Study Updates: Africa HAALSI (South Africa) David Canning
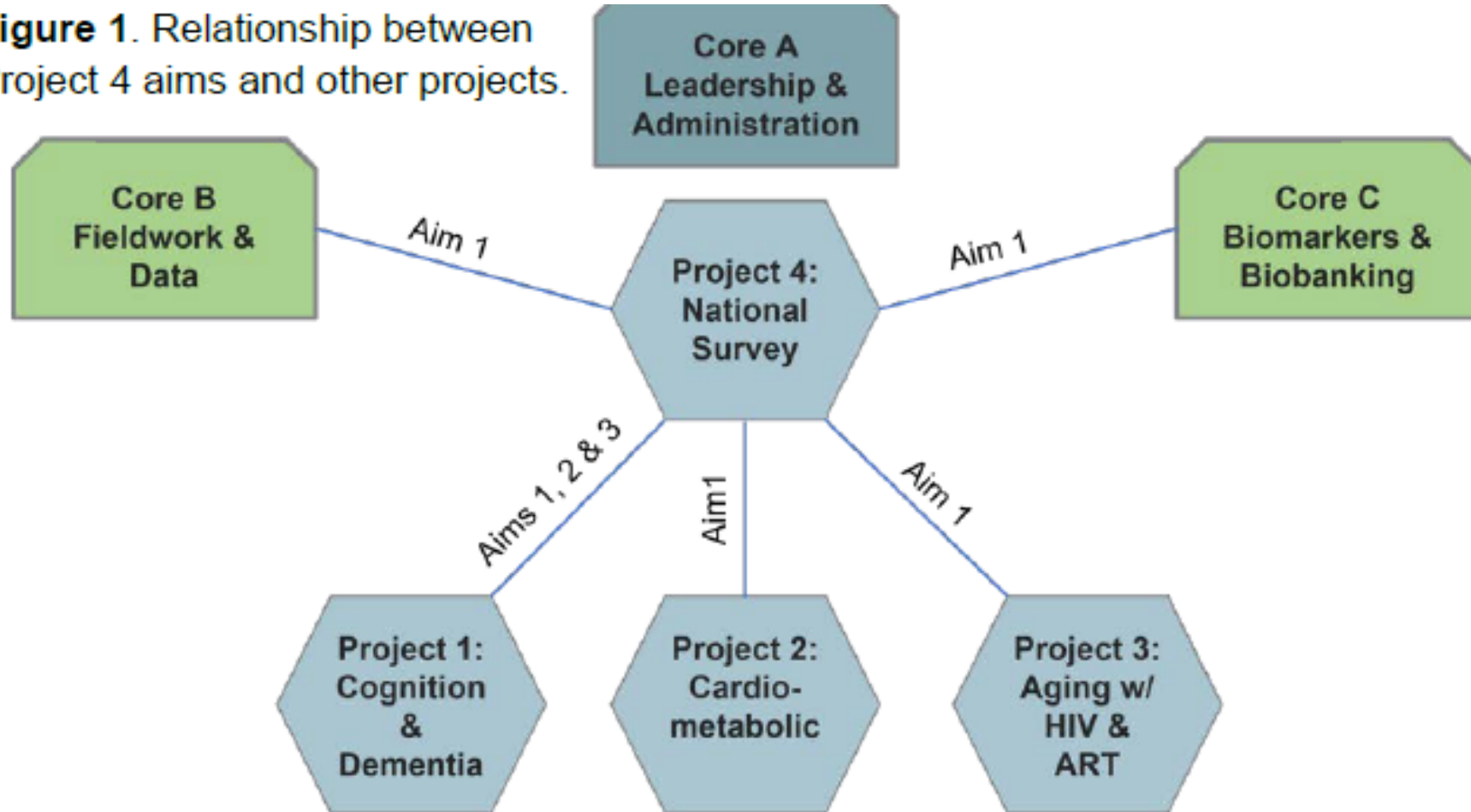
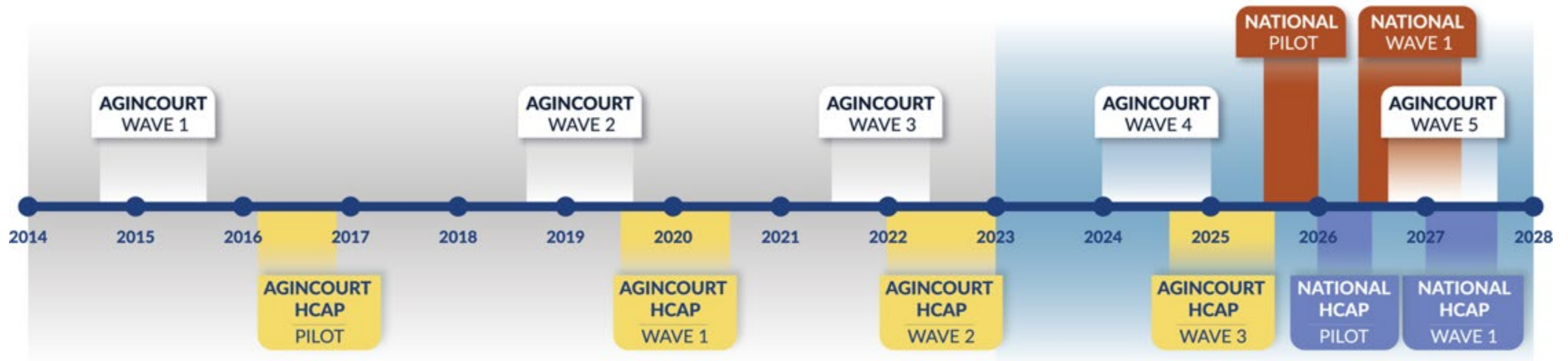**2023 Meeting of the HRS Around the World Studies**

