

Immunization Information Systems Current Status and Plans for the Future

**IMMTECH Strategies Summit
Austin, Texas**

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Immunization Information System Overview

Discussion Points:

- **What is an immunization information system (IIS)?**
- **National Immunization Information System Status**
- **Who needs an IIS and why?**
- **Challenges facing Texas**
- **Future plans**

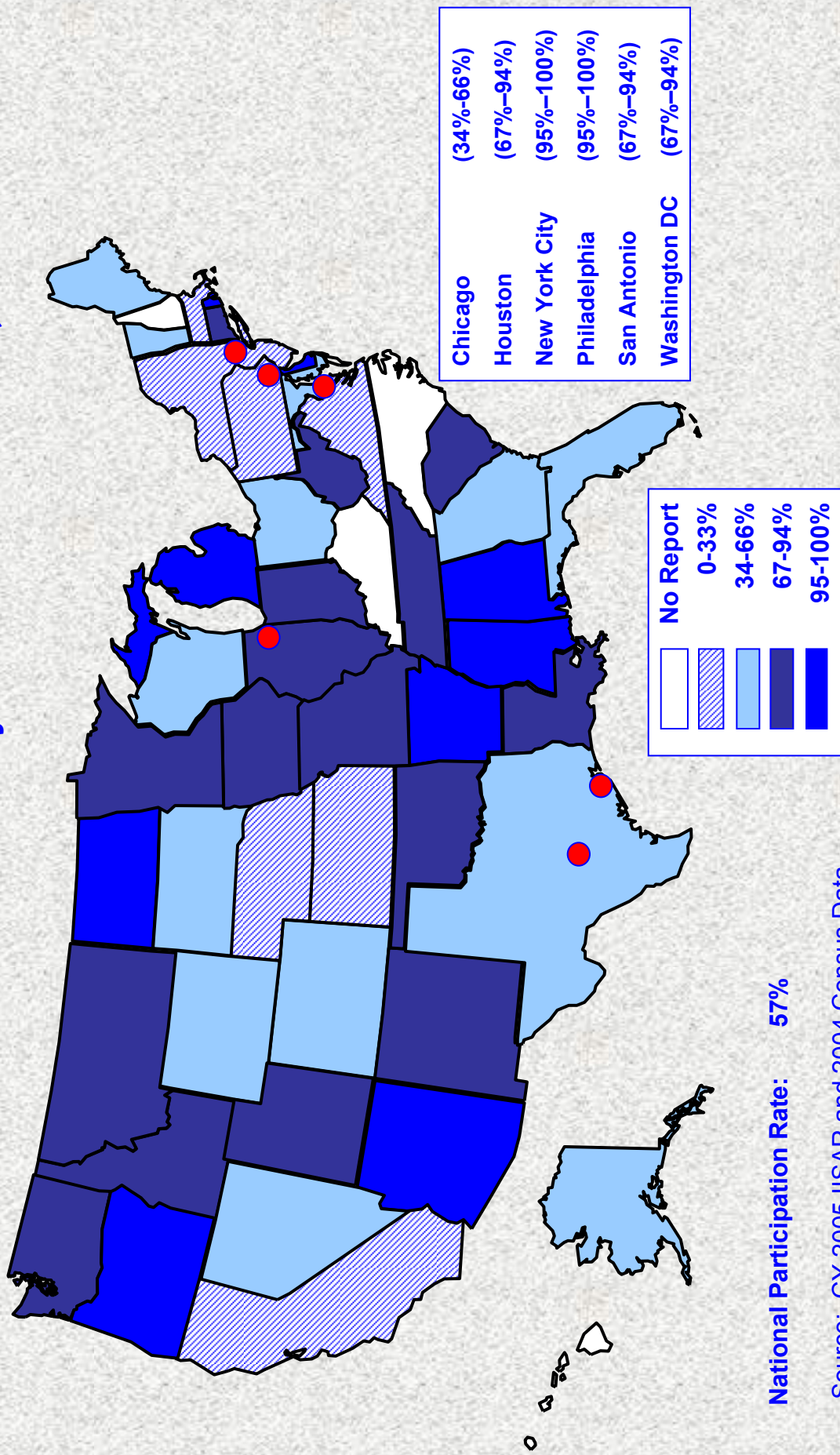


Immunization Information Systems are systems that:

