

# The Landscape of Immunization Information Systems in the U.S.

# An Analysis of the Infrastructure and Readiness of IISs during the COVID-19 Campaign and the Impact on Equitable Vaccine Distribution

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## ABSTRACT

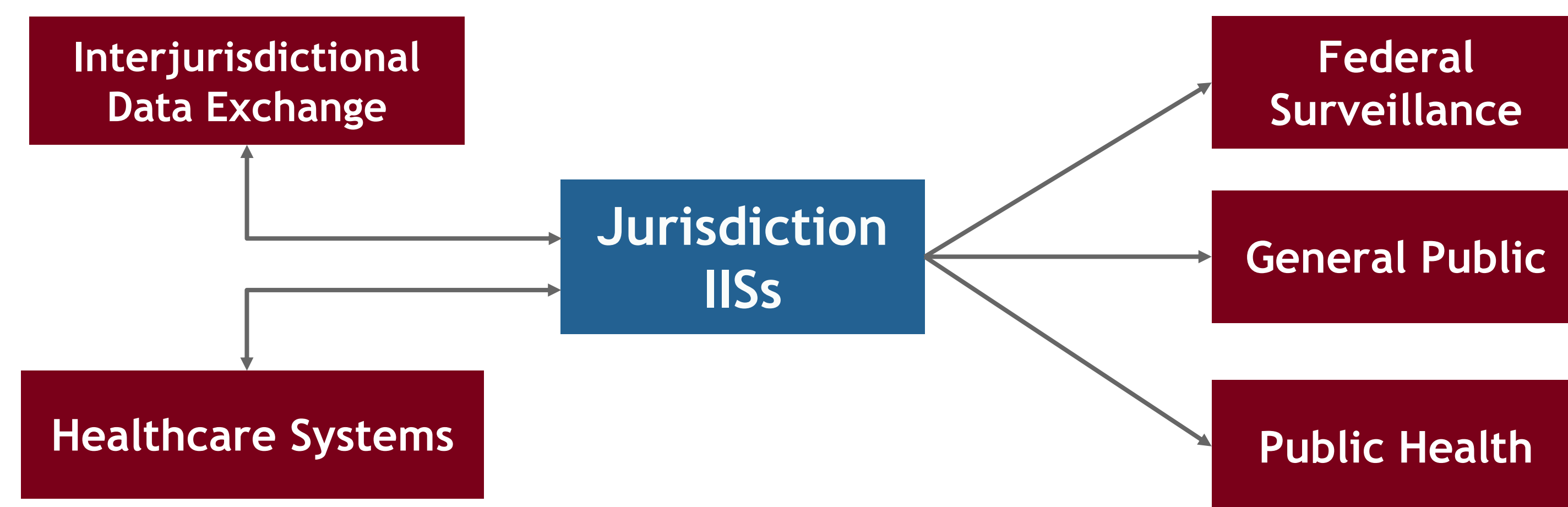
Immunization Information Systems (IISs) support public health surveillance by recording immunizations and identifying undervaccinated populations. Our primary aims were to assess the challenges and successes of IISs during the COVID-19 pandemic and their implications for equitable vaccine distribution. We identified primary lessons learned from the pandemic and developed recommendations regarding IIS sustainability, standardization, interoperability, collaboration and relationship-building.

## BACKGROUND

### What are Immunization Information Systems (IISs)?

- Confidential, population-based computerized databases
- Record and store individual immunization records

