



Migration & Health Follow-up Study Brown U [USA] and Wits U [S Afr]

Presentation by Michael J. White, Brown & Wits
Joint work with many others at Wits and Brown

Population Aging and Health in Low and Middle Income Countries
UPenn 7 Sep 2018

Project Goals

- ▶ 1) improve understanding of how migration and urbanization impact population health, so as to better understand the urbanization trade-off:
 - ▶ salutary increases in socioeconomic circumstances
 - ▶ health risks that accompany the shift
- ▶ 2) improve understanding of population redistribution
 - ▶ Esp. temp & circular migration
 - ▶ inform companion health investigations;
- ▶ 3) identify where population mobility may compromise continuity of care for chronic conditions



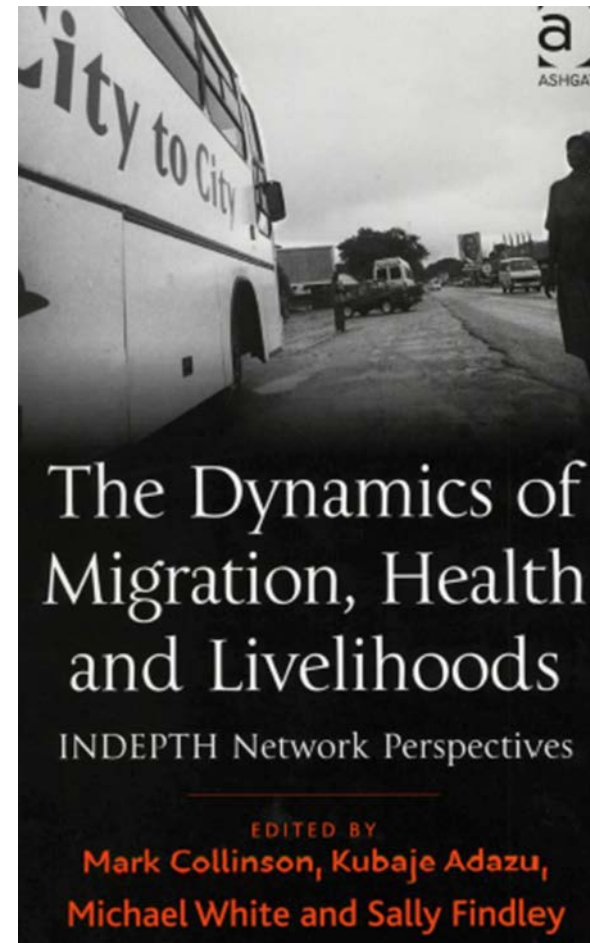
Funding

- ▶ Principal funding for this research is provided by the Population Dynamics Branch of the Eunice Shriver National Institute for Child Health and Human Development, US NIH grant **1R01HD083374, “Migration, Urbanization and Health in a Transition Setting.”**
- ▶ Additional funding has been provided by the Mellon Foundation, the Providence/Boston Center for AIDS Research (CFAR) under NIH grant P30AI042853.
- ▶ The Agincourt HDSS has been funded by the Wellcome Trust, UK (grant 058893/Z/99/A, 069683/Z/02/Z, 069683/Z/08/Z) and the University of the Witwatersrand and Medical Research Council, South Africa.



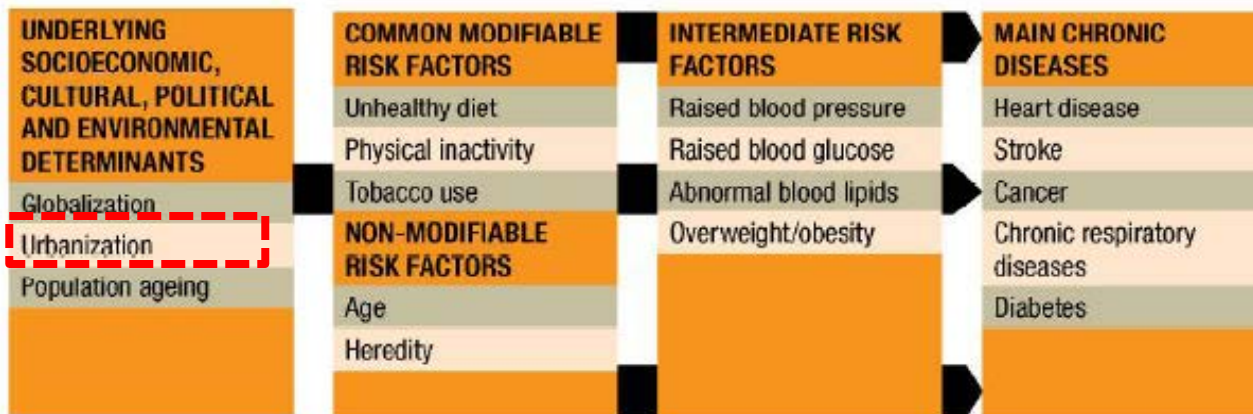
Motivation and Some History

- ▶ Many years of Brown-Wits collaboration, esp with Agincourt HDSS Site
- ▶ MUWG/MADIMAH (InDepth) →
- ▶ WBCA
- ▶ Pilot Study (CFAR)
 - ▶ Find migrants?
 - ▶ Mobile Phone feasible?