- **Record all shots on all children given by all providers in a geopolitical catchment area.**
- **Have functions and features needed by an immunization program (e.g. vaccine inventory management, adverse event reporting etc.);**
- **Have interoperability with other health information systems including Electronic Medical Records (EMR).**



Provisional Data
Percentage of U.S. Children aged < 6 years Participating in
Immunization Information Systems – December 31, 2005

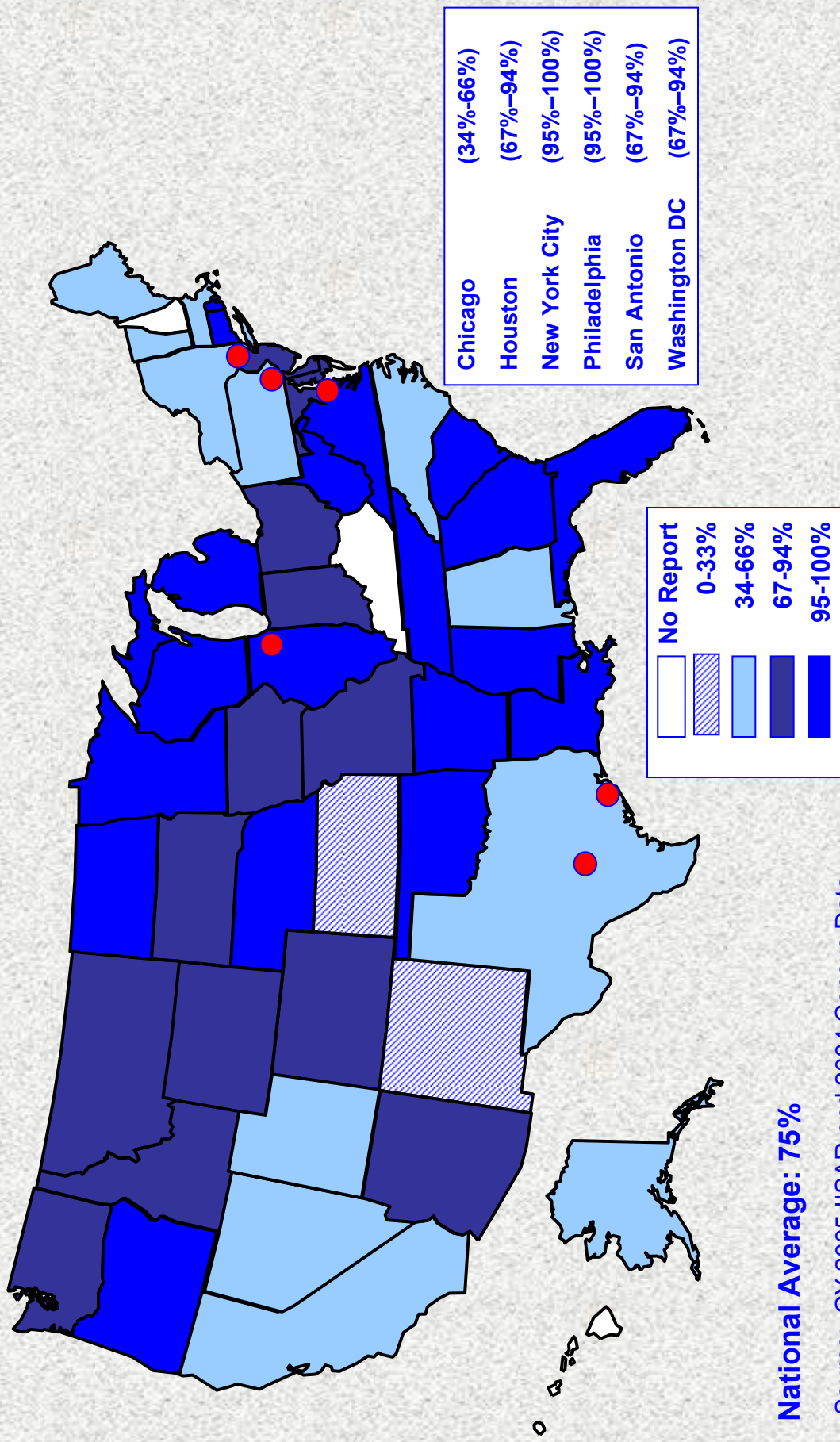


National Participation Rate: 57%

Source: CY 2005 IISAR and 2004 Census Data



Provisional Data
**Percentage of U. S. Public Provider Sites Participating in an
 Immunization Information System – December 31, 2005**