### Immunization Data Flow through IISs



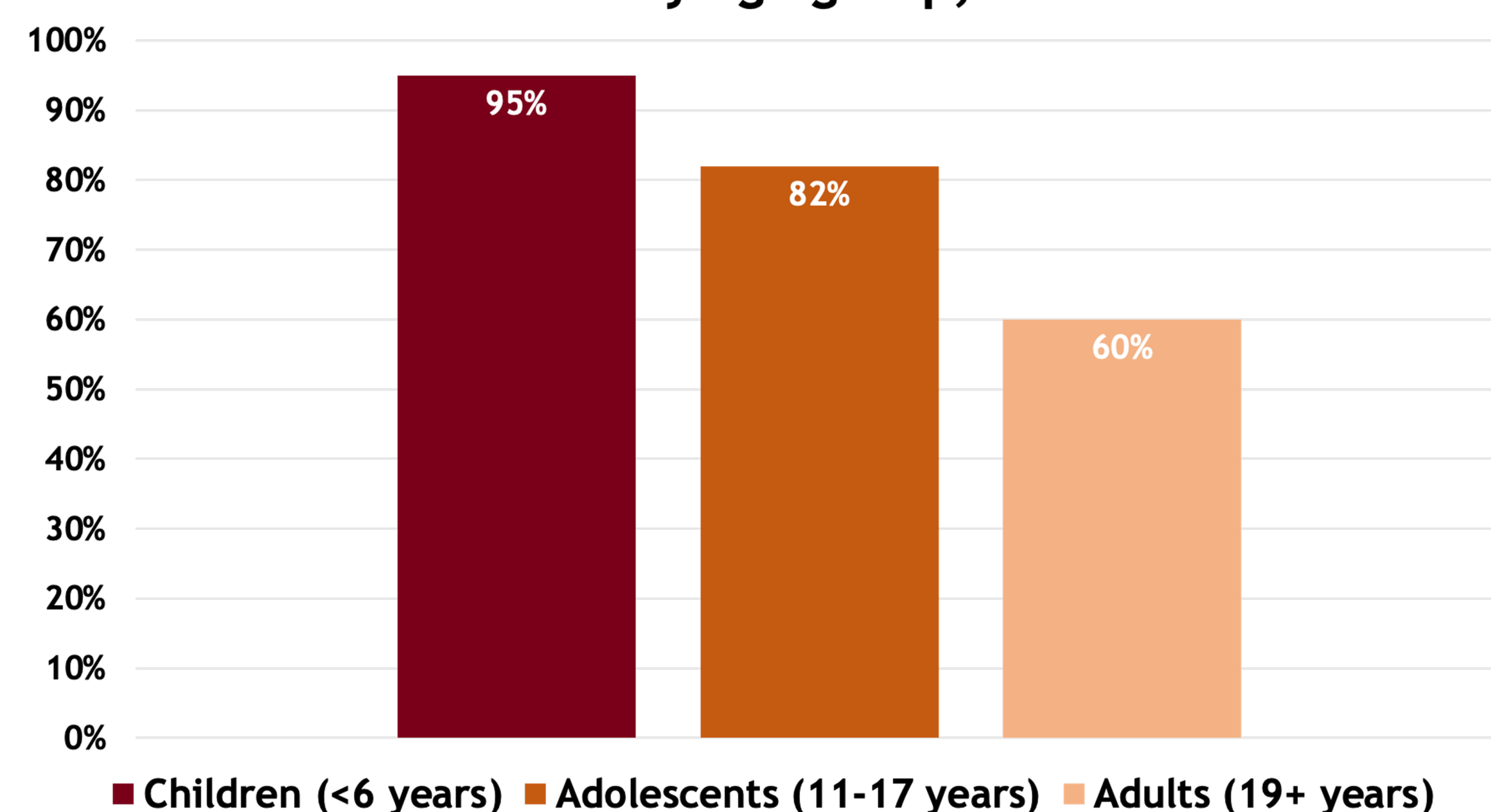
### What are IISs used for?

- Clinical Decision Making
- Vaccination campaigns
- Public health surveillance
- Vaccine distribution and allocation

### Current Challenges

- Varying state data privacy laws
- Lack of data on adults
- Lack of funding
- Immunization disparities

Percentage of the U.S. population participating in an IIS by age group, 2019



Source: Johns Hopkins Bloomberg School of Public Health

## COVID-19 Vaccination Campaign

Role of IISs	Role of Federal Government
Order, distribute, and account for vaccines	Manage immunization "data lake" and Tiberius software
Real-time estimates of vaccine coverage	Allocate emergency funding
Capture and report data to federal entities	Promotion of data exchange via Immunization (IZ) Gateway

