

Tackling complex health transitions in South and sub-Saharan Africa: MRC/Wits-Agincourt Unit & INDEPTH Network



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MRC / Wits Rural Public Health & Health Transitions Research Unit

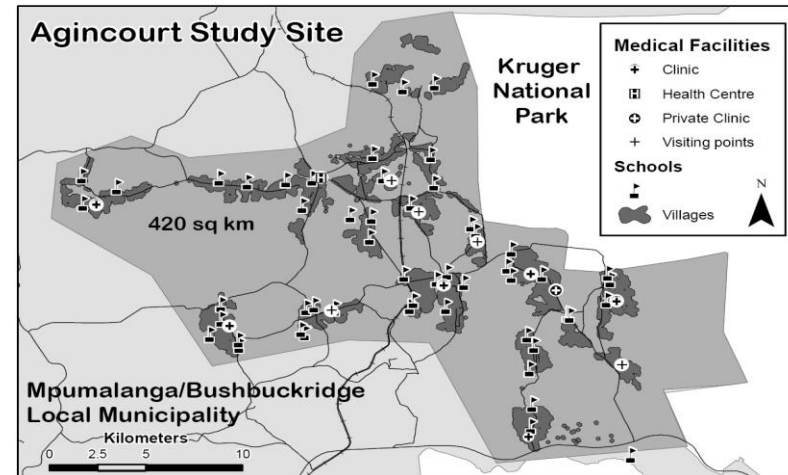
INDEPTH Network www.indepth-network.org

Agincourt area, Bushbuckridge

31 villages, 19,000 households, 115 000 people
Rural, densely settled former Bantustan
31% Mozambican immigrants (self-settled former refugees)



- To generate **valid, empirical information** on rural communities
- To inform vital **health reforms**
- To bring the **strongest science** to bear where needs are greatest



Why research in Agincourt, rural SA?

- **Border region** of South and southern Africa
- **Rapidly changing population:** increasing % of both adolescents / young adults and older persons
- **Complex health and social transitions:** advanced in Africa
 - Reflect potential trajectories elsewhere on the continent
- **High HIV setting**
 - Post-HIV epidemic population
 - 3 groups: HIV-; HIV+ on long-term ART; HIV+ not yet on ART/started late, hence advanced HIV-related disease
- **Rising NCD risk:** cardiovascular and metabolic disease / risk (HT, stroke, heart failure; diabetes, coronary heart disease)
- **Persisting high ‘circular’ labour migration** among men and increasingly (younger) women

Evidence will point to:

- ***Unpredictability*** of health, population and social transitions
- Social and biological ***determinants*** - and consequences - along the life-course
- How, when and where to ***intervene*** most effectively
- Health and social ***sector responses***... to achieve a more equitable and productive society

Life-course approach

INFANTS &
CHILDREN



ADOLESCENTS



ADULTS

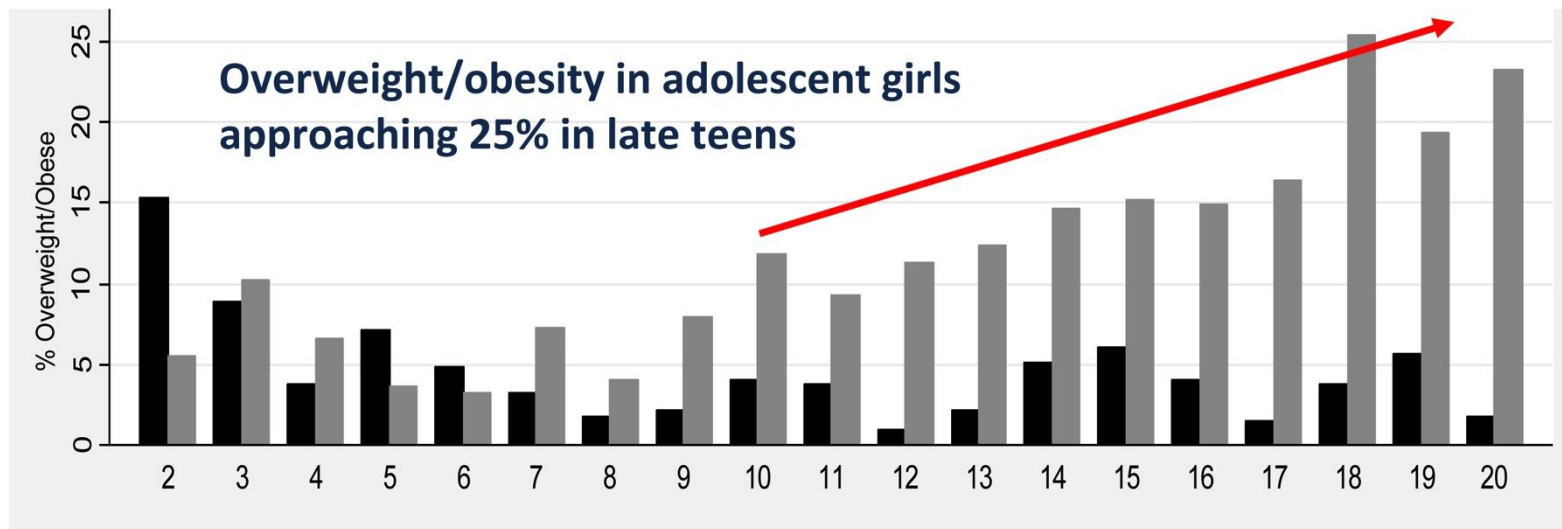
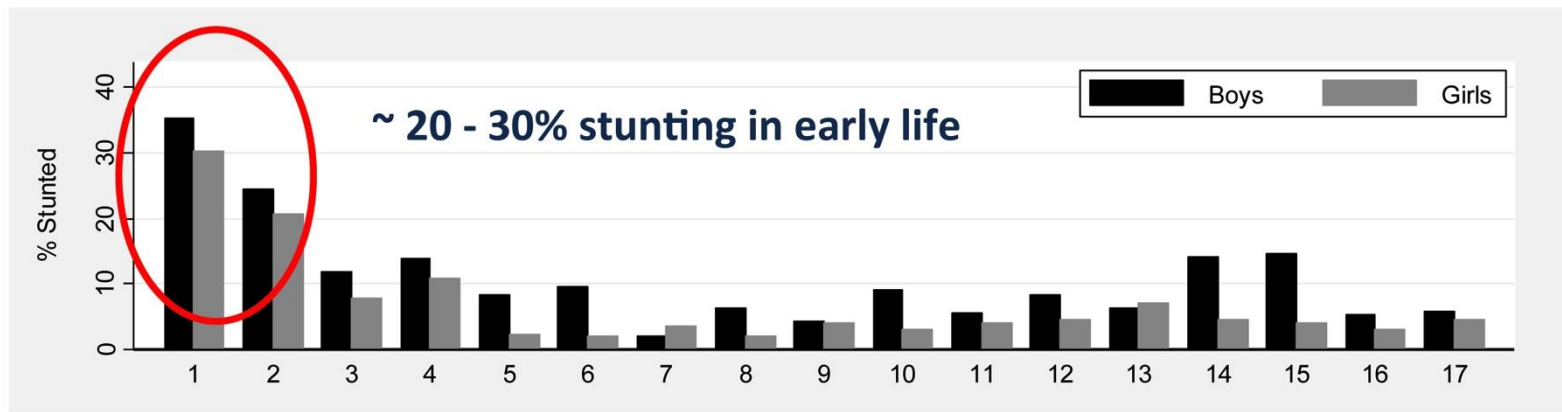


OLDER

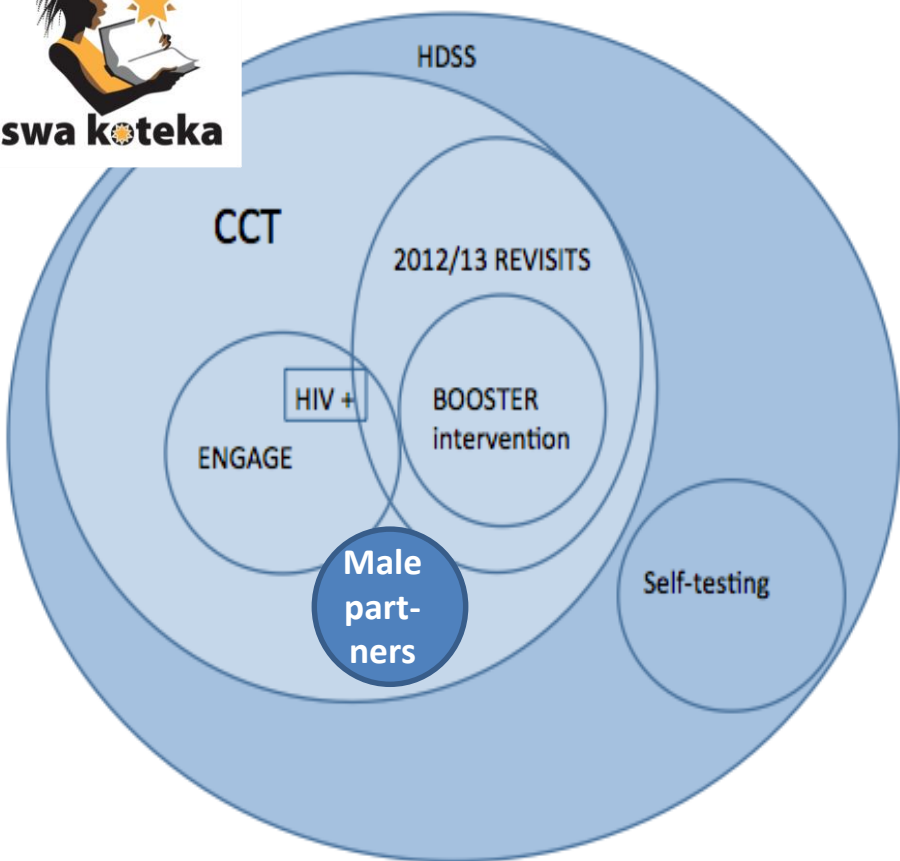


Adolescents & Trans-generational Risk

Time-bomb: precursors of adult disease



Studies to reduce HIV risk among young women, male partners and the broader community



- HPTN 068 – Effects of cash transfer, conditional on school attendance, on HIV acquisition
- Engage: HIV+ young women
- Tiyani Vavasati: Booster focusing on empowerment + life skills
- HIV Self-testing including partners & peers
- Follow-up of young women in 068
- Male partners of young women: risk behaviours, relationship types