Migration, Urbanization, and Health Transition

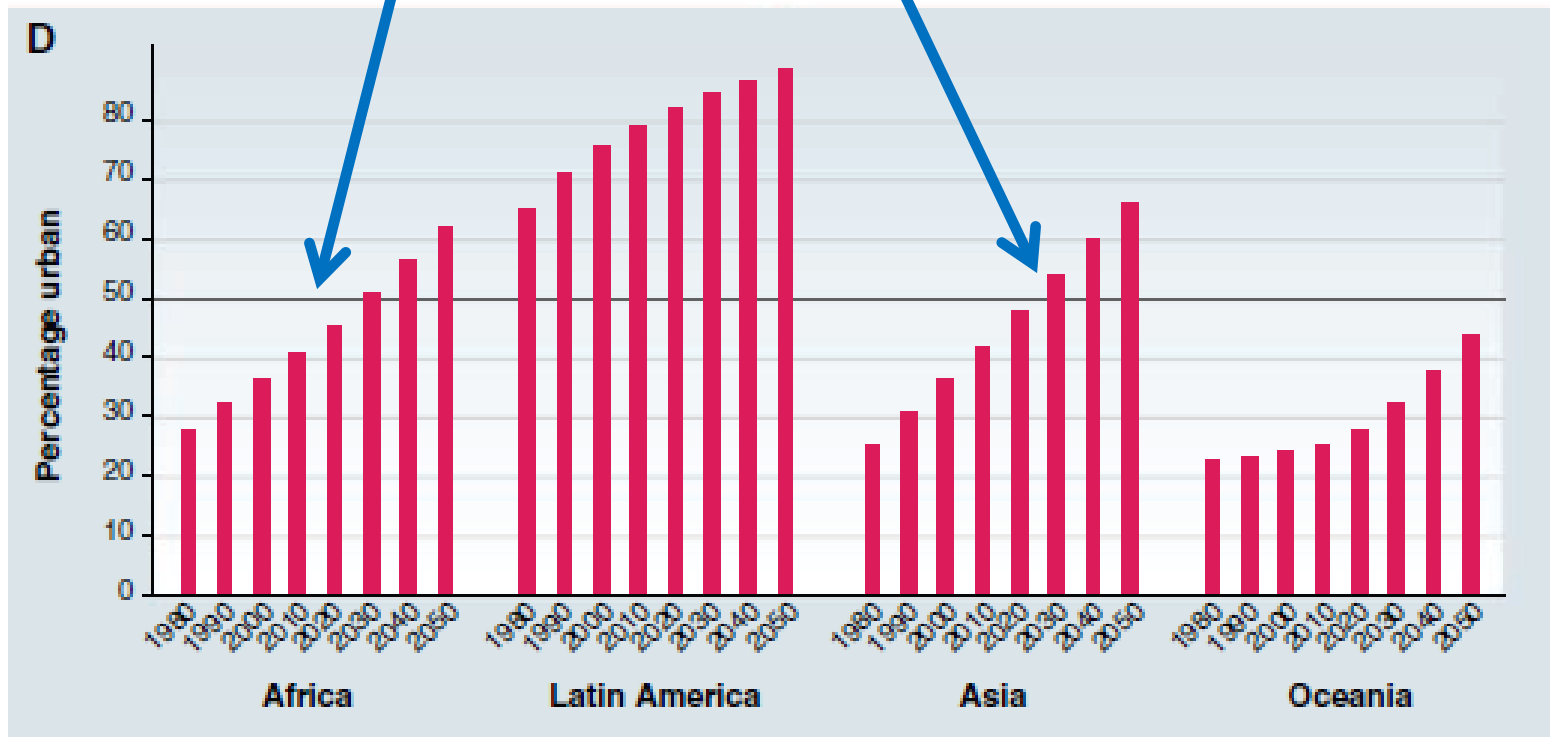
CAUSES OF NON-COMMUNICABLE DISEASES



The Urban Transition – a summary

See MR Montgomery *Science* 2008 & also NRC *Cities Transformed* 2003

**African
urbanization
low, but
advancing in
parallel to Asia**



A Steady Increase In Migration Of All Kinds IN South Africa

(Source Reed, *Demog* 2013)

