



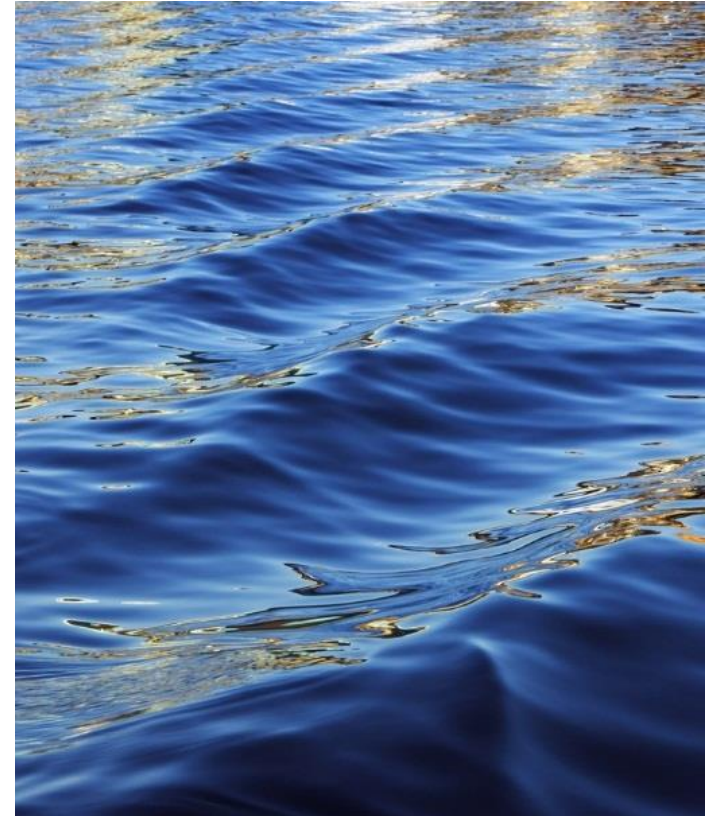
# The effect of IIS-to-IIS data exchange on sub-populations

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**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.

