

Using immunization information systems for vaccination assessment and programmatic policy development

Epidemiology Section
APHA

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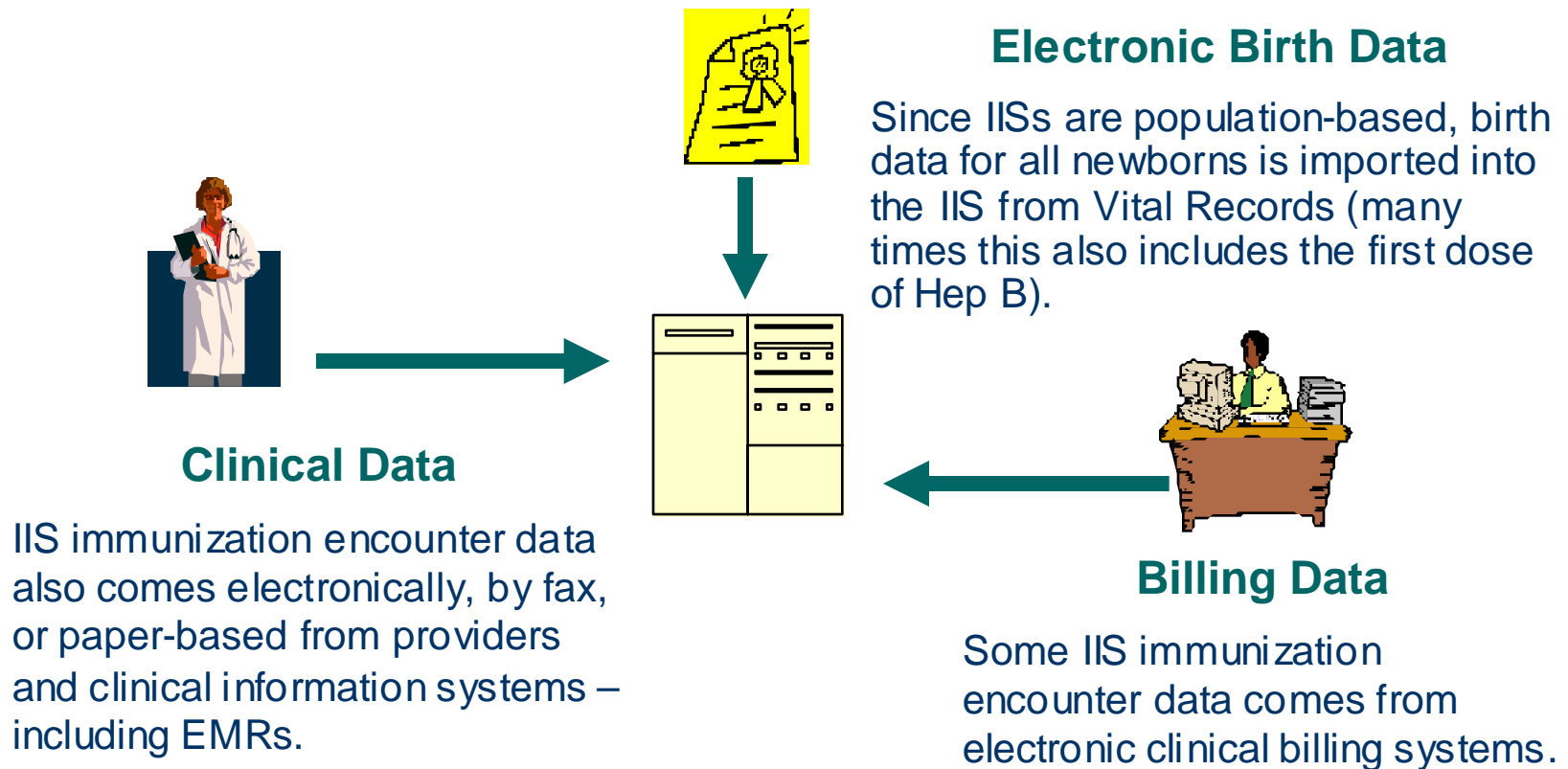
IIS Definition

- Confidential, population-based, computerized information systems that attempt to collect vaccination data about all persons within a geographic area
 - consolidate vaccination records from multiple providers
 - generate reminder and recall vaccination notices
 - provide official vaccination forms and vaccination coverage assessments



Immunization Information Systems

Where does the data come from?