August 22-23, 2023

Dublin, Ireland

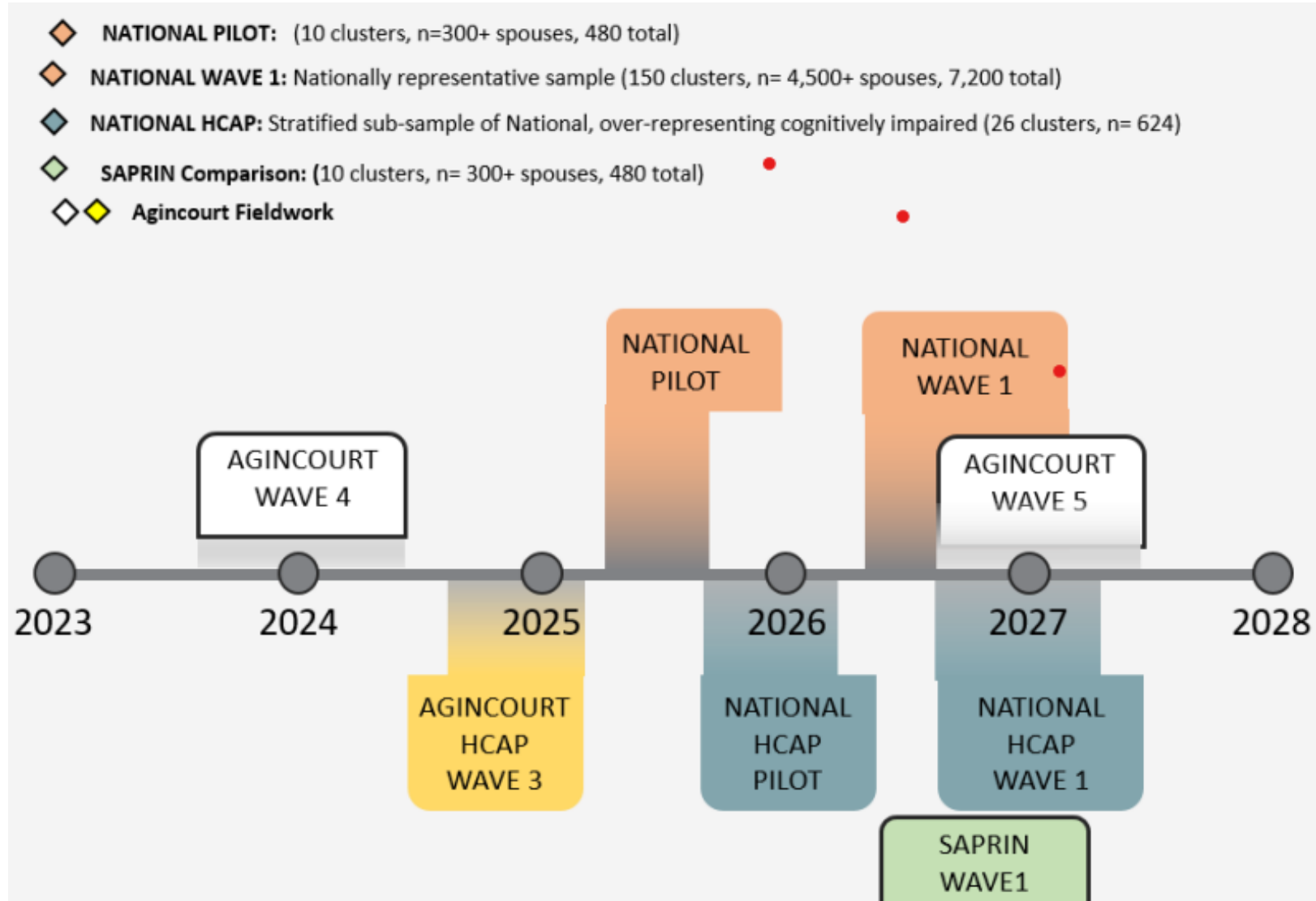# Relationship between projects and cores in the HAALSI Program

