



AIRA
AMERICAN IMMUNIZATION
REGISTRY ASSOCIATION

Small

Going ~~Big~~ in Utah

Identifying Immunization Pockets Of Need:
Small Area Analysis of IIS Data To Detect Undervaccinated
Populations

AIRA National Meeting
August 15, 2018



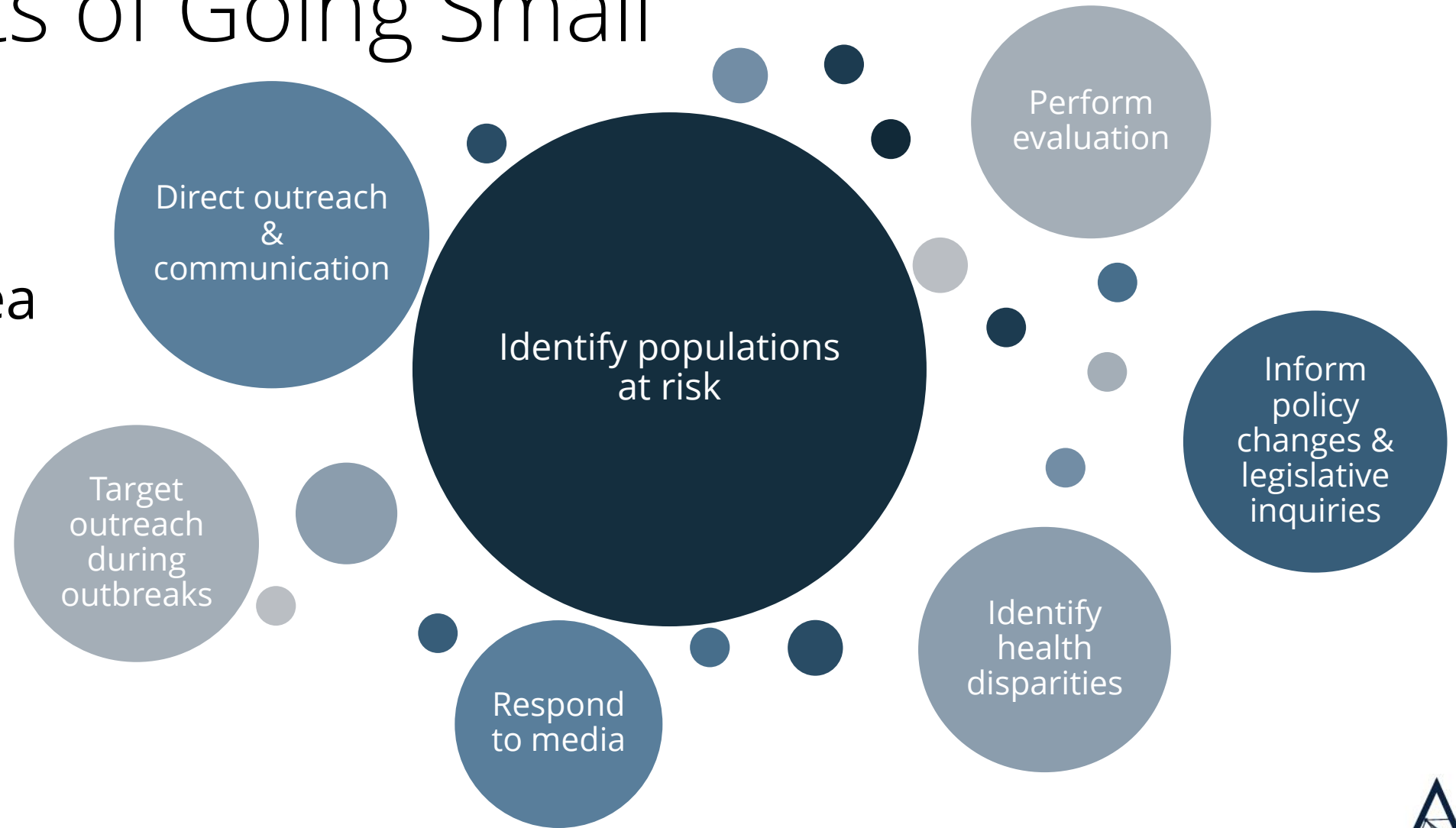
Benefits of Going Big in Utah

- Awesome views
- Wild adventures
- Exciting stories



Benefits of Going Small

- Small area analysis lets you:



Overview

1

A few quick definitions

2

Introduction to the *Identifying Immunization Pockets Of Need* guide

3

Brief description of the process to identify pockets of need

4

Options for responding to a pocket of need





Quick Definitions



Pocket of Need

- A population of unimmunized or underimmunized individuals that presents an increased disease risk



Geographic

Example: Census tract

Demographic

Example:
Uninsured children



Gathering Place

Example: Schools



Small Area Analysis

- Small area analysis is the study of a specific small area or population to identify measurable differences from the larger statistical pattern



Relationship

- Small area analysis can be a powerful tool to identify pockets of need.



