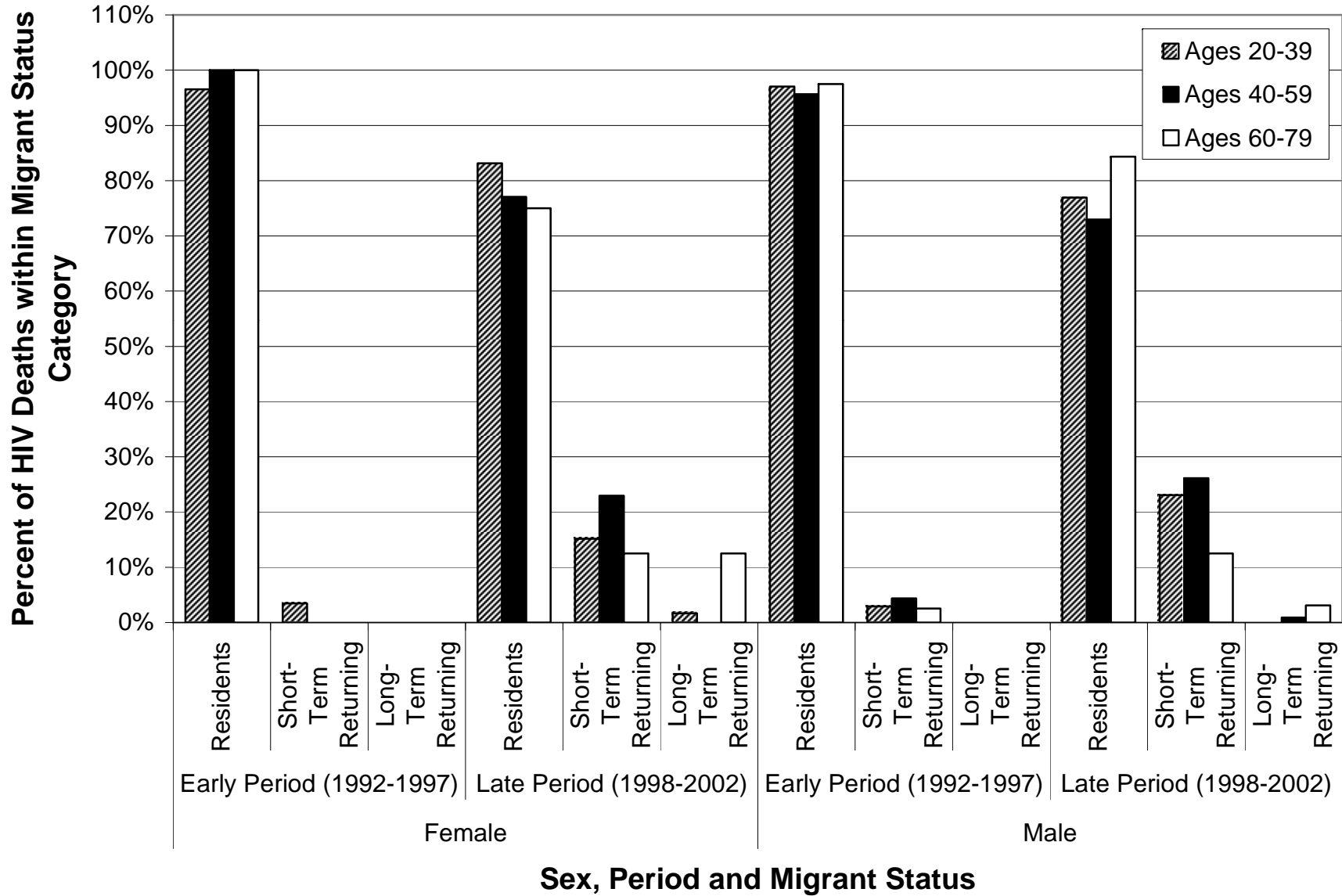
Male Odds Ratios



Difference between Life Table Probabilities of Dying : Short-term Returning Migrants - Residents and Long-term Returning Migrants



Percent of HIV Deaths by Sex, Period, Migrant Status and Age



Conclusions

- ▶ This evidence strongly suggests that increasing numbers of circular labor migrants of prime working age are becoming ill in the urban areas where they work and coming home to be cared for and eventually to die in the rural areas where their families live
- ▶ **One important implication:** The health care burden of caring for returning migrants who are ill in their terminal illness is shifted to their families and the rural health care system with significant consequences for the distribution and allocation of health care resources

Acknowledgments & Contact

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- ▶ Agincourt Field Team

- ▶ Wellcome Trust
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