Community mobilisation interventions

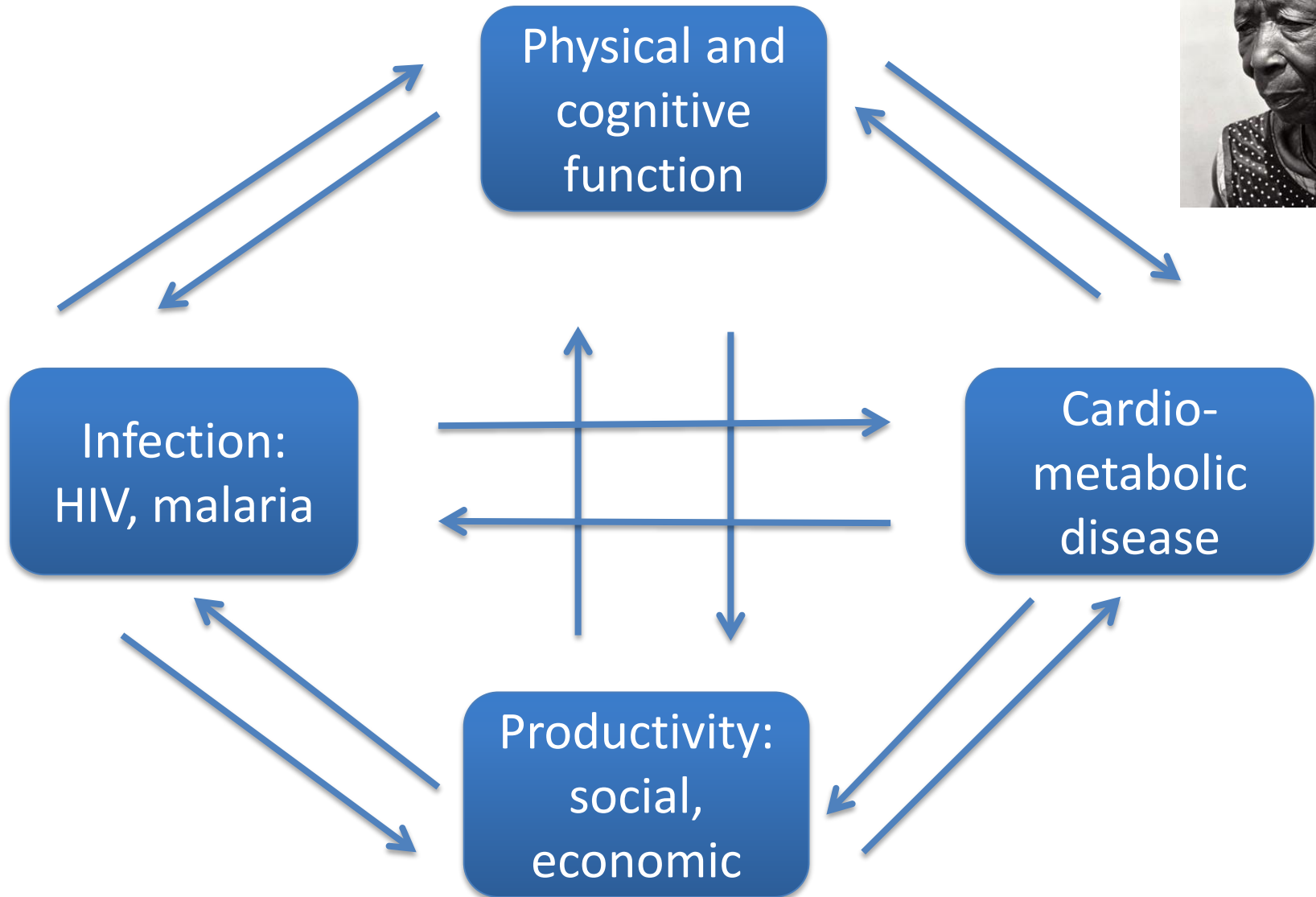
- Does *community mobilisation* to change negative gender norms result in more equitable gender norms and reduced HIV risk?



- Does *community mobilisation* increase uptake of HIV testing, linkage to and retention in HIV care?

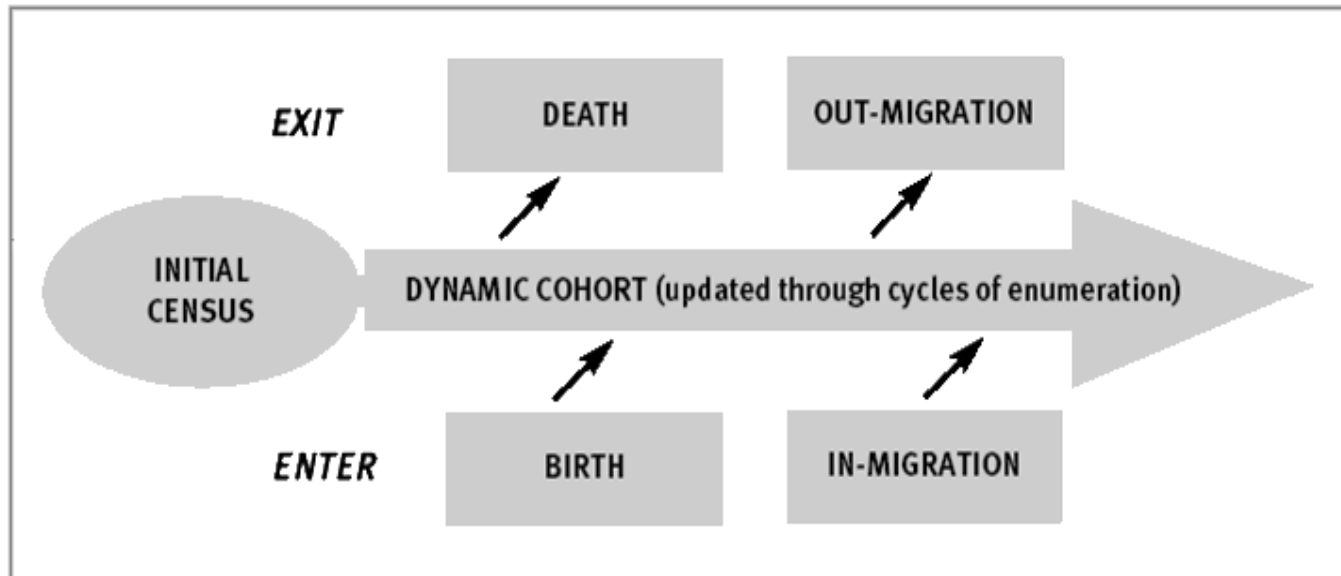


Ageing in South, sub-Saharan Africa



Health and Socio-Demographic Surveillance

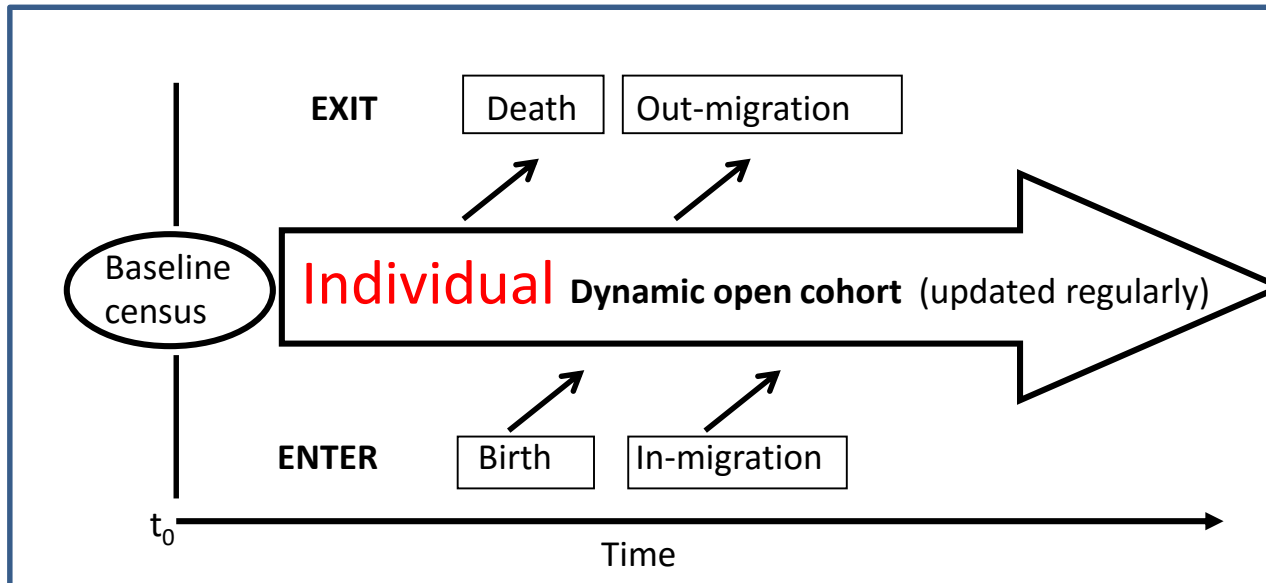
- *Defining and registering a population*
- *Following community over time*
- *Recording all vital events*



