# The HIV Treatment Cascade: Improving Measurement to Target Interventions

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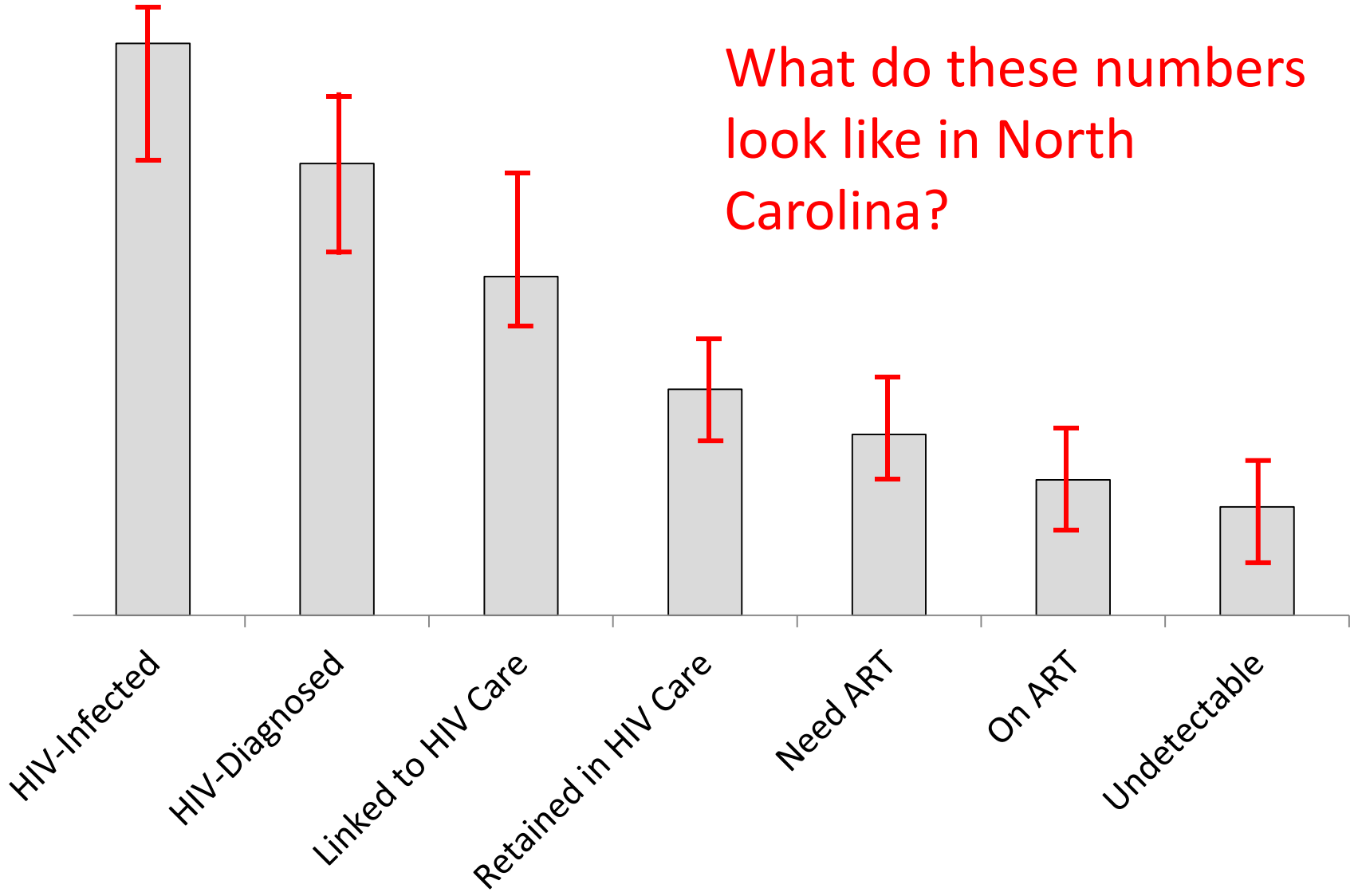
# Motivation

Optimization of HIV diagnosis, care, treatment, and prevention requires:

1. Accurate characterization of population sizes at each continuum step and juncture;
2. Understanding of relative contributions of each step/juncture to transmission; and
3. Carefully targeted interventions based on 1 & 2.

