

Comparison of Denominator Inflation Mitigation Strategies in an IIS

Hannah Peng, MPH
AIRA National Meeting
April 28, 2026

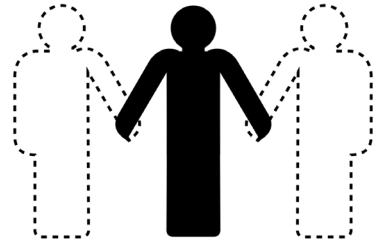


SUSAN B. MEISTER

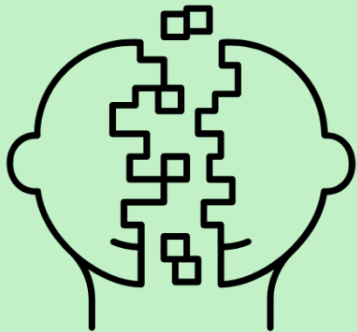
CHILD HEALTH EVALUATION AND RESEARCH CENTER
MICHIGAN MEDICINE

Background- Denominator Inflation

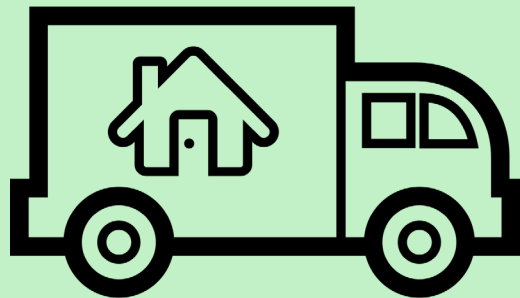
Definition: # of IIS person records > official population estimates



Causes

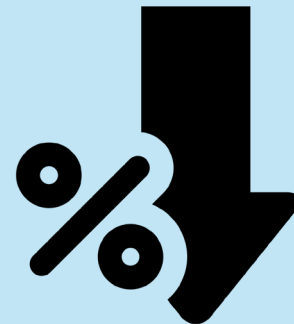


Record Fragmentation

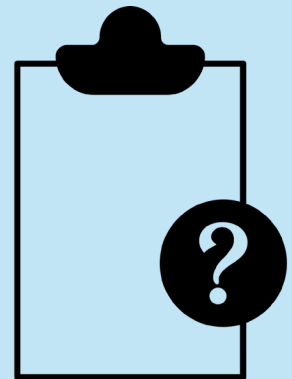


Moved or Gone Elsewhere
(MOGE)