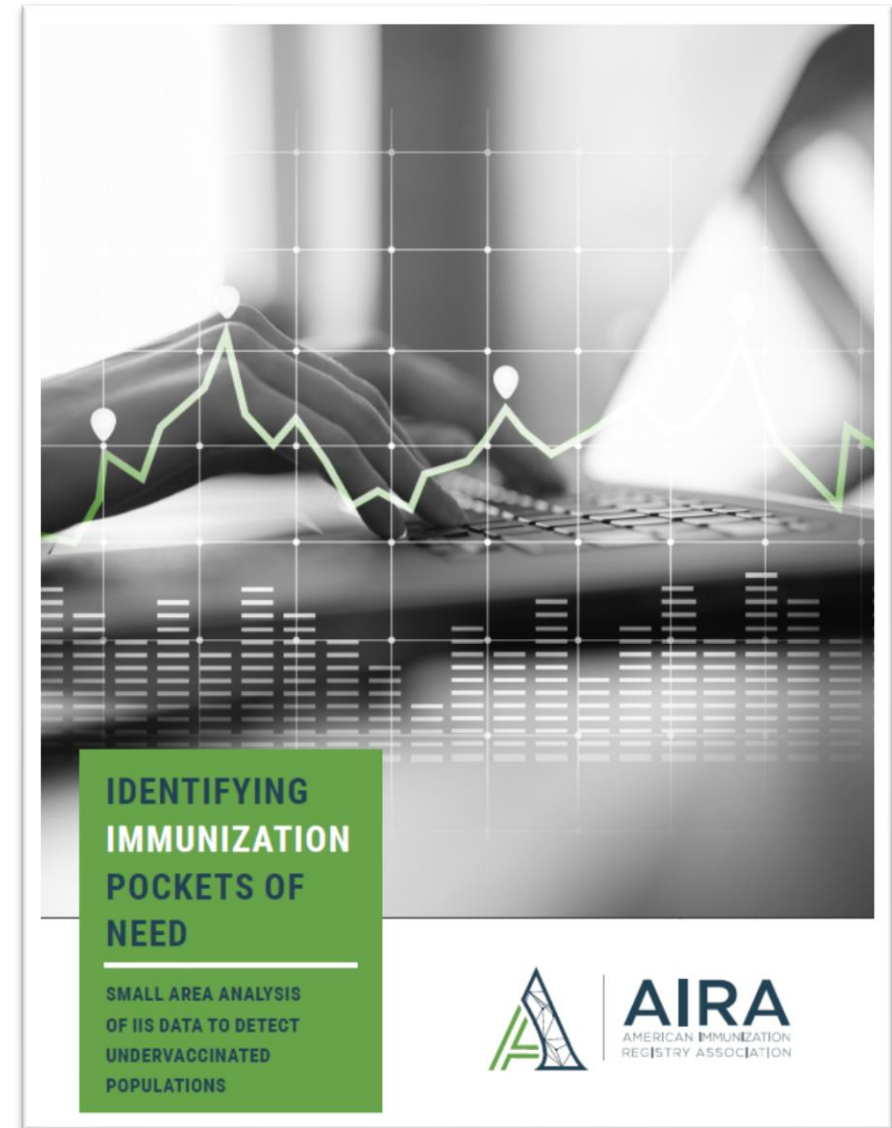


Introduction to the *Identifying Immunization Pockets Of Need* Guide



Background

- Coming soon!
- Will be available in the AIRA Resource Repository
 - <http://repository.immregistries.org/>





Purpose

- Help IIS and immunization programs identify pockets of need
- Offer practical tips on assessing data quality issues
- Provide strategies about responding to pockets of need



Who Should Read This Guide?

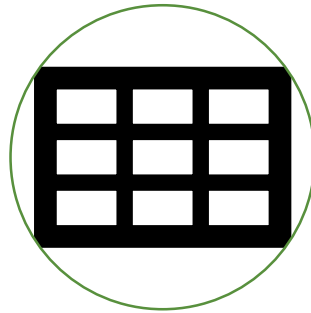
- IIS and immunization program staff
- Epidemiologists
- Public health staff who work with:
 - Specific geographic areas or populations
 - Vaccine hesitancy issues
 - School and childcare immunization laws
 - Surveillance or response to outbreaks of vaccine-preventable diseases