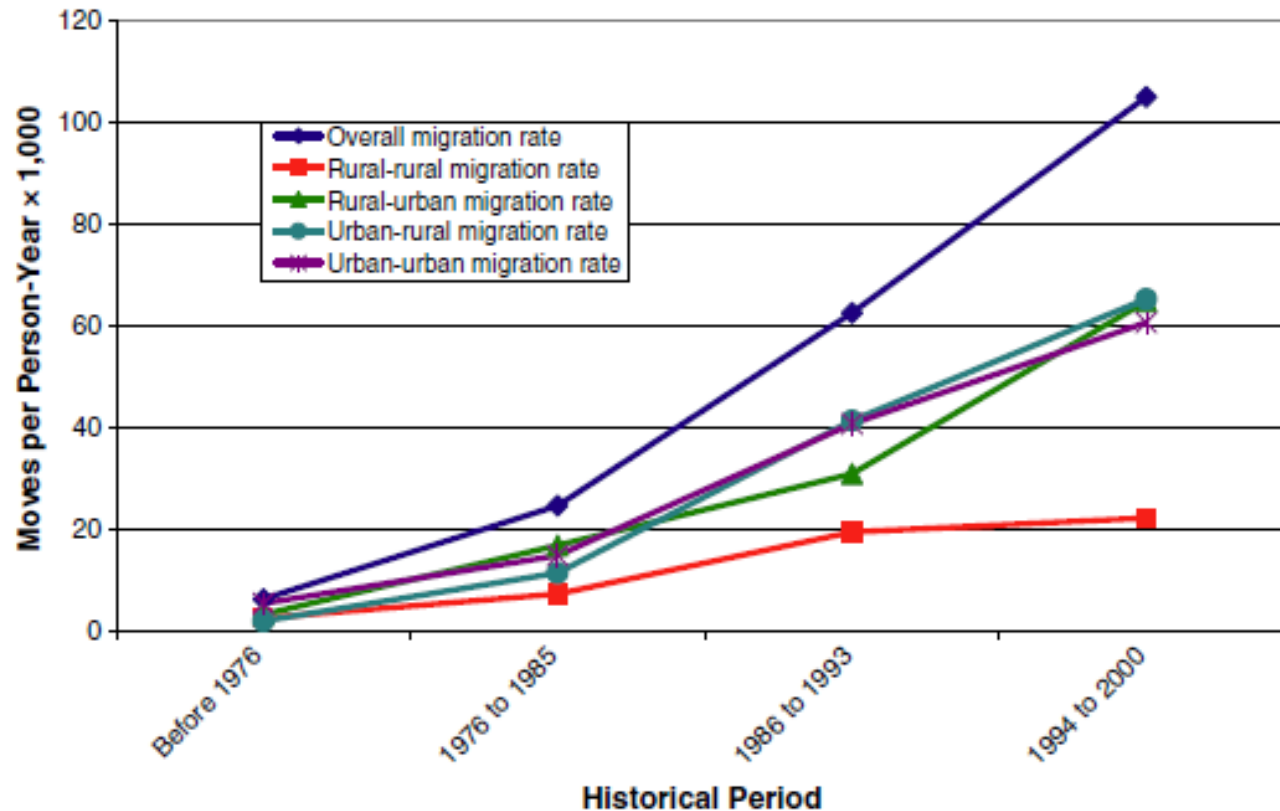
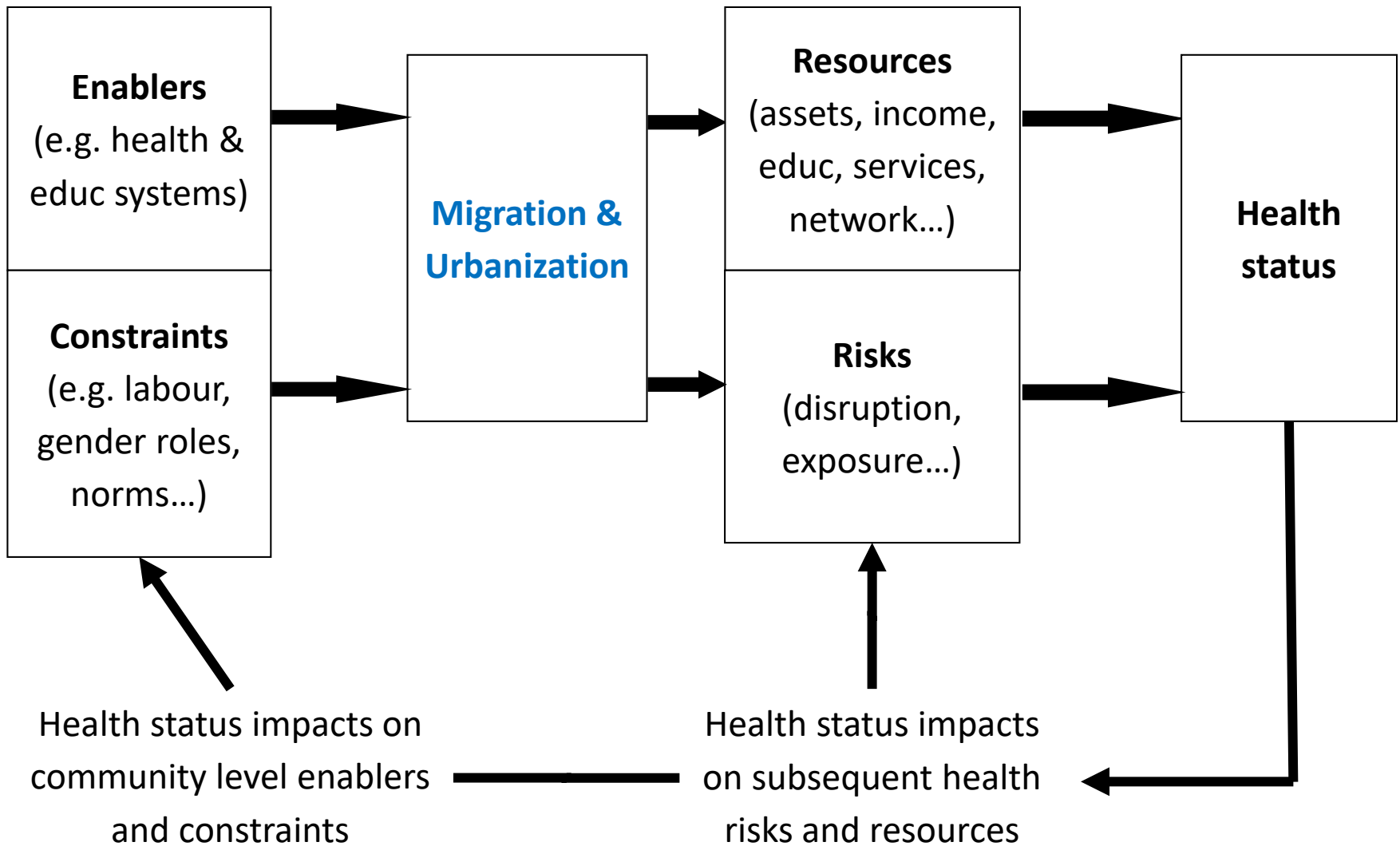