Effects



Understates actual
vaccination rates



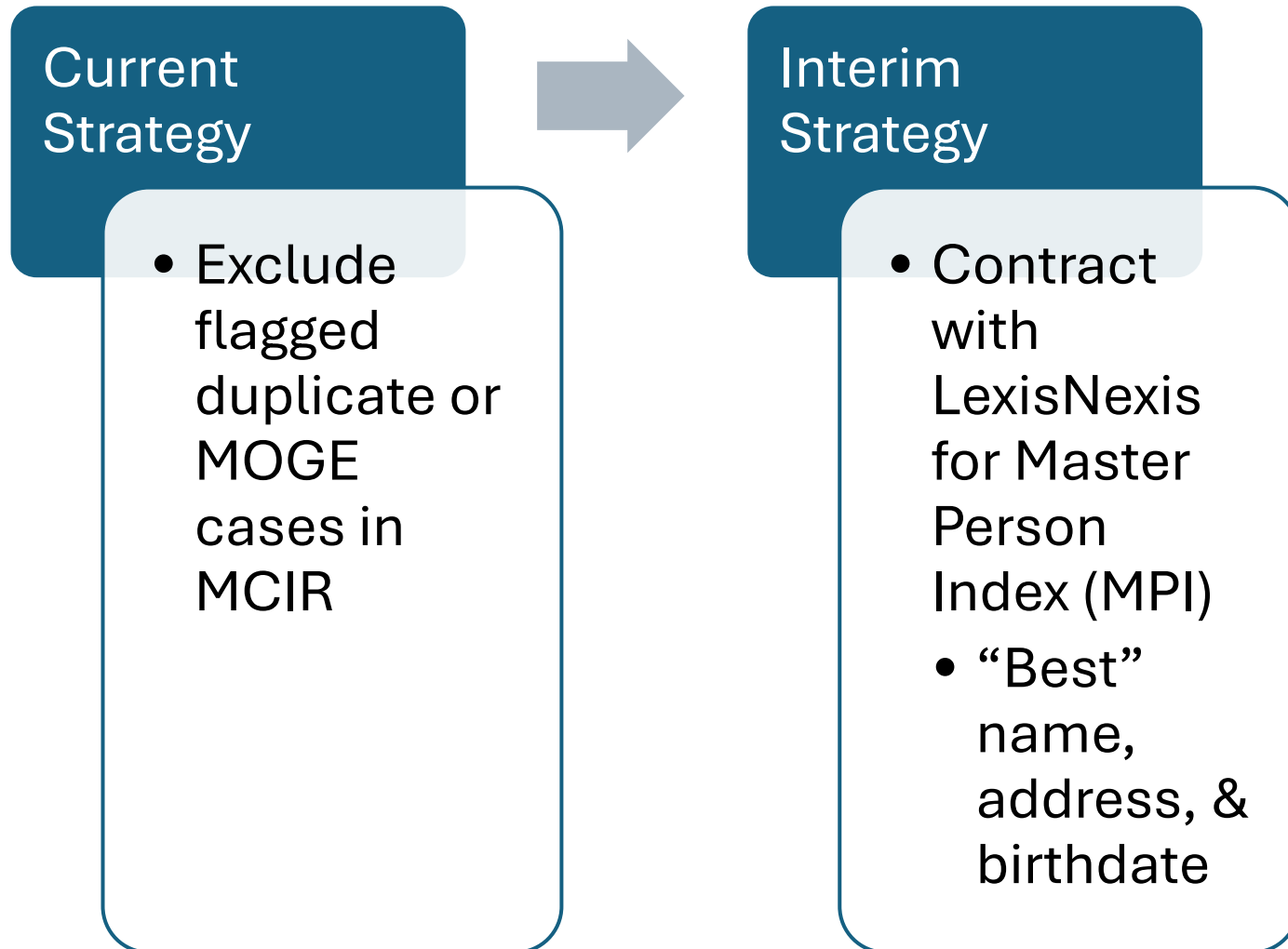
Impedes clinical care

Background- Mitigation

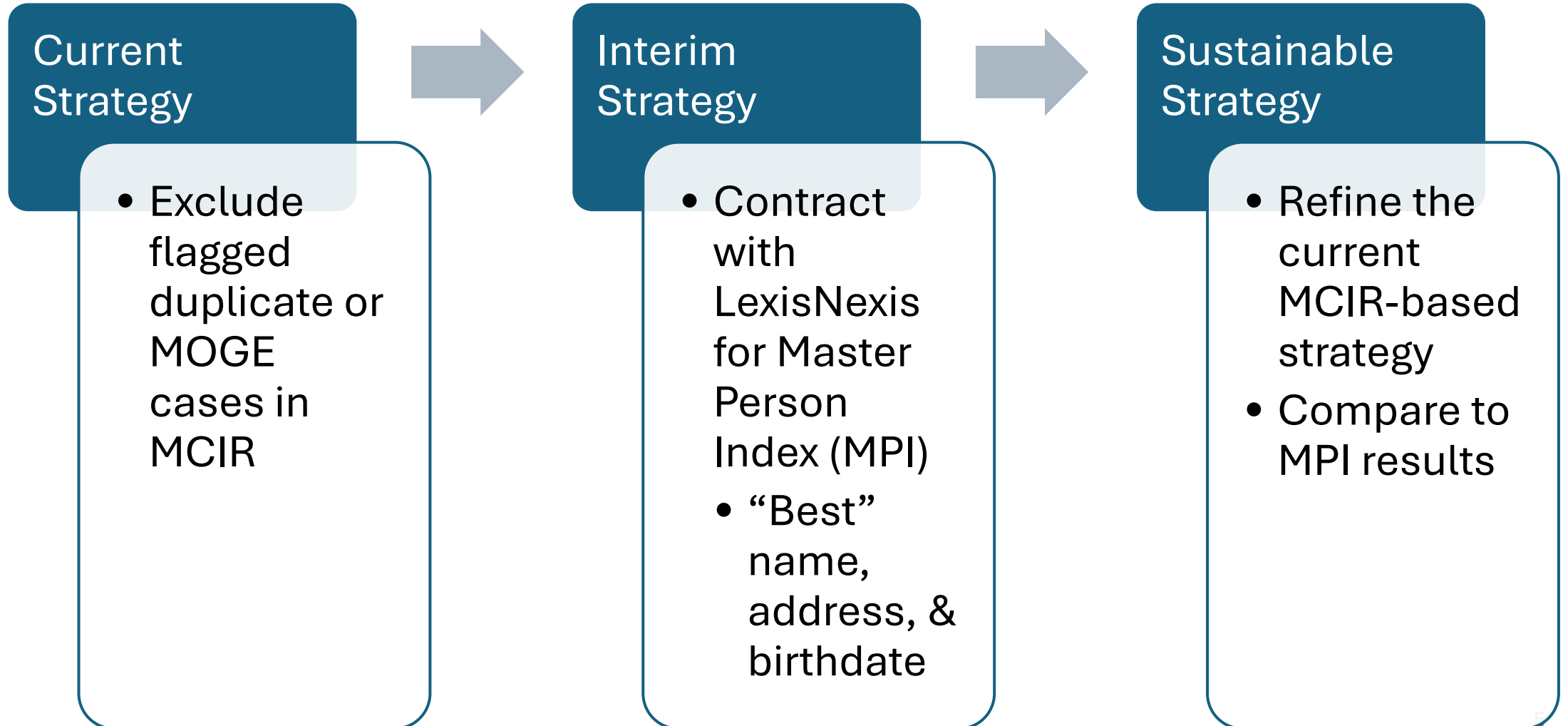
Current Strategy

- Exclude flagged duplicate or MOGE cases in MCIR

Background- Mitigation

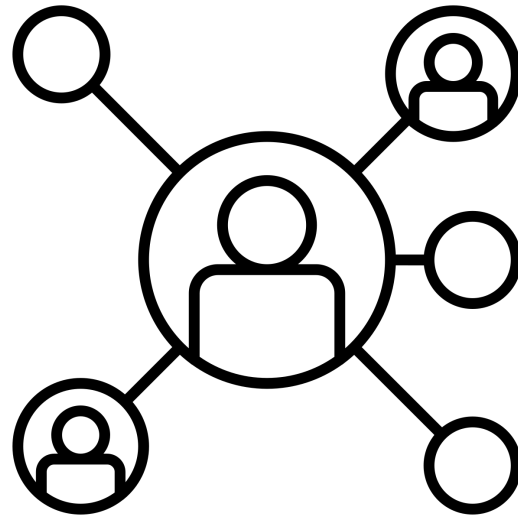


Background- Mitigation



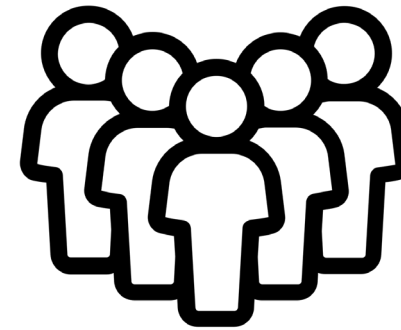
Objective

- Evaluate IIS-based methods to identify current Michigan residents
 - Compare to MPI-based data and Census estimates

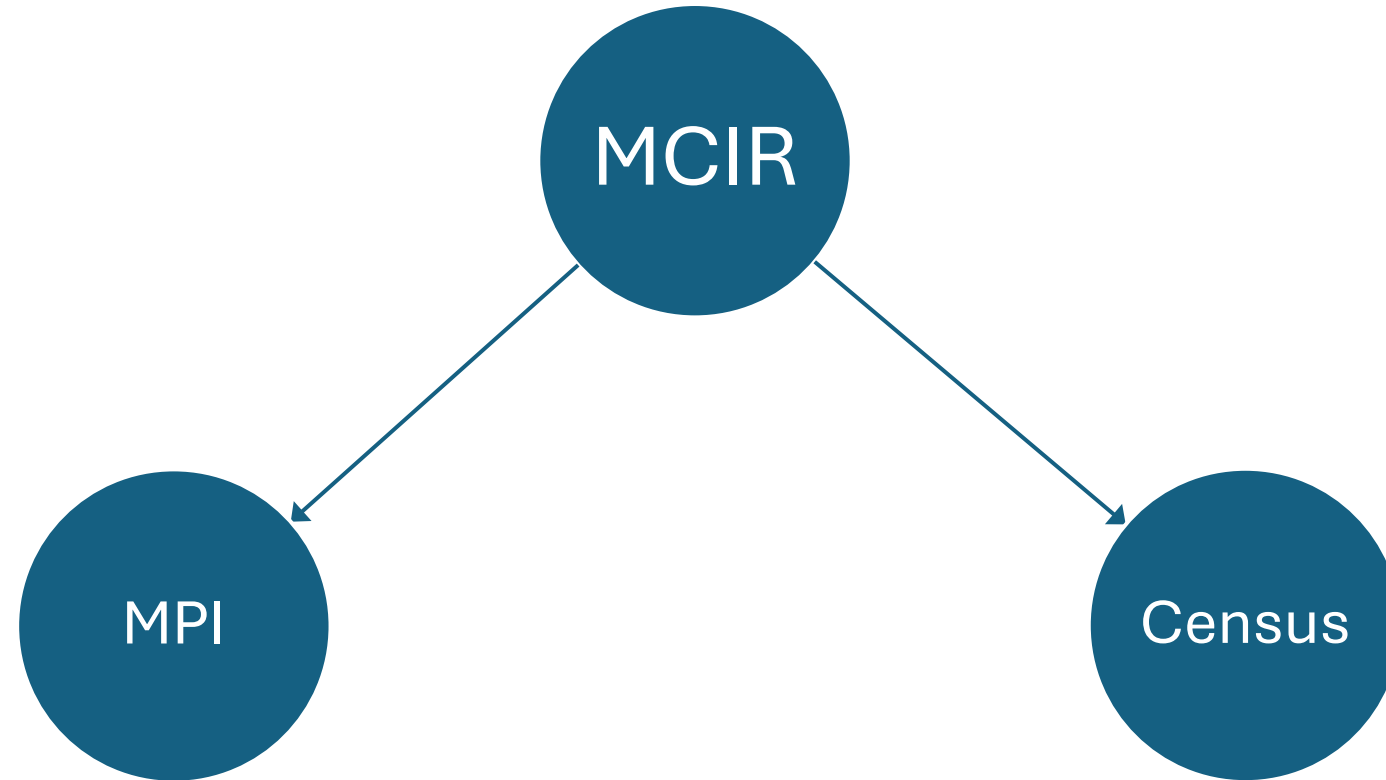


Methods

- Study population:
 - Had sufficient information for MPI processing
 - Name
 - Date of birth
 - Full address or social security number
 - Adults 18+ years old
 - Not flagged as deleted
 - Not flagged as deceased