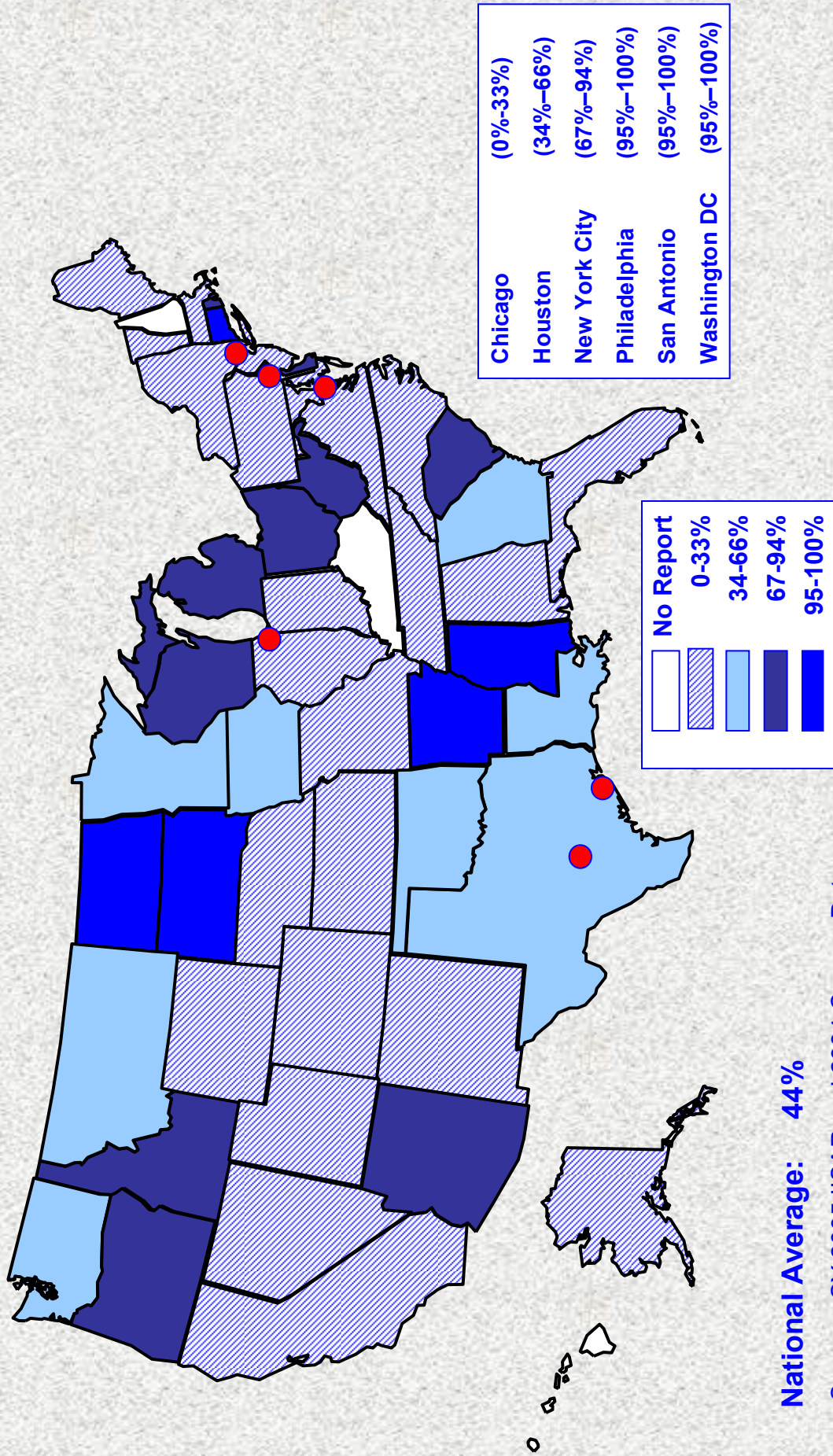


National Average: 75%

Source: CY 2005 IISAR and 2004 Census Data



Provisional Data
**Percentage of U.S. Private Provider Sites Participating in an
 Immunization Information System – December 31, 2005**



National Average: 44%

Source: CY 2005 IISAR and 2004 Census Data



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Immunization Information Systems

Who Needs Them?