Fig. 2 Rural and urban migration rates

Conceptual Framework



Research Design

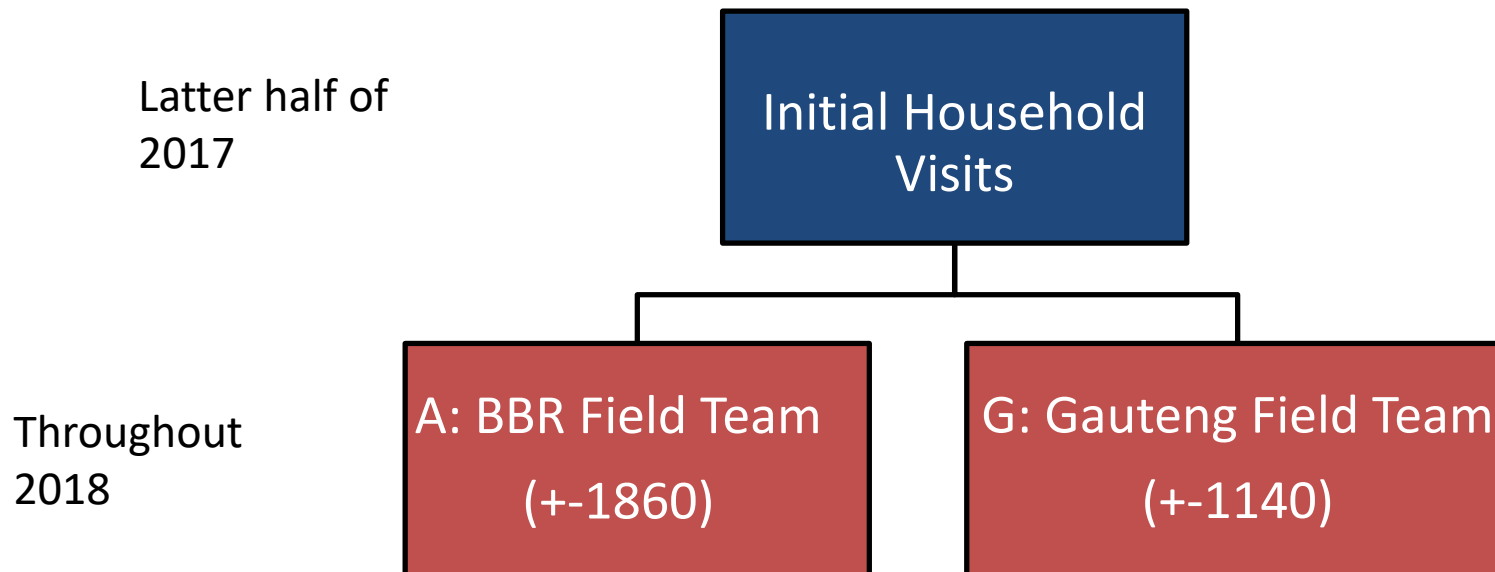
- ▶ **Build on Demographic Surveillance (HDSS) Scaffolding**
- ▶ **Longitudinal – Plan on 4 Waves**
 - ▶ In-person; Phone; Phone; In-person
- ▶ **Sample (SRS) persons 18-39**
 - ▶ As of Late 2016 HDSS Census Round
 - ▶ Anticipate OK distribution w.r.t. Migrants and Age
 - ▶ Dovetail (in Age) with HAALSI project
- ▶ **2017 Initial Household Visits**
 - ▶ Origin HH and get contact info
 - ▶ Aim to find & interview individual wherever they are
- ▶ **2018 – Begin Fieldwork Two Teams**



Data Collection

Fieldwork

Information on the location of migrants was used to split the sample between those targeted by the Agincourt/Bushbuckridge data collection team (Team A BBR), and those targeted by the Gauteng data collection team (Team G JHB), where the fieldworkers will schedule and conduct the interviews.



Data Collection

Participants will be interviewed once in each year of the study either in person, or by telephone

Initial Household Visits	Year 1	Year 2	Year 3	Year 4	Year 5???
	Face to face interview	Telephone interview	Telephone interview	Face to face interview	Telephone interview
	Collection of biometrics	~	~	Collection of biometrics	~

Data Collection

Interviews

- Interviews administered on tablets using **REDCap**
- Questions Sections include:
 - Education and employment
 - Residential history
 - Remittances
 - General health
 - Healthcare access
 - Diet and exercise
 - Tobacco and alcohol
 - Sexual partnerships/ HIV
- BP, Height & Weight, DBS

Progress and Issues

- ▶ **Original Sample Drawn N=3800**
 - ▶ @IHV: 203 Refusals; 106 ineligible; 440 no-contact, unresolved
 - ▶ → 3051 (3061)
 - ▶ Anticipate Wave 1 Fieldwork to conclude late 2018
- ▶ **Fieldwork**
 - ▶ Survey Instrument composed in REDCap – working well
 - ▶ High level of cooperation *once we successfully reach R*
- ▶ **Coordination: Visits + weekly Team Zoom teleconferences**
- ▶ **Challenges & Issues**
 - ▶ Finding R's – arguably more circularity than we anticipated
 - ▶ Some Human Subject admin issues (re Phone; HIV feedback)
 - ▶ Coordinating across teams as we (now) work in distant locales



Fieldwork Progress to date (30Aug2018)

▶ . tab interview_outcome_complete team, m

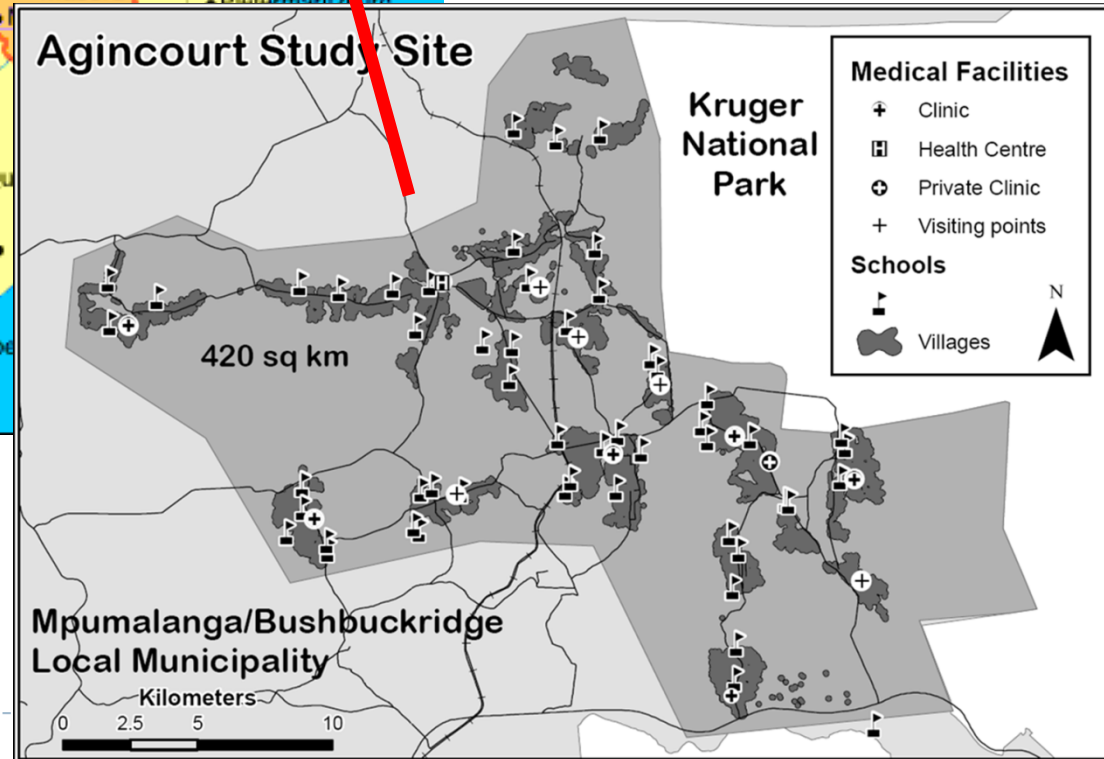
	team		
Complete?	A	G	Total
-----+-----+-----			
Incomplete	694	558	1,252
Complete	1,385	424	1,809
-----+-----+-----			
Total	2,079	982	3,061





