

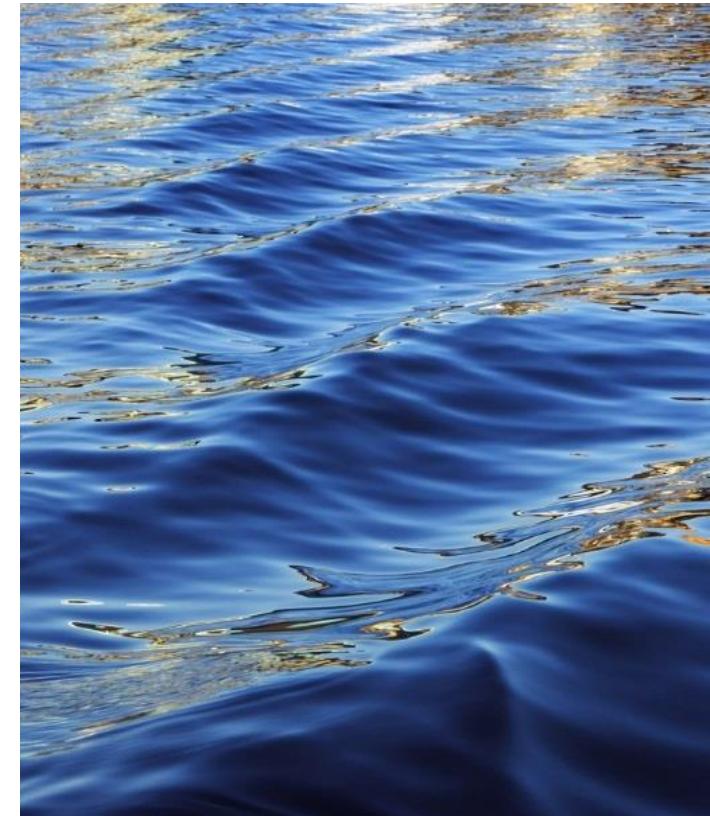
The effect of IIS-to-IIS data exchange on sub-populations

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Michigan Care Improvement Registry

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Minnesota Immunization Information Connection



Problem: the smaller the group, the noisier the coverage estimate

out-of-state care

incomplete reporting

$$\frac{\text{total vaccinated}}{\text{eligible population}}$$

denominator inflation

missing demographic data

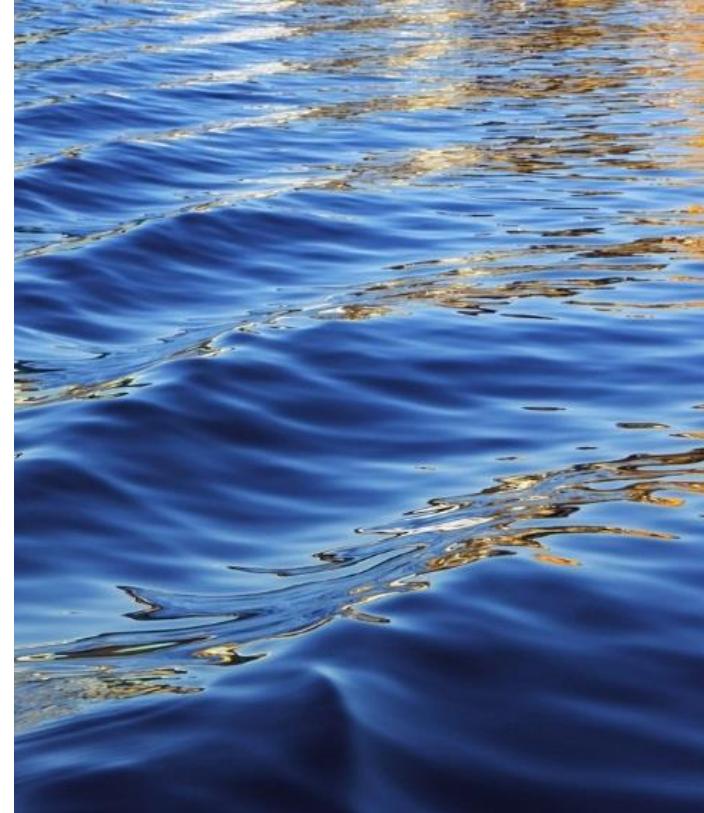
Why care?

- Aggregating to larger groups can **miss clusters** of under-vaccination
- Some small groups face **outsized health risks**: rural, minorities, etc.

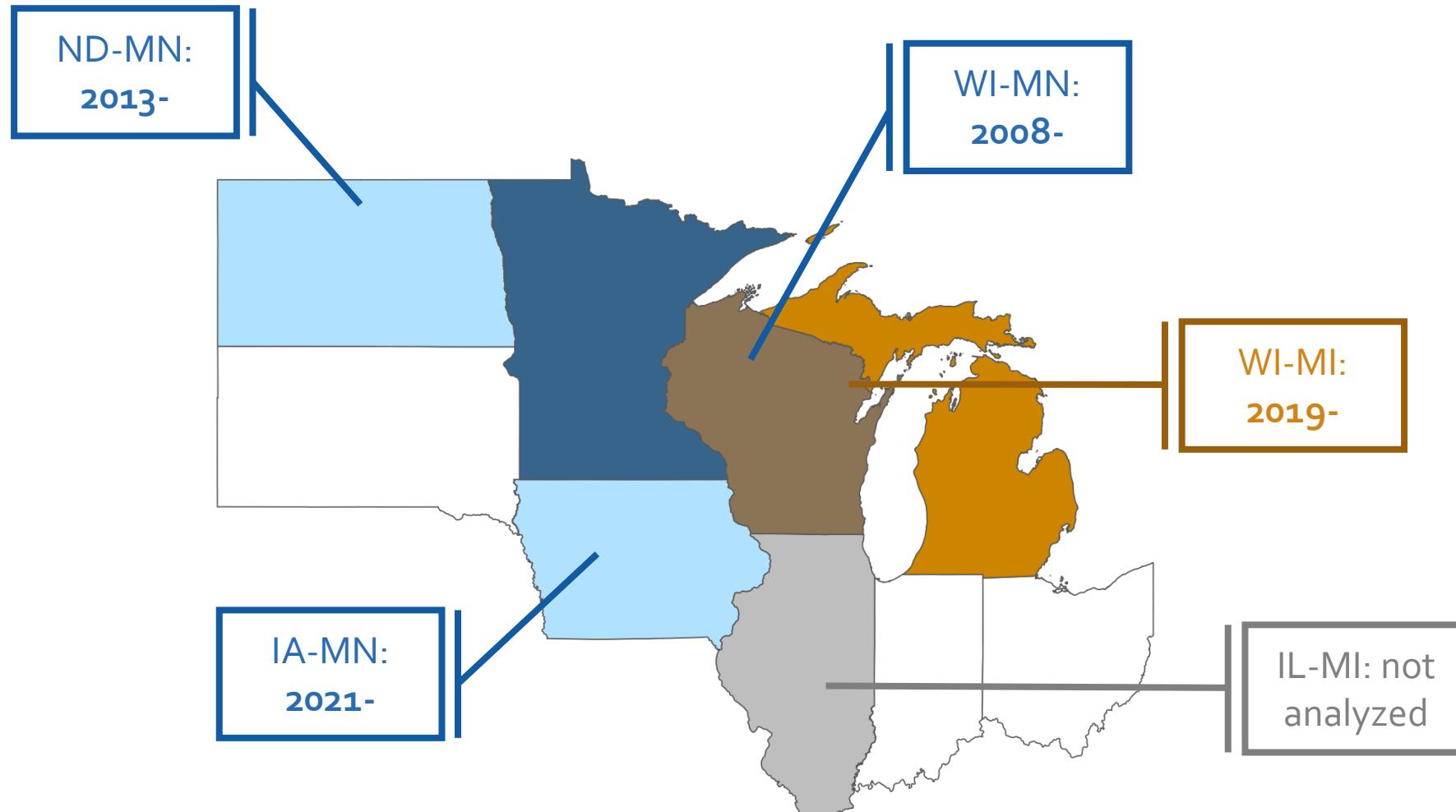


Research Question

How can **data exchange** across borders
improve estimates within borders?