Sections of the Guide



Pockets Of Need &
Small Area Analysis:
Definitions & Purpose



How to Perform a Small
Area Analysis to Identify
Pockets of Need



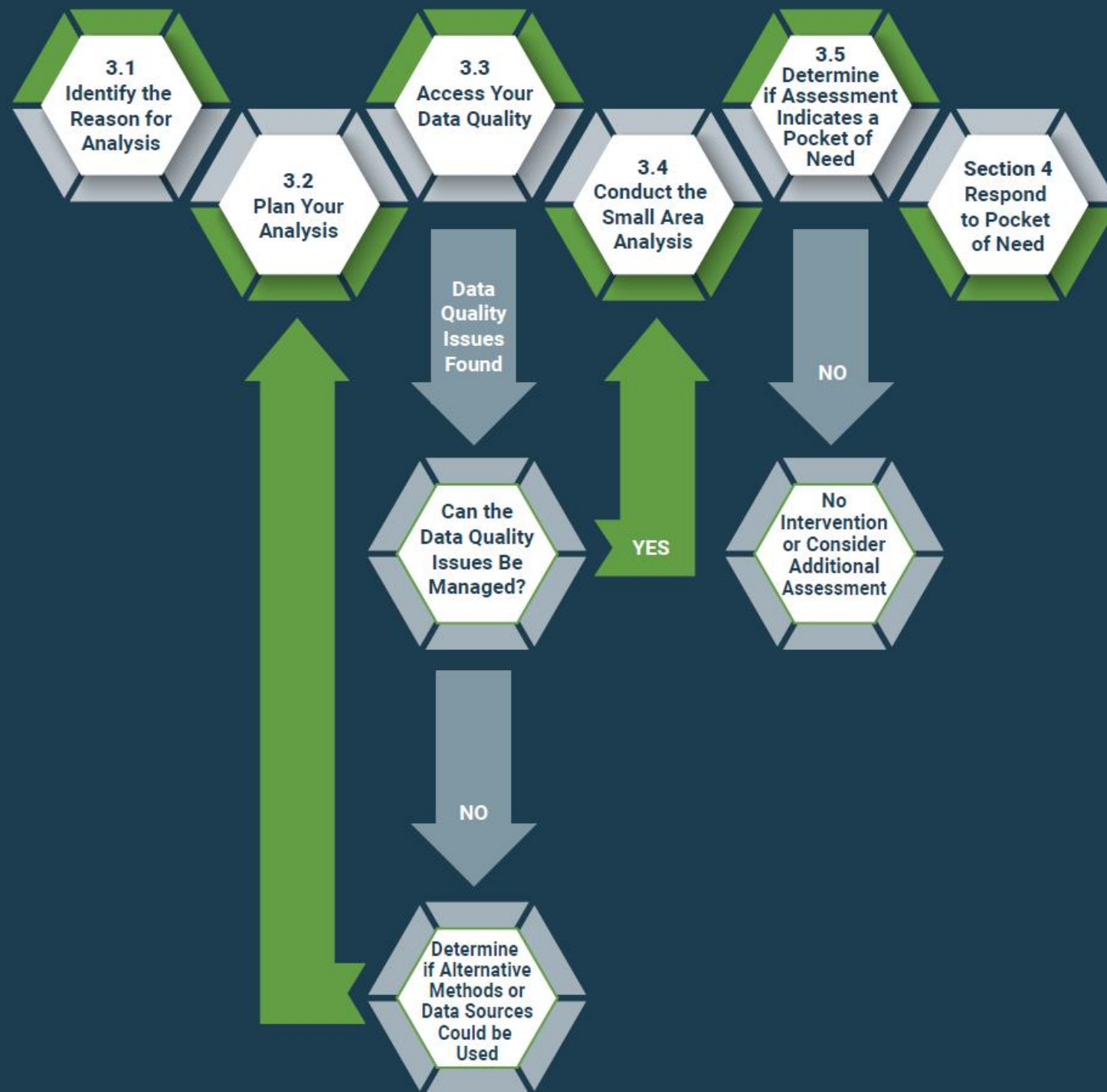
Responding to a Pocket
of Need





Description of the Process to Identify Pockets of Need





Identify the Reason for Your Analysis

- A broad search of IIS data for signs of pockets of need
- A general hypothesis or assumption about low vaccine coverage
- External signs point to a pocket of need that you can identify in your IIS



Plan Your Analysis: Part 1

Are you looking for pockets of need that are geographic, demographic, or based on a gathering point?

How are you defining the "small area"?

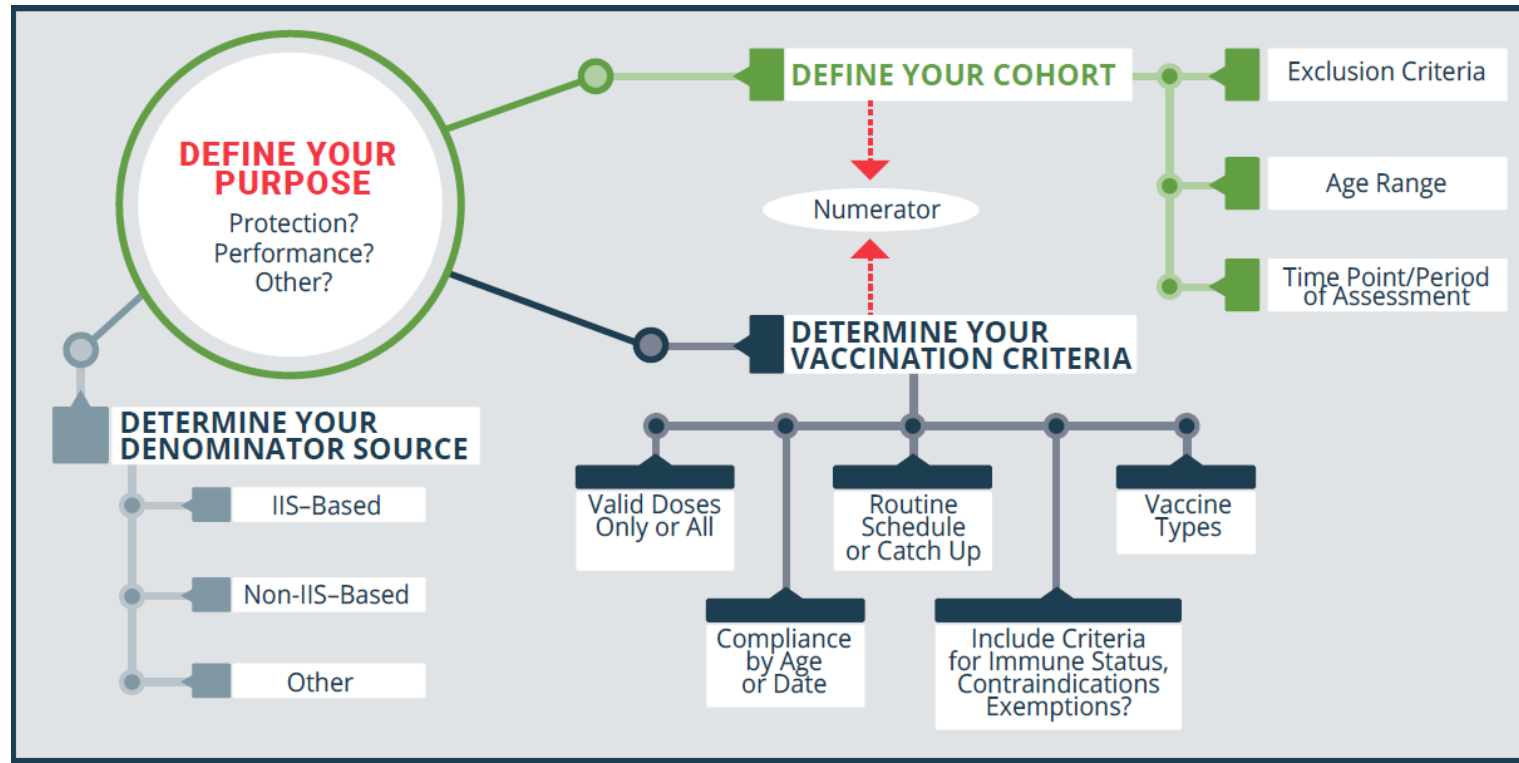
Do you have the type of data you need in your IIS?