Agincourt HDSS

Mpumalanga Province

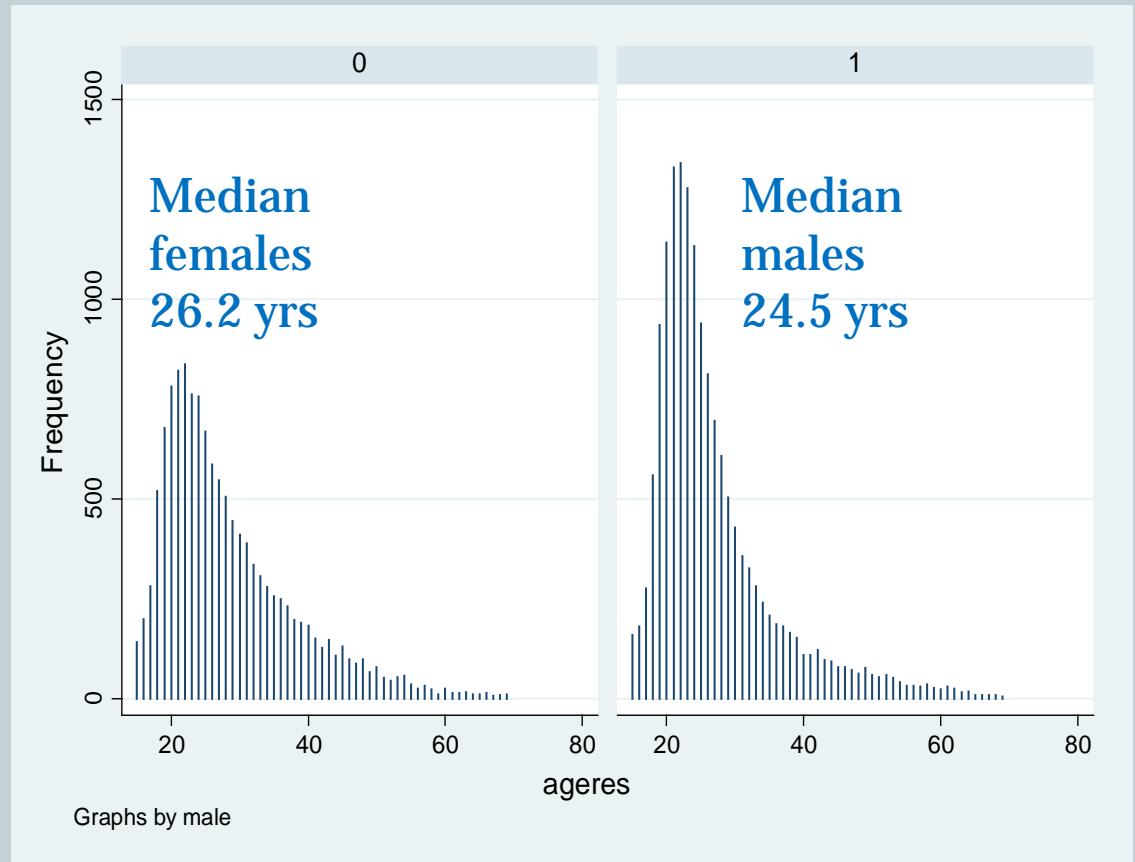


Villages: 26
 Population: 84 000
 Households: 15 000
 Inaugurated: 1992

Who moves?