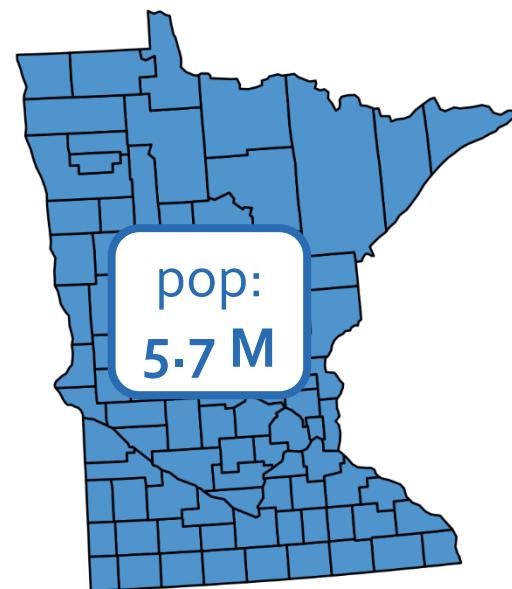
Interjurisdictional Data Exchanges for **MIIC** and **MCIR**



*flat file exchange only

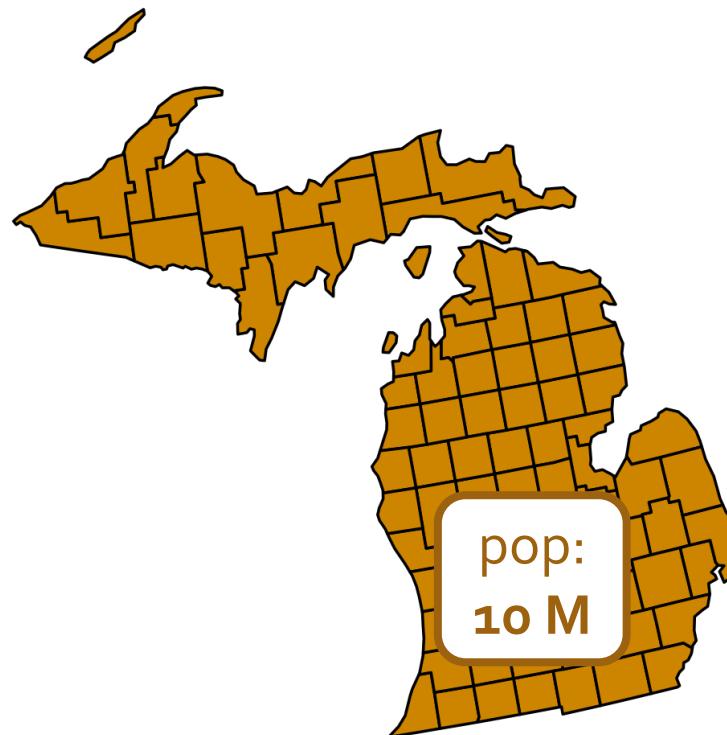
MIIC

- 8.7 million **person** records
- 135 million **immunizations**
- Mandatory reporting: COVID, pharmacies



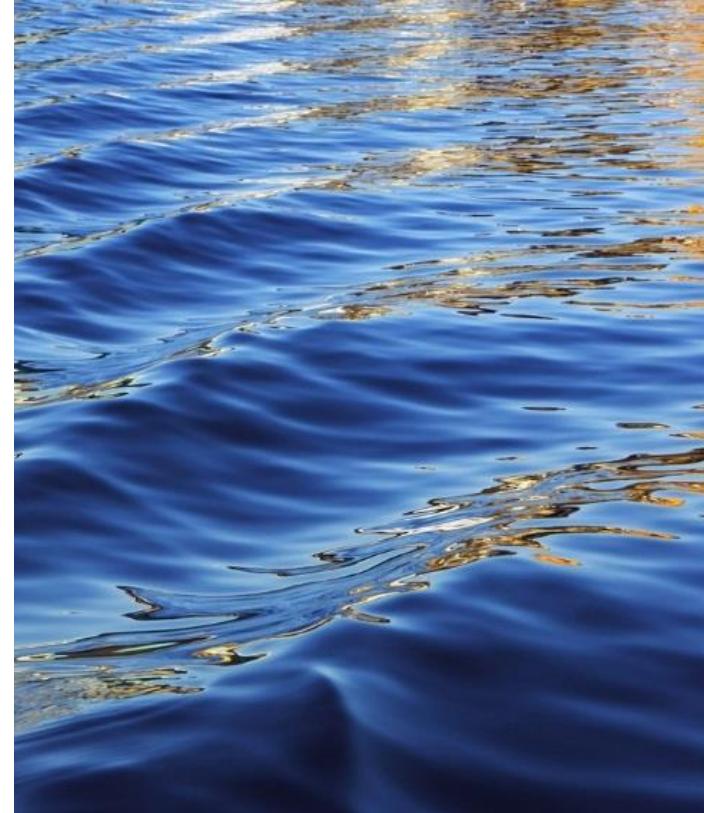
MCIR

- 13.2 million **person** records
- 194 million **immunizations**
- Mandatory reporting: COVID , <20





Methods





shared shot:

reported by a partner IIS *before* any existing historical dose of the same administration date & CVX

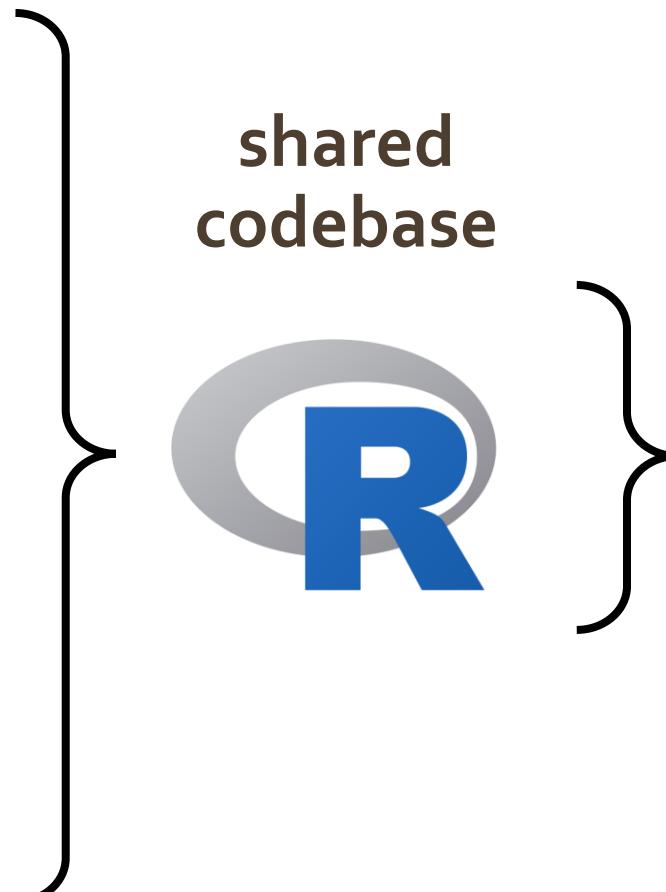
“minimum datasets”

- full history of **persons with ≥ 1 shared shot**
- sex, date of birth, race/ethnicity, current county of **all** persons



National Vital Statistics System

- census data for 18+ denominator



Results

- shared shots given to who/where/when?
- Coverage increase thanks to shared shots:

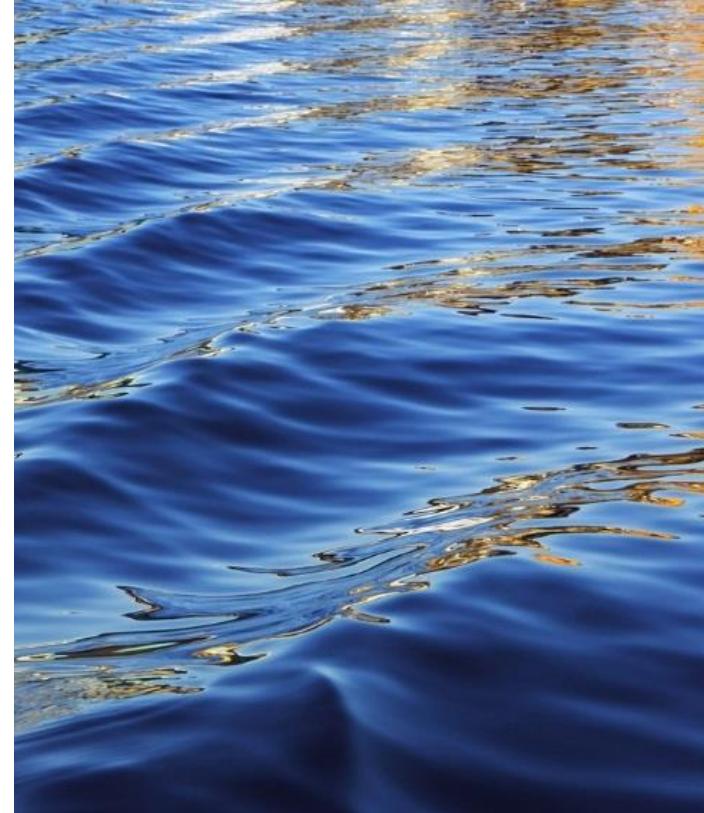
*persons up to date only if
shared shots included*

eligible population



Results

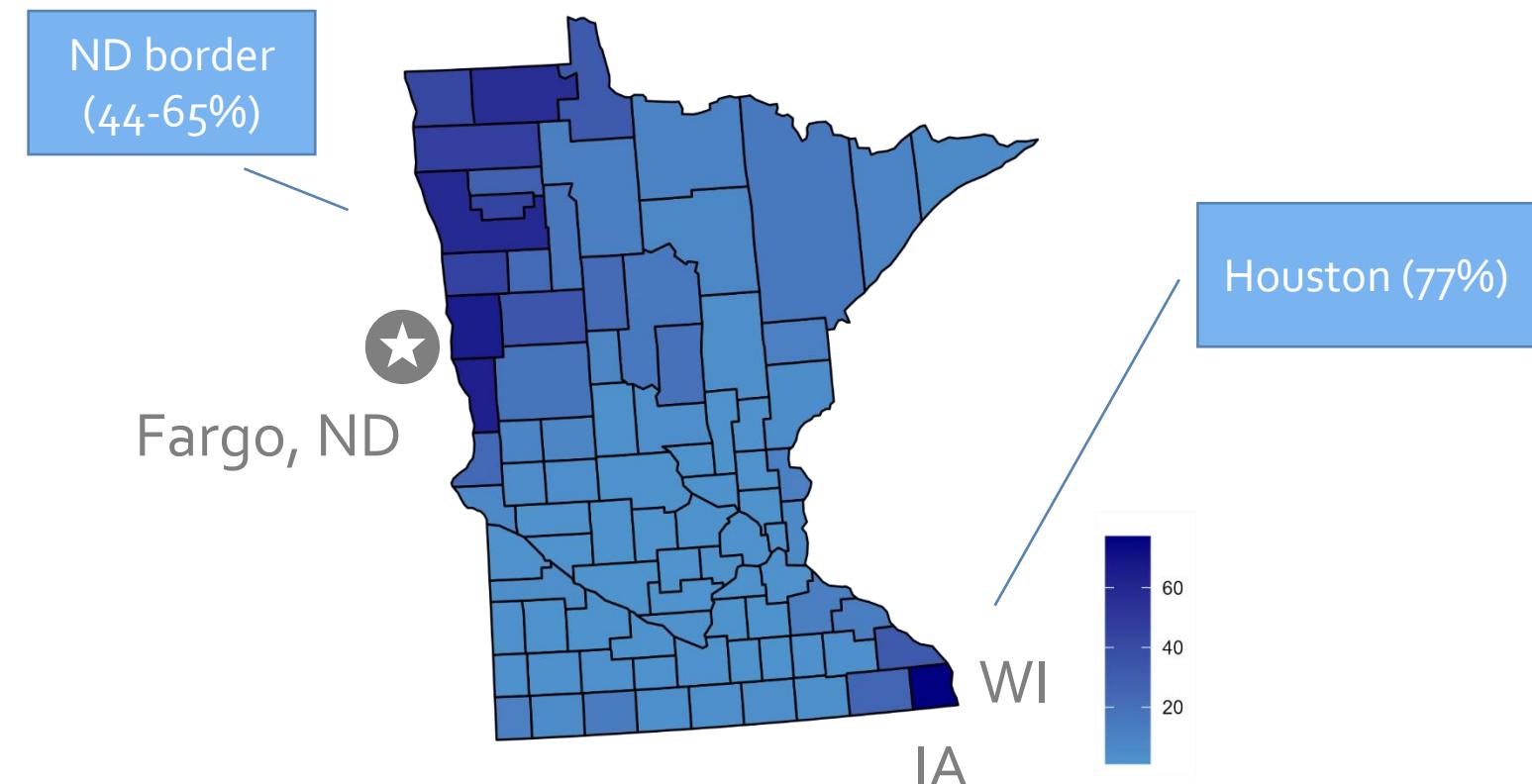
Distribution of shared shots



| year reported | n |
|---------------|------------------|
| 2008 | 6,890 |
| 2009 | 112,671 |
| 2010 | 283,712 |
| 2011 | 213,044 |
| 2012 | 238,805 |
| 2013 | 593,551 |
| 2014 | 255,003 |
| 2015 | 353,165 |
| 2016 | 297,749 |
| 2017 | 286,421 |
| 2018 | 359,853 |
| 2019 | 306,424 |
| 2020 | 270,593 |
| 2021 | 656,411 |
| 2022 | 375,629 |
| Total | 4,609,921 |

Shots reported to MIIC by IA, ND, & WI

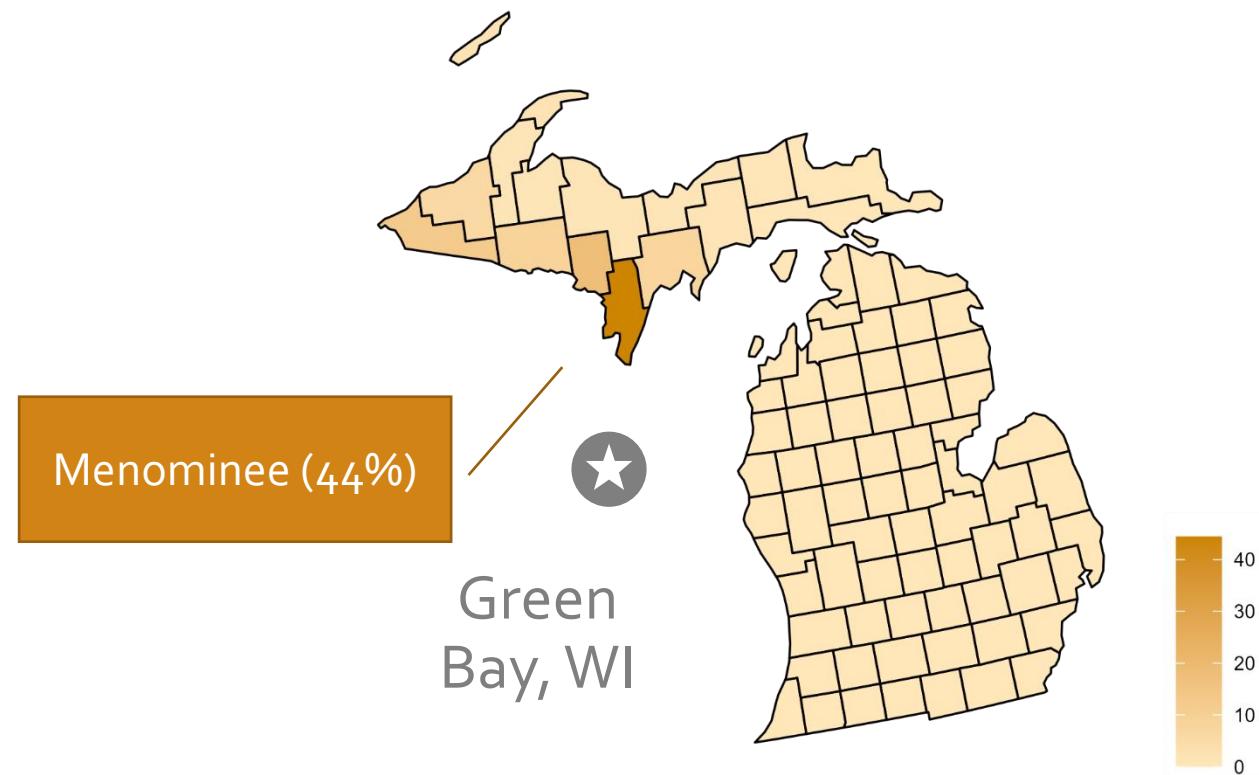
Percent of population with a shared shot
(Statewide: 7.9%)