Immunization programs need immunization information systems because:

- Science should drive programs
- Management and informatics are sciences used by immunization information systems



Immunization Information Systems

Who Needs Them?

Immunization programs need immunization information systems because:

- Immunization information systems provide operational support to immunization programs, providers, and parents by:
 - automating evidence-based strategies
 - producing real-time data to ensure that children are protected and
 - assisting programs to deploy their resources efficiently and effectively



Immunization Information Systems

Why they are Needed

- 4 million births/year (11,000/day)
- Population mobility
- Extra-immunization
- Resources for immunization activities are diminishing
- Few providers use reminder/recall



Immunization Information Systems

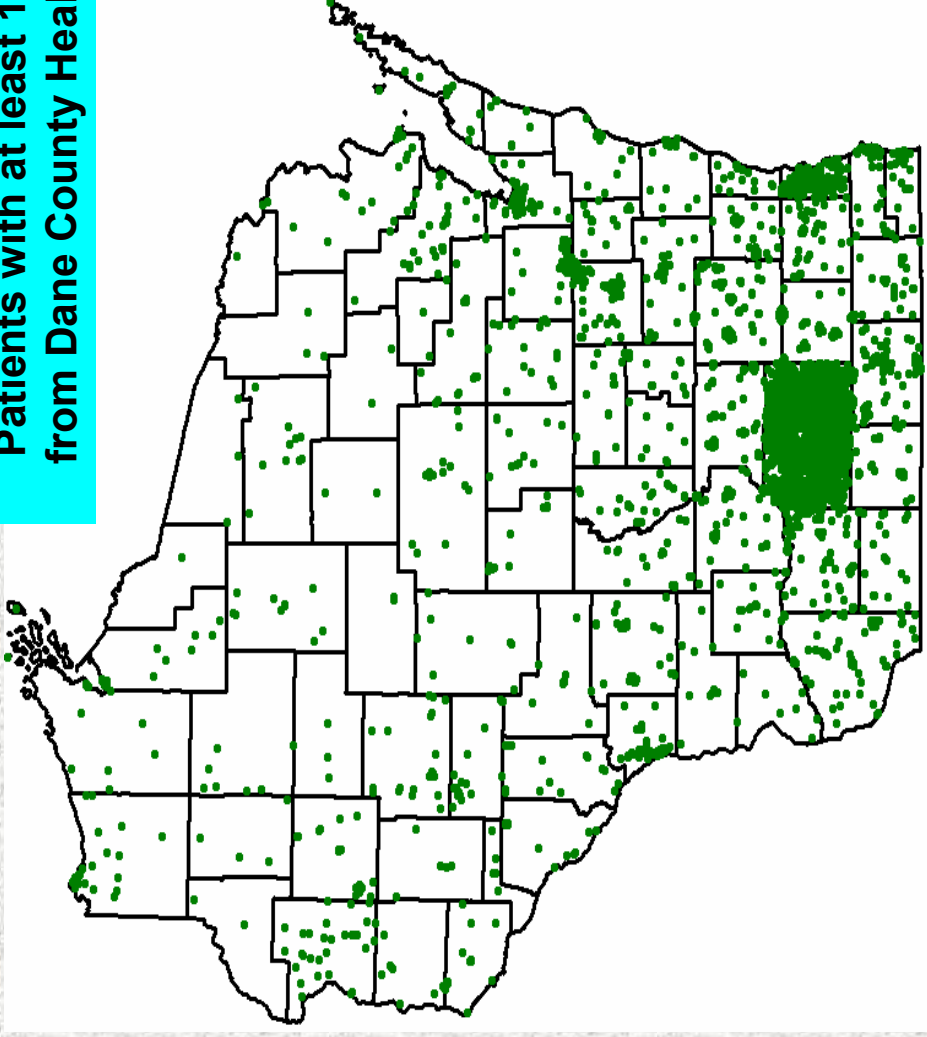
Why they are Needed

- **Parents and providers overestimate coverage**
- **New vaccines keep being added**
- **Public health emergencies**
- **As a source of experience for the development of Electronic Medical Records**