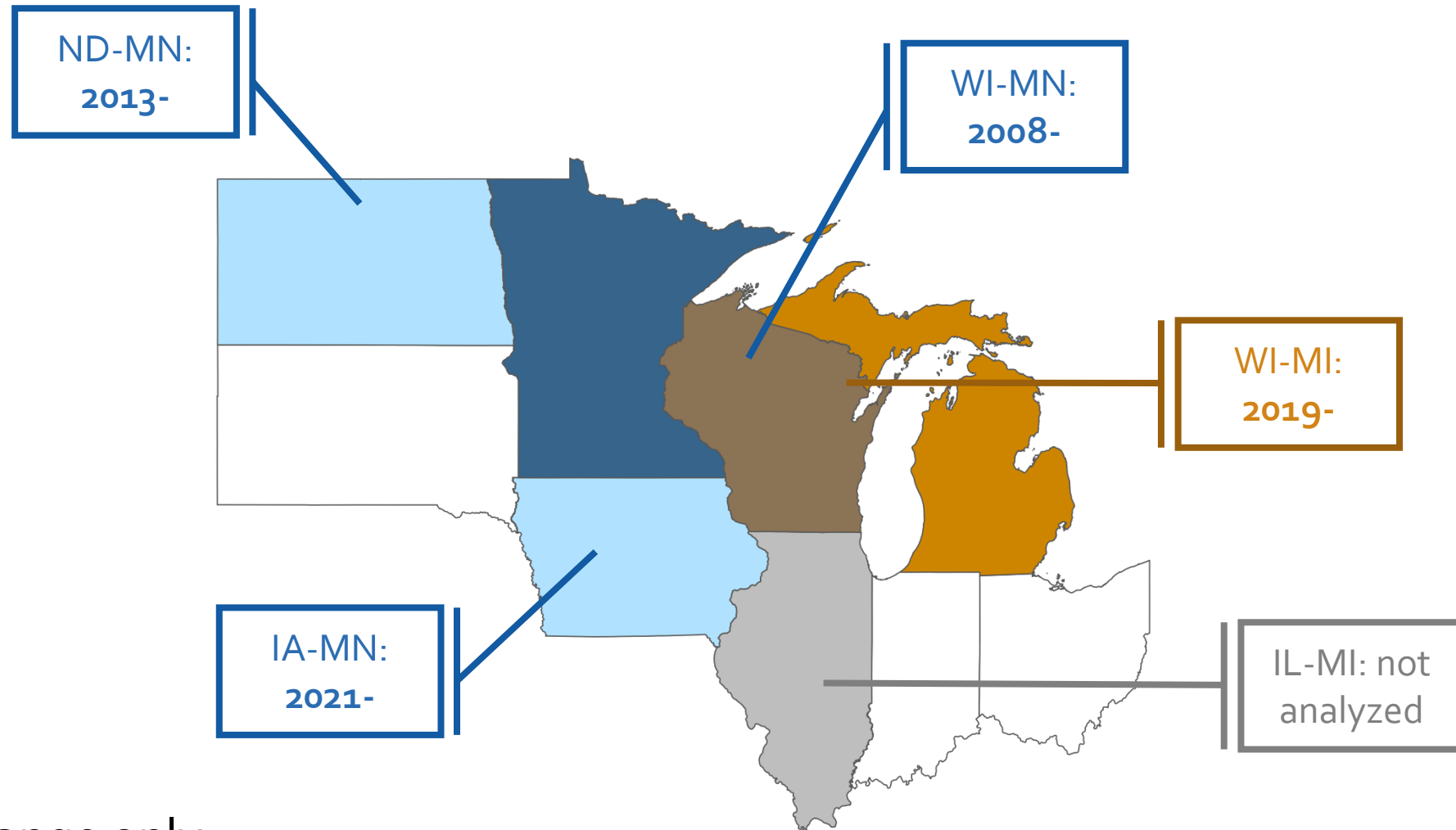


# Research Question

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



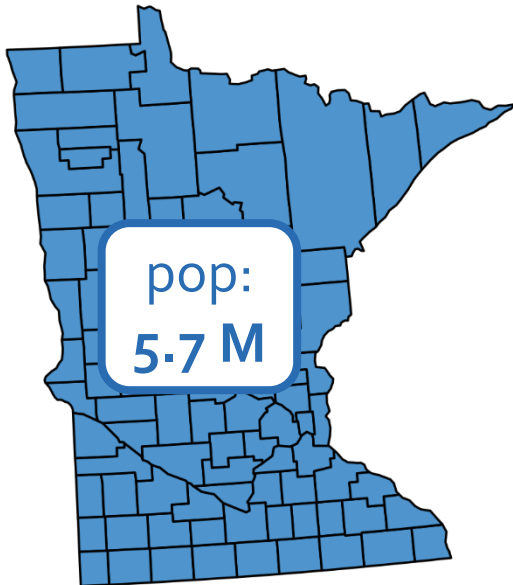
# Interjurisdictional Data Exchanges for **MIIC** and **MCIR**



\*flat file exchange only

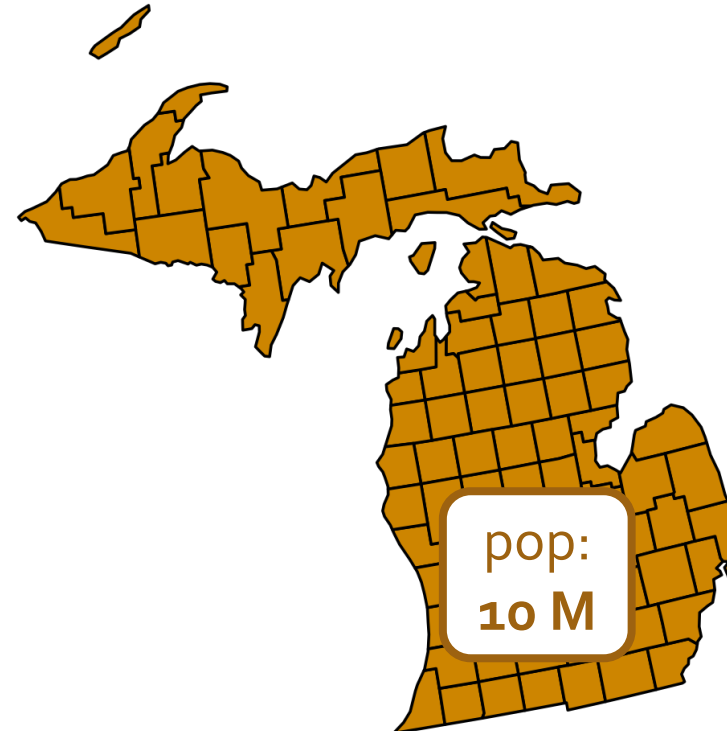
# MIIC

- 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  $\geq 1$  shared shot
- sex, date of birth, race/ethnicity, current county of **all** persons
- census data for 18+ denominator



National Vital Statistics System

shared  
codebase



## Results

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

*persons up to date **only** if  
shared shots included*

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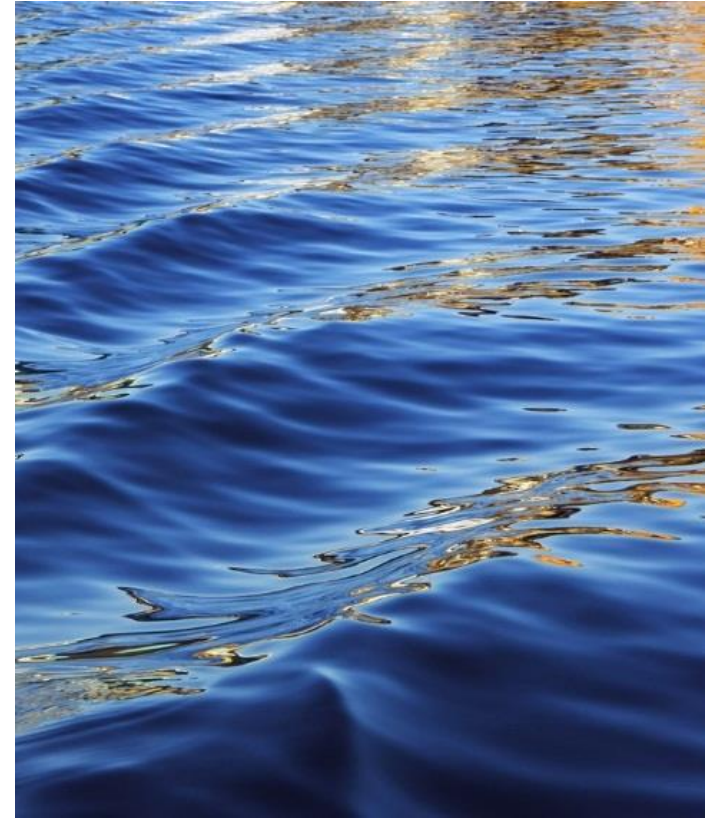
*eligible population*