Shots reported to MCIR by Wisconsin

| year reported | n |
|---------------|----------------|
| 2019 | 31,770 |
| 2020 | 94,203 |
| 2021 | 87,702 |
| 2022 | 19,417 |
| Total | 233,092 |

Percent of population with a shared shot
(Statewide: 0.27%)

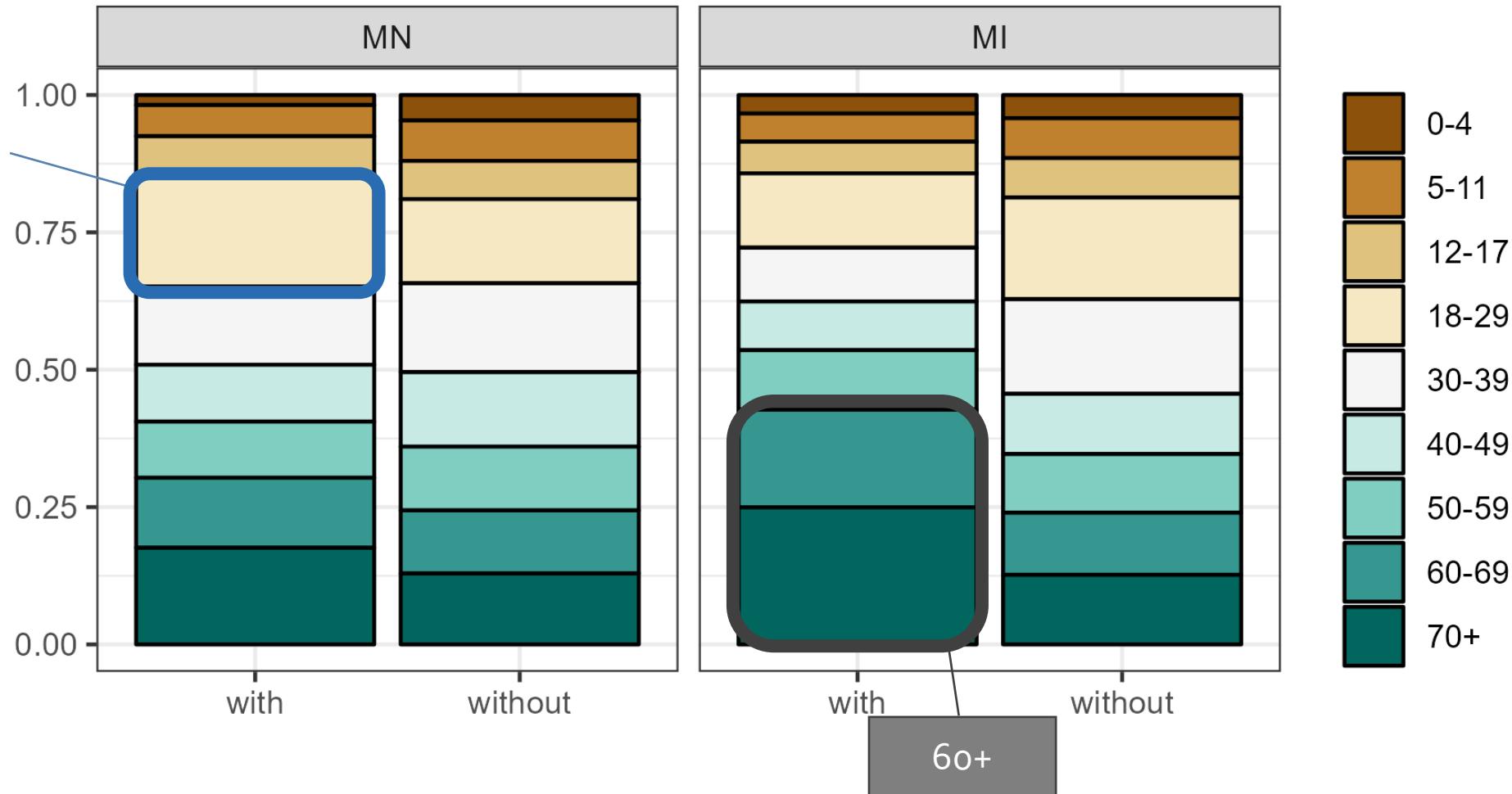




MIIC



MCIR

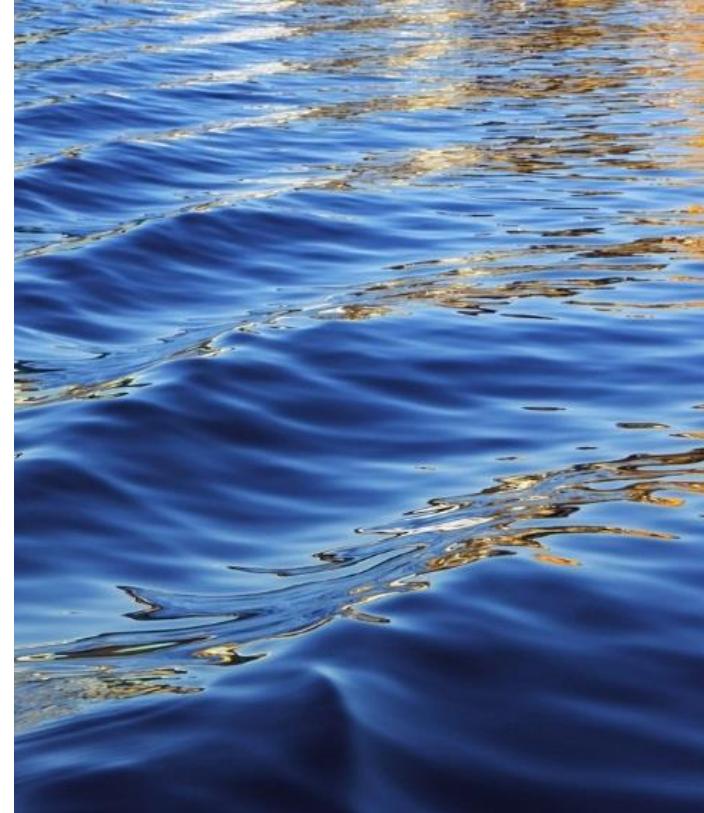


Current age of persons with/without at least one shared shot