Are you able to supplement your IIS data with data from external sources to perform the analysis?



Plan Your Analysis: Part 2

- Set the criteria for your analysis



Assess Your Data Quality

Can you easily fix the data quality issue?

Does your data underestimate or overestimate the population or vaccination coverage?

Can you determine the likely direction and magnitude of the bias?

Are data quality issues evenly distributed across subpopulations?

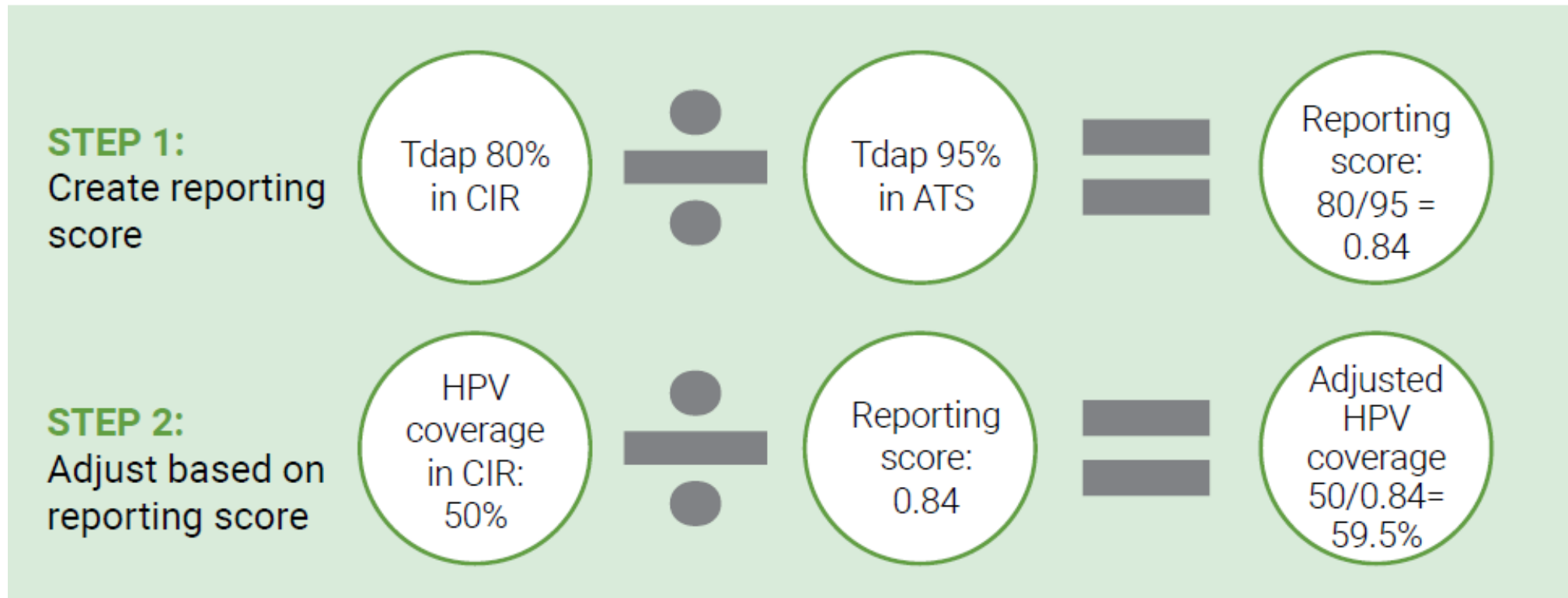
Can you adjust for the issue during analysis?