Methods



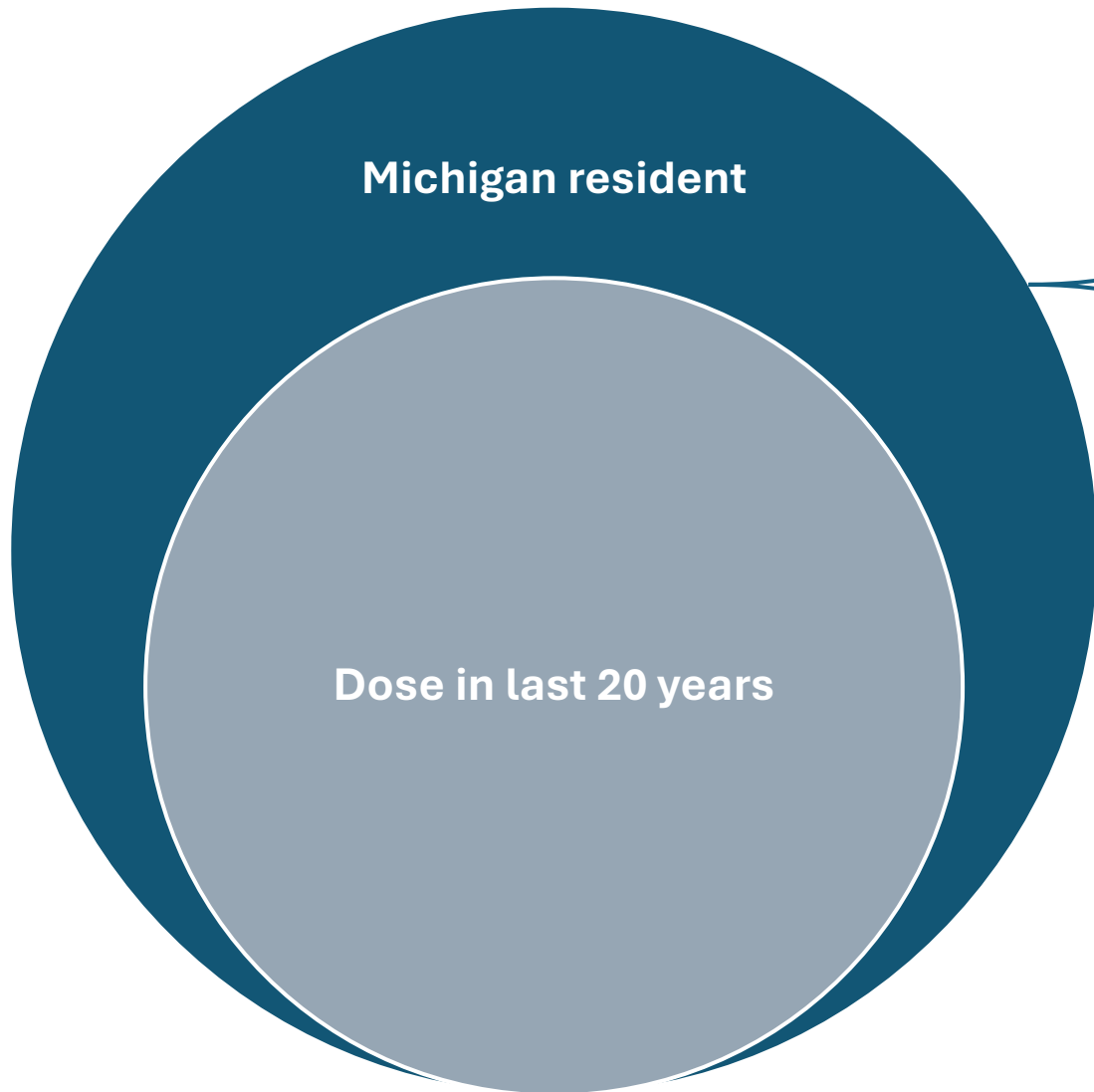
Methods

Michigan resident

- MCIR
 - Michigan address
 - Not flagged as permanently inactive
- MPI
 - Michigan address



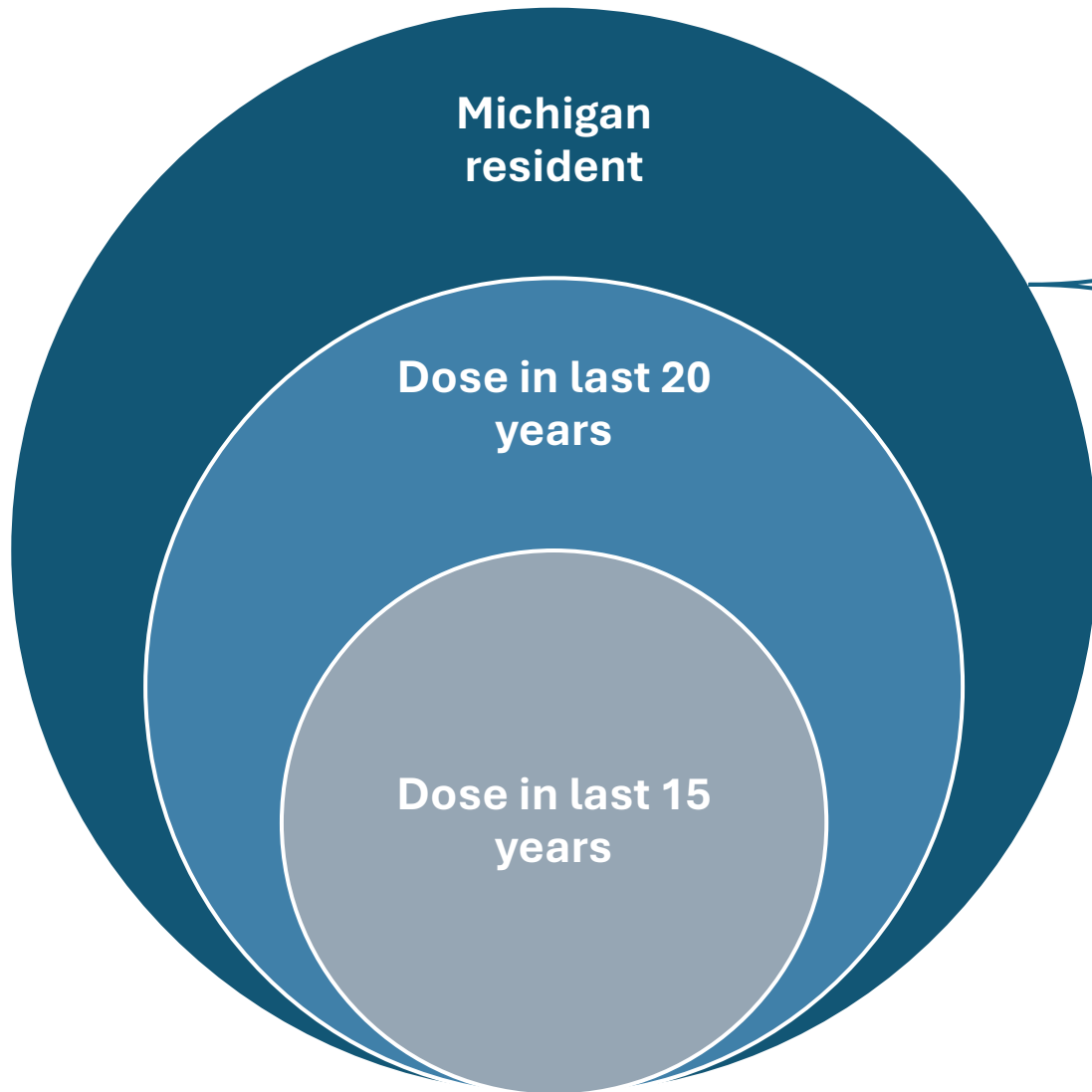
Methods



- MCIR
 - Michigan address
 - Not flagged as permanently inactive
- MPI
 - Michigan address