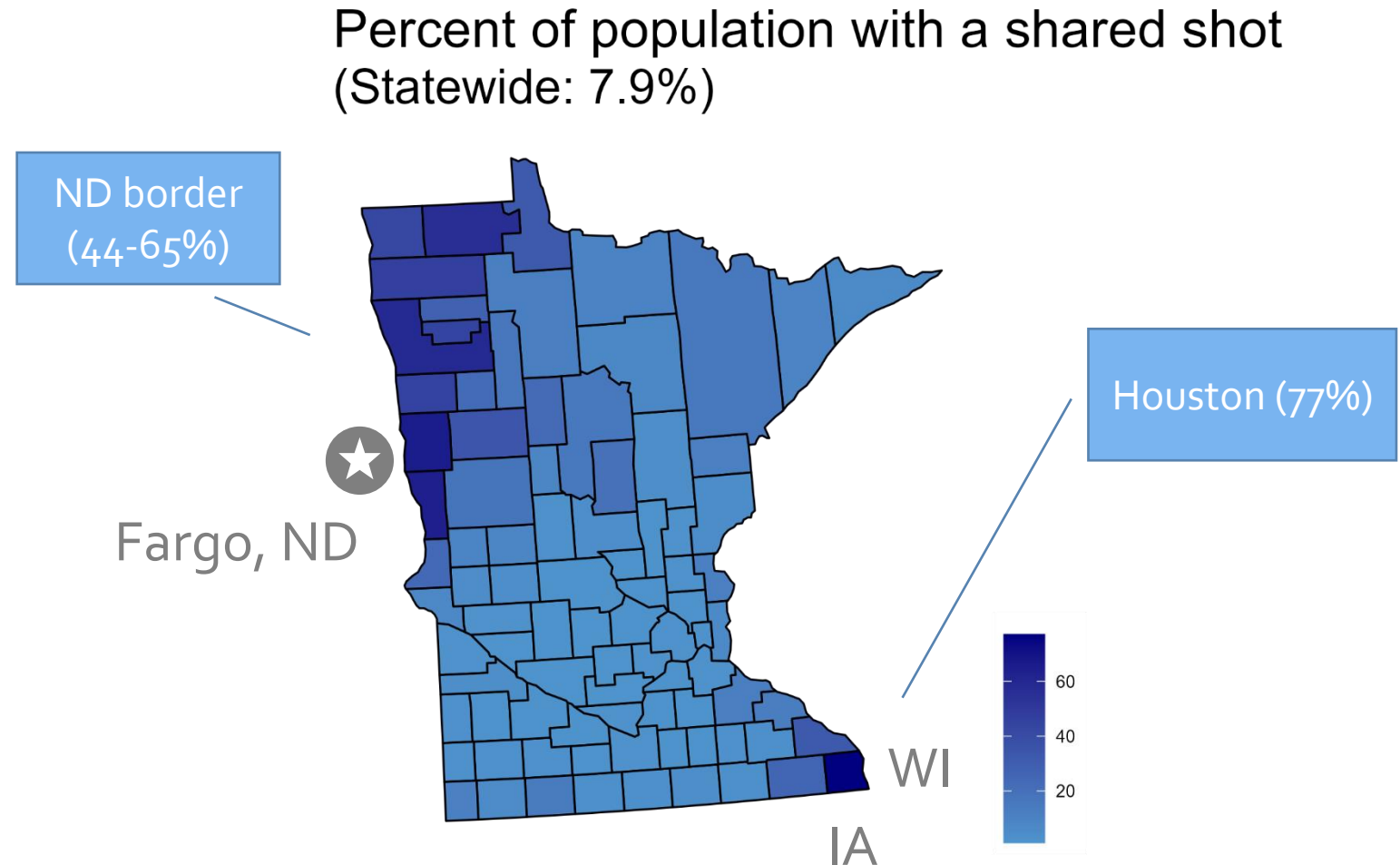
# Results

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
<b>Total</b>	<b>4,609,921</b>

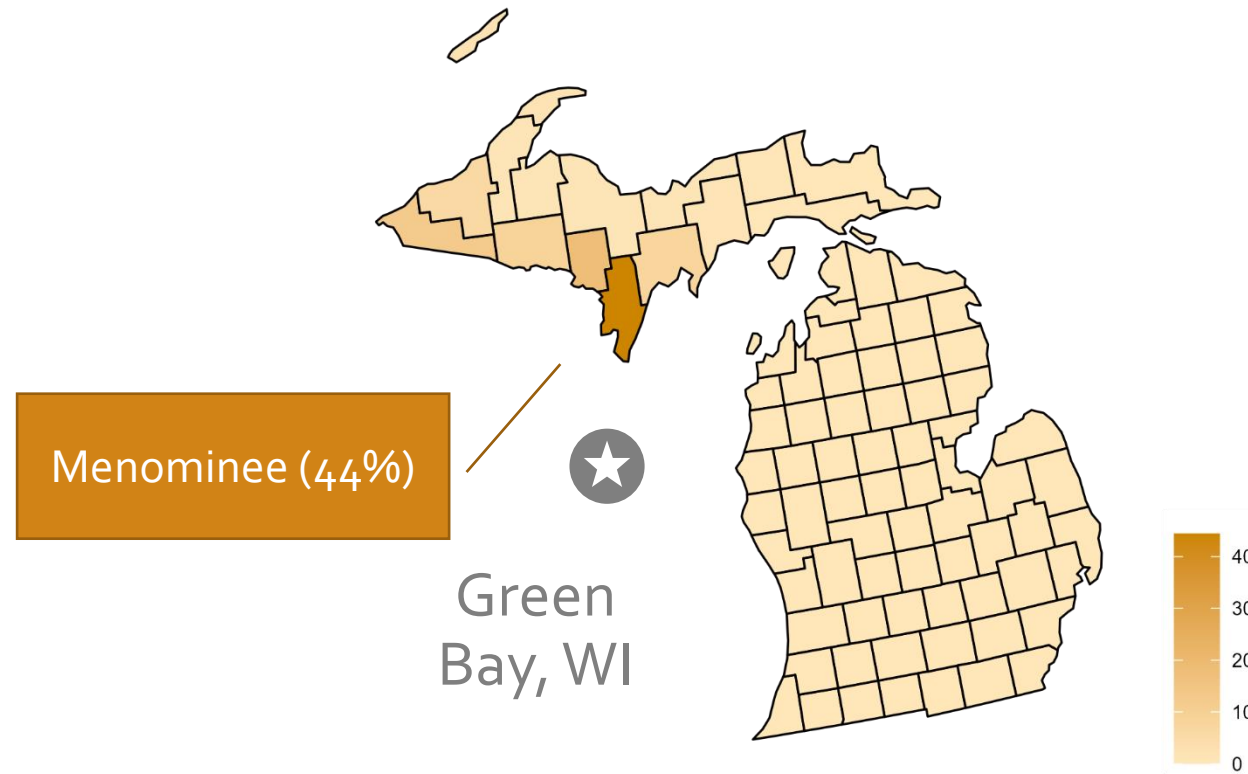
## Shots reported to MIIC by IA, ND, & WI