Results

Coverage increases within border counties

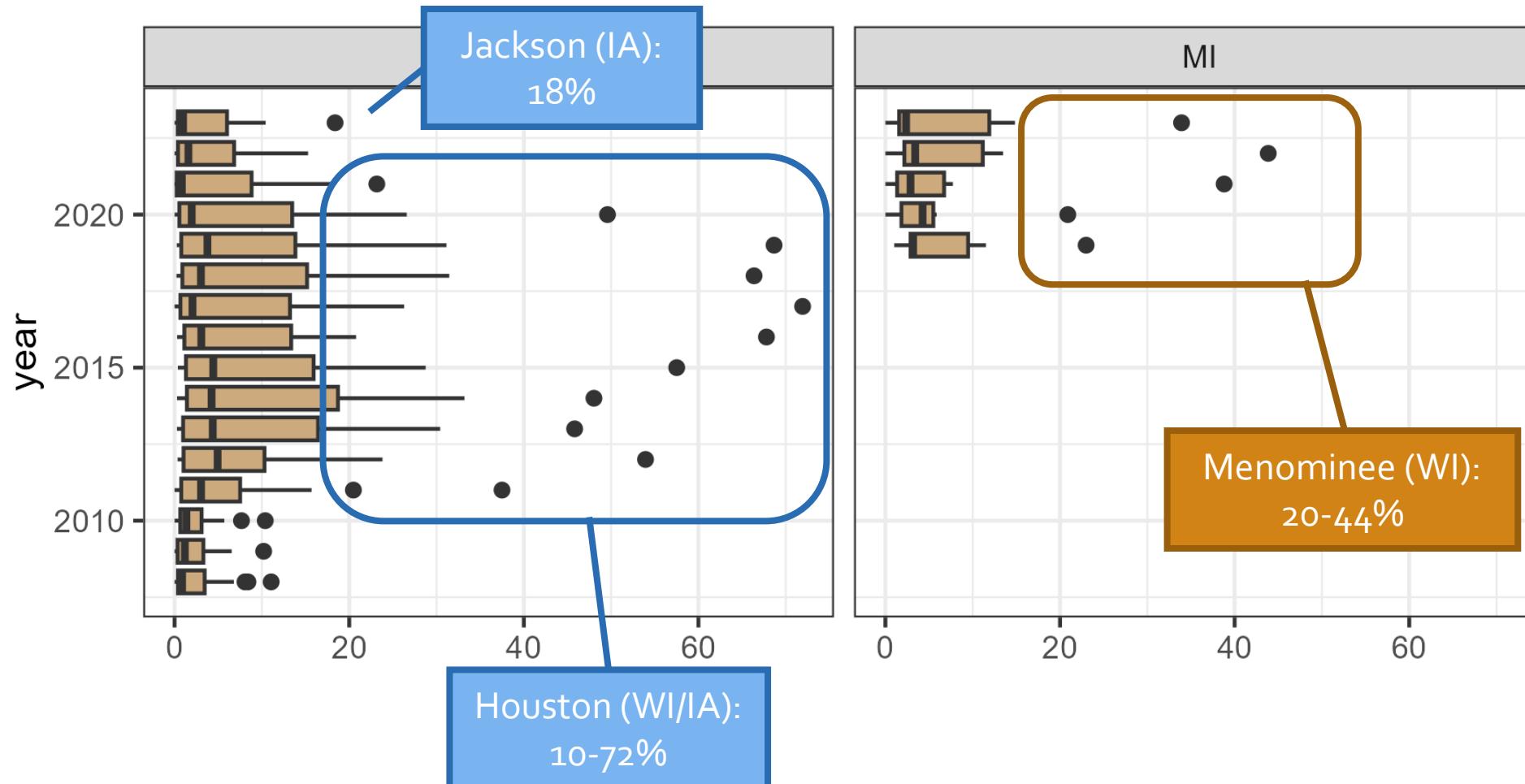




MIIC (N=24)



MCIR (N=6)



% of county population age **19 - 35 months** brought UTD by ≥ 1 shared shot

4 DTaP, 3 Polio, 1
MMR, 3 Hib, 3 HepB,
1 Var, 4 PCV

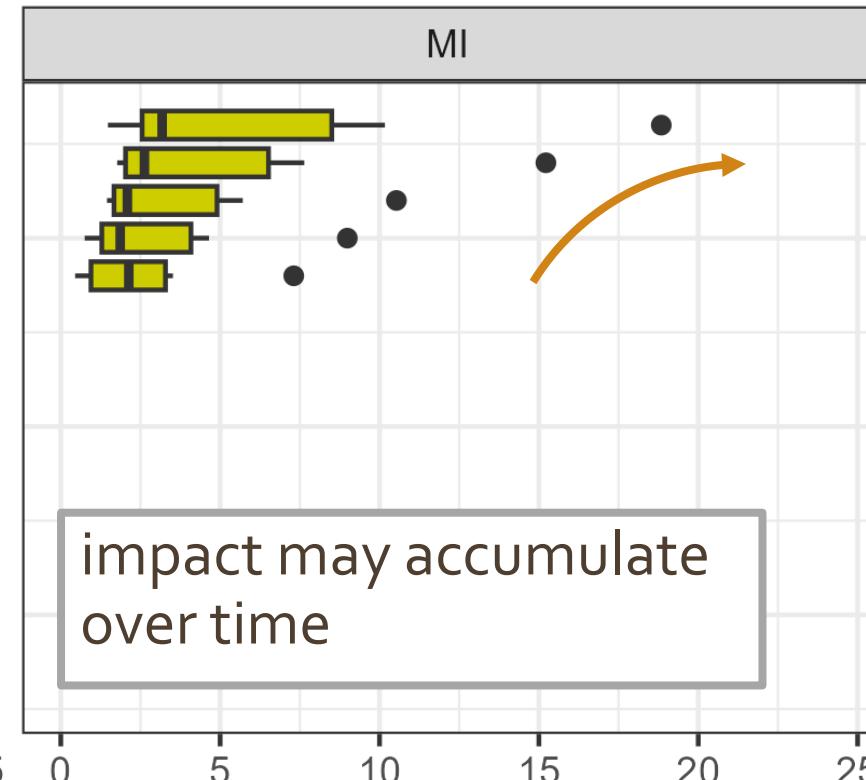
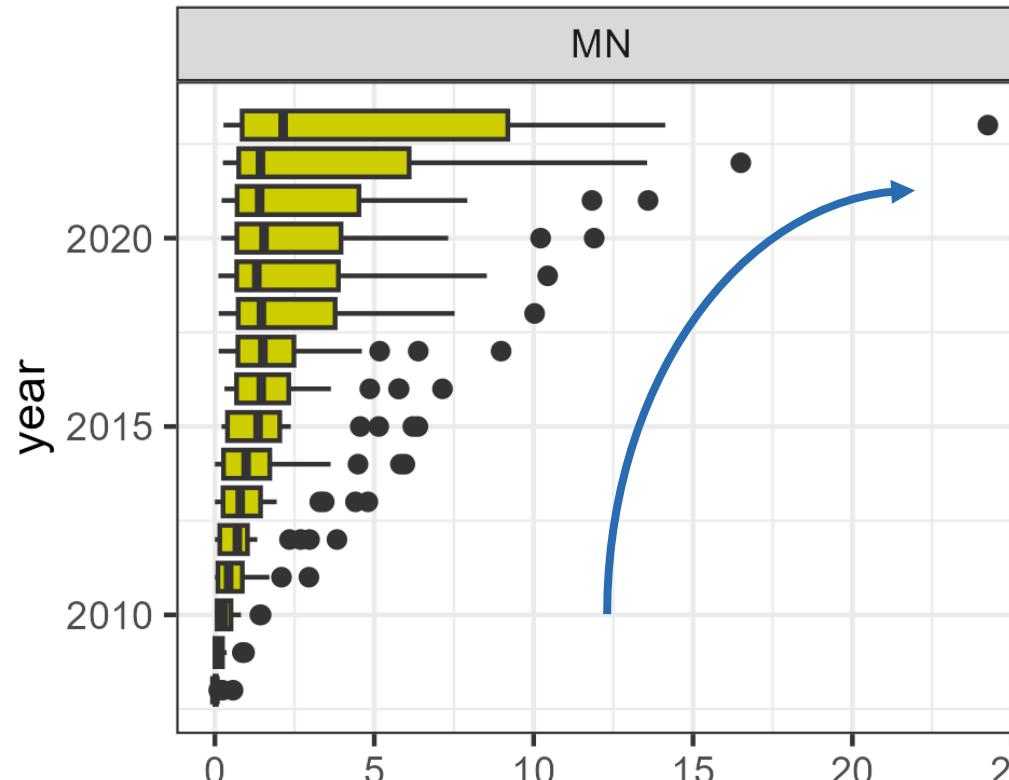
4313314



MIIC (N=24)



MCIR (N=6)