3 Other sources: schools, other public health systems (e.g., metabolic & lead screening)

IIS National Picture

- 46 states, DC, and 5 cities with an IIS
- Number of children <6 years enrolled*: 15 million (65% of all)
- Provider site participation
 - 71% public
 - 47% private
- Monitoring overall impact of vaccination schedule is limited

*Defined by having 2+ immunizations in the IIS



Immunization Information Systems (IIS) -- The Federal Perspective

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IIS Sentinel Site Description

- Funded in 2004 as subsets of the state IIS
- Purpose:
 - Maintain a population-based active vaccination surveillance system for all administered vaccines in a specific geographic area
 - Enhance the data quality and scope of the IIS in the surveillance area
 - Enhance the analytic capacity of the IIS in support of the immunization program for evaluation and epidemiologic activities



Types of Sentinel Sites

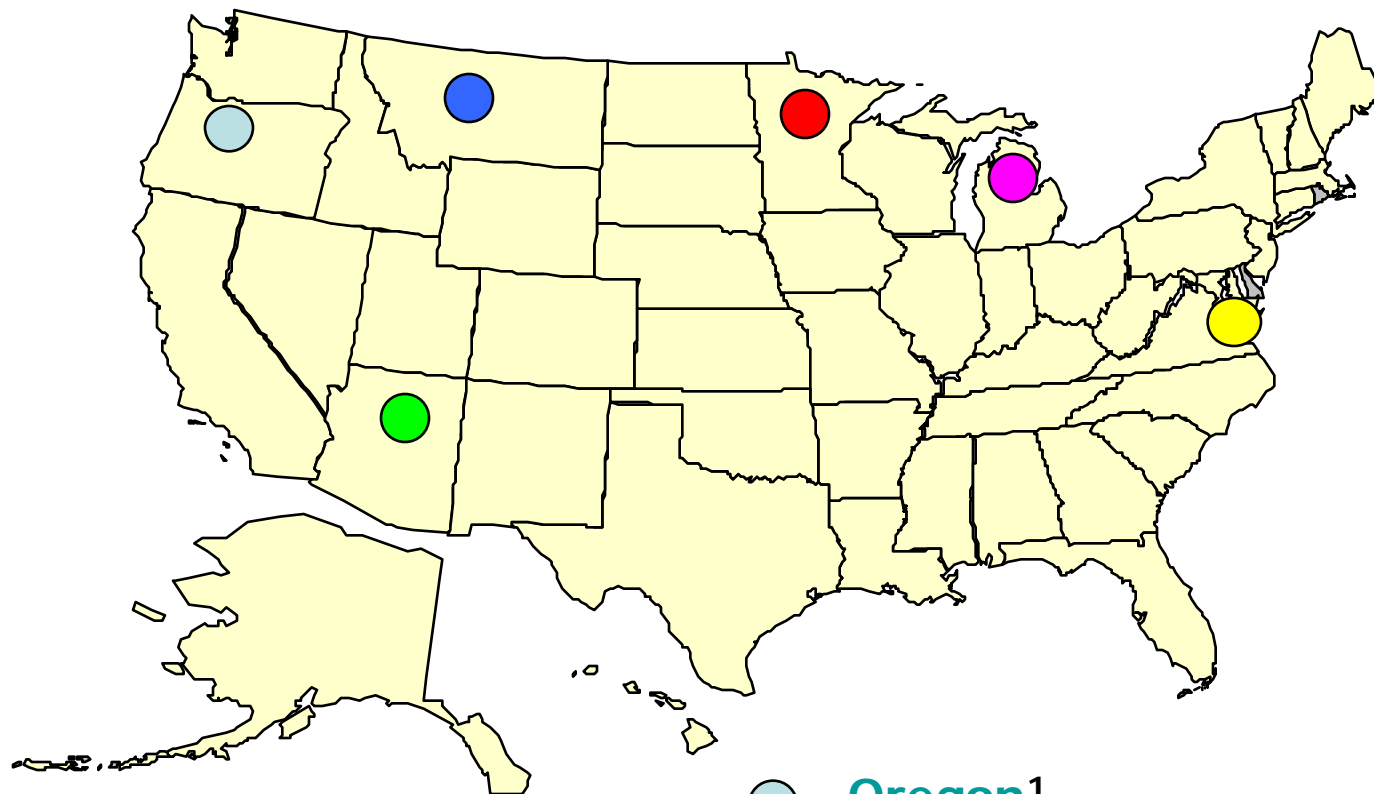
- Implementation sites
 - Evaluation sites that accurately assess trends in vaccination coverage for all children in study population and provide data for public health decision making
- Capacity-building sites
 - Evaluation sites primarily working to meet data quality IIS Certification Standards and provide support for routine analysis of IIS data



Criteria for Sentinel Site Selection

	Implementation Sites	Capacity Building Sites
Population of children in the catchment area		
<6 years old	≥50,000	≥10,000
≤18 years	≥200,000	
Population-based	Yes	Yes
Provider site participation		
Private	~95%	~95%
Public	~95%	~95%
Vaccine data submitted and processed within 30 days of administration	≥75%	≥75%
Other requirements	1) ≤5% duplicate records 2) Robust deduplication algorithm 3) D.base contains all core NVAC data elements	