**AGINCOURT
RESEARCH
PLATFORM**

Community

Family / Household



Clinical / Physiological

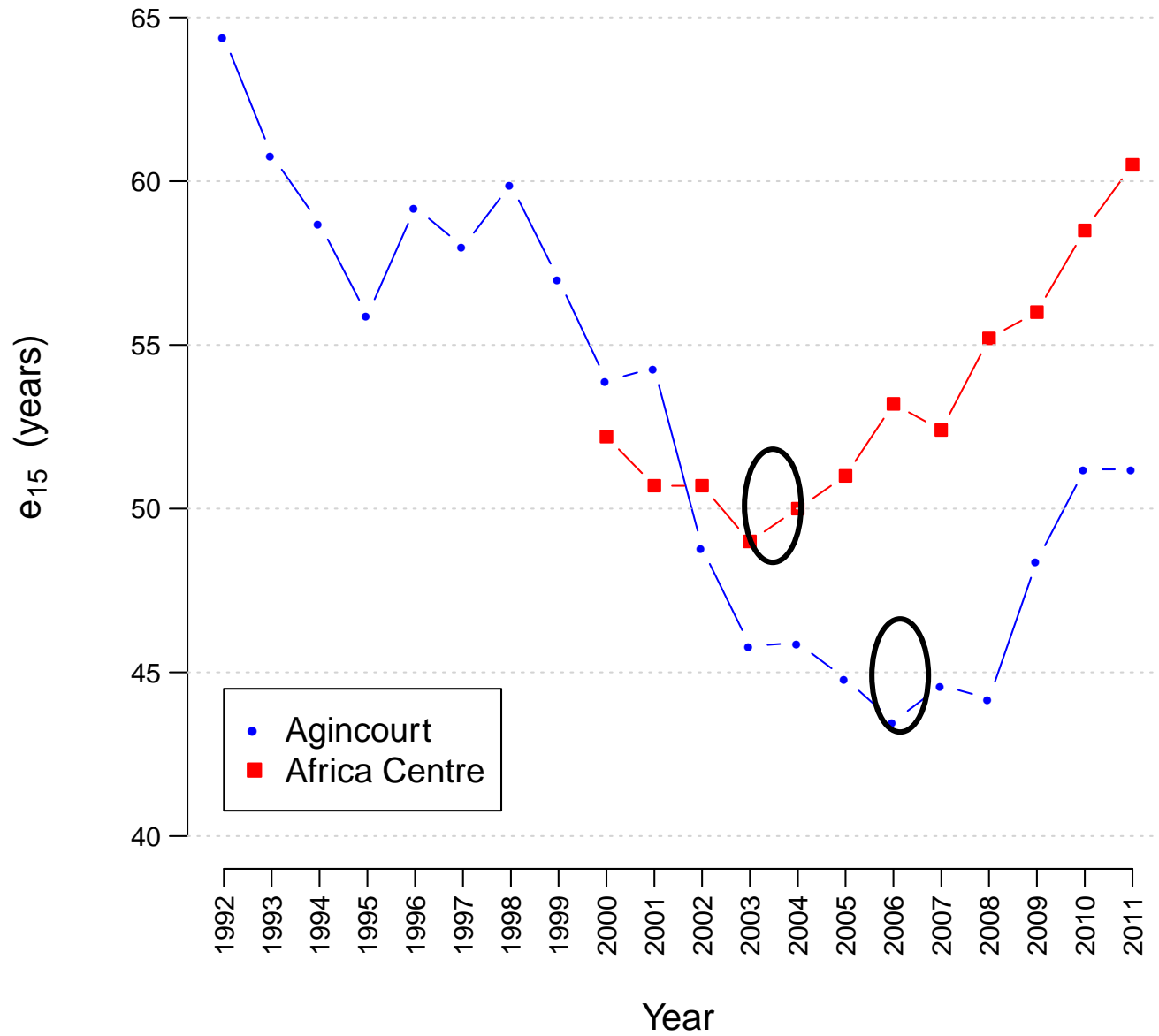
Cellular

Genetic / Genomic

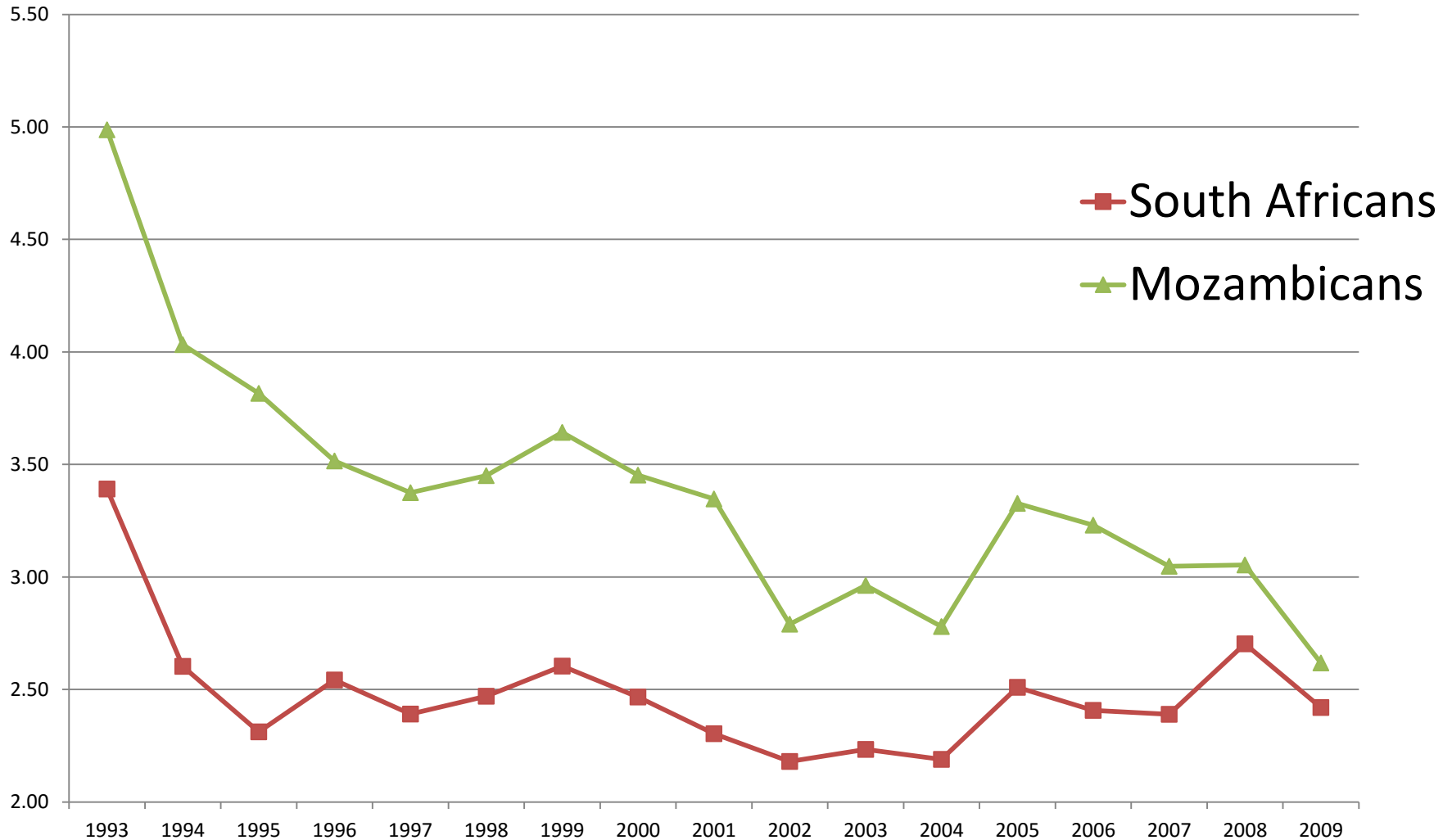
Verbal autopsy (VA)

- Cause of death vital for programme planning and resource allocation
- VA determines CoD where CRVS systems weak
- Interview with closest caregiver on signs/symptoms, treatment, lifestyle
- Open narrative and filtering questions
- Largely use in research settings – now developed for routine systems
- Previously physician coded; now software
- WHO 2016 VA instrument with InterVA-5
- 10 questions on circumstances of death

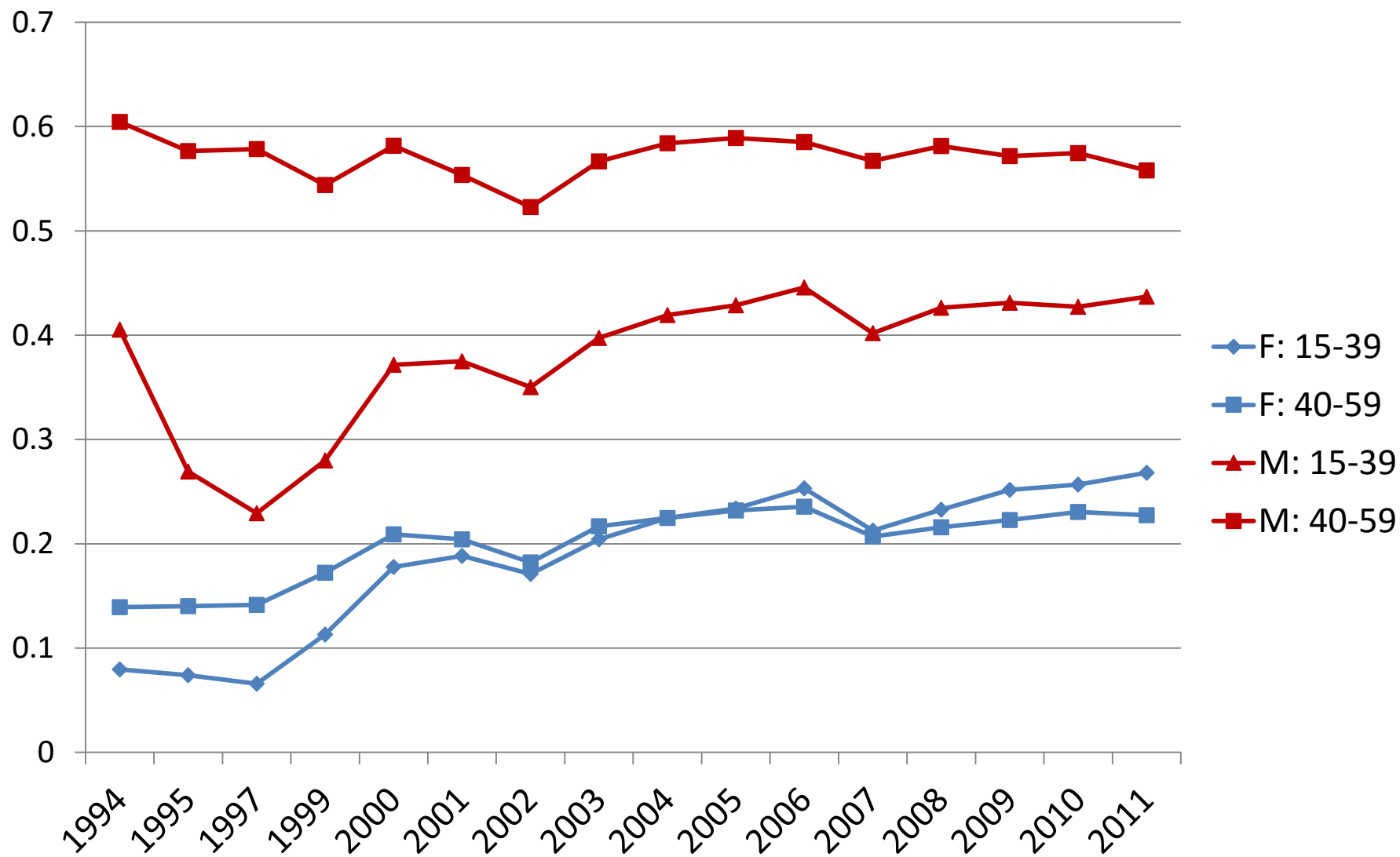
Expectation of Life at Age 15



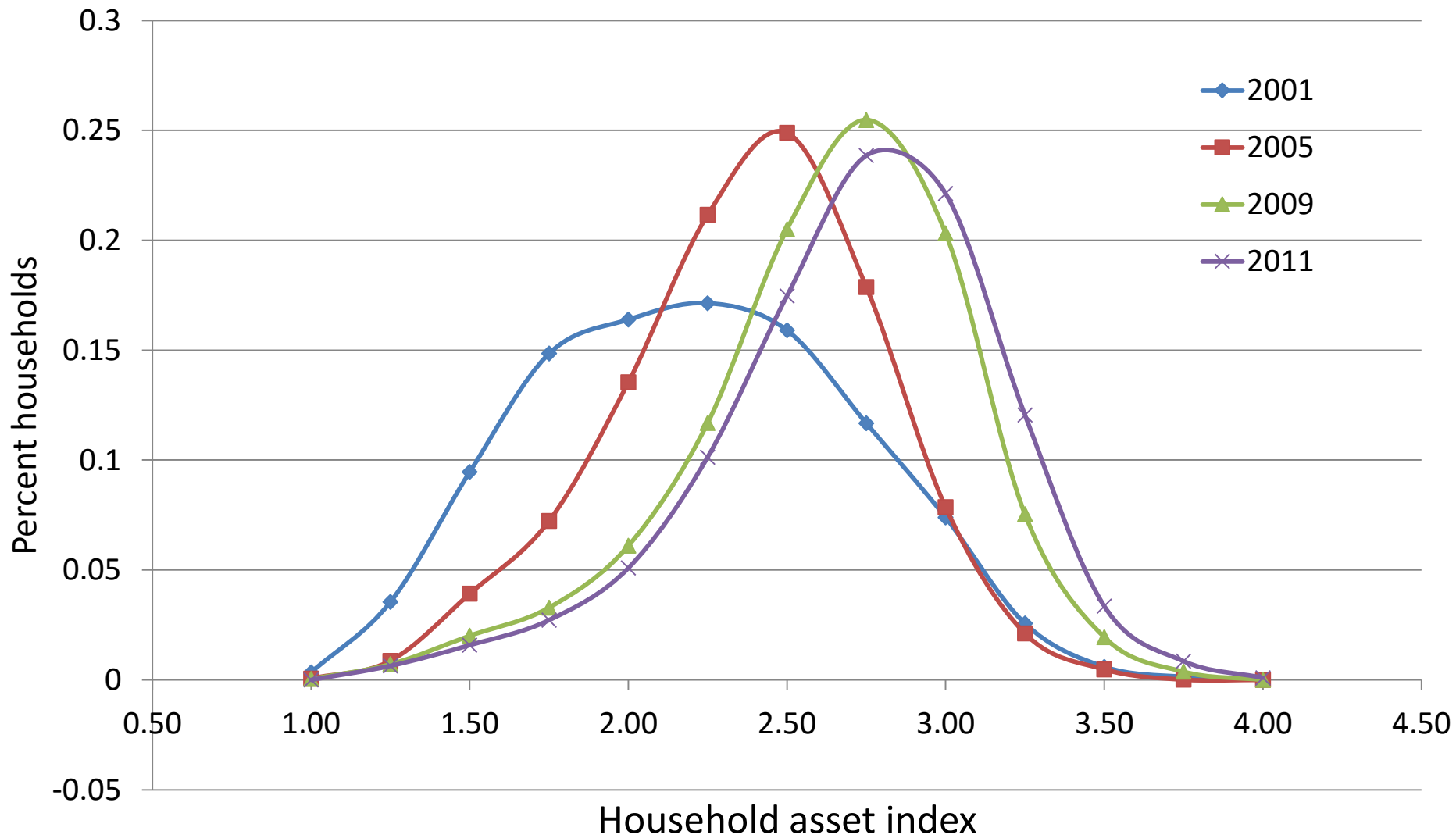
Fertility transition rural SA, 1993 – 2009