% of county population age **13 - 17 years** brought UTD by ≥ 1 shared shot

1 Tdap, 3 Polio, 2 MMR, 3 HepB, 2 Var, 1 MenACWY

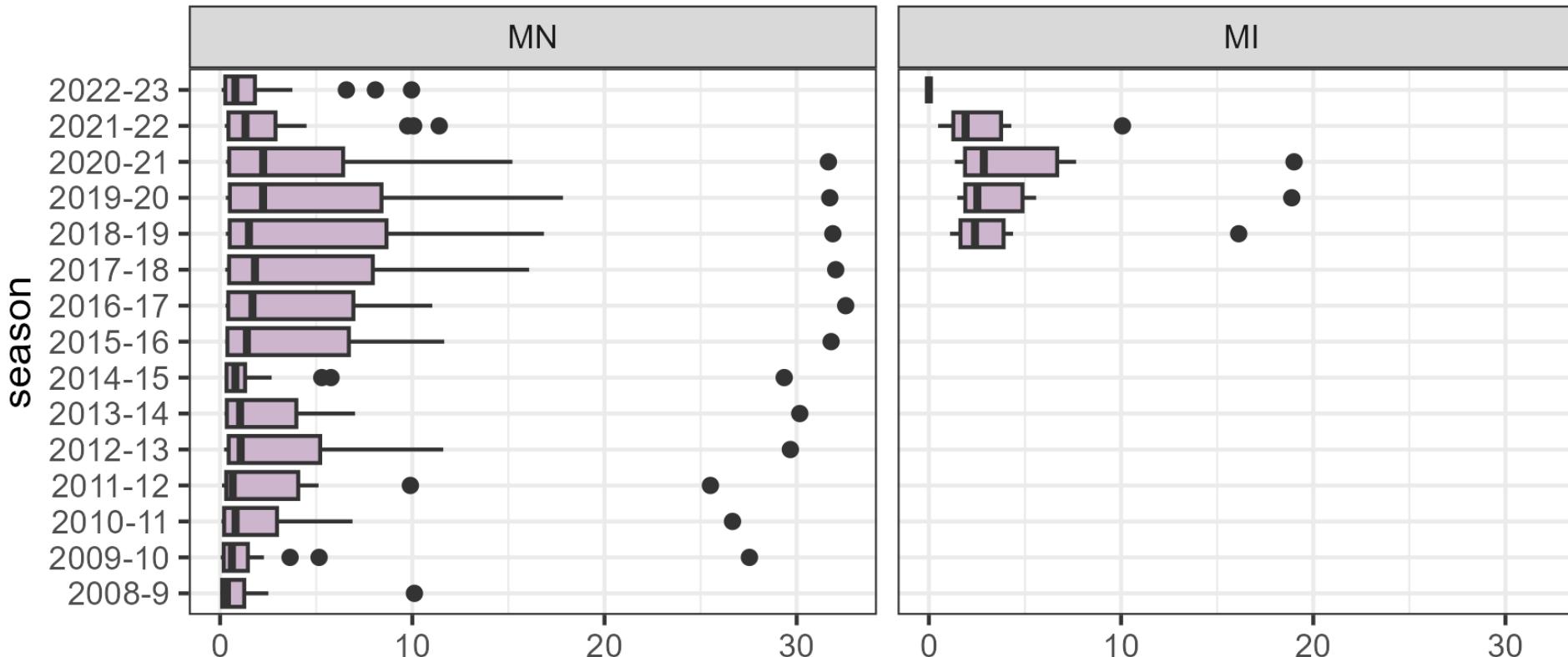
132321



MIIC (N=24)



MCIR (N=6)



% of county population age **18+** brought UTD by a shared shot

seasonal flu

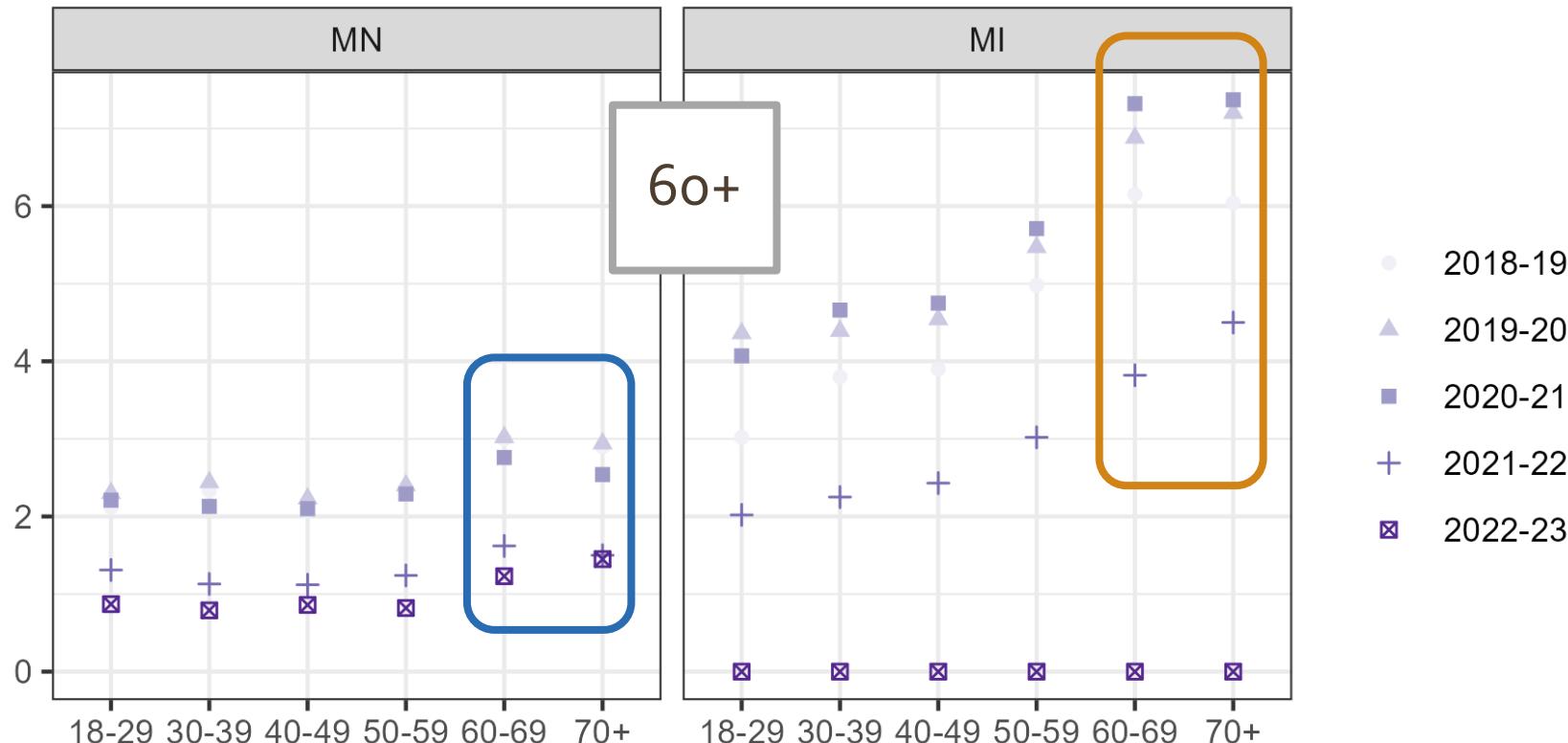




MIIC (N=24)