# Aim 1


What do these numbers look like in North Carolina?
HIV-Infected
HIV-Diagnosed
Linked to HIV Care
Retained in HIV Care
Need ART
On ART
Undetectable

# Aim 1 – Methods

Careful, systematic extraction of data from multiple available databases

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Critical assessment of the potential biases in each database

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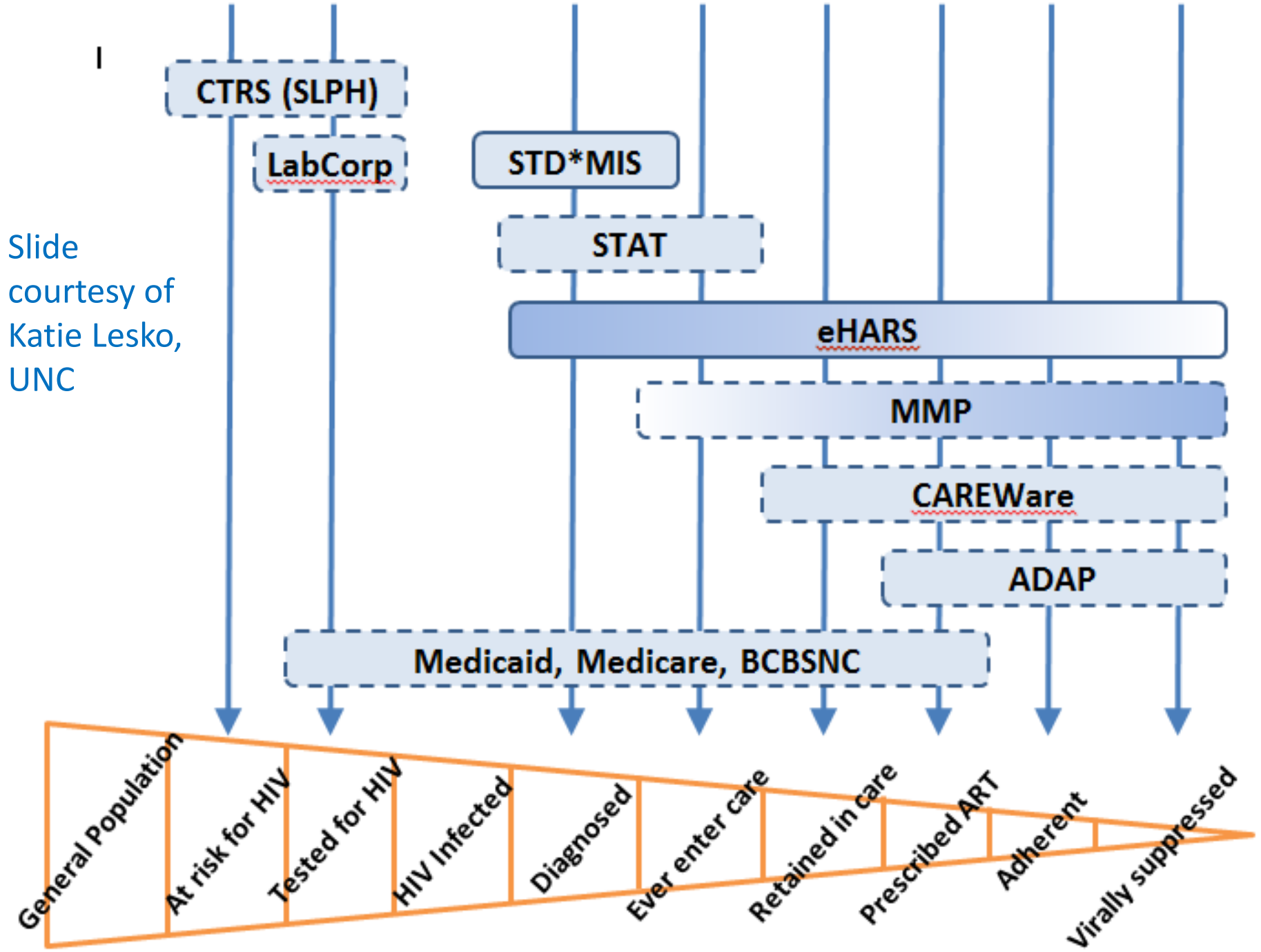
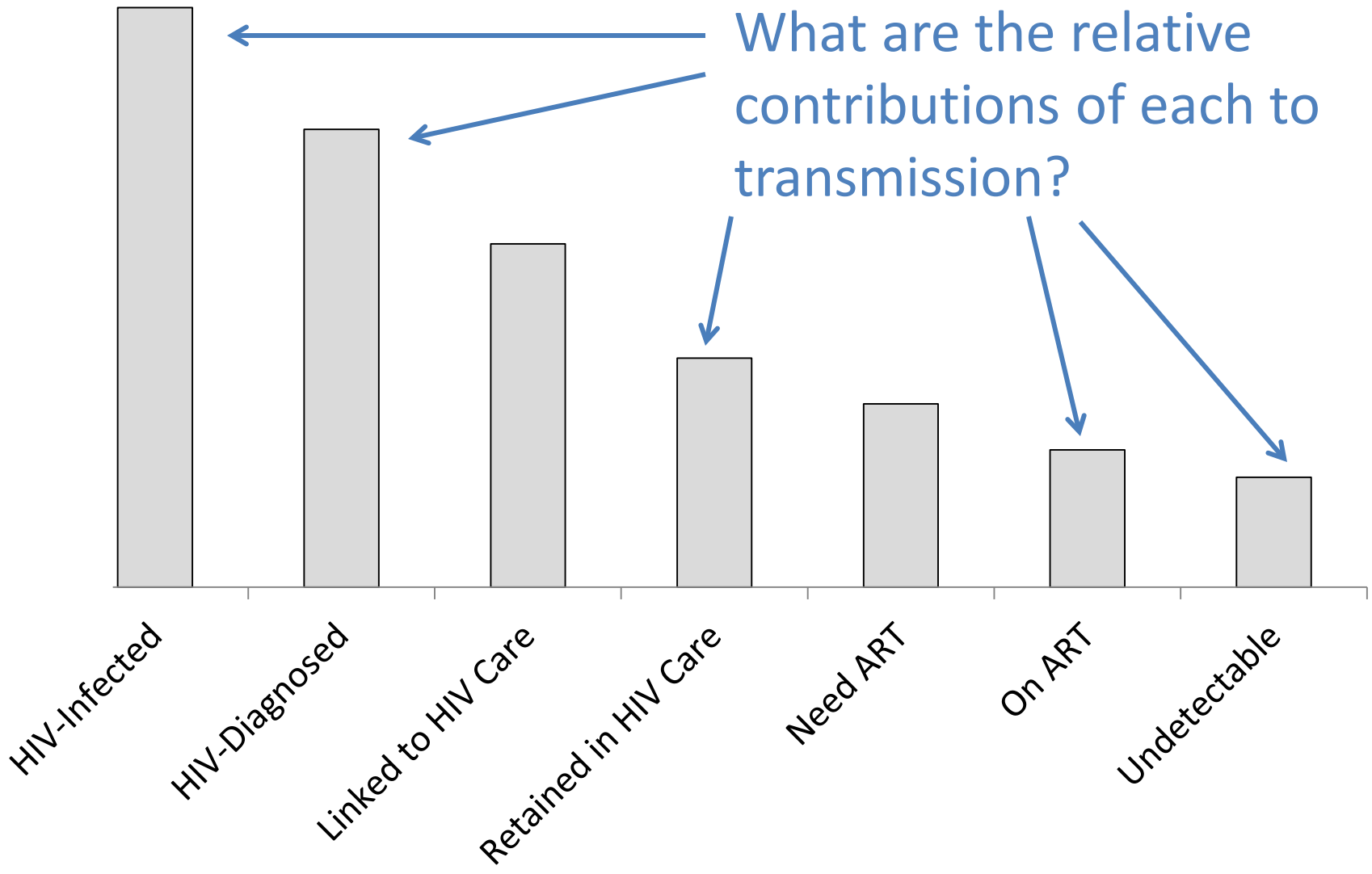
Derivation of triangulated estimates and plausible ranges for each continuum stage