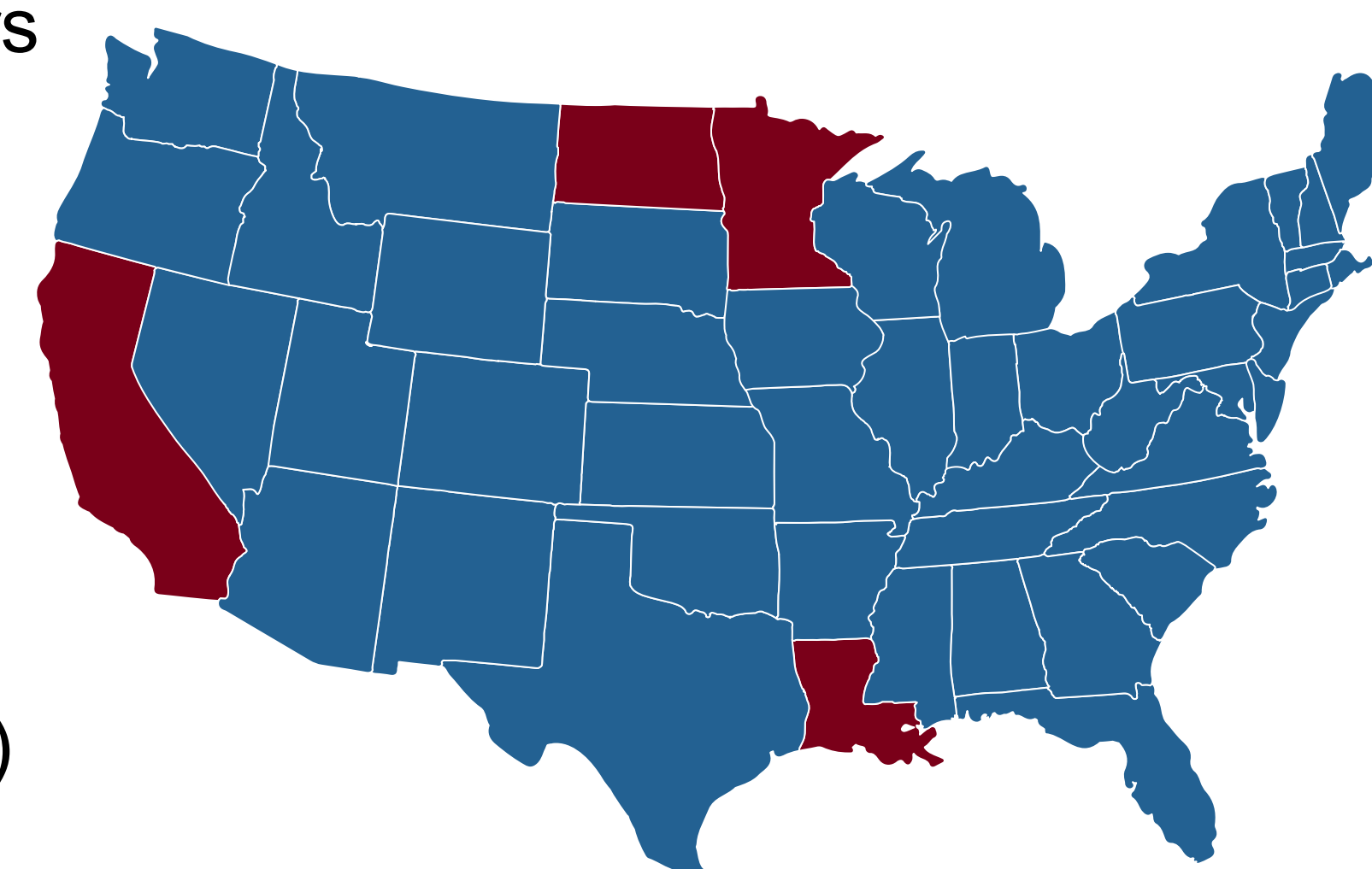
## Implications for Equitable Vaccine Distribution

- March 2021: Vaccination rates among Black and Hispanic adult populations were 24% and 25%, compared to 38% among White populations
- January 2022: Vaccination coverage in rural areas was 59%, compared to 75% in urban areas
- March 2022: Booster vaccination rates among Black and Hispanic populations were 49% and 46%, compared to 62% among White populations

## METHODOLOGY

### Semi Structured Interviews

- State IIS Program Managers (MN, ND, CA, LA)
- STCHealth (IIS system vendor)
- Adult Vaccine Access Coalition (AVAC)
- American Immunization Registry Association (AIRA)



## RESULTS

Theme	Illustration
Expansion of Existing Systems	How IIS infrastructure was enhanced: <ul style="list-style-type: none"> <li>Streamline and automate existing processes</li> <li>Vaccine provider enrollment</li> </ul>
Data Management and Analysis	How IIS data was leveraged: <ul style="list-style-type: none"> <li>Enable bulk queries through cloud systems</li> <li>Create data repositories and data visualizations</li> </ul>
Interoperability and Regulations	How data sharing laws impacted IIS capabilities: <ul style="list-style-type: none"> <li>Enable digital vaccine records and QR codes</li> <li>Increase data exchange through IZ Gateway</li> </ul>
Relationships and Collaborations	How IISs collaborated with external players: <ul style="list-style-type: none"> <li>Vaccine provider outreach and training</li> <li>Partnerships with academic institutions</li> </ul>

*"How do we develop with our funding and the momentum to future proof, as much as we can moving forward?"*

## DISCUSSION

### Lessons Learned

- Automate existing IIS functionalities and streamline training
- Improve multilateral communication
- Maintain changes made to IIS infrastructure

### Recommendations

- Promote IIS Modernization and Sustainability
- Standardize IIS Operations and Interoperability Practices
- Strengthen Collaboration and Representation of IIS Jurisdictions

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**Learn more:** [sph.umn.edu](https://sph.umn.edu)  
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