Figure 1. Relationship between Project 4 aims and other projects.

Agincourt and National Timeline

National Survey Timeline

- **NATIONAL PILOT:** (10 clusters, n=300+ spouses, 480 total)
- **NATIONAL WAVE 1:** Nationally representative sample (150 clusters, n= 4,500+ spouses, 7,200 total)
- **NATIONAL HCAP:** Stratified sub-sample of National, over-representing cognitively impaired (26 clusters, n= 624)
- **SAPRIN Comparison: (**10 clusters, n= 300+ spouses, 480 total)
- **Agincourt Fieldwork**

NATIONAL PILOT

NATIONAL WAVE 1

AGINCOURT WAVE 4

AGINCOURT WAVE 5

2023　　2024　　2025　　2026　　2027　　2028

AGINCOURT HCAP WAVE 3

NATIONAL HCAP PILOT

NATIONAL HCAP WAVE 1

SAPRIN WAVE1

Start Dates of Field Work

- 2025 early   National Pilot   10 clusters
- 2025 late   National HCAP Pilot
- 2026 early   National Wave 1   140 clusters
- 2026 early   SAPRIN Wave 1   10 clusters
- 2026 late: National HCAP Wave 1   26 clusters

HAALSI National Aims

- Aim 1: : Recruit participants and collect the first wave of data for HAALSI National

- AIM 2: Estimate rates of cognitive impairment and investigate how cognitive ability varies by socioeconomic status (SES) in South Africa

- AIM 3: Study the generalizability of estimates of the determinants of cognitive decline, MCI, and dementia from the Agincourt community to the National level.

National Survey Sampling

- Stratified Cluster Random Sample
- 9 provinces of South Africa x urban/rural areas, 18 strata + SAPRIN
- Sampling Frame, Statistics South Africa, 2022 census
- 150 primary sampling units (PSU) (includes 10 SAPRIN)
- 30 households per PSU
- Household roster
- Randomly Select 1 person over age 40 (double weight over 60)
- Include their partner
- 30 index sample plus approx 18 partners per cluster
- Sample 150 x 30 = 4500 + 2700 partners = 7200 total sample

HCAP Sample

- 26 Clusters – Stratified by province and urban/ rural
  - (1) all those with suspected dementia
  - (2) all those with suspected MCI
  - (3) a random sample of those of those with normal cognitive function

  - Expected Sample size 624

Community Level Survey instrument

- **Community population and area characteristics;**
  - Infrastructure (roads, water, sanitation, electricity);
  - Government offices/services;
  - Commercial services;
  - Health Facilities;
  - Facilities for the elderly;
  - Social, health, and community programs;
  - Crime and social programs

- Survey local leaders, use administrative data, use satellite/map data

Household Level Instrument

- Define Household
  - Agincourt
    - Common pot
    - Includes Temporary migrants – less than 6 months

  - NIDS
    - Household members: lived at least 15 days of last 12 months as part of the household.
    - Residents: household members who are also usually reside as part of this household at least 4 nights a week. All residents are interviewed at an individual level.
    - Live-in domestic workers and lodgers are not part of the household.