Immunization Information Systems Why they are Needed – Population Mobility

Patients with at least 1 immunization
from Dane County Health Department



Immunization Information Systems Why they are Needed – Extra-immunization

- A 2000 study published in JAMA found that 1 in 5 US children had received at least 1 extra vaccine dose by age 19 to 35 months.¹
- Annual costs associated with extra-immunization were conservatively estimated to be \$26.5 million.
- The authors suggest immunization registries as an alternative to paper-based records to facilitate data sharing and reduce extra-immunization.

¹ Feikema, SM, Klevens, RM, Washington, ML, Barker, L. Extrimmunization Among US Children. JAMA 2000;283:1311-1317.



One Extra Immunization Costs \$\$\$\$

U.S. Birth Cohort = 4,000,000
20% of the U.S. Birth Cohort = 800,000

Vaccine	Vaccine Cost/Dose	Average Vaccine Administration Cost	Estimated Cost for 1 Extra Dose of Vaccine
DTaP	\$13.40	\$8.89	\$17,832,000
Varicella	\$52.25	\$8.89	\$48,912,000



Immunization Information Systems Why they are Needed – Diminishing Resources

Annual costs and cost offsets for a nationwide network of immunization registries¹

	Costs (\$ millions)	Cost offsets (\$ millions)
Registry operations	\$78.2	
Manual record pull for school/day care entry		\$ 58.0
Manual record pull for change in provider		\$ 16.2
Duplicative immunizations		\$ 26.5
Record pulls for HEDIS reports		\$ 2.0
National Immunization Survey		\$ 11.1
Totals	\$78.2	\$113.8

¹ Horne, PR, Saarlus, KN, Hinman, AR. Costs of Immunization Registries, Experiences from the All Kids Count II Projects. Am J Prev Med 2000; 19(2): 94-98.



Immunization Information Systems Why they are Needed – Reminder/Recall

- In 2000, the Task Force on Community Preventive Services¹ made evidence-based recommendations that included client and provider reminder/recall interventions to improve vaccination coverage.
- In spite of these recommendations, a recent study found that reminder and recall messages remain underused by both pediatric and public health clinics.²
- A randomized, controlled trial of immunization registry reminder/recall for influenza vaccination in children found vaccination rates for recalled high-risk children to be 42% verses 25% for the control group.³

¹ Task Force on Community Preventive Services. Recommendation Regarding Interventions to Improve Vaccination Coverage in Children, Adolescents, and Adults. Am J Prev Med 2000;18(1S): 92-96.

² Tierney, CD, Yusuf, H, McMahon, SR et al. Adoption of Reminder and Recall Messages for Immunizations by Pediatricians and Public Health Clinics. Pediatrics 2003;112:1076-1082.

³ Daley, FD, Barrow, J, Pearson, K, et al. Identification and Recall of Children with Chronic Medical Conditions for Influenza Vaccination. Pediatrics 2004;113:26-33.



Immunization Information Systems

Why they are Needed – Coverage Assessment

Michigan* used their immunization information system to track population-based immunization levels by county and concluded the following:

- Immunization levels have increased 11% for just over 1 year for the 4:3:1:3:3 series and continue to increase at a rate of 1-2% each month.
- Health Plans have found that HEDIS numbers are much higher than reported the prior year even before doing chart reviews resulting in higher reported levels and decreased costs.
- The IIS also interfaces with the WIC database and the MMIS system to produce coverage level reports by WIC clinic and by Medicaid managed care plans.