Does the data quality in your IIS allow you to identify a pocket of need?



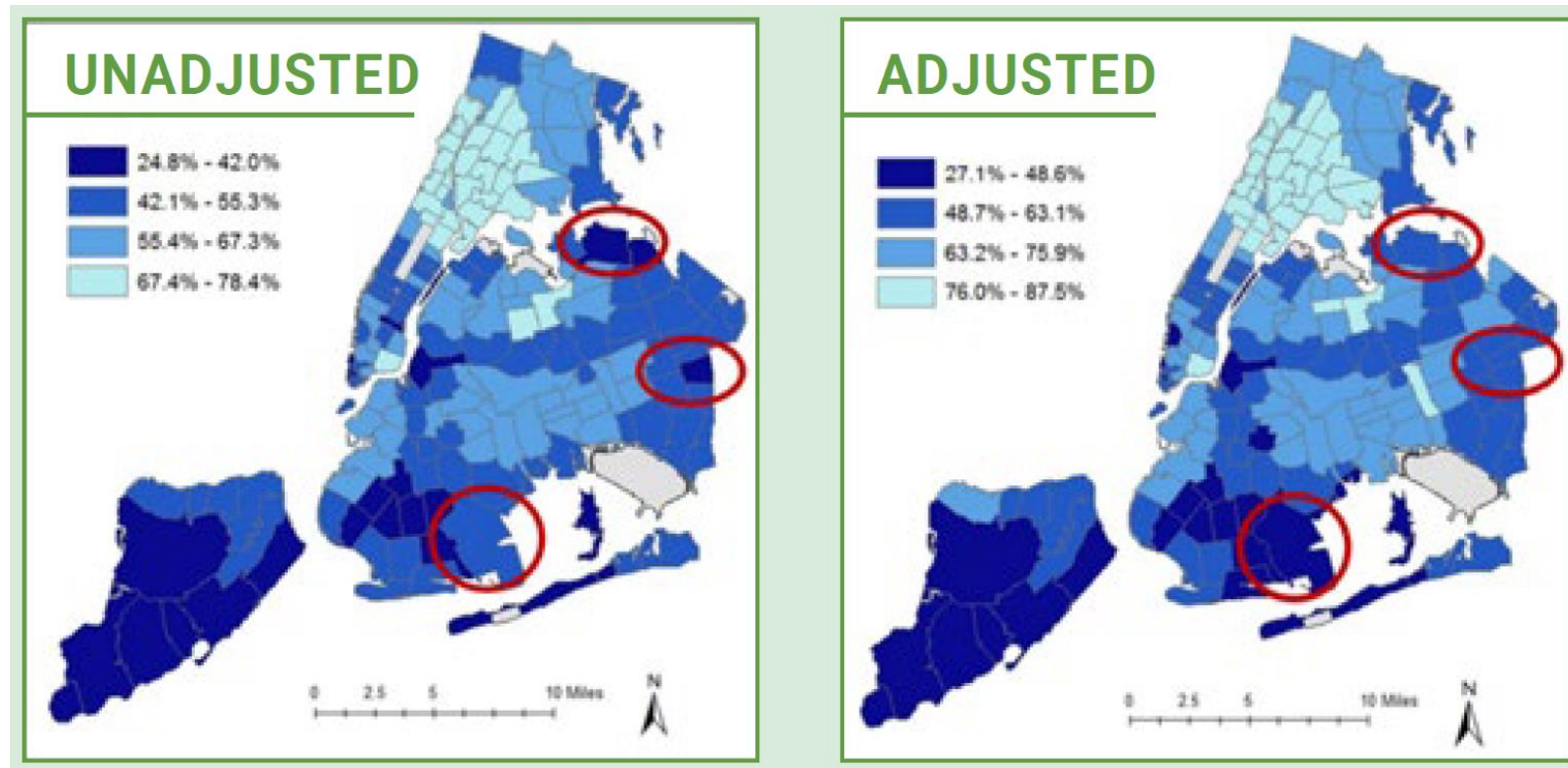
Adjust For Bias If Needed

- Example from New York City:

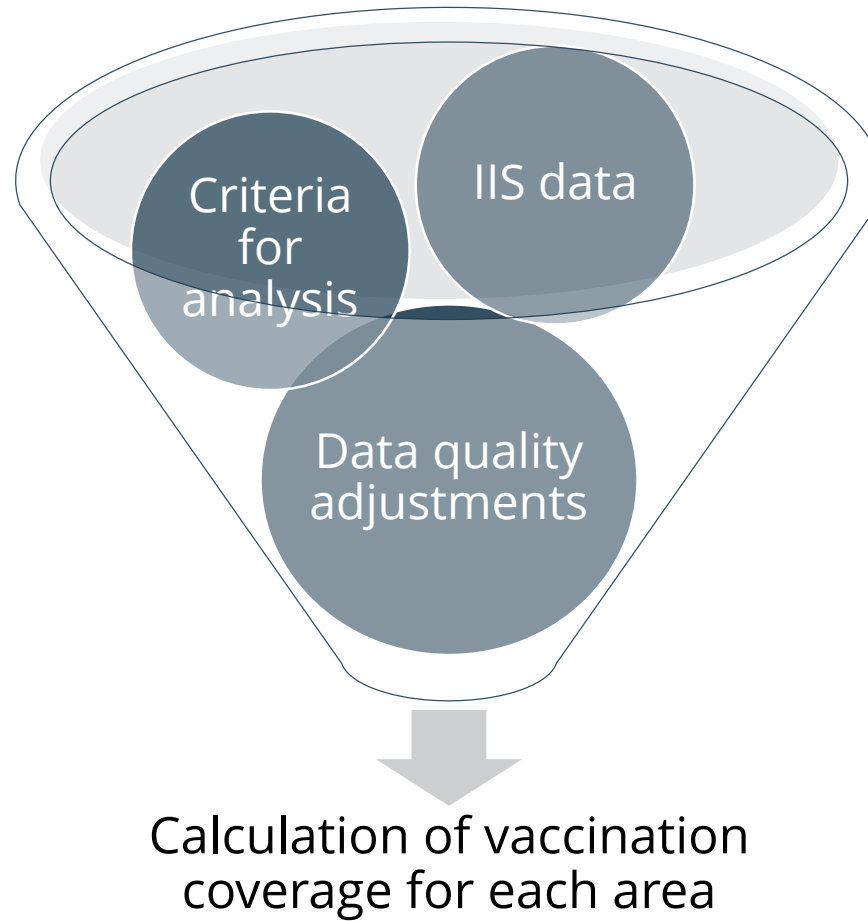


Adjust For Bias If Needed

- Example from New York City:



Conduct the Small Area Analysis



Determine if Your Assessment Indicates a Pocket of Need

- No specific rule
- Consider purpose of analysis
- Yes → Go to the next section of the guide
- No
 - Additional analysis
 - Repeat analysis annually or semiannually
 - Is the IIS the best way to find that specific pocket of need

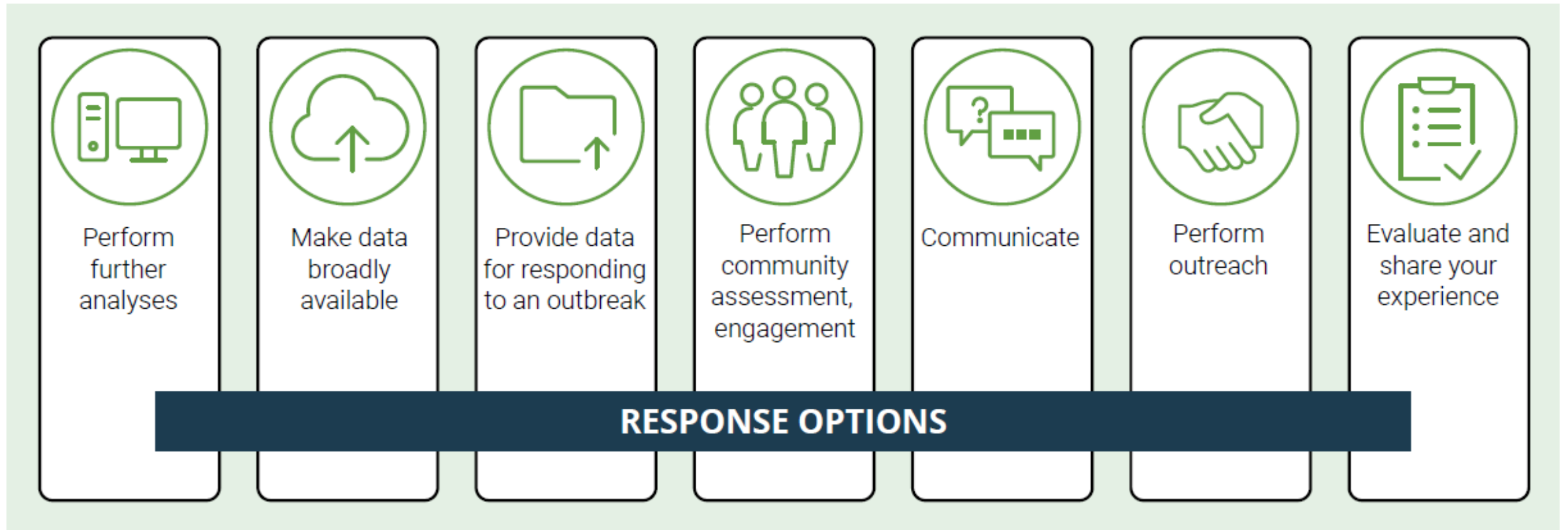




Options for Responding to a Pocket of Need



Response to a Pocket of Need



For Each Response

- Description
- Practical example(s)
- Resources

PRACTICAL EXAMPLE OF PROVIDING DATA FOR RESPONDING TO AN OUTBREAK RESOURCES FOR PROVIDING DATA FOR RESPONDING TO AN OUTBREAK