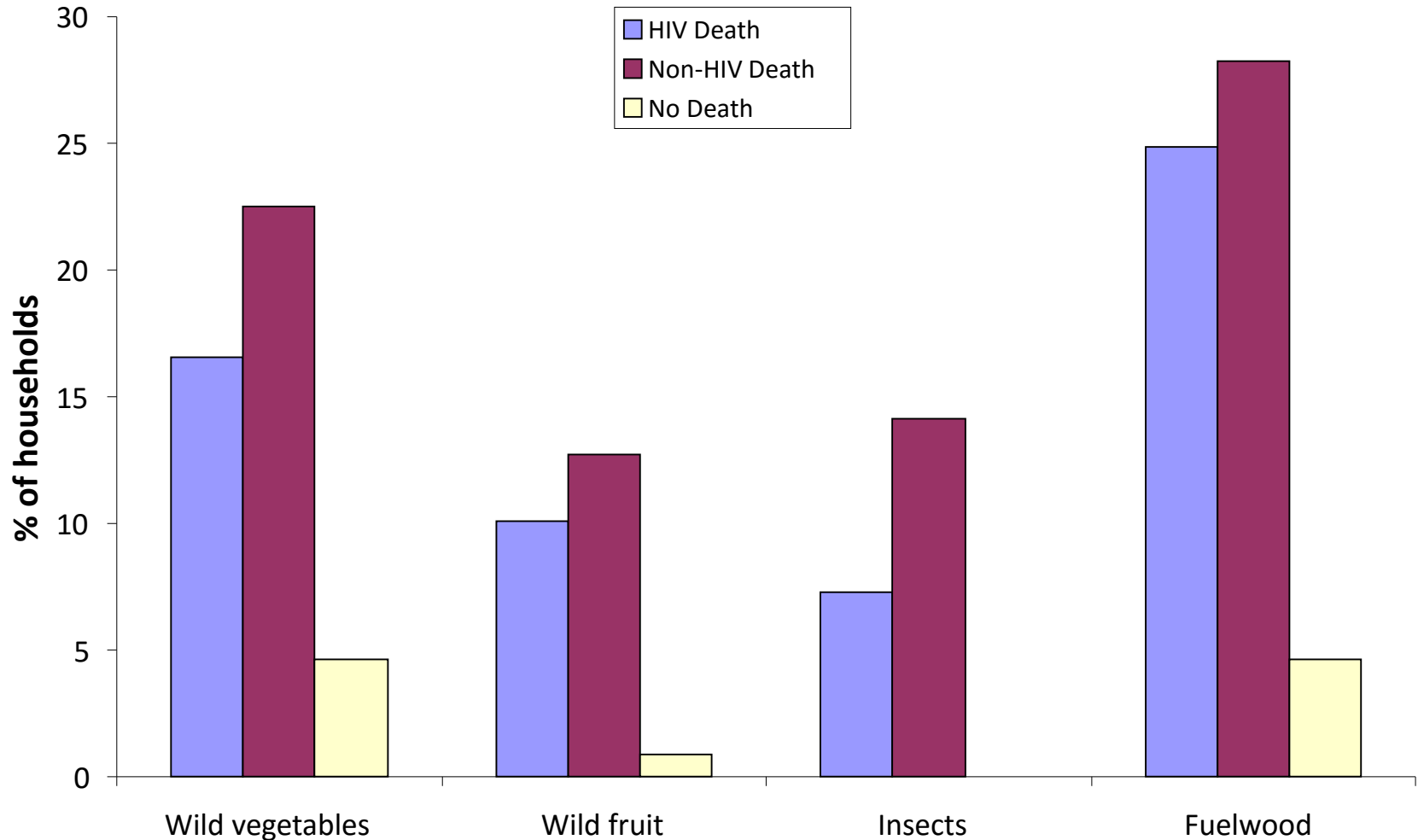
Temporary (labour) migration 1994 – 2011



Improving asset ownership, 2001 - 2011



Adult death as 'shock' to a household



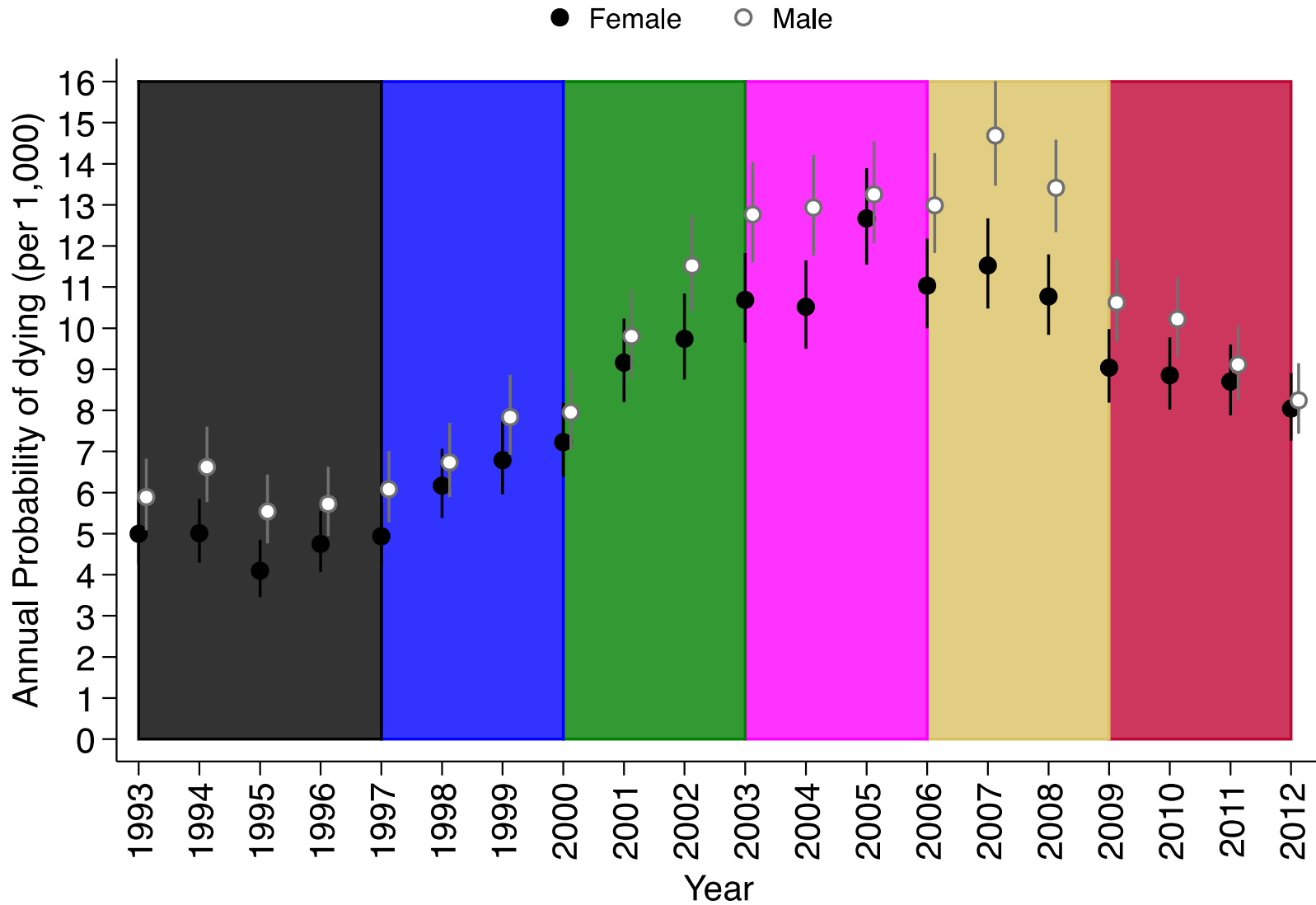
Households use natural resources to save money

Hunter & Twine 2007

Households with older women: child fostering and orphans

	All Households	Households with NO woman 60+	Households with woman 60+
Households with at least one child under 15	77.7%	77.8%	76.2%
Household with at least one fostered child	15.4%	12.1%	26.5%*
Household with at least one maternal orphan	5.5%	4.7%	15.9%*
Total N	11,665	8,994	2,671

Overall mortality trends, Agincourt 1993-2012

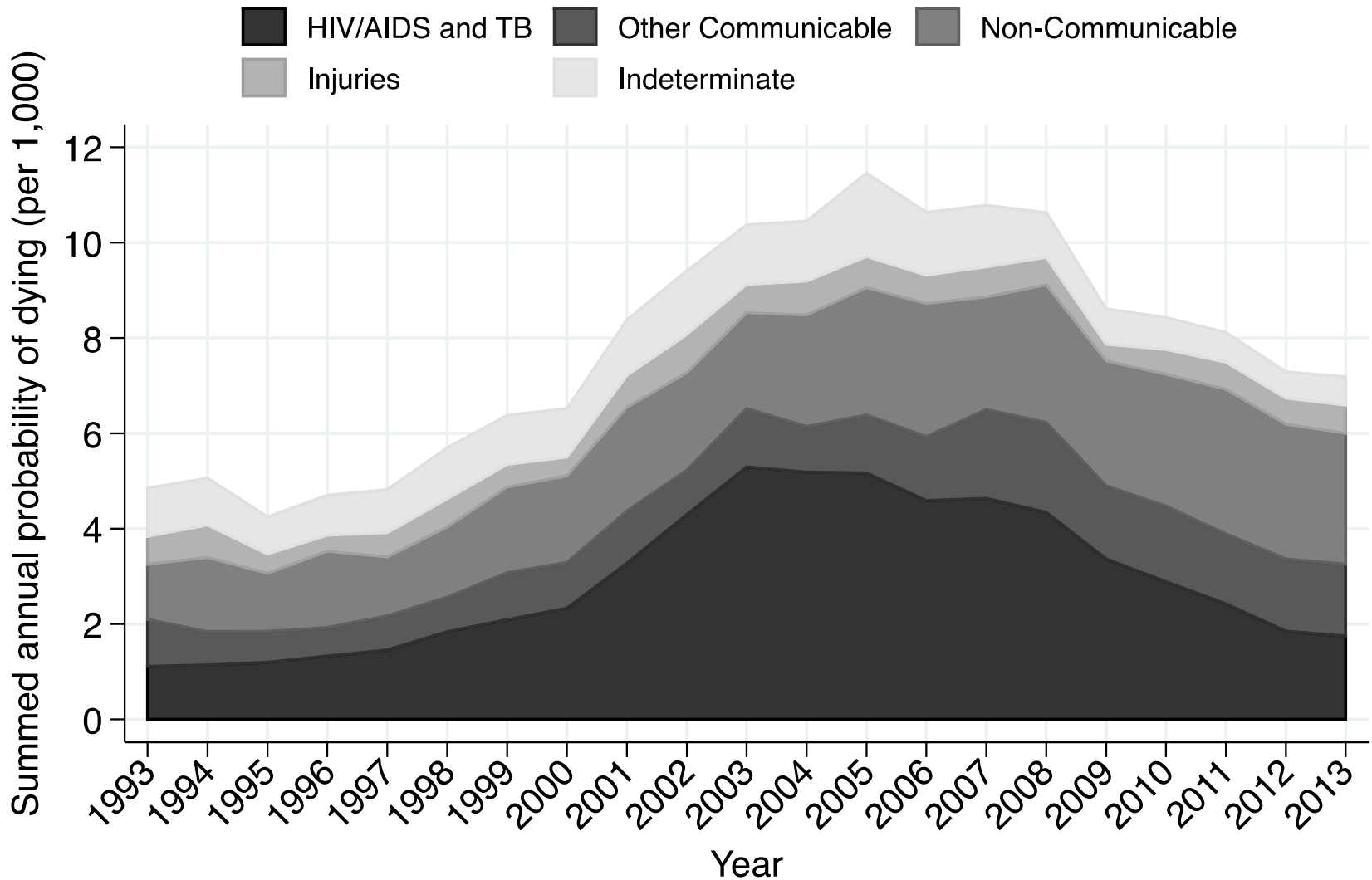


Kabudula, Tollman....Kahn, Byass et al. GHA 2014.