MCIR (N=6)



seasonal flu

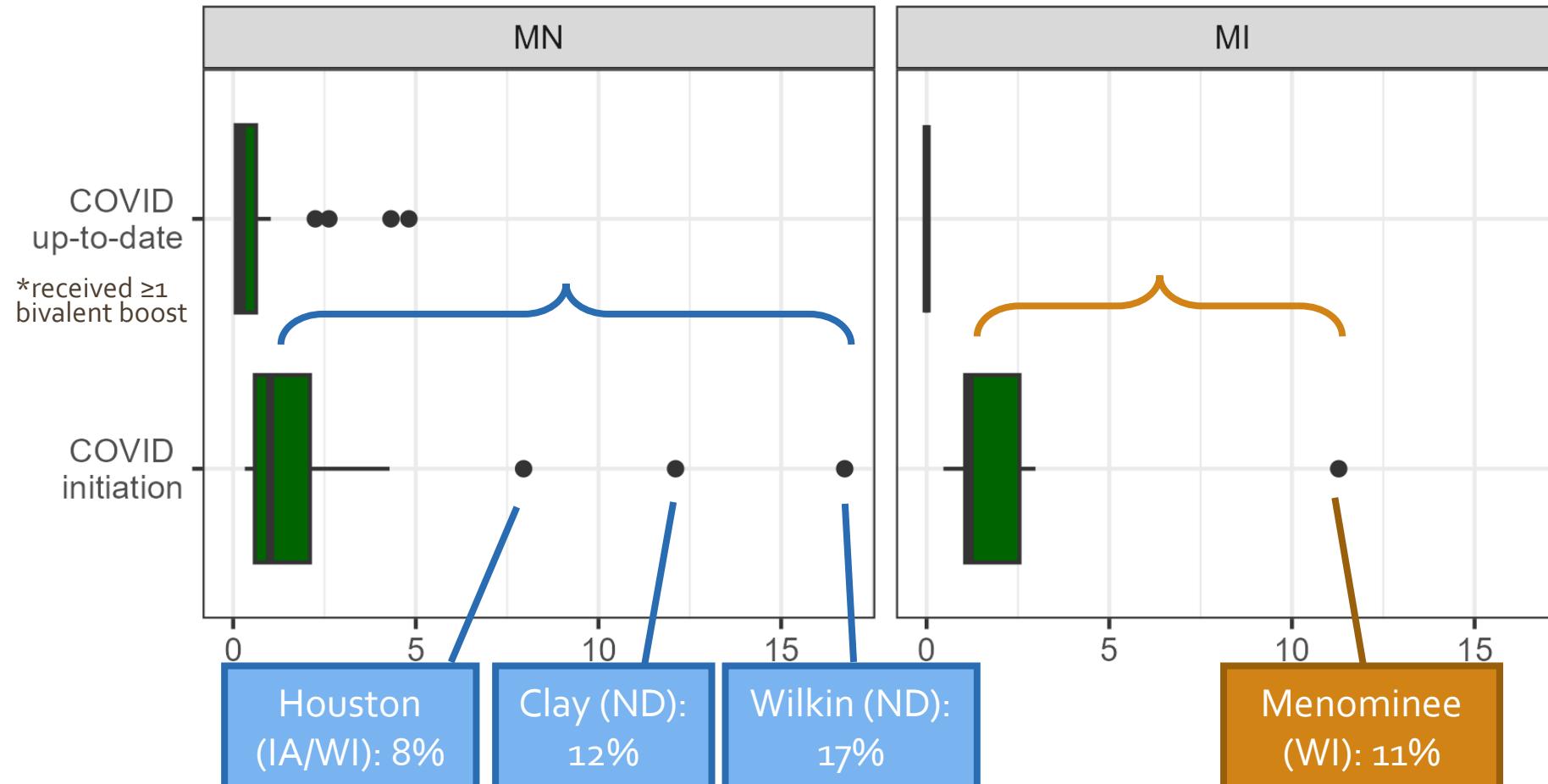
% of each age group brought UTD by a shared shot 2018/19 – present



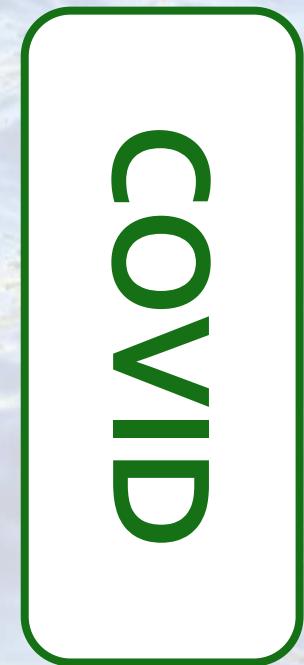
MIIC (N=24)



MCIR (N=6)



% of county population initiated or brought UTD by ≥ 1 shared shot

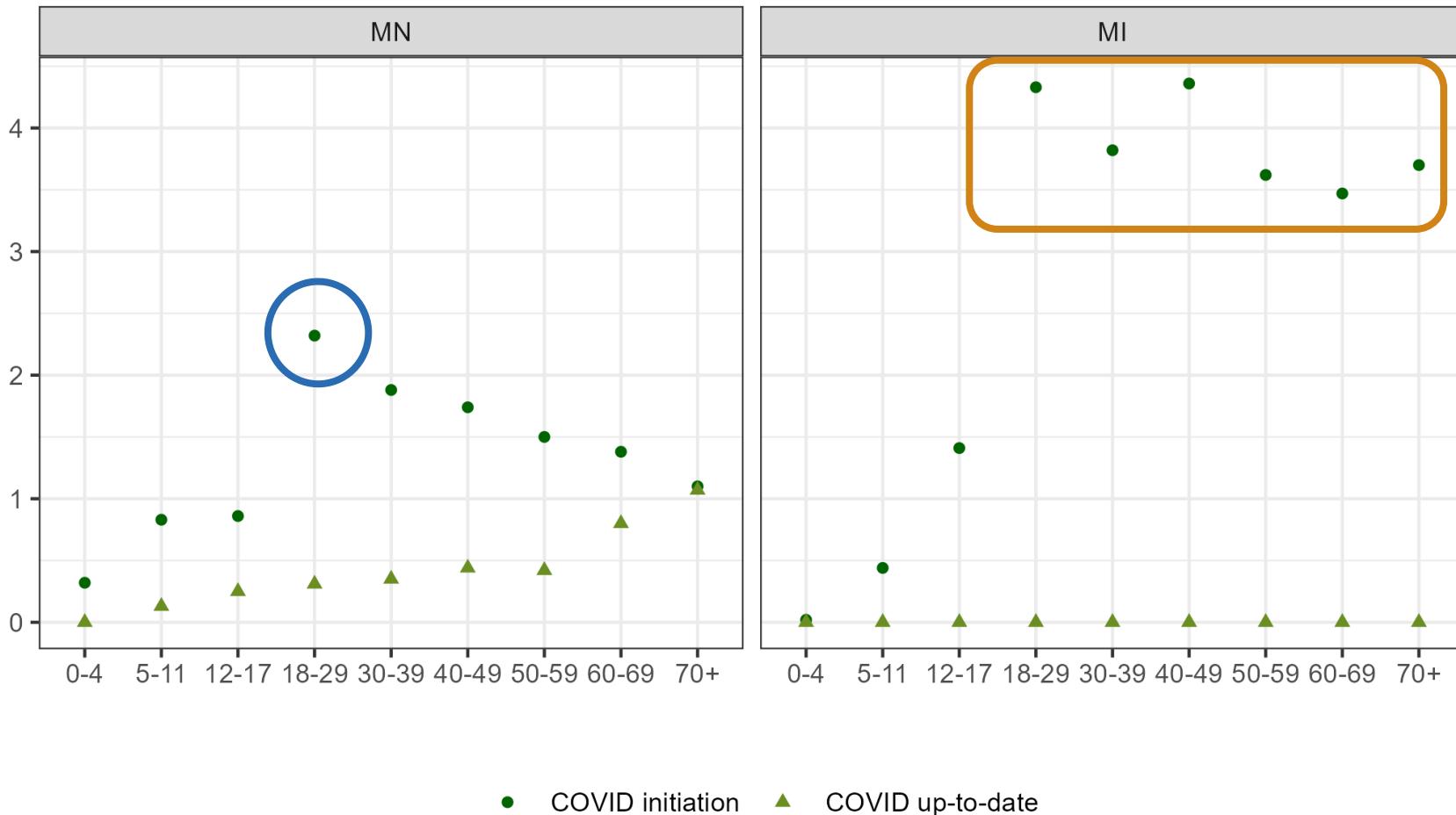




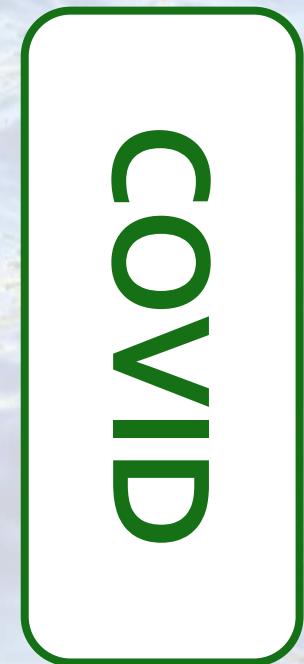
MIIC (N=24)