*Swanson, B, Hoyle, T. Using Registries to Measure Community Immunization Levels. IRC-2002-11



Immunization Information Systems Why they are Needed – New Vaccines

DEPARTMENT OF HEALTH AND HUMAN SERVICES • CENTERS FOR DISEASE CONTROL AND PREVENTION

Recommended Childhood and Adolescent Immunization Schedule UNITED STATES • 2006

Vaccine ▼	Age ▶	1 month	2 months	4 months	6 months	12 months	15 months	18 months	24 months	4–6 years	11–12 years	13–14 years	15 years	16–18 years
Hepatitis B ¹	Hep B	Hep B	Hep B	Hep B ¹	Hep B	Hep B	Hep B				Hep B Series			
Diphtheria, Tetanus, Pertussis ²		DTaP	DTaP	DTaP	DTaP		DTaP			DTaP	Tdap		Tdap	
<i>Haemophilus influenzae</i> type b ³		Hib	Hib	Hib	Hib ³	Hib								
Inactivated Poliovirus		IPV	IPV	IPV		IPV				IPV				
Measles, Mumps, Rubella ⁴						MMR				MMR		MMR		
Varicella ⁵						Varicella					Varicella			
Meningococcal ⁶								Vaccines within broken line are for selected populations			MCV4		MCV4	
Pneumococcal ⁷			PCV	PCV	PCV	PCV				PCV			PPV	
Influenza ⁸						Influenza (Yearly)							Influenza (Yearly)	
Hepatitis A ¹											Hep A Series			

This schedule indicates the recommended ages for routine administration of currently licensed childhood vaccines, as of December 1, 2005, for children through age 18 years. Any dose not administered at the recommended age should be administered at any subsequent visit when indicated and feasible. ■ Indicates age groups that warrant special effort to administer those vaccines not previously administered. Additional vaccines may be licensed and recommended during the year. Licensed combination vaccines may be used whenever

any components of the combination are indicated and other components of the vaccine are not contraindicated and if approved by the Food and Drug Administration for that dose of the series. Providers should consult the respective ACIP statement for detailed recommendations. Clinically significant adverse events that follow immunization should be reported to the Vaccine Adverse Event Reporting System (VAERS). Guidance about how to obtain and complete a VAERS form is available at www.vaers.hhs.gov or by telephone, 800-822-7967.

■ Range of recommended ages

■ Catch-up immunization

■ 11–12 year old assessment



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Immunization Information Systems Why they are Needed – Public Health Emergencies

- **Hurricane Katrina disrupted and displaced > 200,000 people who lost everything including immunization records**
- **The Louisiana Immunization Network for Kids Statewide (LINKS) had a backup server in Baton Rouge which remained operational**
- **Healthcare providers for the displaced children found > 56,000 immunization histories on LINKS saving millions of dollars in revaccination costs**



Immunization Information Systems

Why they are Needed - Experience

- 1. Inform clinical practice: Improve care by making healthcare delivery more efficient to provide complete and useful patient information.**
- 2. Interconnect clinicians: Promote interoperability so that data are portable no matter where healthcare is accessed.**
- 3. Personalize care: Develop consumer-centric information to help individuals manage their own wellness.**
- 4. Improve population health: Use population-based data to evaluate healthcare delivery, conduct clinical trials, and research.**



Challenges Facing the Texas IIS

- Participation of children and providers
- Use of existing resources and assets
- Planning incremental development in the face of declining budgets