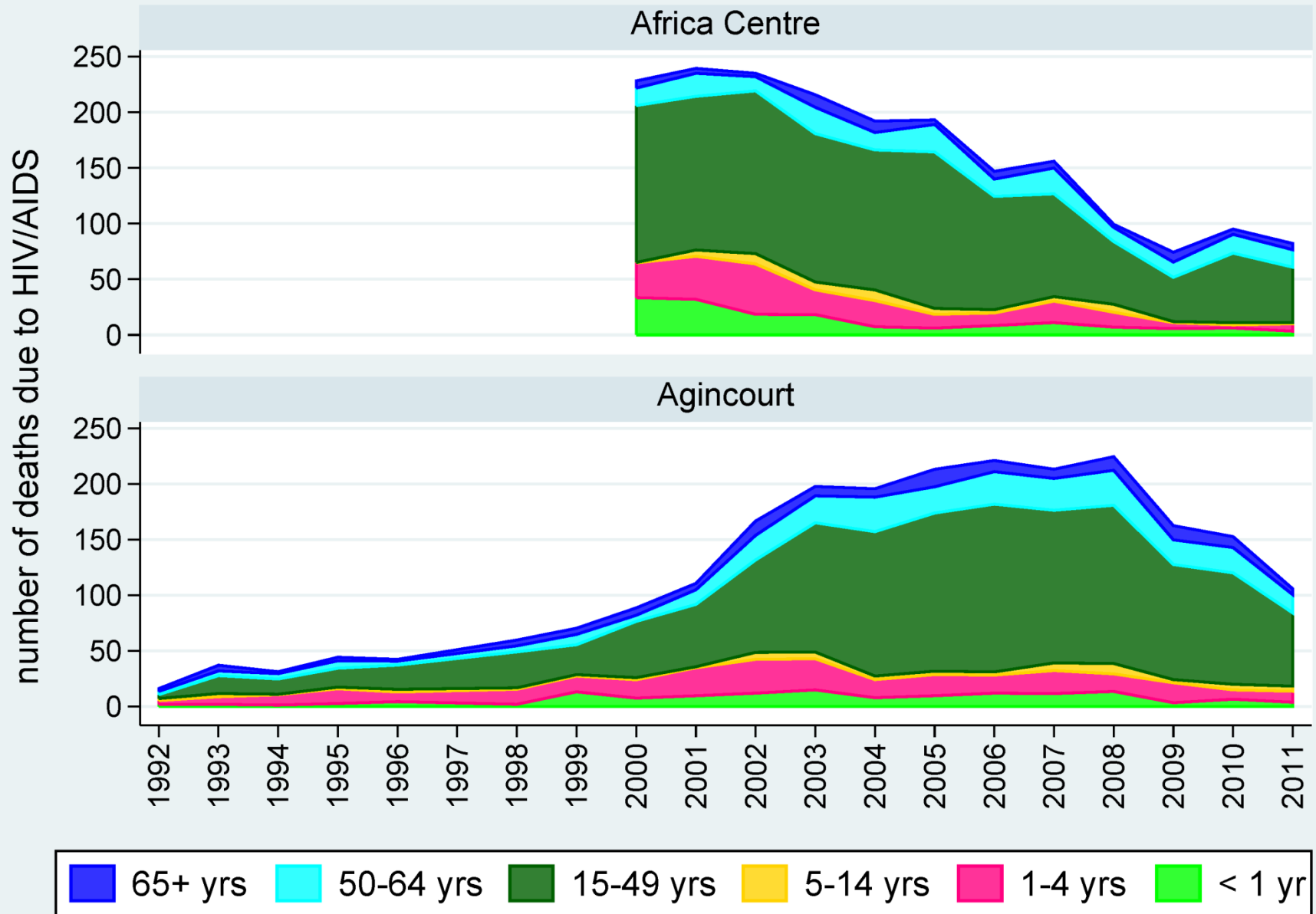
12,209 deaths over 1,436,195 person years of follow-up: 1992-2011

Colliding epidemics...

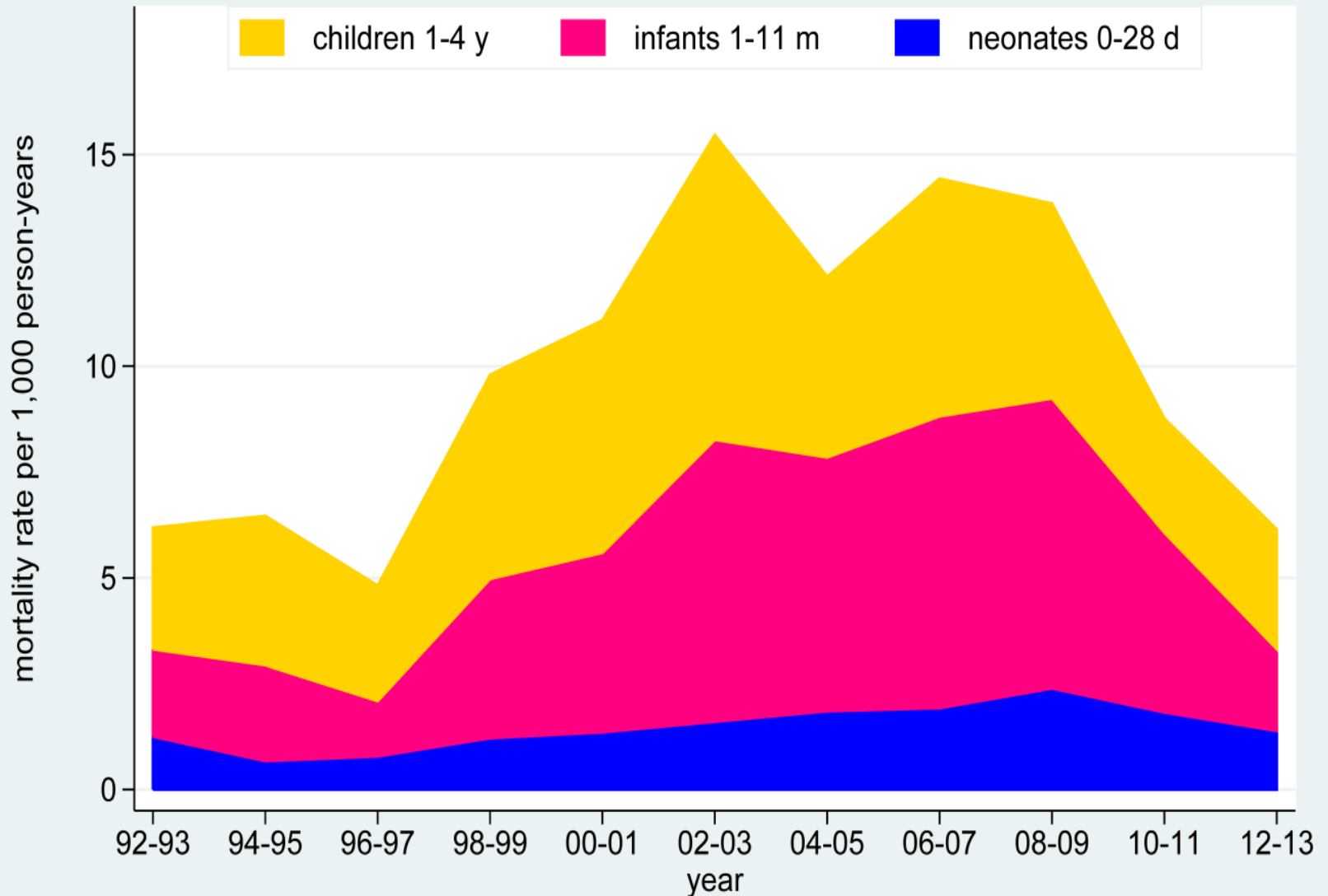
Agincourt, South Africa 1993-2013



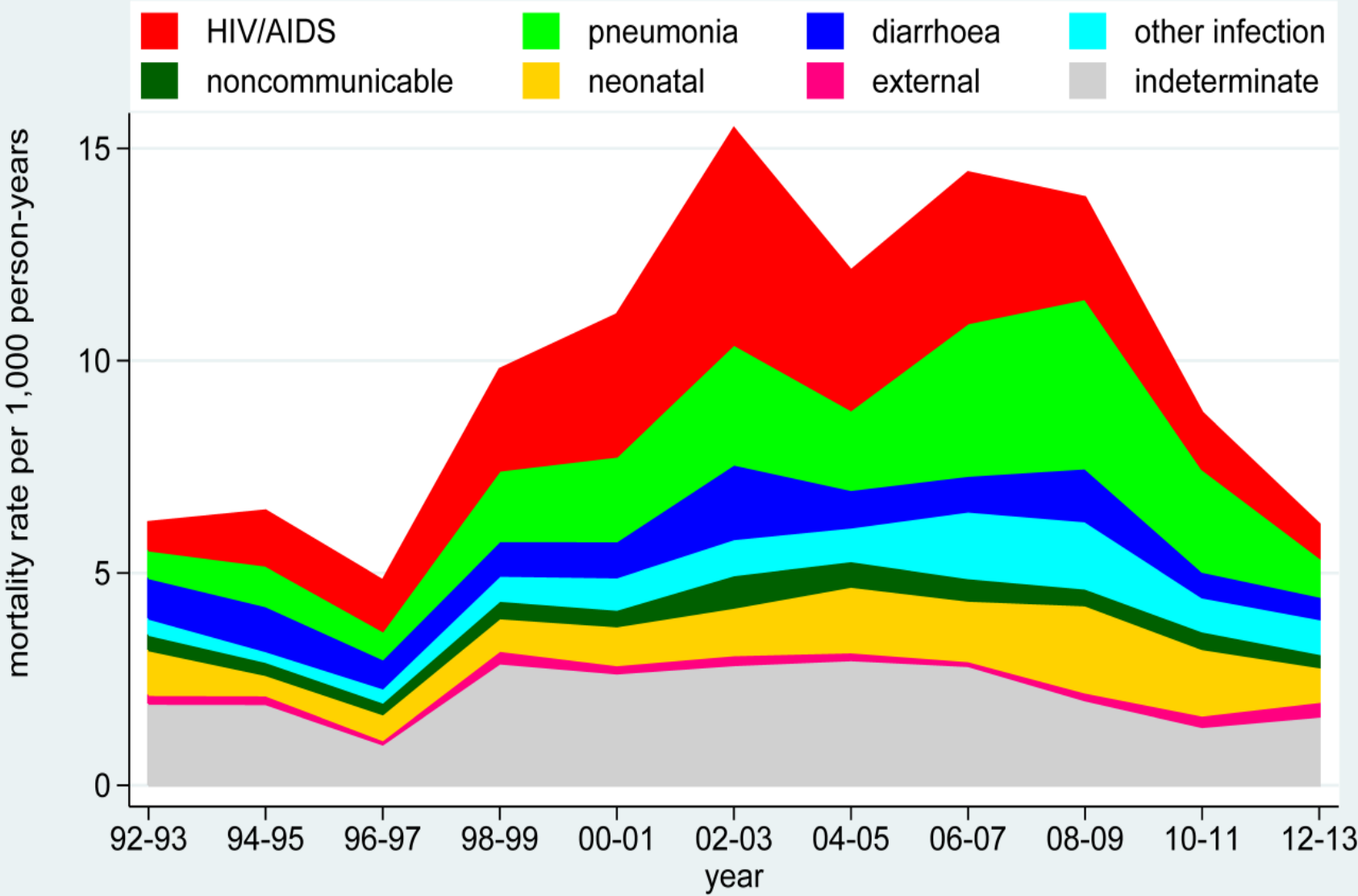
Mortality due to HIV/AIDS



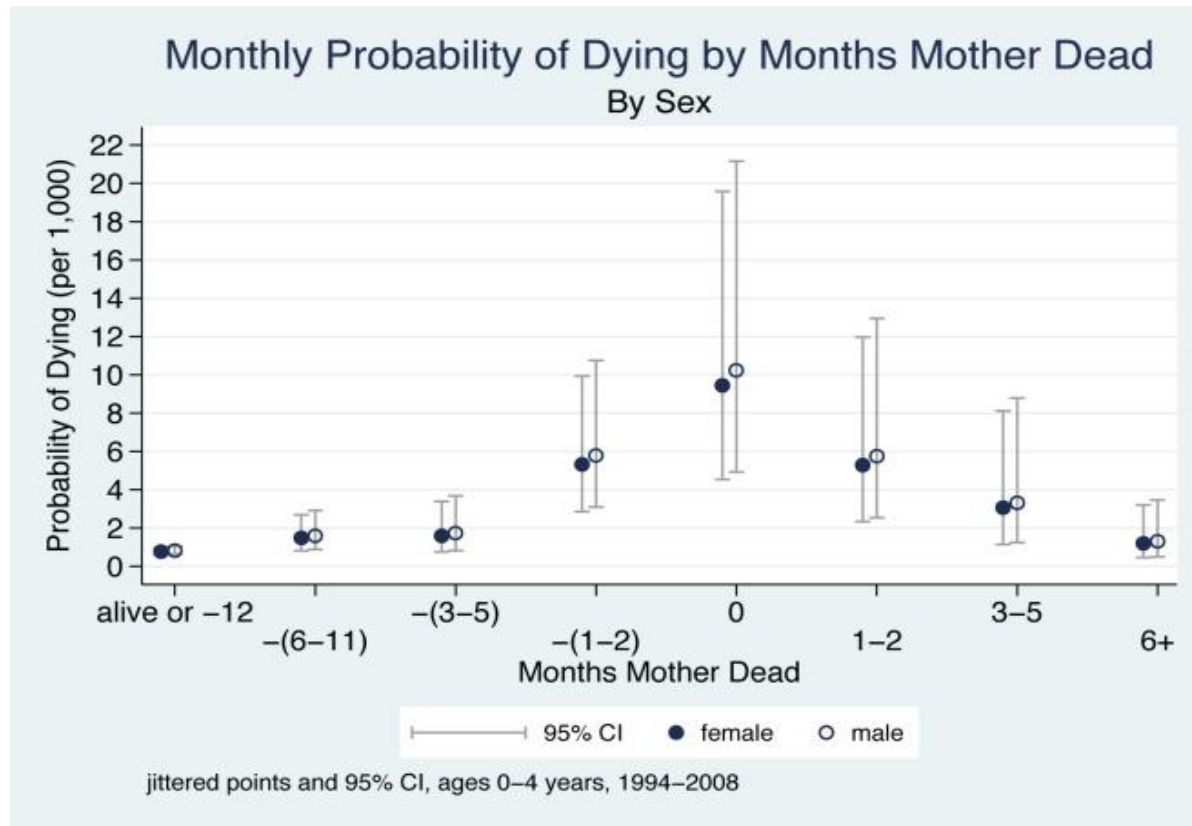
Under-5 mortality rates 1992 - 2013 by age group