Slide courtesy of Katie Lesko, UNC

# Aim 2


What are the relative contributions of each to transmission?
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# Aim 2 – Methods

- In North Carolina:
  - Testing for acute & recent infection is routine
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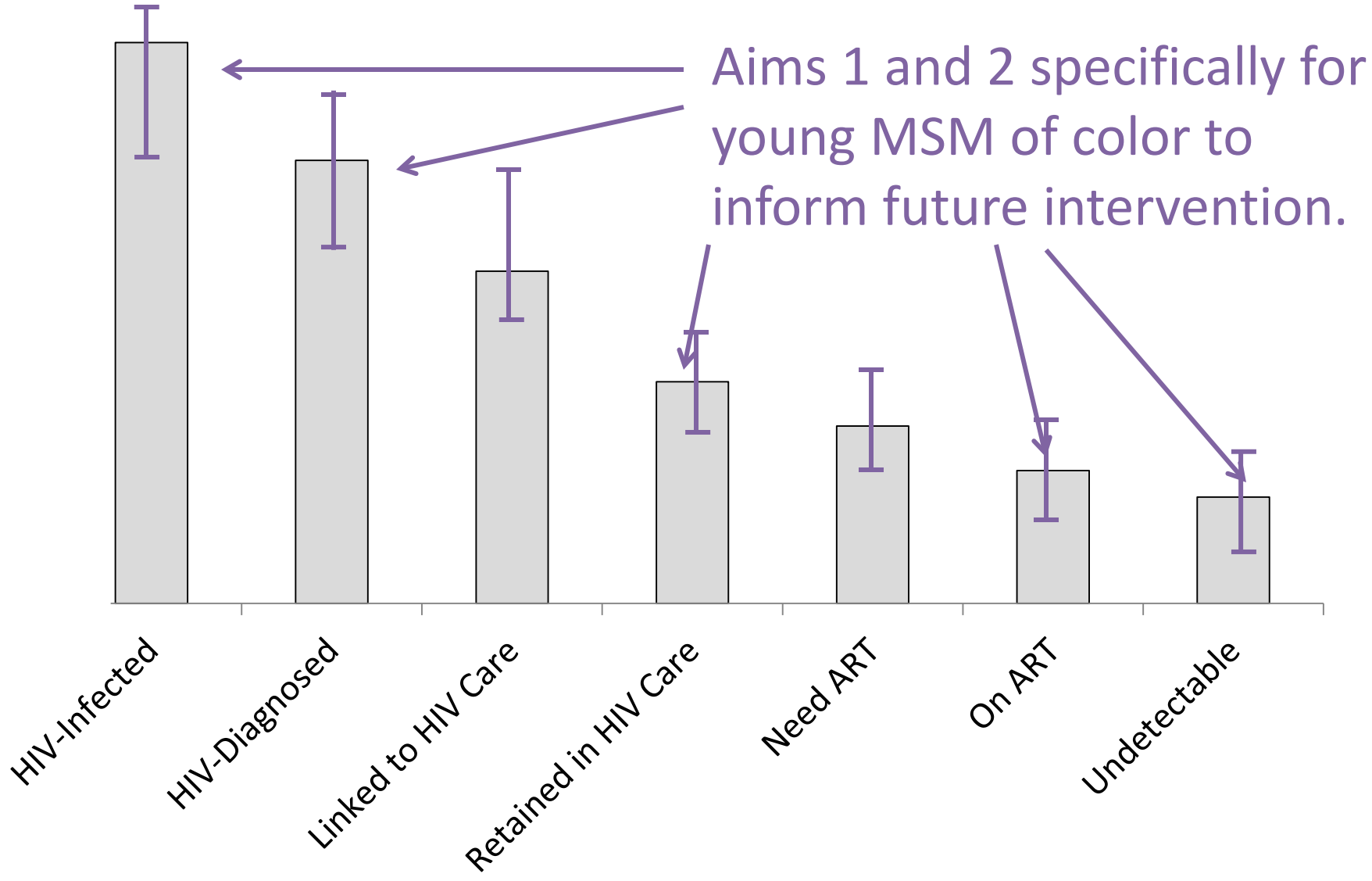
- CHAVI study: acute cases and their partners → ~30 phylogenetically-linked transmission pairs
- Mapping of incident cases' partner information to continuum → indication of steps' relative transmission contributions

# Aim 3


Aims 1 and 2 specifically for young MSM of color to inform future intervention.
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# HIV in Young MSM of Color, NC

- Young MSM of color comprise the highest-risk group in our locale.
  - New HIV diagnosis rate among young black men is 5 × the overall NC rate*
  - 72% attributable to sex between men*

* Communicable Disease Surveillance Unit. Epidemiologic Profile for HIV/STD Prevention and Care Planning. Raleigh, NC: Communicable Disease Branch, Epidemiology Section, Division of Public Health, North Carolina Department of Health and Human Services; 2011.

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- Aim 3 analyses will identify pressure points where a (future) intervention could have the greatest impact on HIV transmission in NC.

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# Other Ongoing / Future Directions

- Mathematical model of the continuum
- Model-based evaluation of community viral load and other metrics for monitoring transmission
- Analysis of reported lab data as proxy for visits: UNC clinical cohort vs. state surveillance data

# Impact Statement

- This supplement is allowing us to:
  - develop methods for characterizing the continuum in NC;
  - identify the optimal targets along the continuum for interventions in our most-affected population;
  - continue to build research capacity & strengthen existing collaborations; and
  - prioritize future research directions.

# NC Continuum Team

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