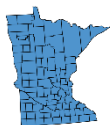


# Shots reported to MCIR by Wisconsin

year reported	n
2019	31,770
2020	94,203
2021	87,702
2022	19,417
<b>Total</b>	<b>233,092</b>

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

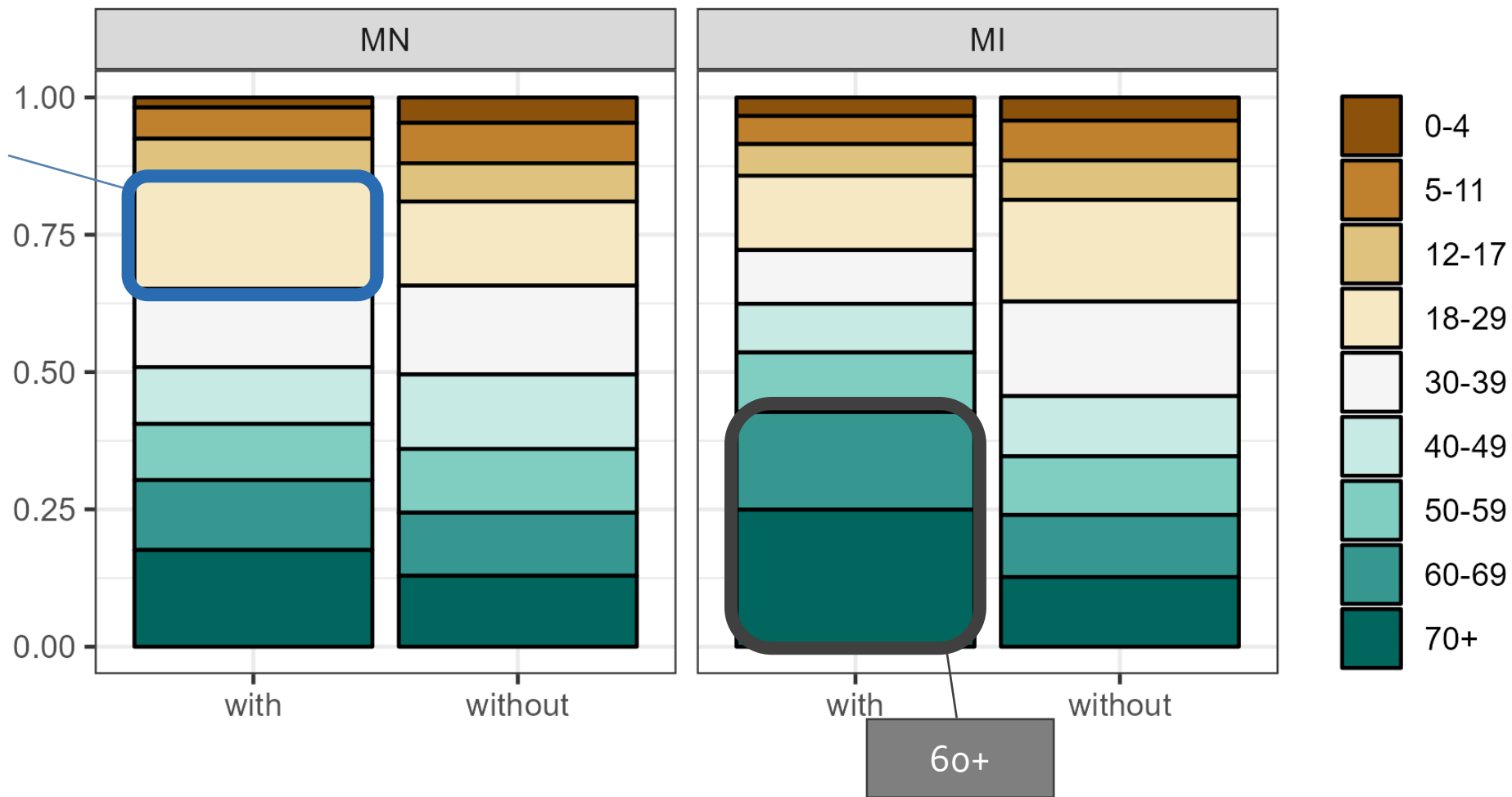




MIIC



MCIR

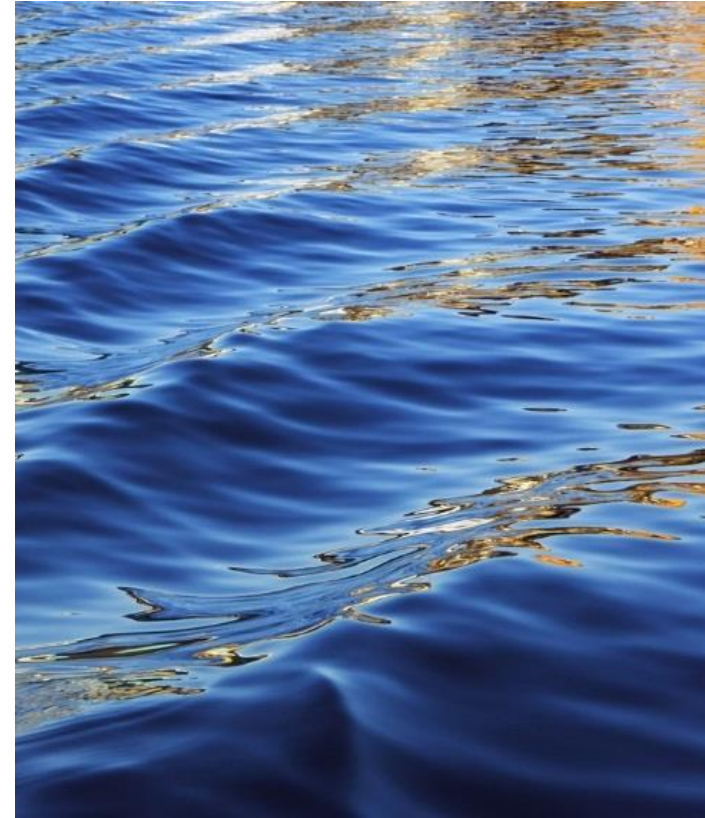


Current age of persons with/without at least one shared shot

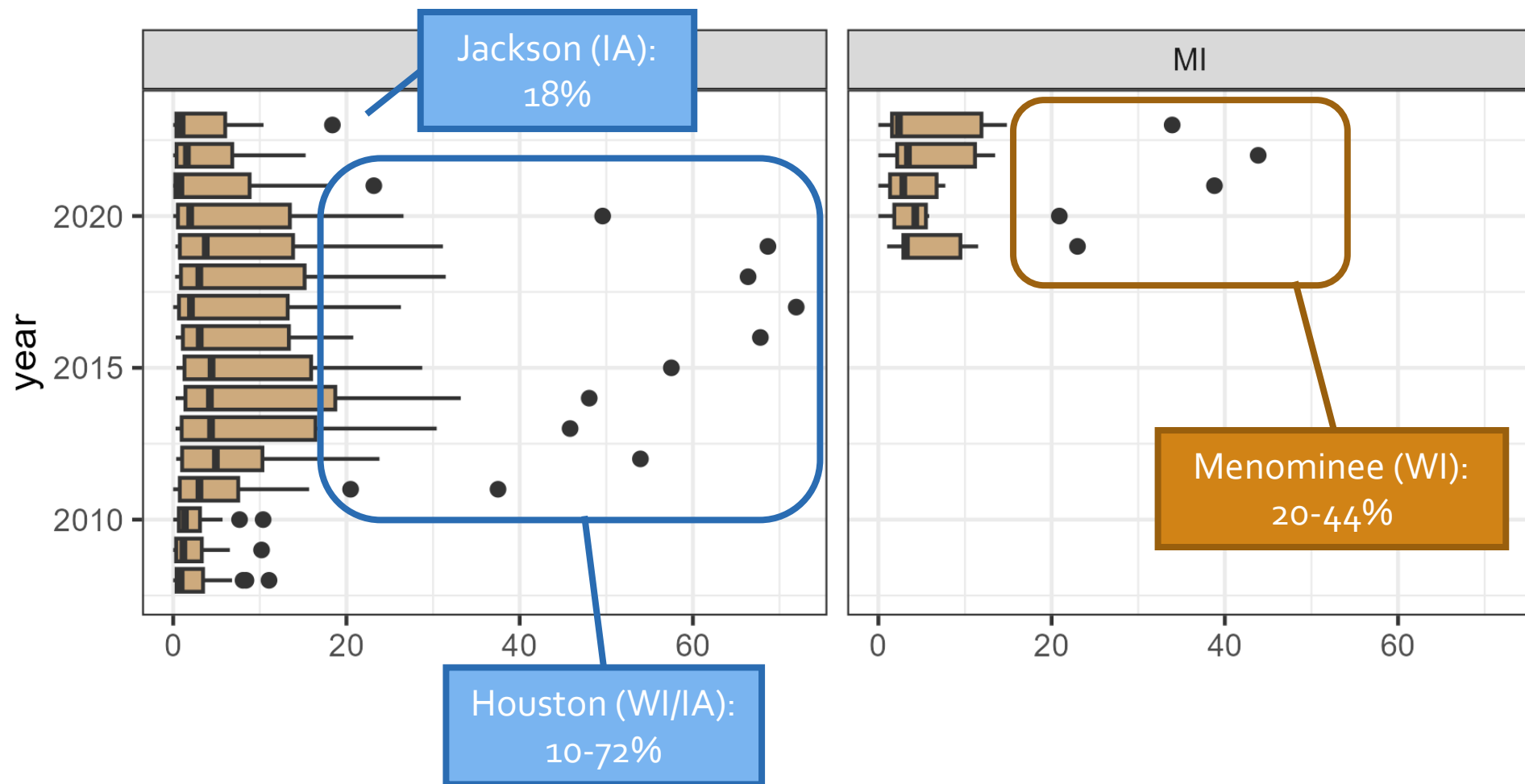


# Results

Coverage increases within border counties