Under-5 mortality rates 1992-2013 by cause

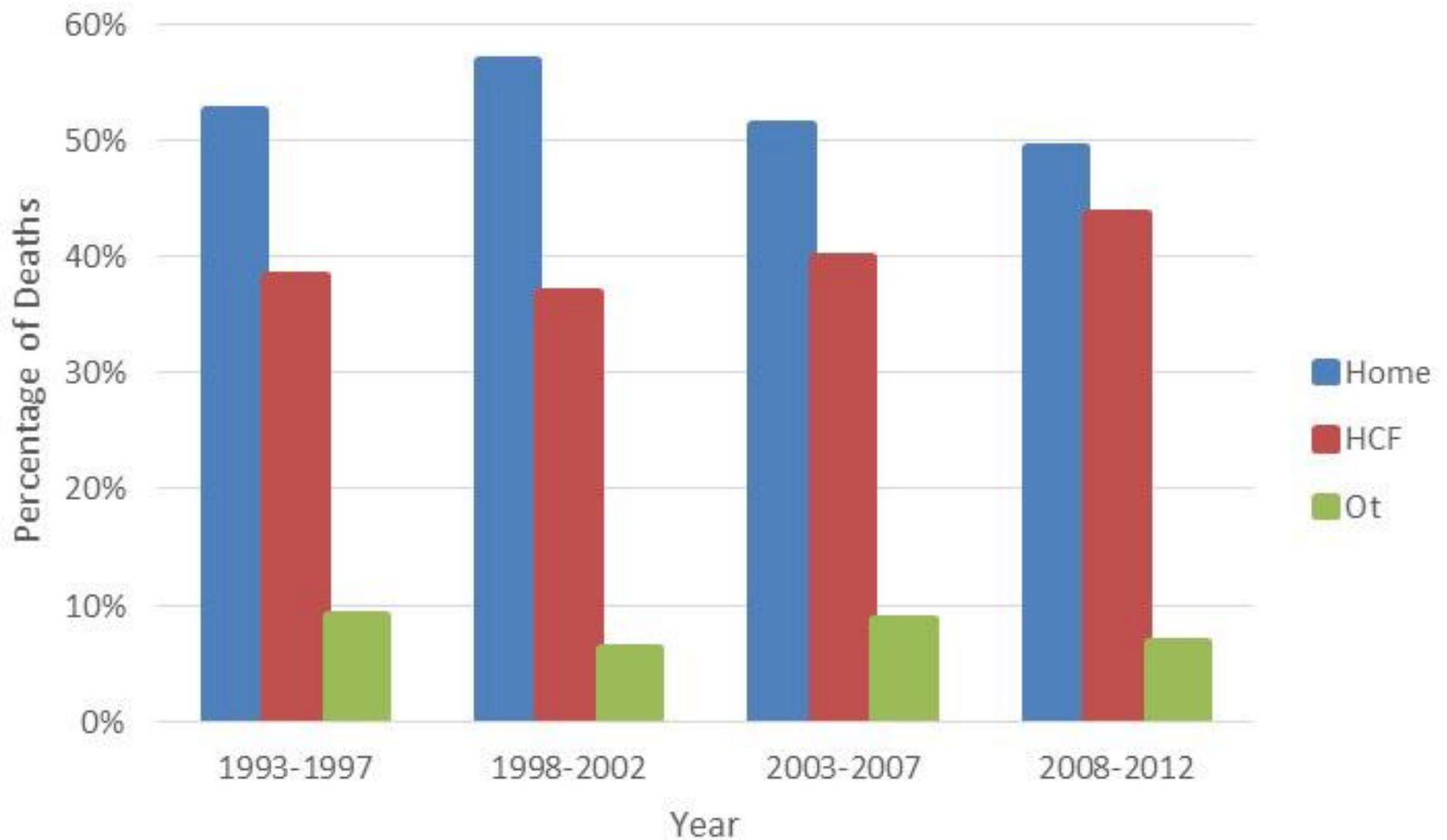


Impact of mother's death on child survival

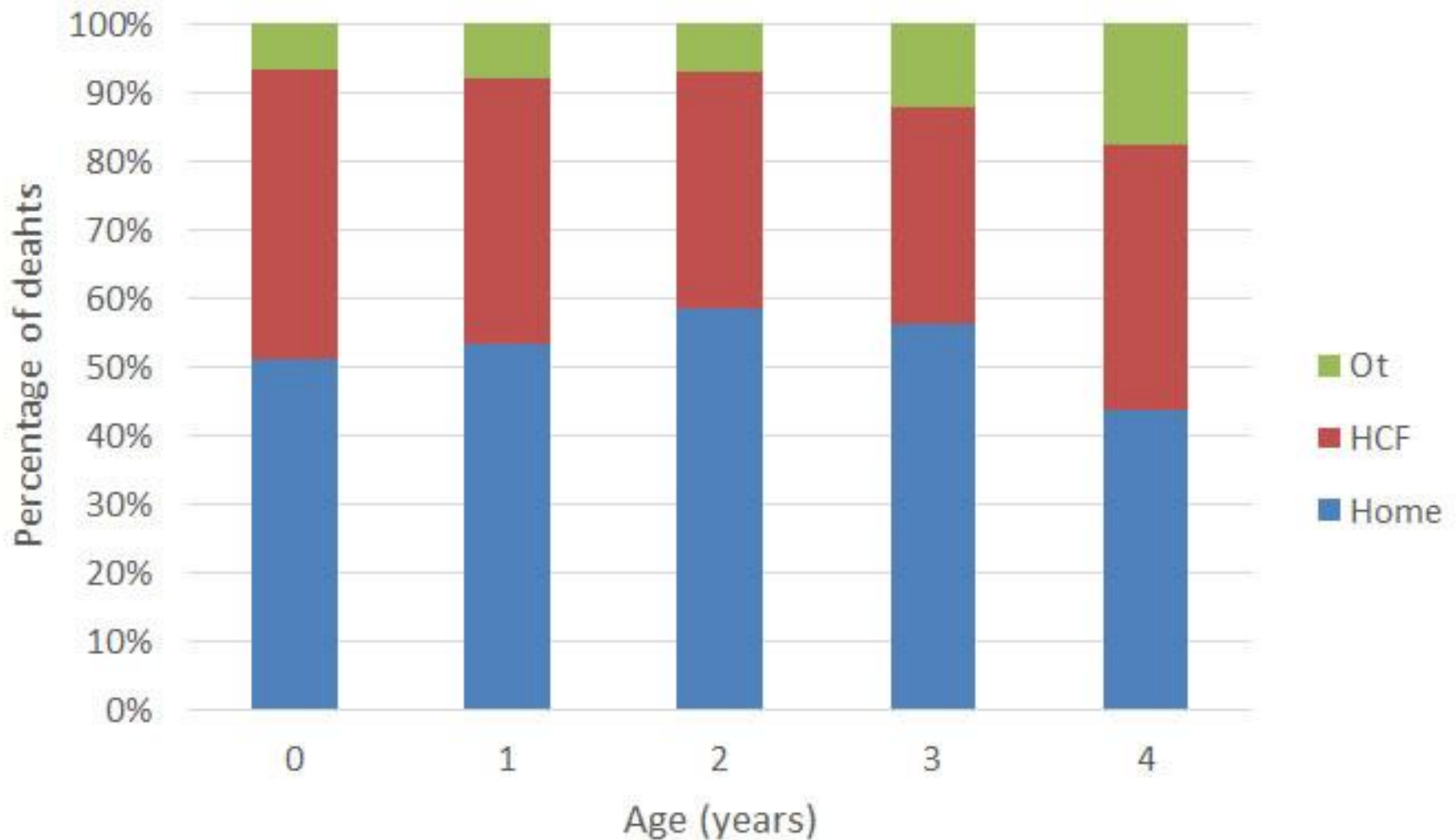


- Children more likely to die 6 – 11 months before their mother's death
- Much higher odds of dying: 1 – 2 months before mother's death (7-fold increase), month of her death (12-fold increase), 1 – 2 months after (7-fold increase)
- Boys and girls 0 – 6 months ~ 9 times more likely to die than 24 – 59 months
- Children 1.5 times more likely to die if mother died of AIDS-related cause

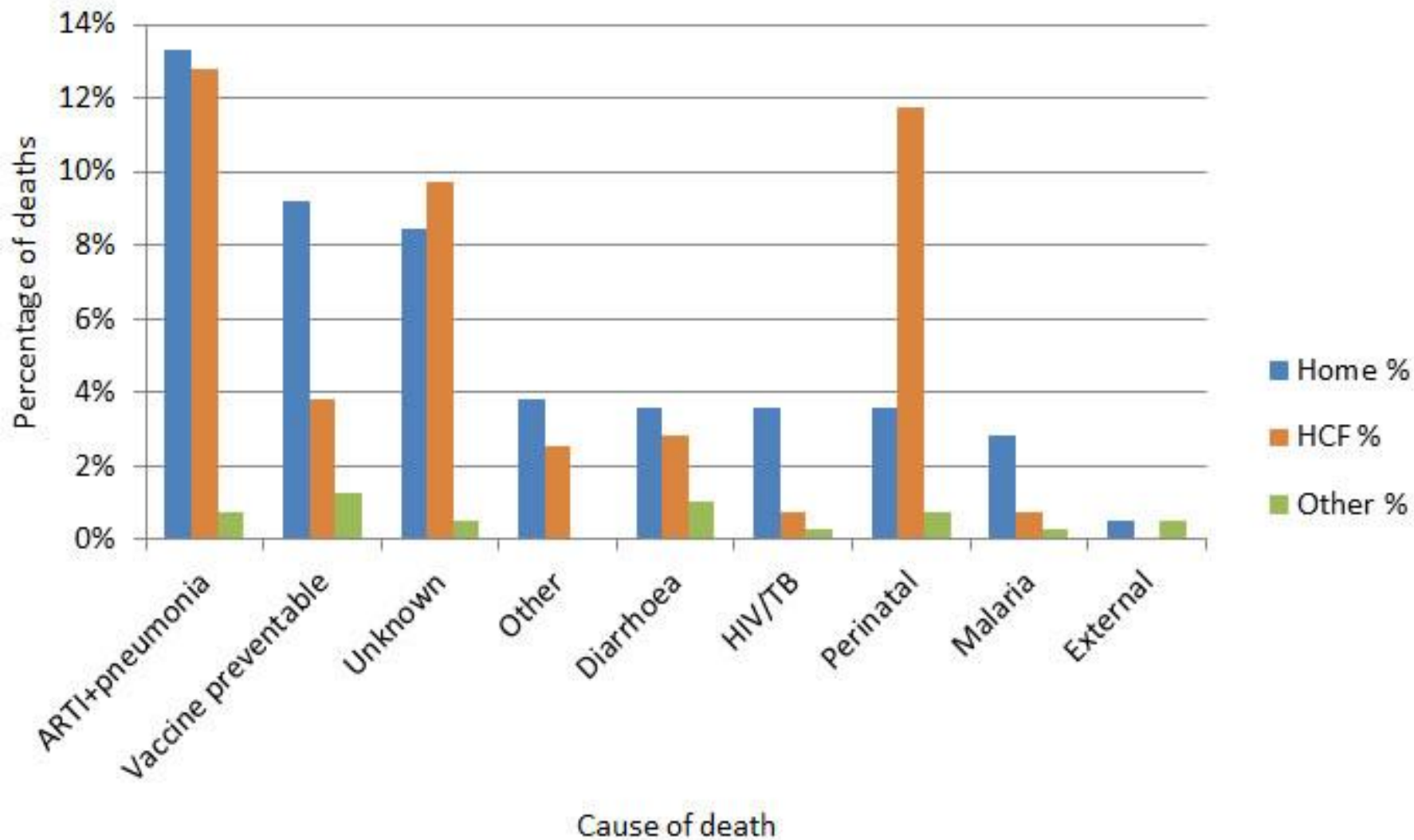
% deaths 0-4 years by place of death, 1993-2012 (n=1992)