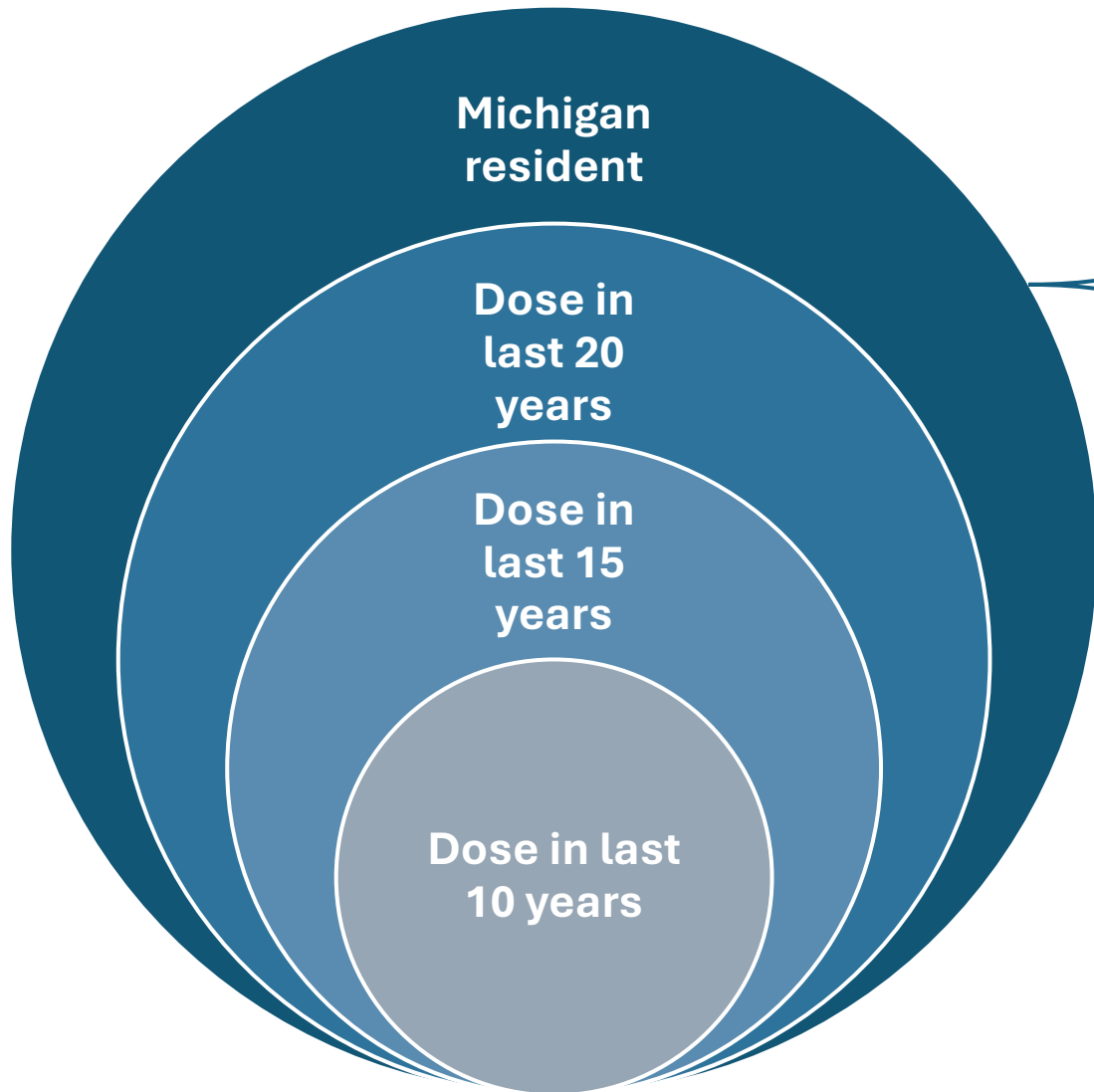
Methods



- MCIR
 - Michigan address
 - Not flagged as permanently inactive
- MPI
 - Michigan address



Methods

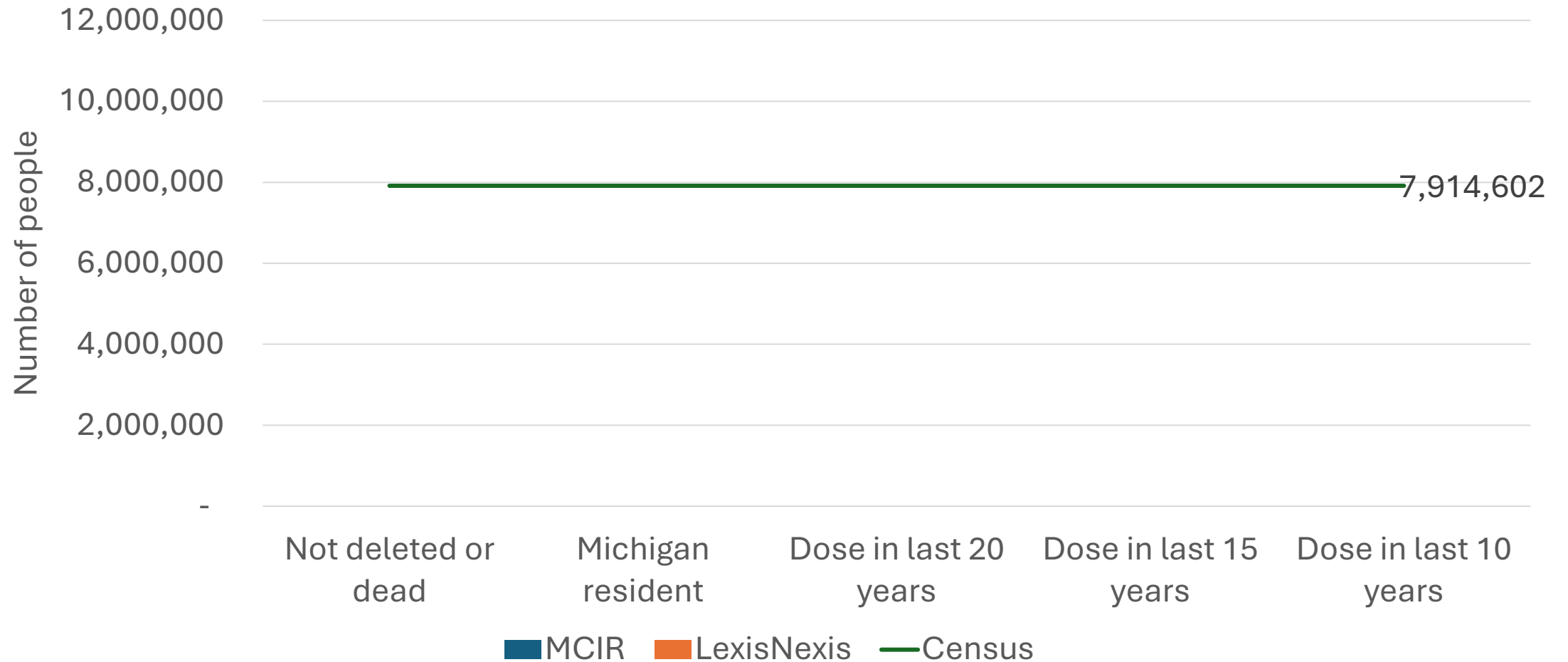


- MCIR
 - Michigan address
 - Not flagged as permanently inactive
- MPI
 - Michigan address