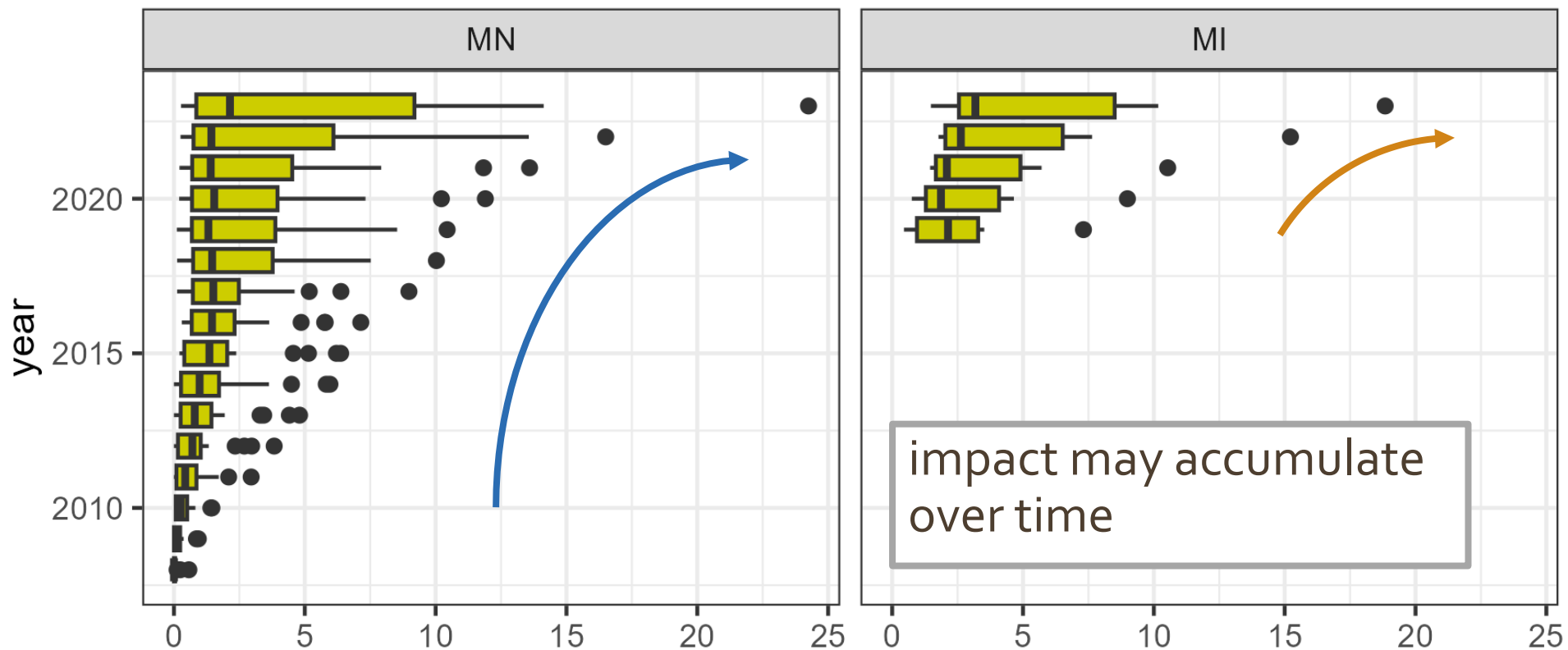




4313314

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

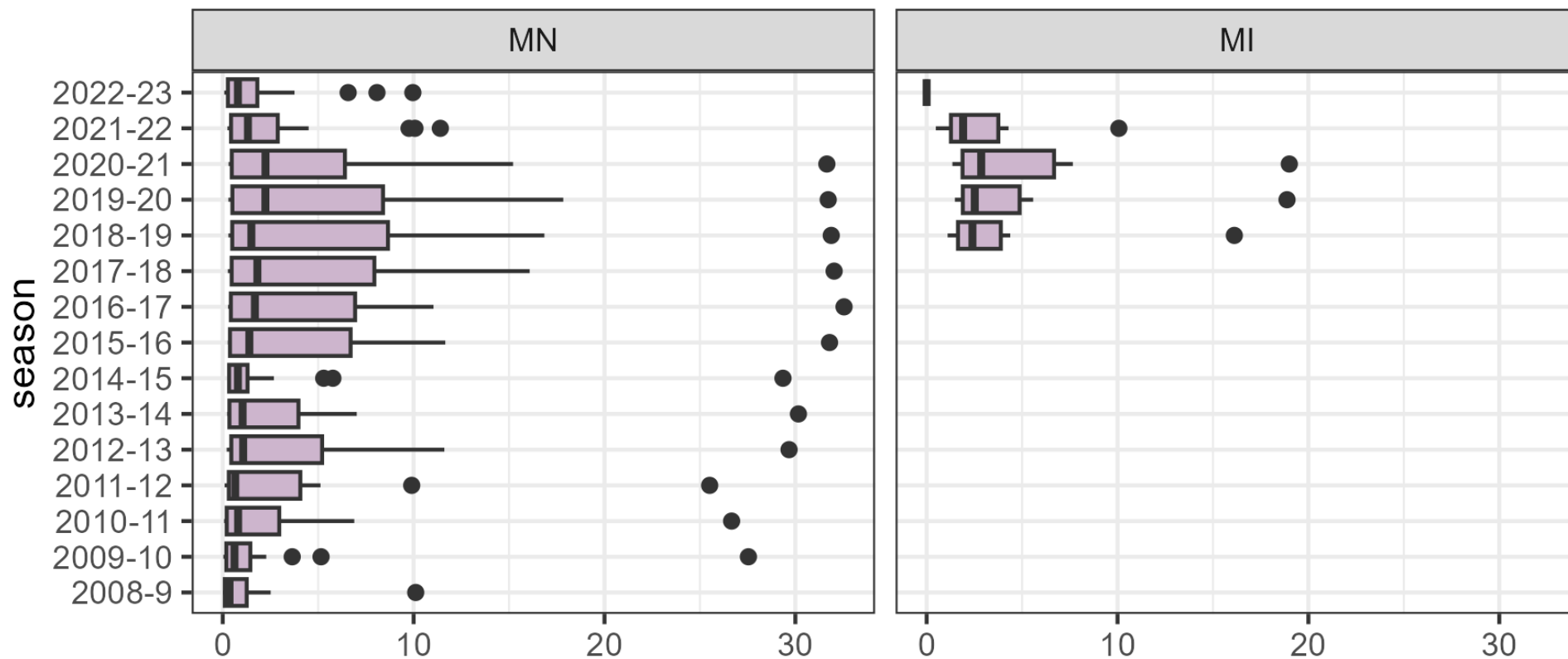
% of county population age **19 - 35 months** brought UTD by  $\geq 1$  shared shot