- Household roster
- Household income, consumption, wealth, asset index
- Labor, economic activity, earnings of household members not in individual survey
- Pensions, Grants and Transfers household members not in individual survey

Individual Instrument: Key Modules/ innovation

- Socioeconomic status
  - Key for aim 2 on SES gradients in cognition
  - Innovation in SES measures
- Health Care Utilization
  - Aim 3 on inequalities in health care utilization
  - Names of facilities used : quality distance tradeoff
- Mental Health
  - Aim 3 effects on mental health
- Covid
  - Aim 3 Impact of Covid
- Life history – key questions only:
  - childhood deprivation, migration, work history, apartheid experience, psychosocial conditions, education (level, school name)

Table 3. Modules, Biomarkers, and Anthropometrics, HAALSI National Wave 1

Community	Population and area characteristics; Infrastructure (roads, water, sanitation, electricity); Government offices/services; Commercial services; Health Facilities; Facilities for the elderly; Social, health, and community programs; Crime and social programs
Household	Roster; Consumption and expenditures; Labor and business income; Government transfers; Remittances; Durables, housing, Access to water and electricity services and land ownership; Livestock ownership; Financial assets; COVID-19
Individual	Background (demographics including education); General health; Subjective wellbeing; Cognition; Proxy cognition^; PTSD; Perceptions of social engagement; Hearing and vision; Social networks; Weak ties; Physical functioning; Cardiometabolic disease; Soft drink consumption; CES-D; HIV; Intimate Partner Violence; Sleep; Social conditions; Care giving and receiving; Labor market status; Pensions and benefits; Health service utilization; Food security; Pain; Life history; Performance test; COVID-19
Biomarkers and Anthropometrics	Point-of-care: lipids; hemoglobin; glucose; DBS: HIV, HIV viral load, ART screening, HbA1c, hsCRP; Anthropometrics: blood pressure, height, weight, grip strength

11 Languages for HAALSI National

Table 2. Home Language of NIDS Wave 5, 2017 (Adult Questionnaire Respondents ≥40 Years of Age)

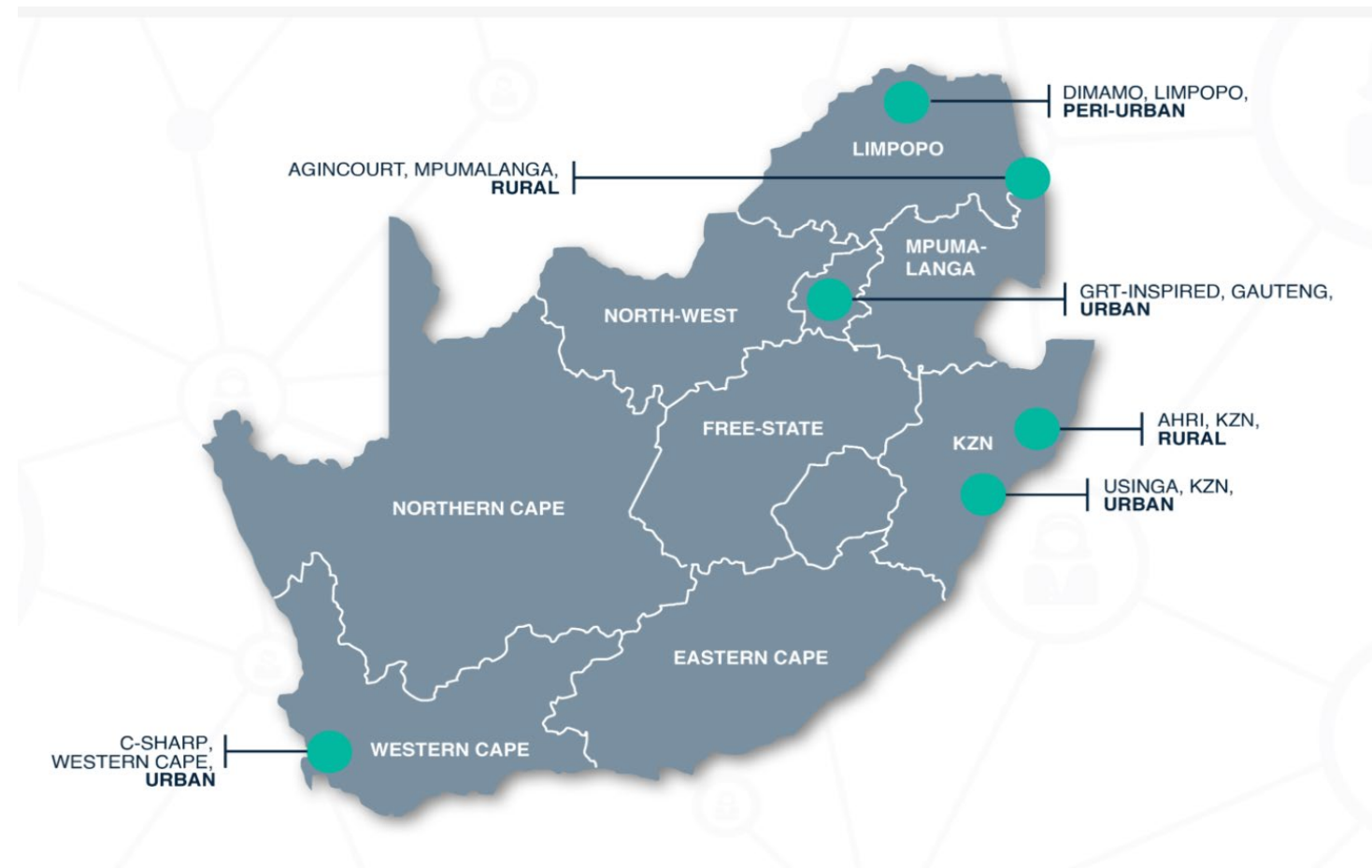|	Percent
IsiNdebele	0.91
IsiXhosa	15.48
IsiZulu	27.39
Sepedi	7.96
Sesotho	7.04
Setswana	8.66
SiSwati	1.47
Tshivenda	1.56
XiTsonga	2.22
Afrikaans	20.50
English	6.74
Other	0.05
Total	100.00