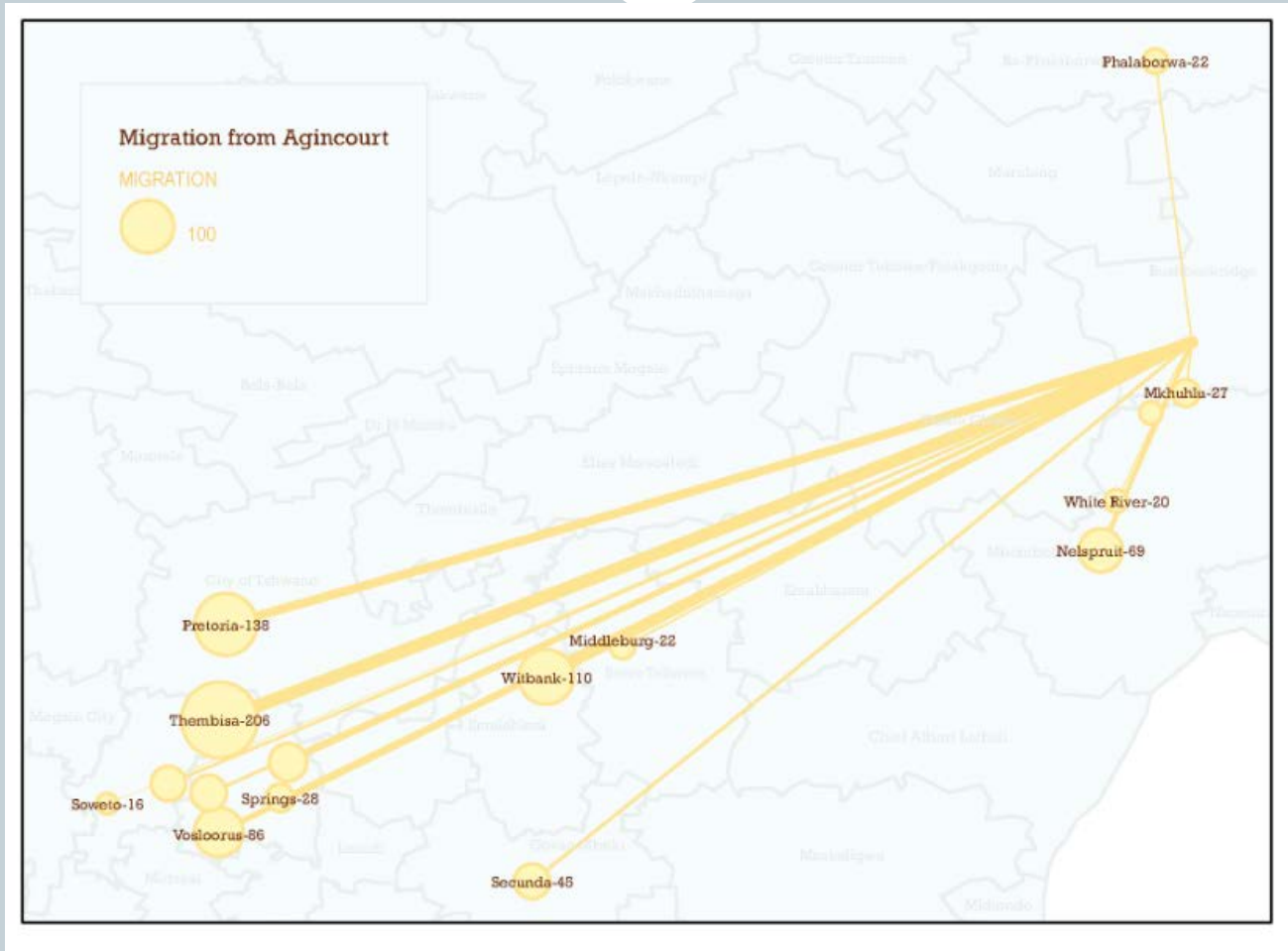
Agincourt Temp Migration Age Profile

- **Agincourt HDSS:**
- Who is a “Temporary Migrant”?
 - HH reports “migrant” has HH membership
 - Intermittent visits
- Percent of adult Person-Years [15,70) with temp migration
 - Female 27%
 - **Male 53%**



Previous Work

Major Destinations in our Sample



Completion Rates by Sex of Respondent

Males somewhat harder to find/interview

```
. tab interview_outcome_complete male, col
```

```
+-----+
| Key          |
|-----|
|   frequency  |
| column percentage |
+-----+
```

Complete?	Female	Male	Total
Incomplete	547	705	1,252
	36.08	45.63	40.90
Complete	969	840	1,809
	63.92	54.37	59.10
Total	1,516	1,545	3,061
	100.00	100.00	100.00



Average HH size – “Gauteng” vs. “Agin.”

```
. ttest q_4_9_2, by(team)
```

Preliminary from incomplete data – illustrative only

Two-sample t test with equal variances

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
A	972	3.217078	.0489687	1.526692	3.120982	3.313175
G	245	1.922449	.0803062	1.256991	1.764267	2.080631
combined	1,217	2.95645	.0448492	1.564589	2.86846	3.044441
diff		1.294629	.1055502		1.087548	1.50171

diff = mean(A) - mean(G)

t = 12.2655

Ho: diff = 0

“rural” A – “urban” G

degrees of freedom = 1215

Ha: diff < 0

Ha: diff != 0

Ha: diff > 0

Pr(T < t) = 1.0000

Pr(|T| > |t|) = 0.0000

Pr(T > t) = 0.0000



Weekly Work hours for “Rural” Agincourt Team < “Urban” Gauteng Team, both M,F

Males

```
. tab workhours team if male==1
```

On average, how many hours do you work in a typical week?

“rural” A vs “urban” G

	team		Total
	A	G	
1-10	34	1	35
11-20	14	2	16
21-30	30	5	35
31-40	92	95	187
41-50	40	61	101
51-60	12	9	21
61-70	1	7	8
81 or more	0	1	1
Total	223	181	404

Females

```
. tab workhours team if male==0
```

On average, how many hours do you work in a typical week?