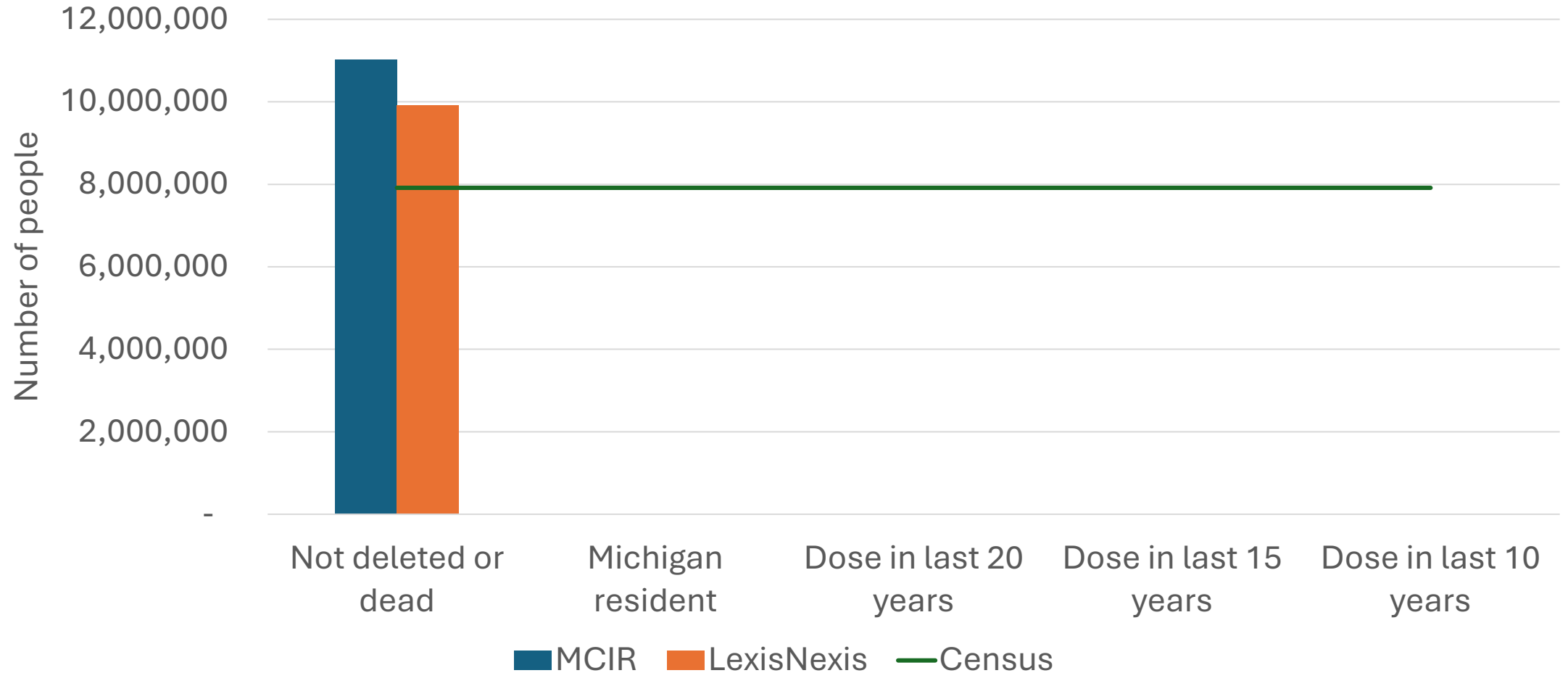


Results

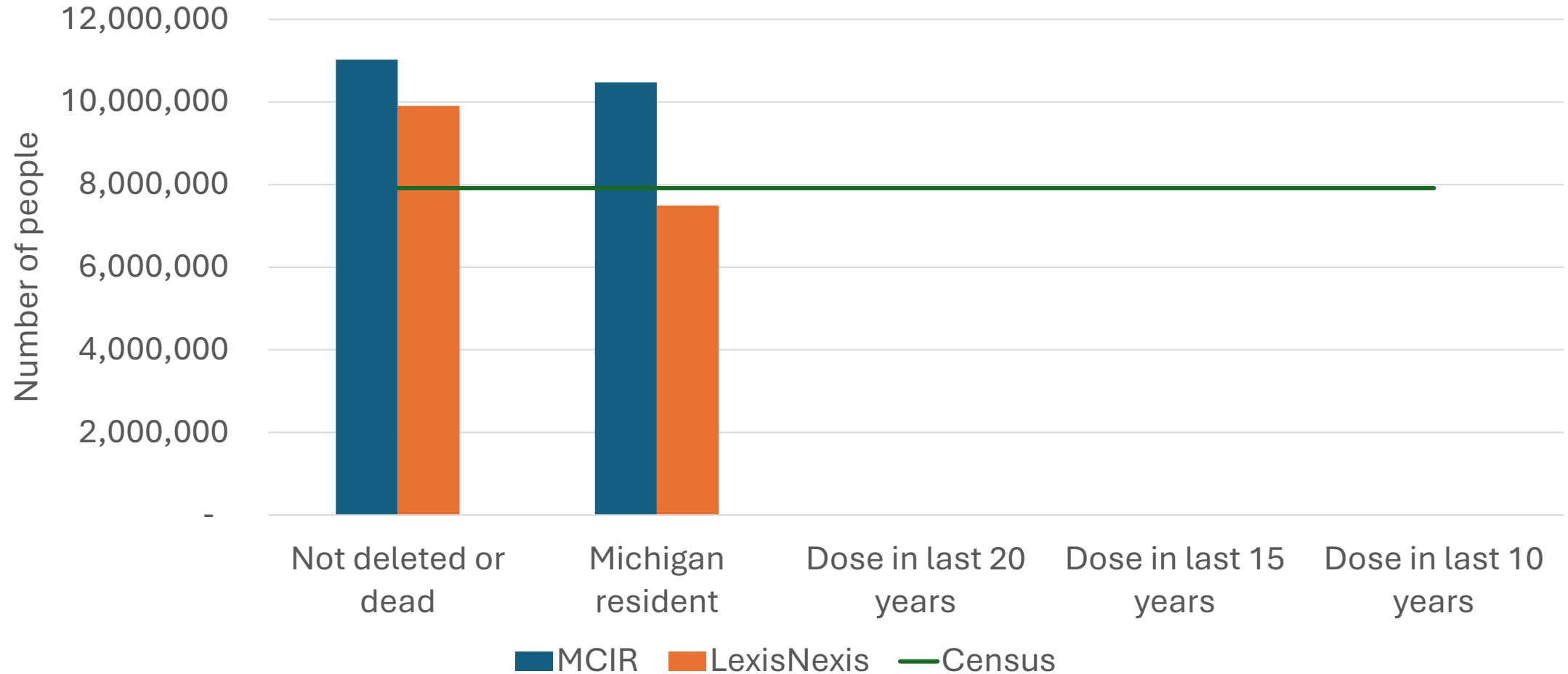
Number of people by filter source/type



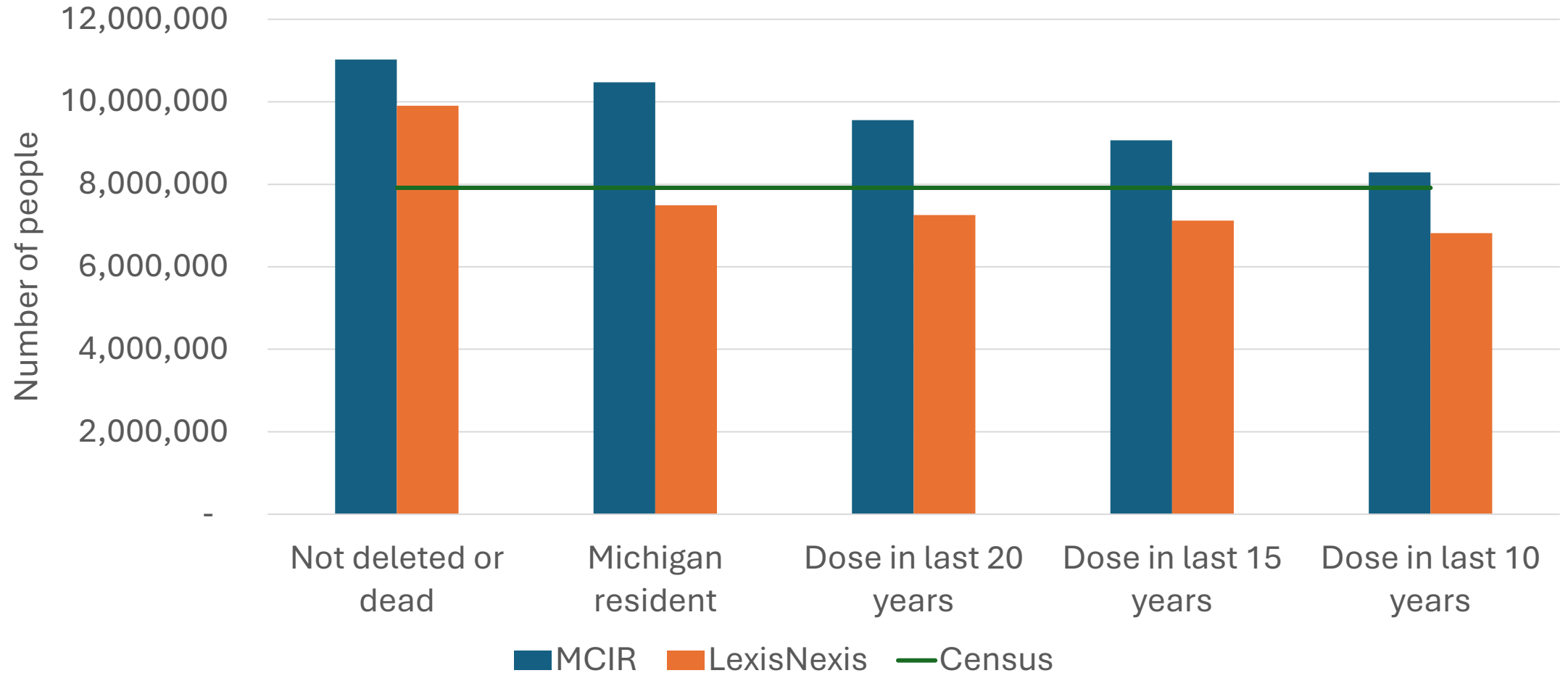
Number of people by filter source/type



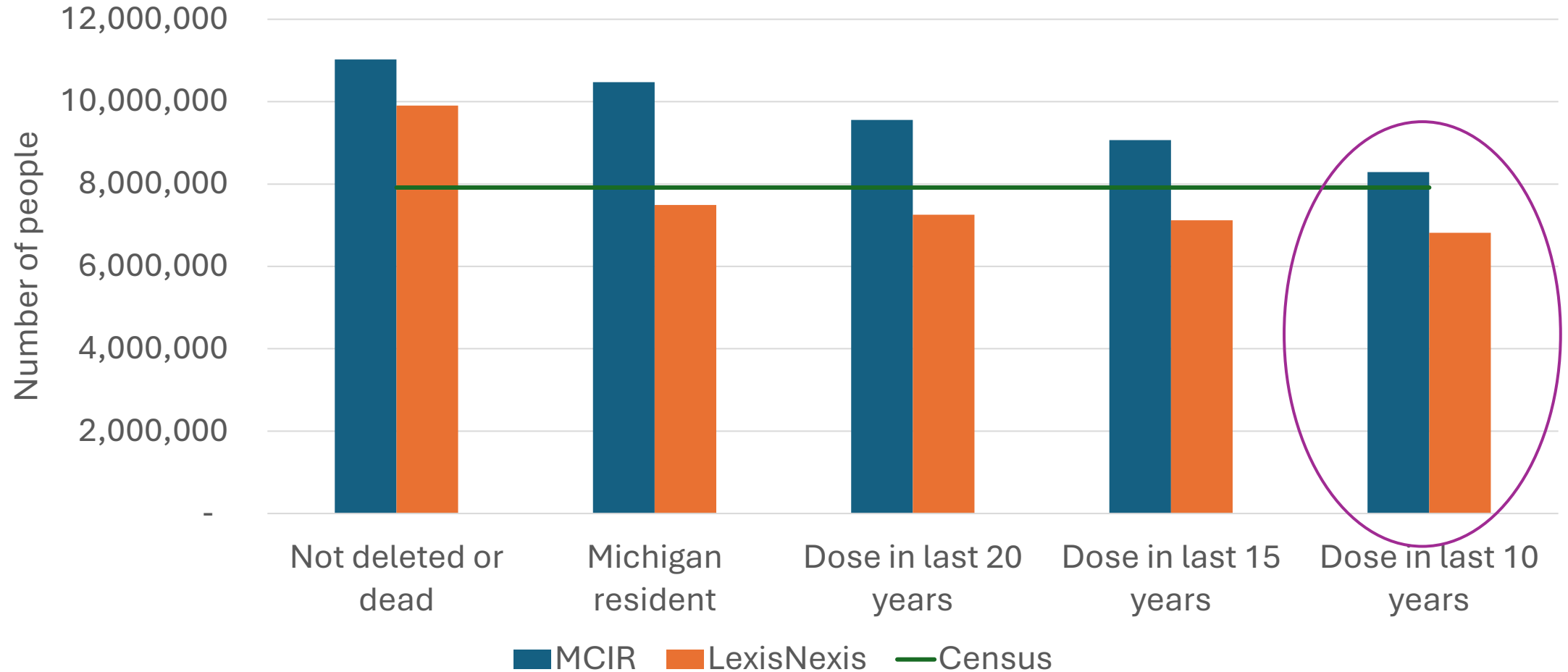