IIS Sentinel Sites



 Michigan²

 Arizona²

¹ Capacity-building site

² Implementation site

 Oregon¹

 Washington, D.C.¹

 Minnesota¹

 Montana¹

TABLE. Characteristics of six Immunization Information System (IIS) sentinel sites — United States, 2006–07 influenza season

Site/Race/Ethnicity	No. of children aged <6 years in sentinel area and distribution by race/ethnicity (%)	% of all children aged <6 years enrolled in IIS in sentinel area system	Geographic area	No. and (%) of health-care provider sites participating*
Arizona	56,738	96	Northern area of state	184 (97)
White	(50)			
Black	(1)			
Asian	(0)			
American Indian	(32)			
Hispanic†	(17)			
District of Columbia	19,180	99	Southeastern area of district	39 (100)
White	(8)			
Black	(90)			
Other	(2)			
Michigan	545,936	93	Entire state, excluding Detroit	1,531 (90)
White	(86)			
Black	(9)			
Asian	(1)			
American Indian	(1)			
Multiracial	(37)			
Minnesota	14,577	96	Southwestern area of state	44 (92)
White	(94)			
Black	(1)			
American Indian	(1)			
Montana	38,927	100	Southwestern area of state	78 (89)
White	(96)			
American Indian	(4)			
Oregon	42,167	97	Greater Portland metropolitan area	58 (96)
White	(78)			
Black	(2)			
Asian	(10)			
Hispanic†	(10)			

* Sites can represent multiple health-care providers.

† Hispanic children might be of any race.



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What do IIS Sentinel Sites Assess?

- Timeliness of vaccine entry into the IIS
 - Issue: Multiple sources of data entry
 - Goal: Have all data captured in IIS within 30 days of immunization
- Vaccination coverage
 - Describe coverage by age group and vaccine
 - Compare vaccination series data over time and to National Immunization Survey (NIS) estimates
 - Assess uptake of new vaccines
 - Examine vaccination coverage in age groups beyond children, including adolescents and adults
- Conduct assessments/surveys examining myriad of aspects involving the US vaccination program and ACIP recommendations



Examples of IIS Sentinel Site Vaccination Assessments in Children

- Annual *influenza* vaccination coverage in children
 - Results
 - Vary by season, but coverage could be improved
 - Impact
 - Enables timely assessments during or shortly following the season
 - Allows assessments in expanded age groups recommended for vaccine
 - Published annually in MMWR



Examples of IIS Sentinel Site Vaccination Assessments in Children

- Adherence to the ACIP recommended schedule for RotaTeq (*rotavirus*) dose administration by age
 - Results
 - Adherence to recommendations is high
 - Impact
 - Complements studies of vaccine safety
 - Presented to ACIP
 - Scheduled for MMWR release in near future



Examples of IIS Sentinel Site Vaccination Assessments in Children

- *Pneumococcal* vaccine (PPV) coverage in children
 - Results
 - Coverage range among the sites is high (to be expected given the varying proportion of high-risk children recommended for receipt of vaccine by site)
 - Impact
 - Extrapolating data to assess national coverage
 - Data to be used for immunization services planning, including projecting the number of doses for national/state vaccine ordering predictions



Examples of IIS Sentinel Site Vaccination Assessments in Children

- Assessing *extraimmunizations (EI)* among US children
 - Results
 - Rates of EI are low
 - Risk factors include multiple providers (≥ 2) and a mixture of provider type (mixture of public and private vs only public or only private)
 - Impact
 - Presented at multiple professional conferences
 - Revealed information on a little-explored but high economic impact topic



Examples of IIS Sentinel Site Vaccination Assessments in Adolescents

- Menactra (*meningococcal*) vaccine uptake assessment
 - Results
 - Peak vaccination of Menactra during the summer months for all age groups with vaccination coverage increasing in the second year (2006) after ACIP recommendation
 - Impact
 - Timely assessment of vaccination coverage to influence programmatic decision making and target provider education efforts
 - Upcoming presentations at professional conferences



Examples of IIS Sentinel Site Vaccination Assessments in Adolescents

- *Human Papillomavirus* (HPV) vaccine uptake assessment
 - Results
 - HPV vaccination coverage increasing monthly with the 16-18 year old age group receiving more vaccine in four of the sentinel sites and the 13-15 year old age group receiving more of the vaccine in two sentinel sites
 - Impact
 - Timely assessment of vaccination coverage to influence programmatic decision making and target provider education efforts
 - Upcoming presentations at professional conferences



The Future of IIS Sentinel Sites

- Two-fold increase in funding in the next 5-year cycle
 - Increase in the anticipated number of sites
 - Some sites may include the entire state
- Higher qualifying criteria
 - More children included in the geographic areas
 - Increase in data quality standards