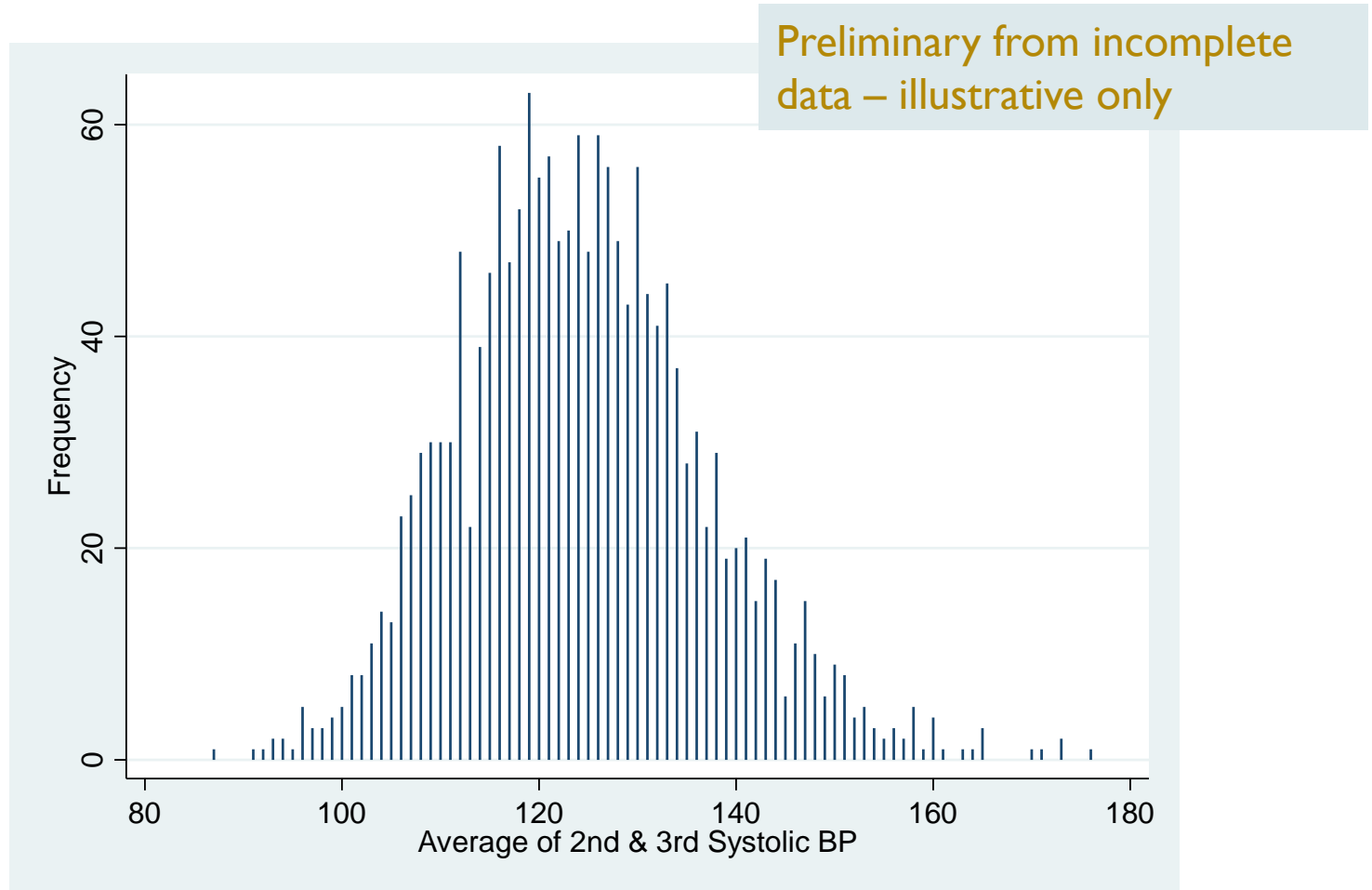
“rural” A vs “urban” G

	team		Total
	A	G	
1-10	49	0	49
11-20	9	4	13
21-30	25	5	30
31-40	66	38	104
41-50	30	30	60
51-60	4	3	7
61-70	1	2	3
Total	184	82	266

Preliminary from incomplete data – illustrative only

Early Info– sample captured to date

Systolic BP distribution

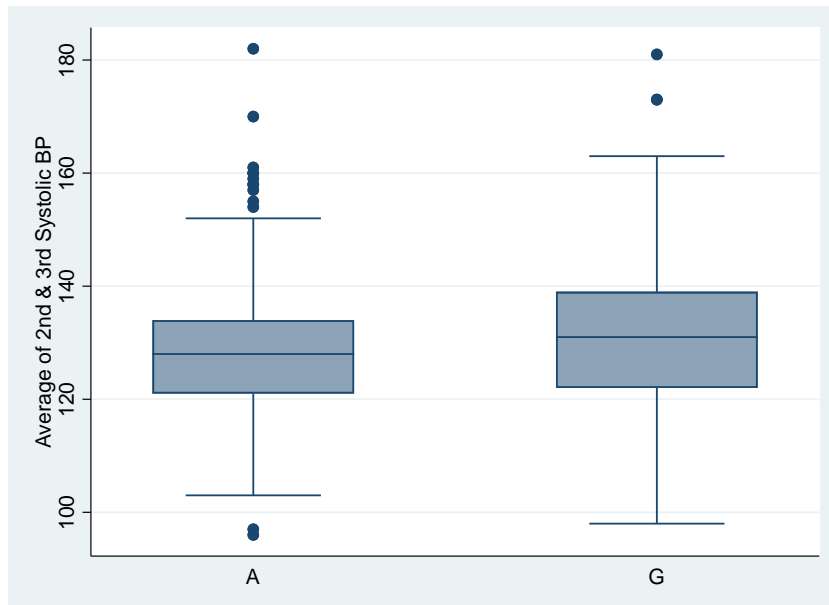


Diastolic BP for “Rural” Agincourt Team vs. “Urban” Gauteng “Team”

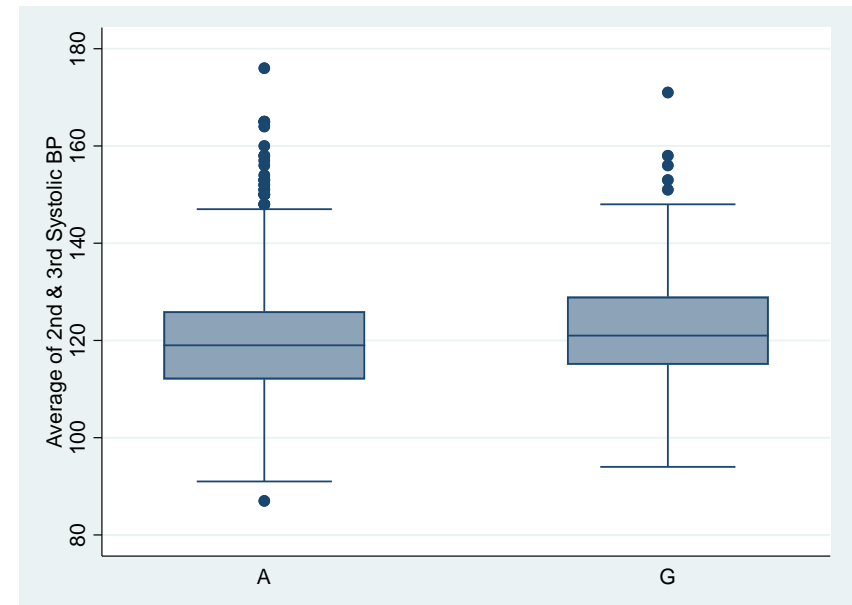
Preliminary from incomplete data – illustrative only