Number of people by filter source/type



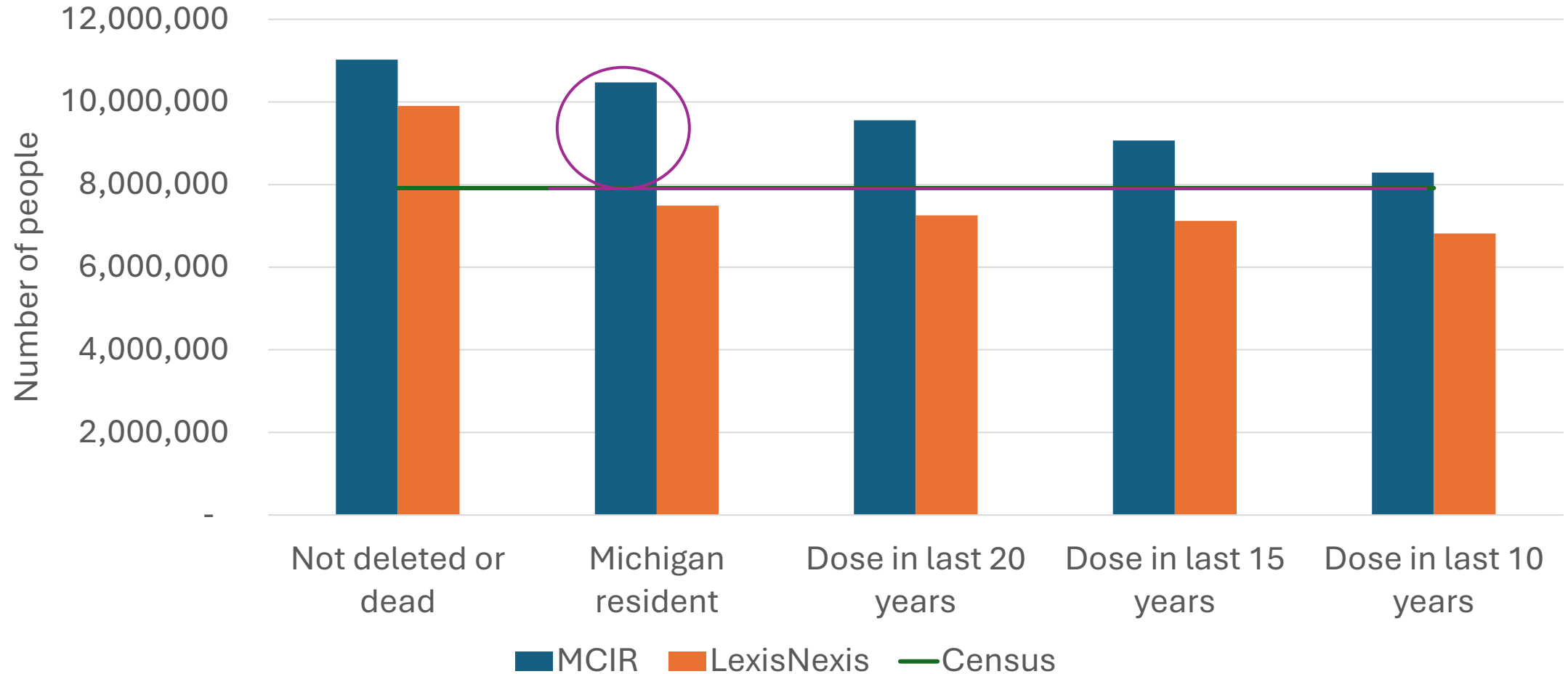
Number of people by filter source/type



Number of people by filter source/type

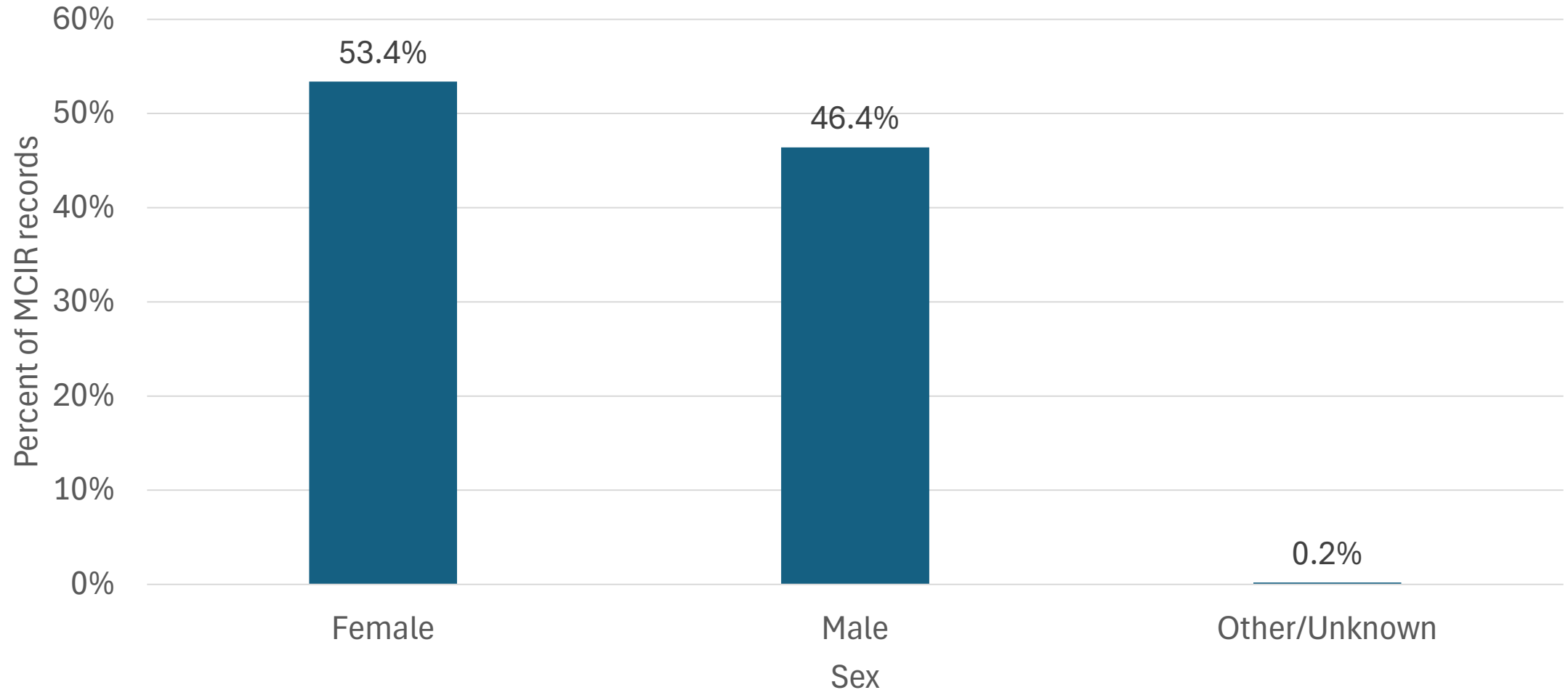


Number of people by filter source/type