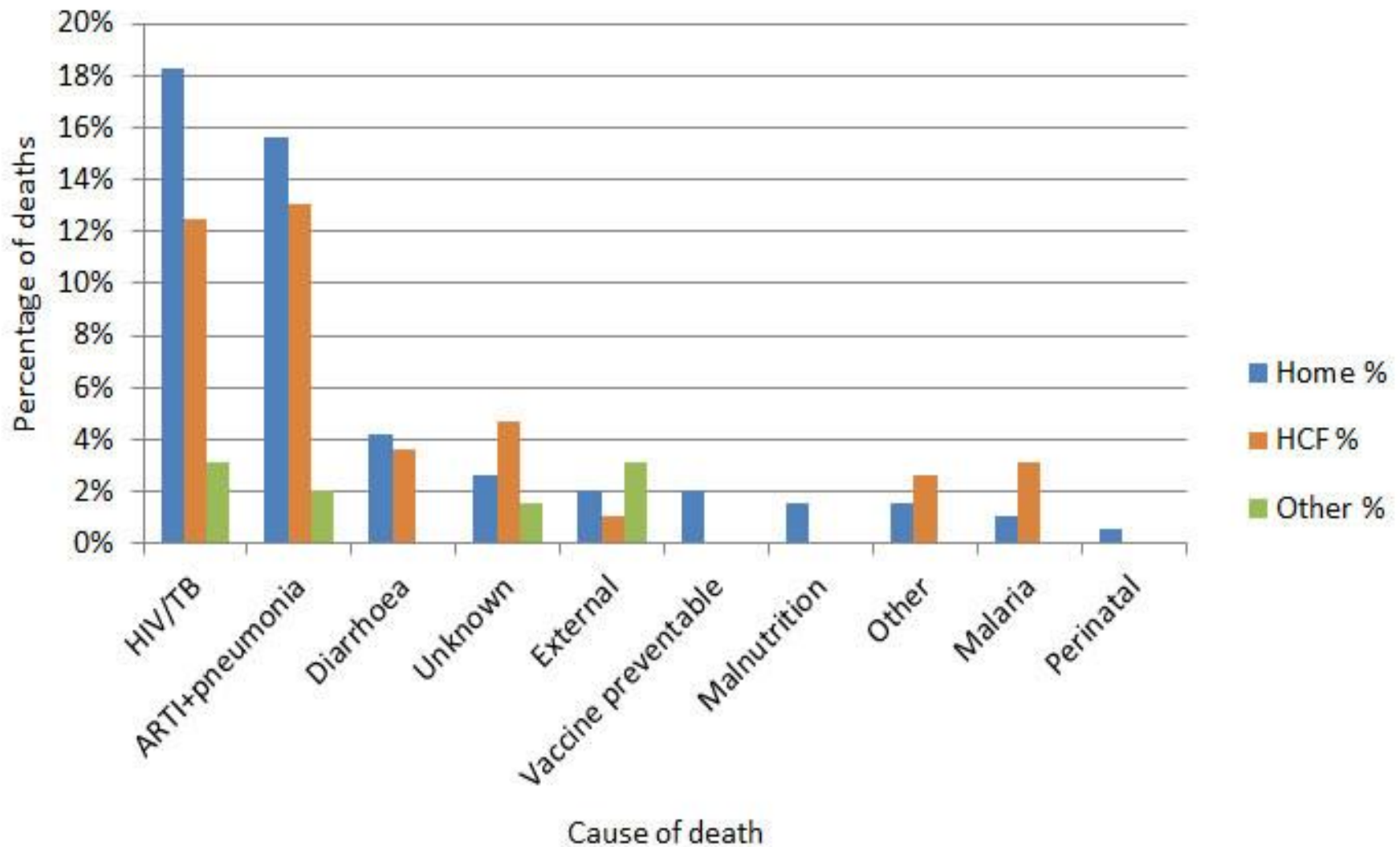
Location of death by age, 1993-2012 (n=1992)



Place of infant deaths by cause, 2008-2012 (n=391)



Place of child deaths 1-4 years by cause, 2008-2012 (n=192)



INDEPTH Network

Dissemination of ideas, tool, methods

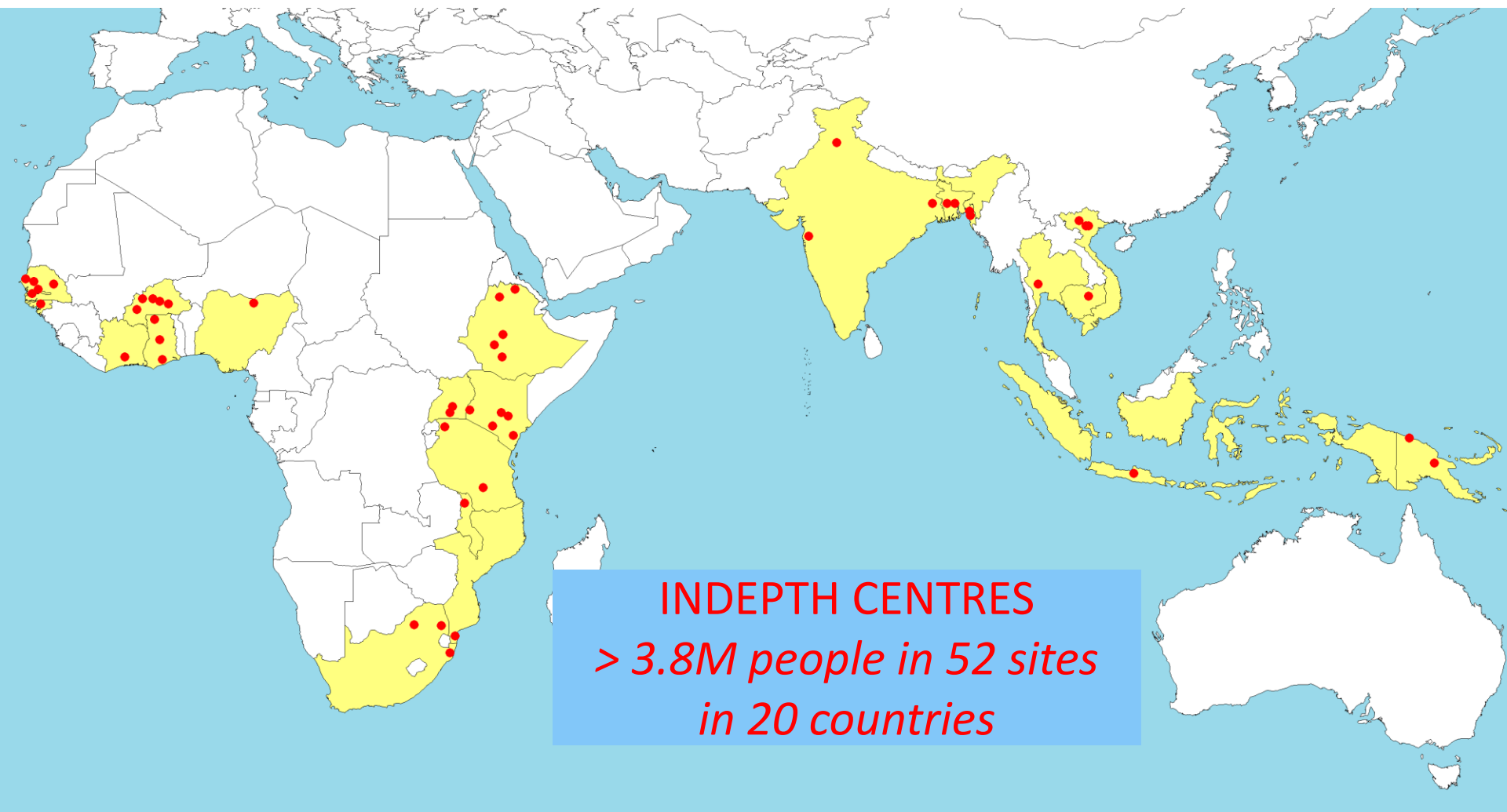
Multi-centre work:

Adult health and ageing

Mortality

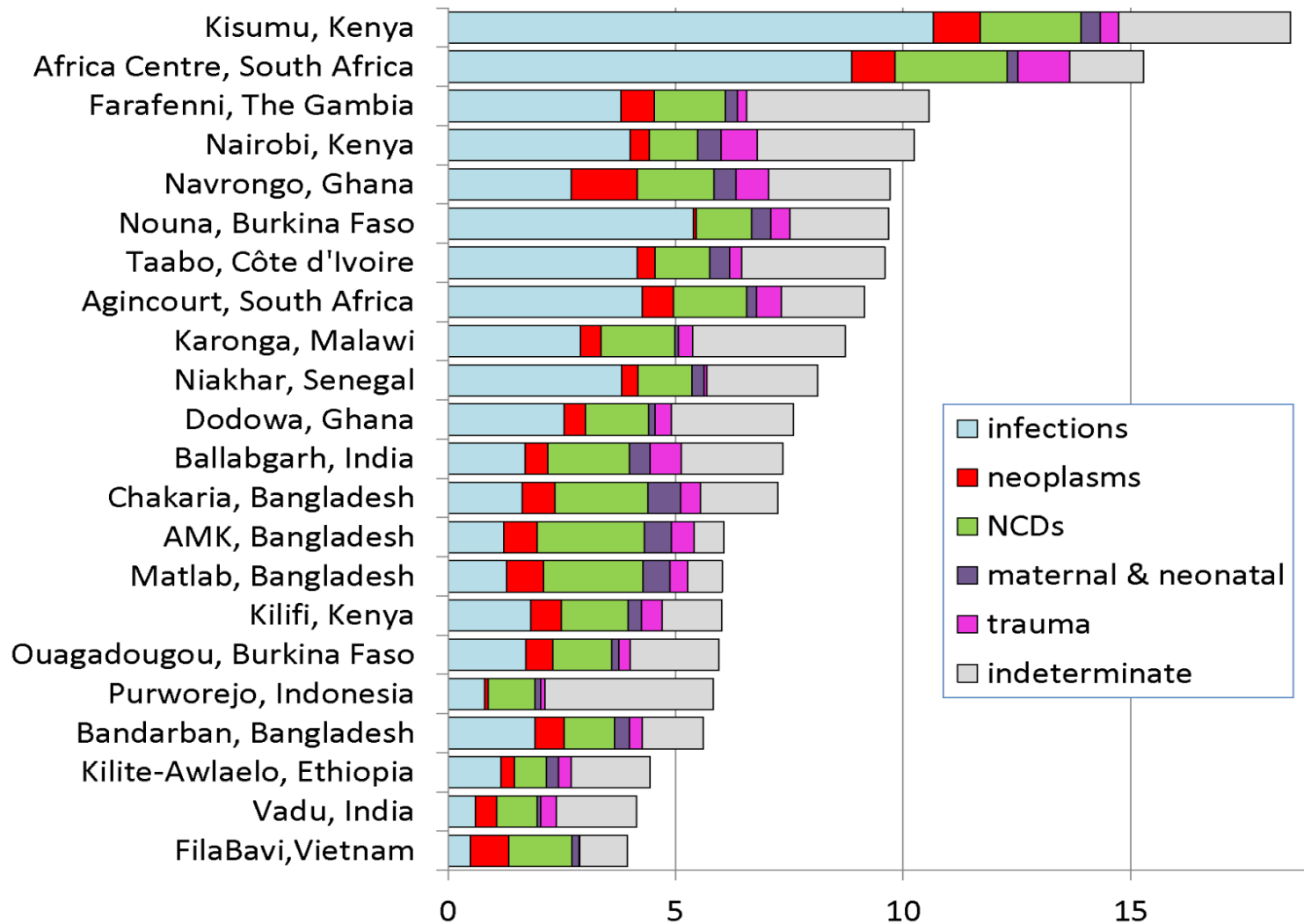
Migration and health

Epilepsy



INDEPTH CENTRES
*> 3.8M people in 52 sites
in 20 countries*

Mortality rates by cause of death in INDEPTH Sites

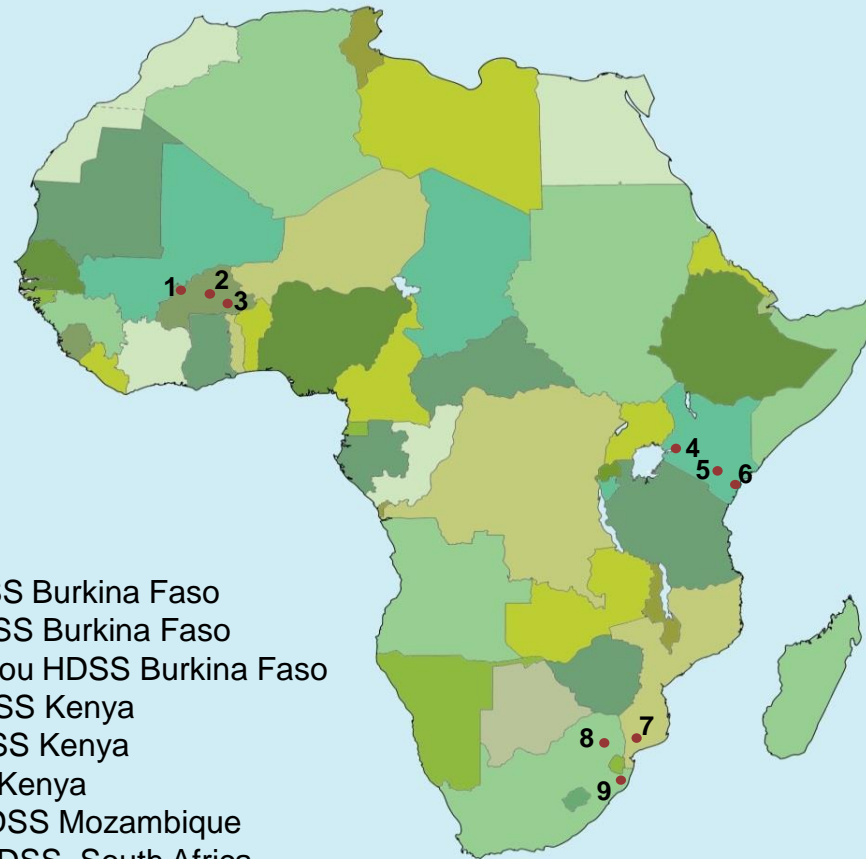


Age-sex-time standardised mortality rates per 1,000 person-years by cause group and INDEPTH site for a total of 111,910 deaths over 12,204,043 person-years observed

MADIMAH

Multi-centre analysis of the dynamics of internal migration and health

Participating HDSSs



1. Nouna HDSS Burkina Faso
2. Nanoro HDSS Burkina Faso
3. Ouagadougou HDSS Burkina Faso
4. Kisumu HDSS Kenya
5. Nairobi HDSS Kenya
6. Kilifi HDSS Kenya
7. Manhica HDSS Mozambique
8. Agincourt HDSS South Africa
9. Africa Centre HDSS South Africa

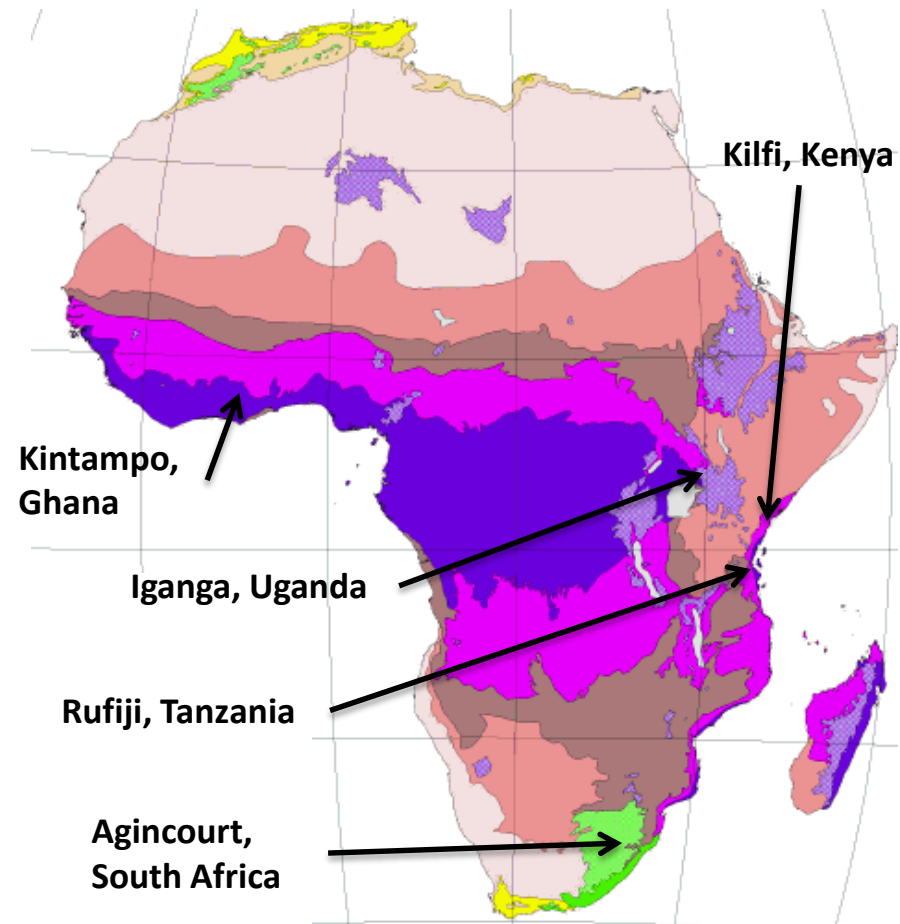
INDEPTH Epilepsy collaboration

Adjusted prevalence per 1000 of active convulsive epilepsy:

South Africa	7.0
Kenya	7.8
Ghana	10.1
Uganda	10.3
Tanzania	14.8

Ngugi, Wagner, Newton et al
Lancet Neurology 2013

5 HDSS centres



Adult health and ageing

Ghana, Navrongo (Rural)
Abraham Oduro, Cornelius Debpuur



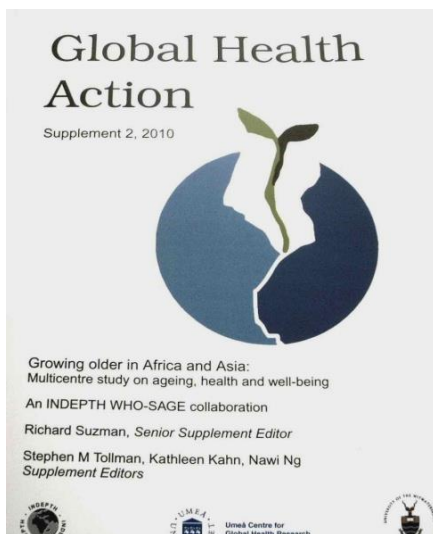
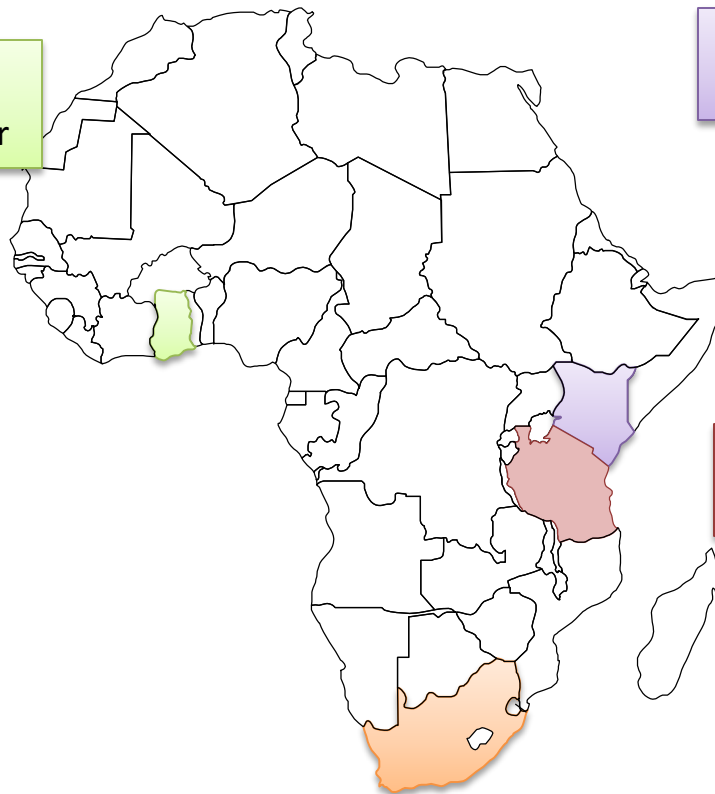
Kenya, Nairobi (Urban)
Alex Ezeh, Catherine Kyobutungi



Ifakara, Tanzania (Rural)
Honorati Masanja



Agincourt, SA



Informing health and development strategy

- **District and provincial health systems**
 - Community programmes: nutrition, STIs, mental health
 - Clinic catchments and populations ‘at risk’
 - Step-ups in care and referral systems
 - Laboratory services with multi-skilled lab assistant
 - Preventing hypertension and stroke
- **Public sector programmes**
 - Village development: pre-schools, water distribution
 - Improving access to child grants
 - Food security and natural environment
- **Statistics SA: National information**
 - Census and vital registration; migration patterns

Hypertension Studies and impacts in Agincourt HDSS 2002-2014

Research

2002 Hypertension screening question embedded in Agincourt HDSS census – highlighted high prevalence of hypertension and stroke

2002/3-2006: Formation of South African Stroke Prevention Initiative (SASPI) & multi-disciplinary research into hypertension and stroke.

2010: HIV NCD Study Chronic Disease Risk Factor Surveillance conducted in Agincourt

2011-2013: PRICELESS, Agincourt sub-unit conducts research on the impacts of reducing salt content in manufactured food in decreasing hypertension and stroke

2012/3-2015 Nkateko project on treating hypertension in rural South Africa

2014 HAALSI and Awi-Gen projects will build on this work at a large scale- providing insights into hypertension and cardiometabolic disease risks and prevalence more broadly.

Impacts

Local: Applied drama process used to disseminate research findings and provide residents with facts about hypertension and stroke.

District/ Provincial: Presentation of SASPI results to provincial and National government, leads to WHO supported programme on NCD prevention implemented in 3 areas of the Mpumalanga province.

National: Regulations limiting salt content in manufactured food (in particular bread) is declared in 2013, to be implemented in 2016.

National: Major media coverage, debates and discussions on salt content regulations.

Local: Several Clinics in Agincourt set up as National Pilot site for integrated chronic care.

All studies conducted in Agincourt include community entry and feedback from the LINC (Learning Information Dissemination and Networking with Communities) office as well as where relevant patient referrals to clinics and hospitals.

Concluding messages

- *Population-based research* contributes critical ‘intelligence’ to health and social development



VAPAR – Verbal autopsy and Participatory Action Research

- What does this add?

Acknowledgements

MRC, Wits University, NRF, Treasury,
Depts. of Health and Science &
Technology -*South Africa*

The Wellcome Trust and MRC -*UK*
National Institutes of Health (NIH):

Fogarty International Center
National Institute on Aging
National Human Genome Research
Institute

National Institute for Mental
Health

National Institute of Allergy and
Infectious Diseases

National Institute of Child Health
and Human Development

Bill and Melinda Gates Foundation,
Population Council and Hewlett
Foundation -*USA*

Sida –*Sweden*



Key collaborations

Agincourt host communities

- Local Govt and Dept of Health
- Statistics South Africa
- INDEPTH Network