MCIR (N=6)

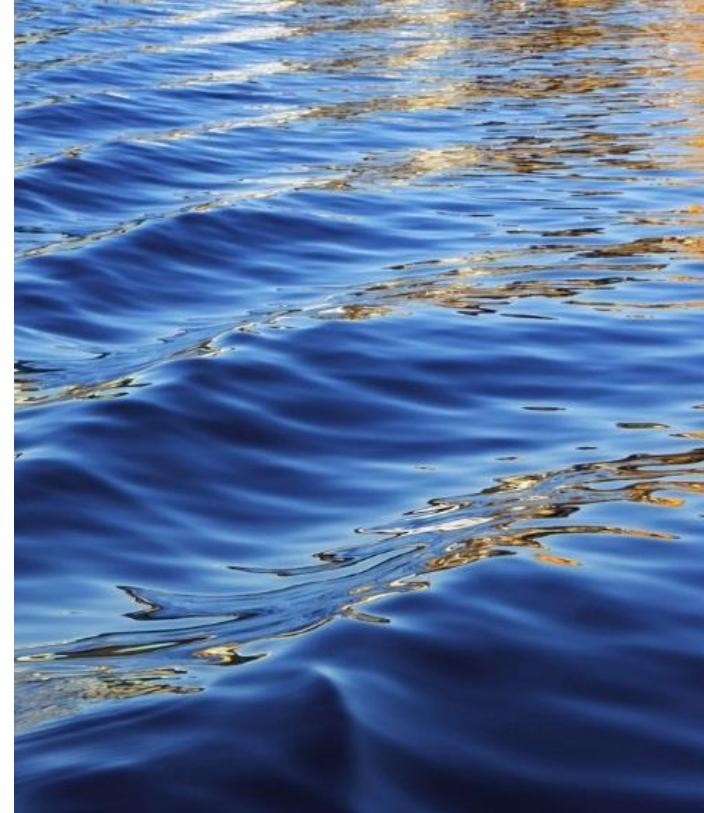


% of **each age group** initiated or brought UTD by ≥ 1 shared shot





Takeaways





Even a **small** amount of data can make a **big** difference in the right place!

- Data exchange really impacted 4313314 coverage – this drives program decisions!
- If high-risk groups live near the border, data exchange is worth the effort!



Mobile populations can benefit from data exchange.

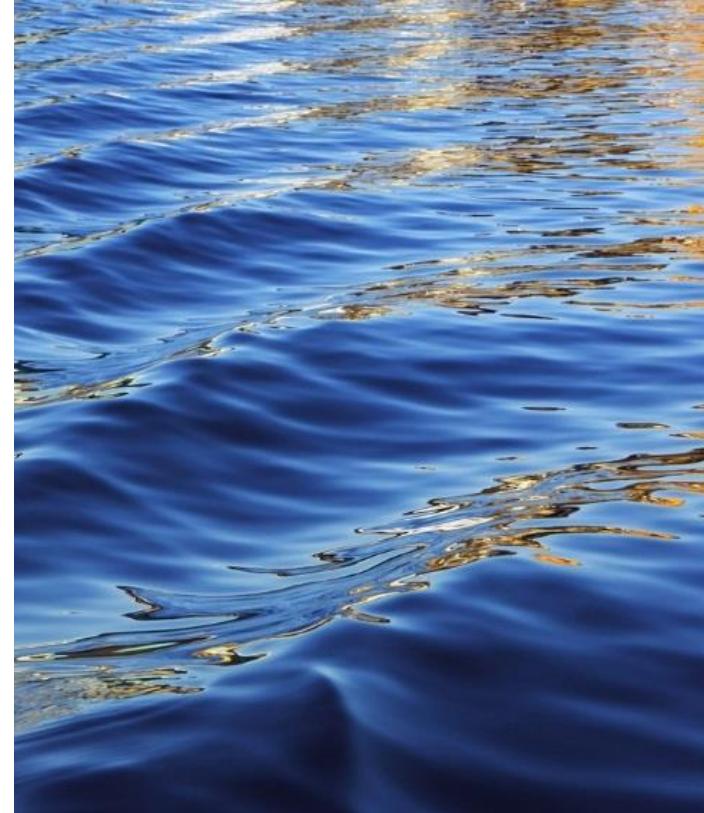
- Frequent state border crossing for work/school/healthcare can impact where data comes from
- IIS-to-IIS data exchange may impact: Migrant workers, snowbirds, college students

Race/ethnicity is **complex**.

- Need better capture – too much ‘unknown’ and missing data made assessment impossible
- Need to disaggregated race & ethnicity categories – ‘Other’ may hide multiracial identities



Limitations



Data exchange only helps with **one** of these problems!

out-of-state care

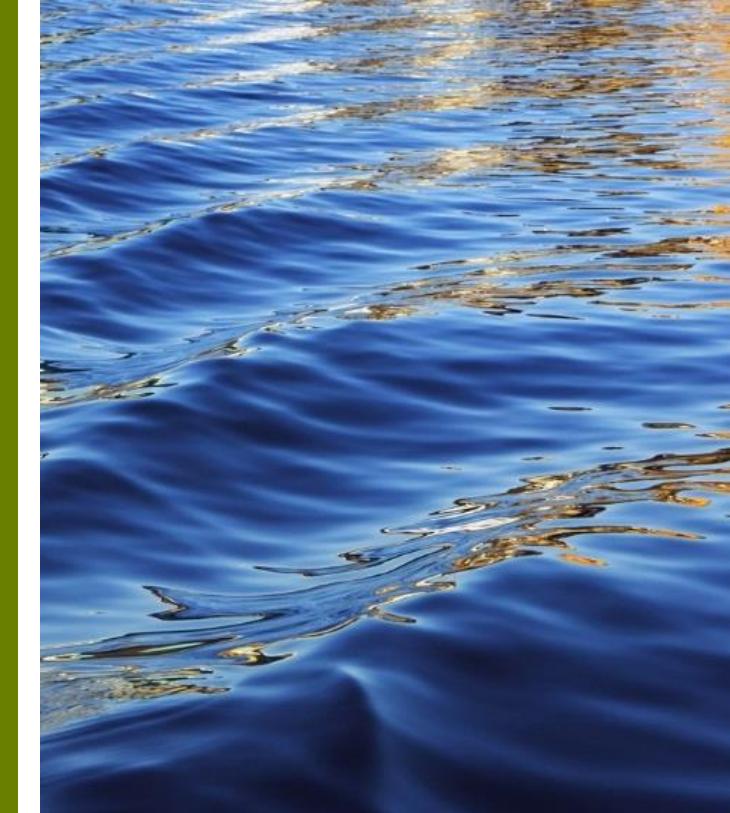
incomplete reporting

$$\frac{\text{total vaccinated}}{\text{eligible population}}$$

denominator inflation

missing demographic data

- Shared code base directly measured **coverage gains** → ignores baseline coverage level
- Only used **current address** → older findings less accurate



Next steps



YOU!

MIIC

MCIR

- Snowbirds from AZ and FL
- Want to prioritize southern border (OH, IN)
- IZ Gateway may work **differently**
- Race/ethnicity categories differ across IISs
- Consider how addresses are updated

Watch out for:

Thank You!

Naomi Jiter [coding, maps, discussion] - MN

Ryan Malosh [discussion, maps] - MI

Sukhesh Sudan [discussion] – MI

Miriam Muscoplat (MIIC Manager) - MN