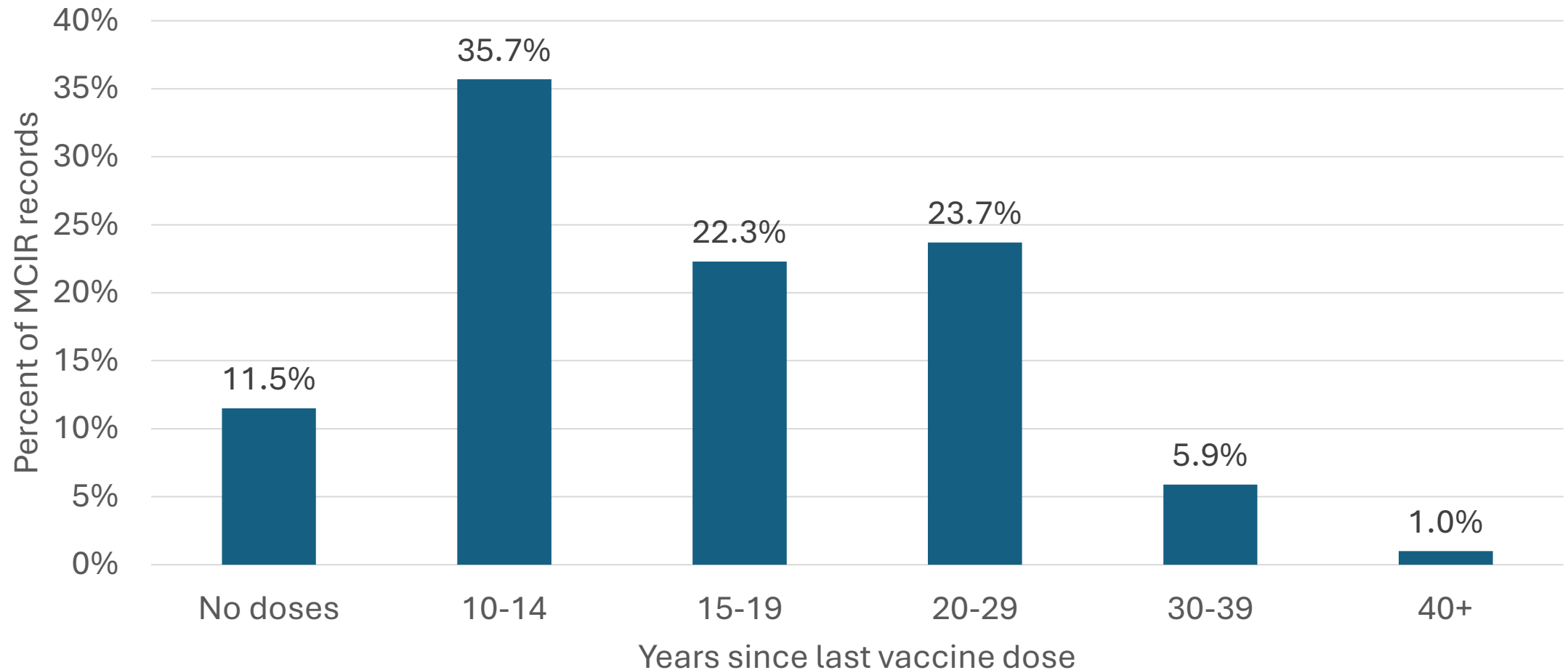
Sex (MCIR)

MI residents with no doses in past 10 yrs (n = 2,187,536)



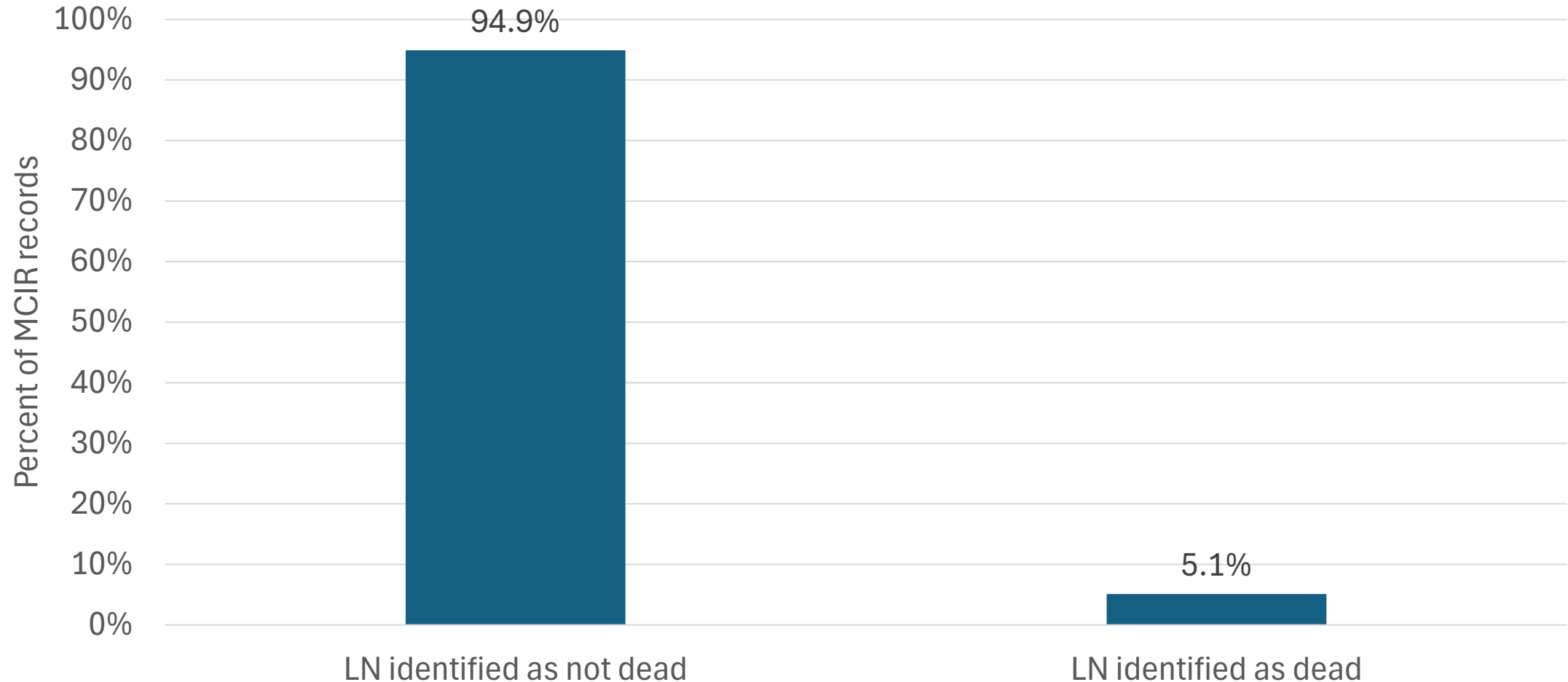
Years since last dose (MCIR)

MI residents with no doses in past 10 yrs (n = 2,187,536)