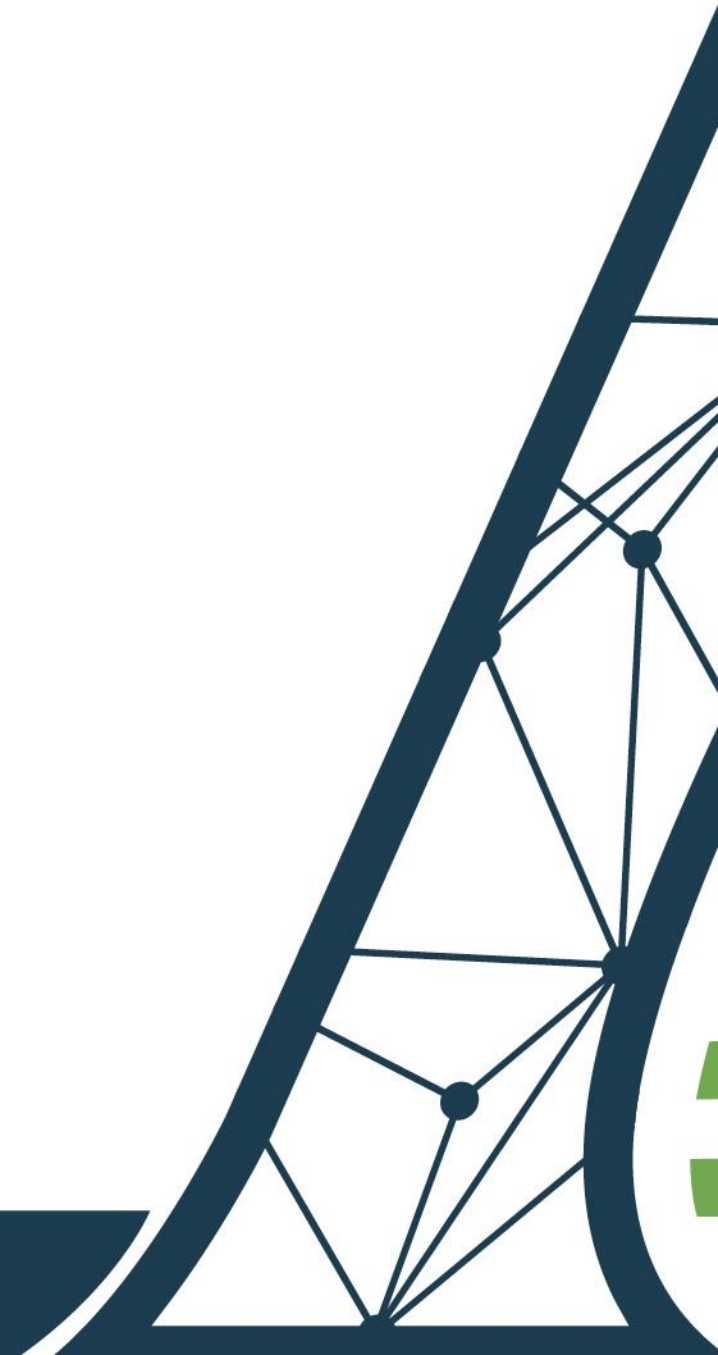
- Minnesota's Use of the IIS in Measles Outbreak Response – an AIRA *SnapShots* article (<http://repository.immregistries.org/resource/snapshots-june-2017/>)
- The Guide to Community Preventive Services' *Immunization Information Systems to Increase Vaccination Rates: A Community Guide Systematic Review*, page 7 (<https://www.thecommunityguide.org/sites/default/files/publications/vpd-jphpm-evrev-IIS.pdf>)

from stakeholders involved in the outbreak. By providing timely, accurate vaccination data to responders, MCIR was able to inform and support the outbreak response.





Highlights of the Guide



Tips



TIP: Privacy is an important concern when working with small populations. It is important to ensure that no individual can be identified based on publicly released data. Many organizations have policies regarding releasing data about small populations. The North Dakota Department of Health's *Policy on Small Numbers Release* specifies that it would not permit release of certain stratified data (e.g., number of African Americans with x condition) since the population of the subgroup may be small enough to become identifiable. You are encouraged to review your organization's policy before making data broadly available. An additional example of a small numbers policy is from the Rhode Island Department of Health and is available at <http://health.ri.gov/publications/policies/SmallNumbersReporting.pdf>.