132321

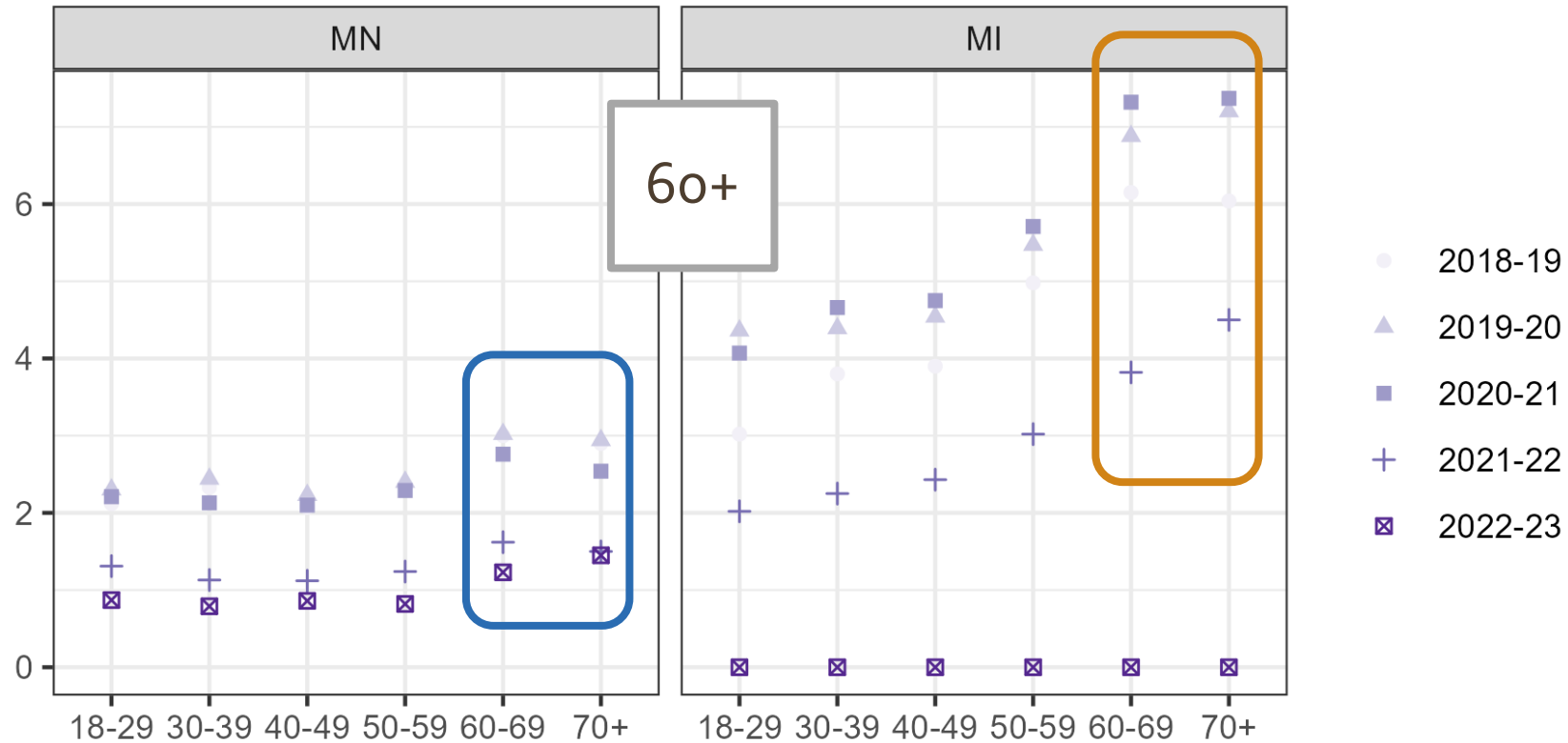
% of county population age **13** - **17 years** brought UTD by  $\geq 1$  shared shot

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



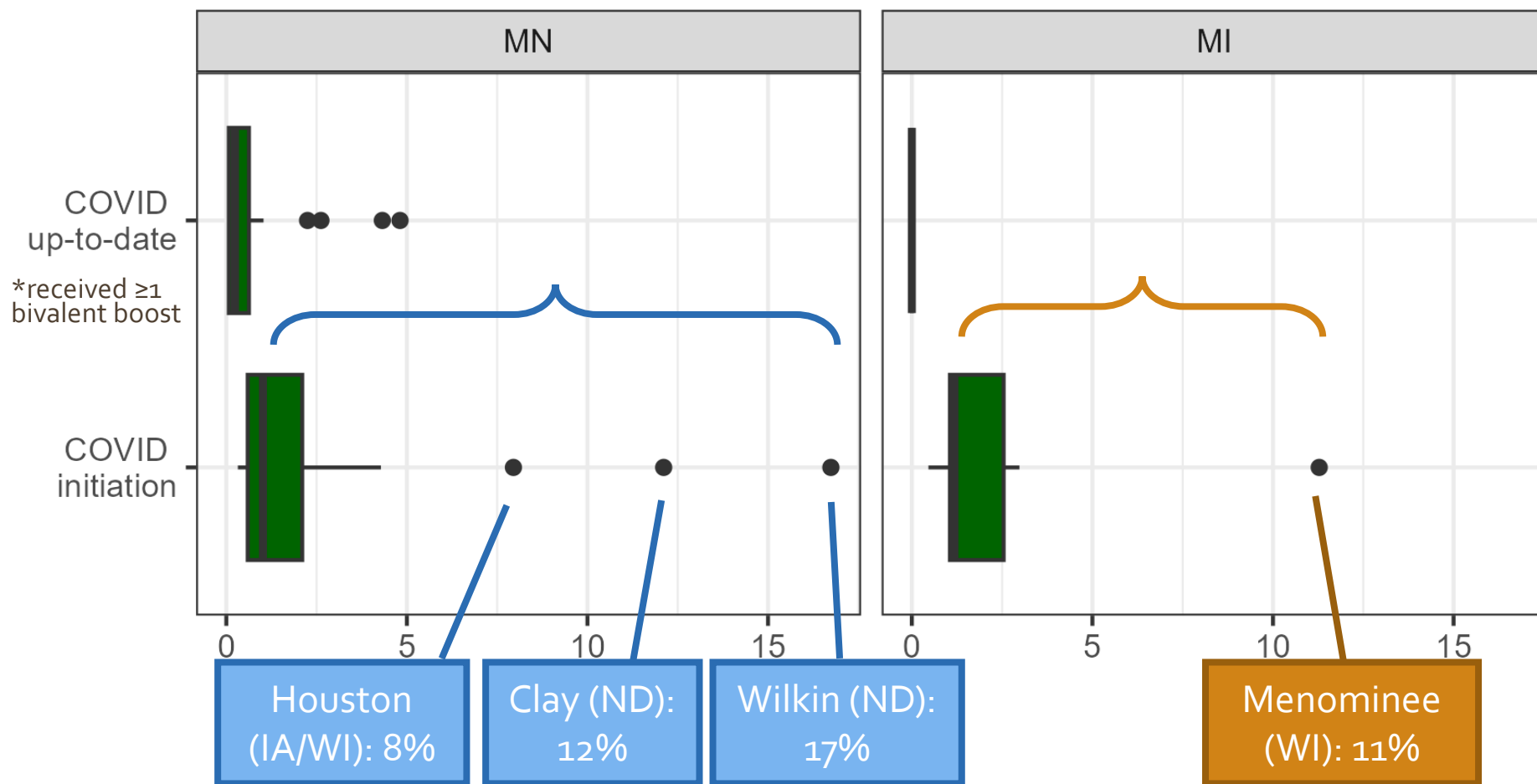
% of county population age **18+** brought UTD by a shared shot