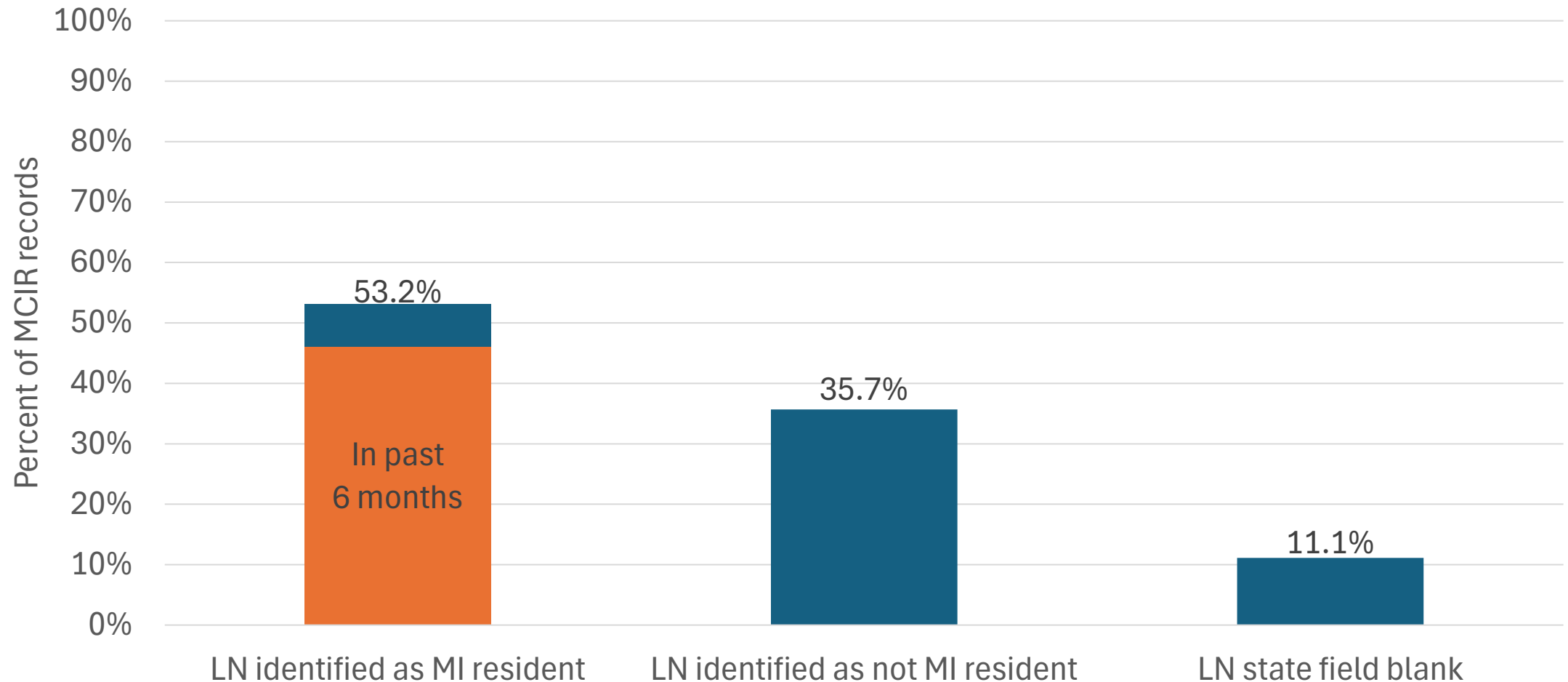
Deceased status (per LexisNexis)

MI residents with no does in past 10 yrs (n = 2,187,536)



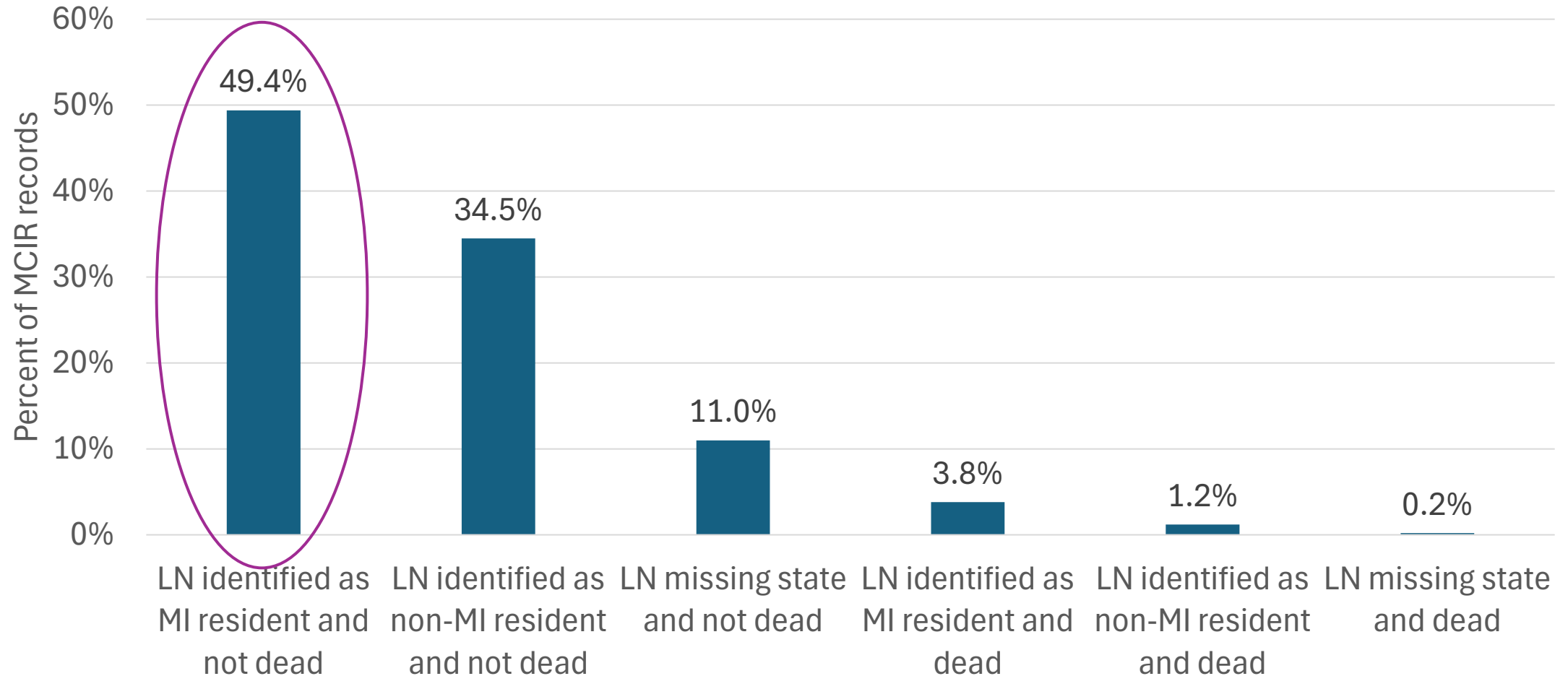
Michigan residency (per LexisNexis)

MI residents with no doses in past 10 yrs (n = 2,187,536)



Deceased/MI residency (per LexisNexis)

MI residents with no doses in past 10 yrs (n = 2,187,536)



Conclusions

- Strategies using IIS-based residency + vaccine administration criteria can be effective
- Results were similar to MPI results



Public Health Implications

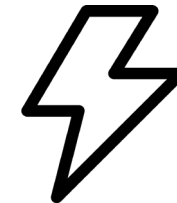
- Easier- epidemiologists can do it themselves



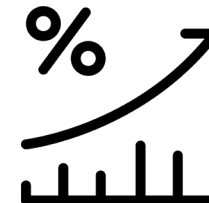
- Cheaper- no need for vendor



- On-demand- real time vs a one-time data cleansing



- Higher, more accurate vaccination rates



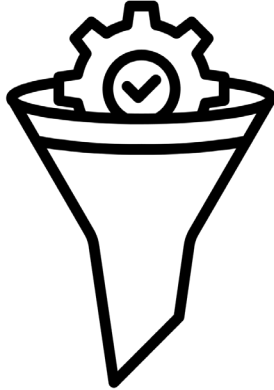
Limitations

- Using criteria of getting vaccination biases toward those who are vaccinated
- Does not account for fragmented records
- Subject to MCIR data quality

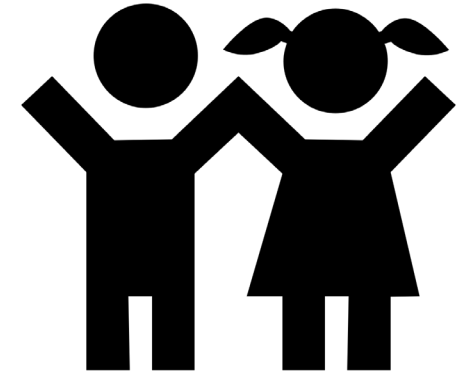


Future Directions

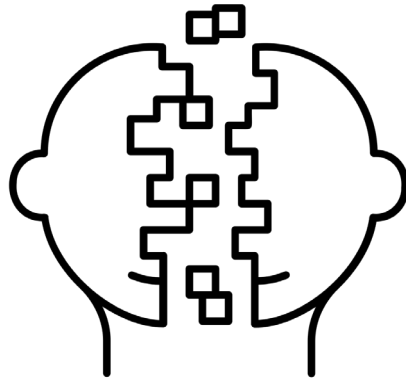
- Refinement of method
 - Additional review
 - Other MCIR fields



- Kids
 - Need different threshold of dose administration recency



- Fragmented records
 - Identification
 - Merging



Acknowledgements

MDHHS

- Taylor Olsabeck, MS
- Hannah Forsythe, PhD
- Ryan Malosh, PhD, MPH

CHEAR

- Kevin Dombkowski, DrPH, MS

Hannah Peng, MPH

Statistician Lead

University of Michigan, Division of General Pediatrics

Susan B. Meister Child Health Evaluation and Research (CHEAR) Center

hjary@med.umich.edu



SUSAN B. MEISTER

CHILD HEALTH EVALUATION AND RESEARCH CENTER

MICHIGAN MEDICINE