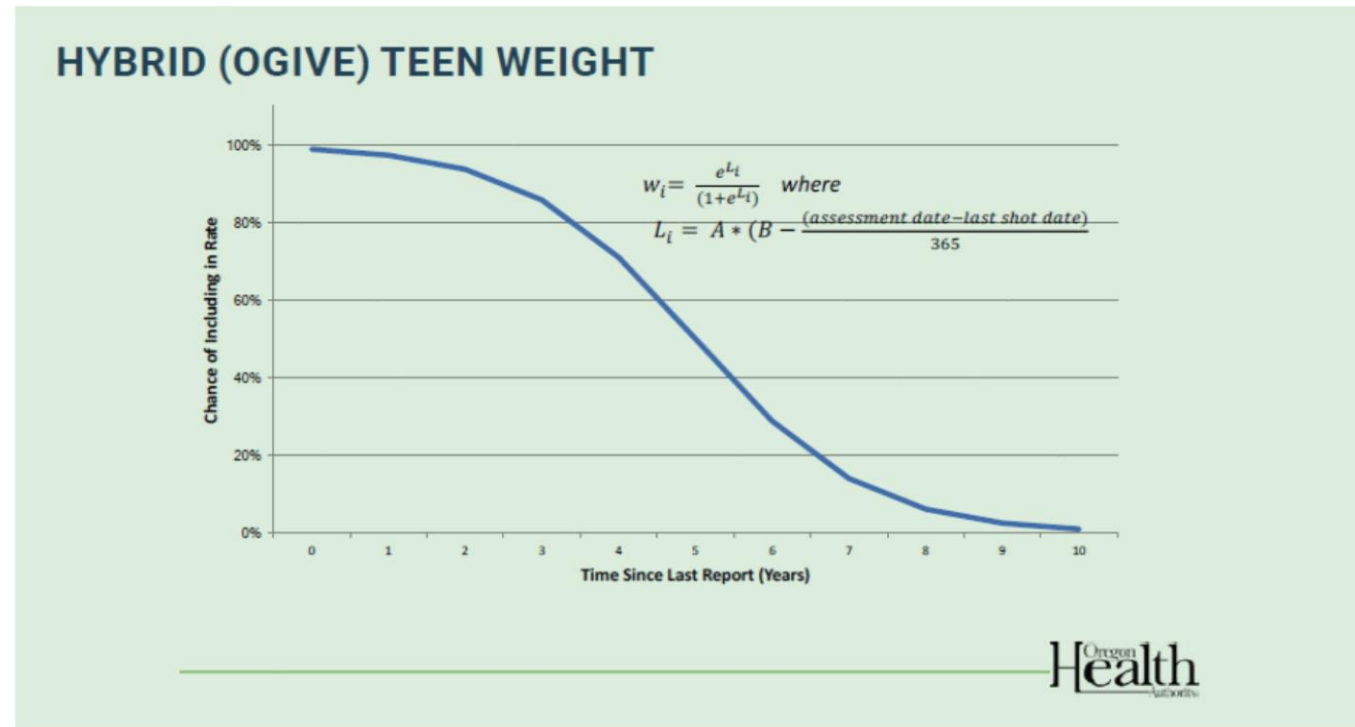


TIP: A beneficial method of supplementing IIS data is the use of geographic information systems (GIS). Geocoding services can translate IIS address data into geographical information like ZIP code tabulation areas or Census tract information. GIS data can also be helpful if you want to create a map showing the overlay of IIS data and various types of GIS data (e.g., hospitals, doctor offices, socioeconomic data from the Census). AIRA member IIS programs can sign up for SmartyStreets and geocode addresses at no cost (<http://www.immregistries.org/address-cleansing>).



Examples

Figure 5 | Hybrid (Ogive) teen weight formula and graph



¹¹Robison, S.G. (2015) "Addressing immunization registry population inflation in adolescent immunization rates." Public Health Rep. 2015 Mar-Apr; 130(2):161-6.



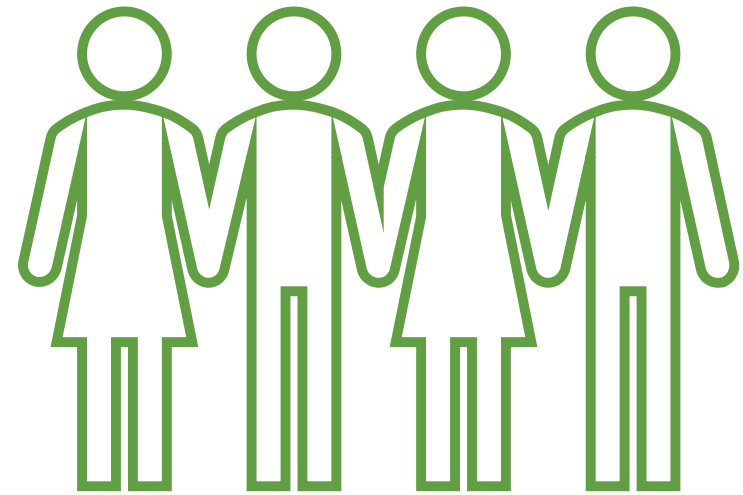
Resources

ARTICLES	CONCLUSIONS
Lieu, T.A., Ray, G.T., Klein, N.P., Chung, C., Kulldorff, M. (2015). Geographic Clusters in Underimmunization and Vaccine Refusal . Pediatrics, 135(2), 280-289.	"Underimmunization and vaccine refusal cluster geographically. Spatial scan statistics may be a useful tool to identify locations with challenges to achieving high immunization rates, which deserve focused intervention."
Omer, S.B., Enger, K.S., Moulton, L.H., Halsey, N.A., Stokley, S., Salmon, D.A. (2008). Geographic Clustering of Nonmedical Exemptions to School Immunization Requirements and Associations with Geographic Clustering of Pertussis . American Journal of Epidemiology, 168(12), 1389-1396.	"Geographic pockets of vaccine exemptors pose a risk to the whole community. In addition to monitoring state-level exemption rates, health authorities should be mindful of within-state heterogeneity."
Trogdon, J.G., Ahn, T. (2015). Geospatial patterns in influenza vaccination: Evidence from uninsured and publicly insured children in North Carolina . American Journal of Infection Control, 43(3), 234-240.	"To the extent that the geospatial clustering of vaccination rates is the result of social influences, targeting interventions to increase influenza vaccination among school-aged children in one area could also lead to increases in neighboring areas."



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Thank you for your time!

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