Males

Females



“rural” A vs “urban” G



“rural” A vs “urban” G

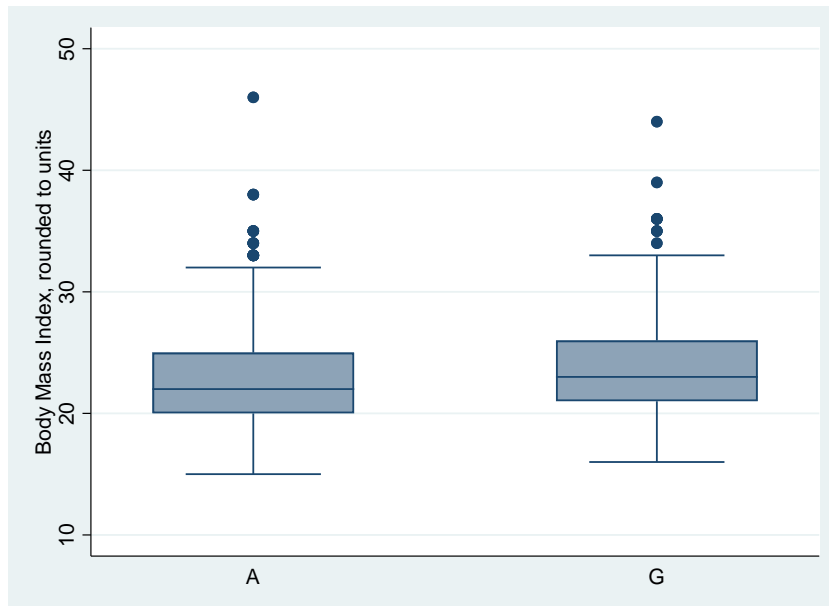
t-test points to stat sign diffs for both males and females: $G > A$; 4 outliers (F)

BMI for “Rural” Agincourt Team vs. “Urban” Gauteng “Team”

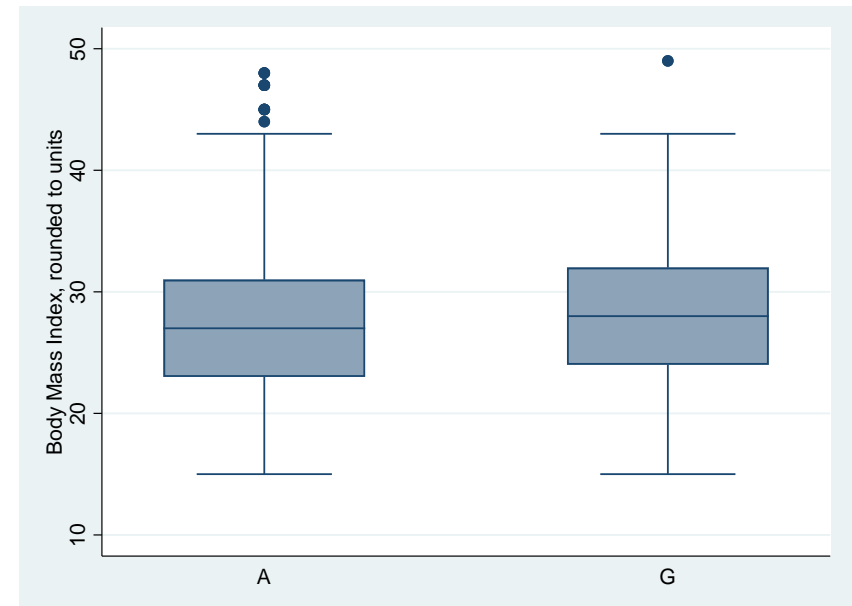
Males

Females

Preliminary from incomplete data – illustrative only



“rural” A vs “urban” G



“rural” A vs “urban” G

t-test points to stat sign diffs only for **males** : $G > A$

Who We Are?

@Wits

- ▶ Mark Collinson
- ▶ Stephen Tollman
- ▶ Carren Ginsburg
- ▶ Xavier Gomez-Olive
- ▶ Latifat Ibomosi
- ▶ 2 PSM's (Sadson, Keith)
- ▶ FW's in 2 locations
- ▶ Data Unit and Admin

@Brown

- ▶ Michael White
 - ▶ Mark Lurie
 - ▶ Stephen McGarvey
 - ▶ Andrew Foster
 - ▶ **Mark Gross (here)**
 - ▶ Tyler Myroniuk
 - ▶ Multiple Grad Students
-



Related Info

- ▶ Website:

- ▶ <https://www.brown.edu/research/projects/migration-and-health/migration-and-health-follow-study-mhfus>

- ▶ Myroniuk, Ginsburg, Collinson, Gross, Wang, White: "Does It Take a Village? Migration among Rural South African Youth" (Forth. *PRPR*)

- ▶ Agincourt HDSS

- ▶ Pheiffer, McGarvey, Gomez-Olive et al : BP & Migration/Urbanization

- ▶ Pilot Data; Planned follow-up with MHFUS

- ▶ Ginsburg – upcoming presentation (MRC) and ms on access to health services

- ▶ Anticipated 2019 PAA papers

- ▶ Some Companion Analyses of other Data Sources



Where we are going...

- ▶ Finish Wave 1 Fieldwork
- ▶ QN design Wave 2 (Tel.)
- ▶ Analyze: → LTFU
/Attrition/Selection
- ▶ Merge MHFUS Wave I to
Agincourt HDSS
 - ▶ Model selection
 - ▶ Include personal history
and context