Data Quality Innovation

- SAPRIN
  - We will carry out HAALSI national in 10 SAPRIN clusters (2 x 5 communities)
  - After completion of HAALSI national SAPRIN will follow up on missing data: household contact /refusal, individual contact / refusal
  - SAPRIN will carry out HAALSI interview in missing observations if possible.
  - Assess bias in missingness using SAPRIN census data/ new HAALSI interviews
- Unconditional Gifts
  - Gifts
    - Blanket or travel mug, labelled with the study logo) for household
    - Phone airtime for individual
  - Randomize airtime (50 to 150 rand) at cluster level
    - Use in Heckman selection model to correct for interview/ biomarker refusal

SAPRIN Health and Demographic Surveillance System (HDSS) Nodes

HAALSI Agincourt has Additional Measures

- Annual population census
- Additional Biomarkers and Anthropometrics in Subsamples
  - Venous blood, urine
  - Ultrasound, Echocardiogram, Electrocardiogram
  - Magnetic Resonance Imaging (MRI)
  - Plasma – NFL, GFAP, Aβ, P-tau
- Extensive Social Networks Module
- Survey of retail outlets – sugar sweetened beverages and salt
- Link in health records
- Randomized Trials - Conditional Cash Transfers, HIV tests

Generalizability

- Study Sample -> Target Sample
- HAALSI Agincourt -> NIDS/ NAALSI National -> South Africa
- SAPRIN-> NIDS/NAALSI National -> South Africa
- Assumptions
  - External Validity
    - Expected Effect of treatment conditional on covariates same in study and target sample
    - Positive probability of selection of strata that affect outcomes into study sample
    - Stable unit value treatment effect (STUVA)
- Testable Implications
  - Estimate study model and apply to target population
    - Compare actual and predicted outcomes – should match on all strata of treatment/covariates
  - Estimate same model in both study and target sample
    - Coefficients equal in both samples
- Generalizing
  - Population average treatment effect
    - Weighted average of treatment effects in study (matching or weights)

Generalizability: HAALSI Agincourt

HAALSI Agincourt		HAALSI National		NIDS
Wave 1	2014-15			2014-15
Wave 2	2018-19			2017
Wave 3	2020-21			
Wave 4	2024			
Wave 5	2026-27	Wave 1	2026-27	

Project 4: Work plan for 2023/24

- Aim1 Survey
  - Develop community level survey instrument
  - Develop household and individual level instruments for national
  - Develop national biomarker protocols
  - Select clusters for pilot
  - Pretests
- Aim2 SES health gradient
  - Measures of SES
    - Individual, household, community
    - Absolute, relative
  - NIDS: SES and Mortality, Mental Health, Hypertension, BMI
- Aim 3 Generalizability
  - Agincourt: HAALSI -> South Africa: NIDS
  - Mortality, Mental Health, hypertension, BMI are both in HAALSI and NIDS

Important HAALSI National Steps in year one

- Kick off Meetings in South Africa
  - February 4th – 9th 2024

- Key issue of trust
  - Website, media presence, branding
  - External Advisory Committee : South African members
  - Community Stakeholder Committee