seasonal flu



seasonal flu

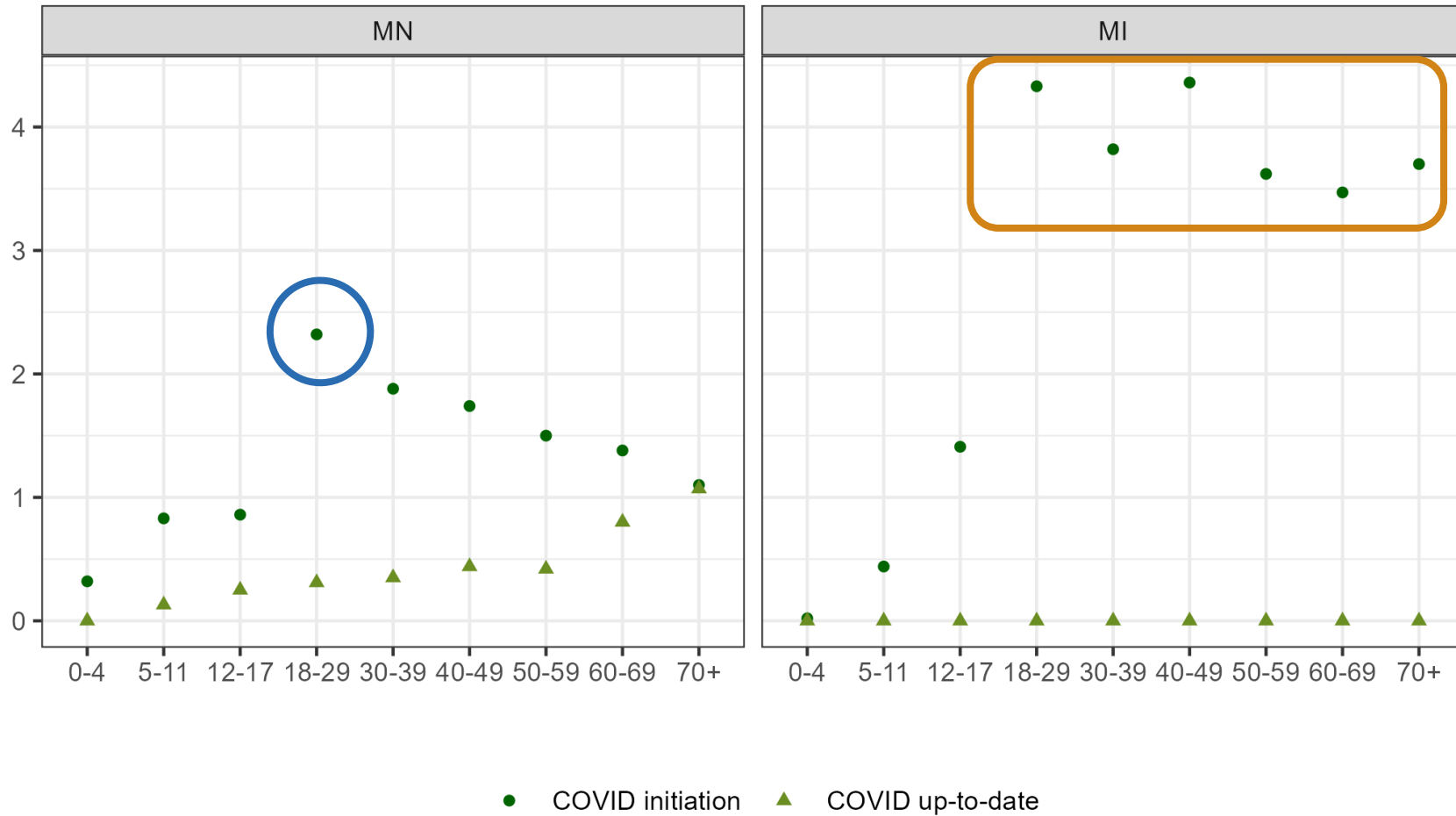
% of **each age group** brought UTD by a shared shot 2018/19 – present



% of county population initiated or brought UTD by  $\geq 1$  shared shot

COVID





% of **each age group** initiated or brought UTD by  $\geq 1$  shared shot

COVID



# 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

*total vaccinated*  

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*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

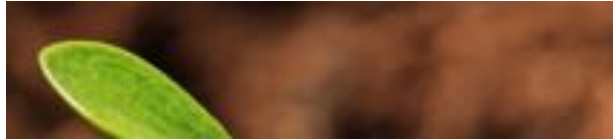


Next steps



## MIIC

- Snowbirds from AZ and FL



## MCIR

- Want to prioritize southern border (OH, IN)

**YOU!**

Watch out for:

- IZ Gateway may work **differently**
- Race/ethnicity categories differ across IISs
- Consider how addresses are updated

# Thank You!

Naomi Jiter [coding, maps, discussion] - MN  
Ryan Malosh [discussion, maps] - MI  
Sukhesh Sudan [discussion] – MI

Miriam Muscoplat (MIIC Manager) - MN