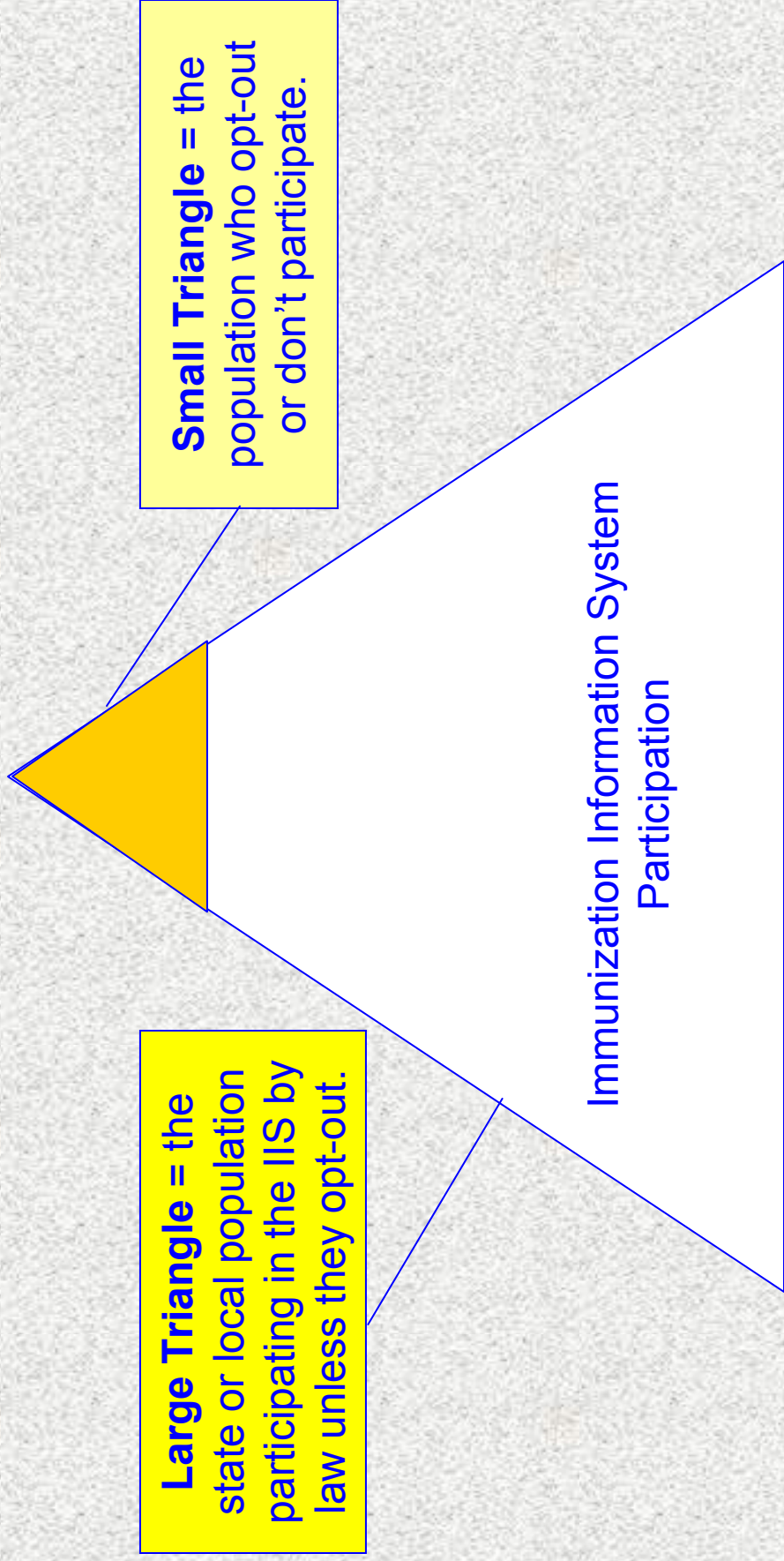


Texas Challenges - IIS Participation Processes: Opt-In verses Opt-Out

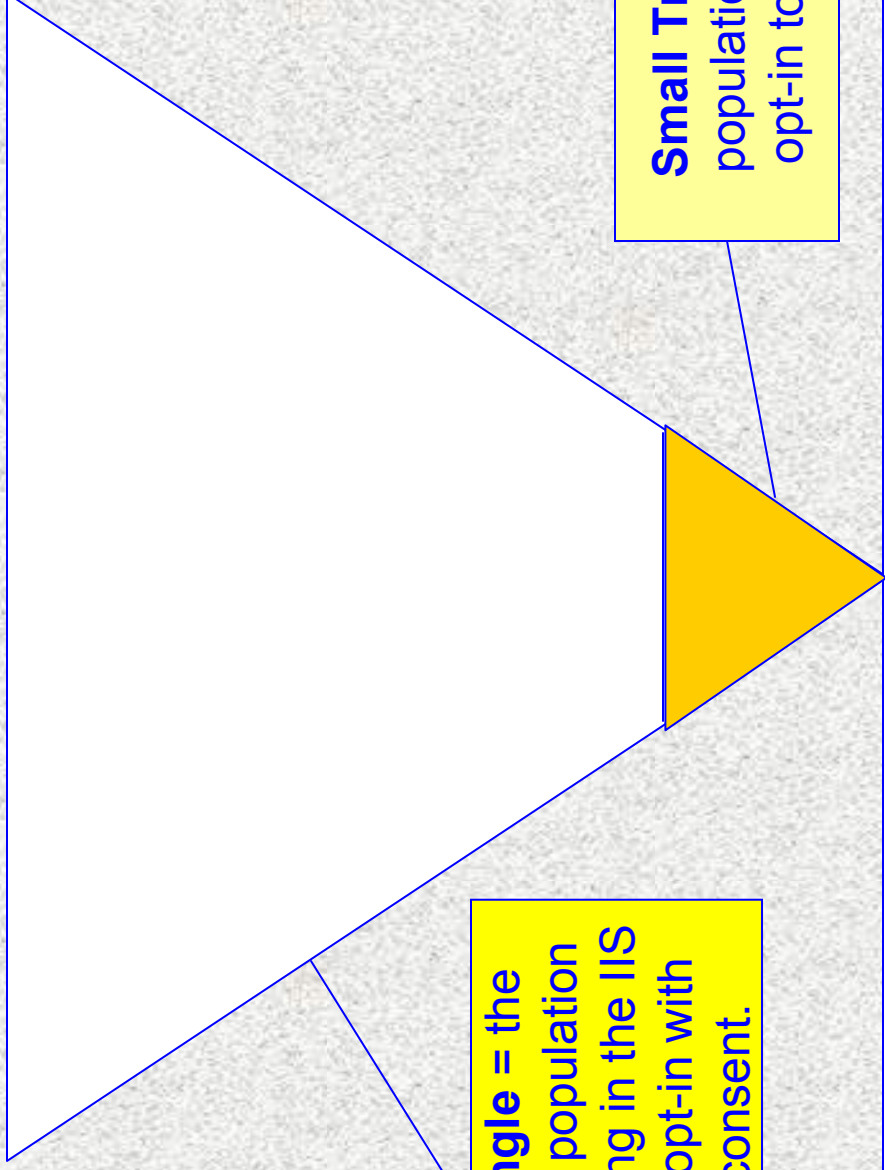
- IIS Participation with the Opt-Out Model:
Everyone in a state participates in the IIS by law or statute (serves as notice) unless they decide not to participate (or opt-out).
- IIS Participation with the Opt-In Model:
Everyone in a state is not participating in the IIS unless they are provided notice and sign an informed consent to participate (or opt-in).



Texas Challenges - IIS Participation Processes: Opt-In verses Opt-Out



Texas Challenges - IIS Participation Processes: Opt-In verses Opt-Out



Large Triangle = the state or local population not participating in the IIS unless they opt-in with informed consent.

Small Triangle = the population who don't opt-in to participate.

No Immunization Information System Participation Unless Opt-in Occurs



Texas Challenges - IIS Participation Processes: Opt-In verses Opt-Out

U.S. IIS Participation Process:

- **Opt-Out: 43 states and Washington DC**
- **Opt-In: 7 states (Idaho, Illinois, Kansas, Massachusetts, New York State, Texas, and Virginia)**



Texas Challenges - Opt-In verses Opt-Out: Does the Process Affect IIS Participation??

<u>State</u>	<u>% Who Don't Opt-In</u>	<u>% Who Opt-Out</u>
Texas	~5%	
Idaho	<5%	
Kansas	~3%	
Connecticut		~10%
Georgia		<1%
Michigan		<1%
Wisconsin		<1%



Texas Challenges

- Use of existing resources and assets
- Planning incremental development in the face of declining budgets



Future Plans – The Vision for IIS

A national network of immunization information systems that are:

- *comprehensive in their catchment area participation and coverage;*
- *inter-operable with other public health and clinical information systems; and*
- *used to generate data to completely support all aspects of immunization program operations at national, state and local levels.*



Future Plans – Improvement Strategies

- 1. Initiate OMB required grantee accountability for funding received from NIP for the development and implementation of immunization information systems.**
- 2. Review procedures used to assess grantee progress and challenges in implementing IIS.**
- 3. Promote IISs by conducting evaluation and research studies.**



Future Plans – Improvement Strategies

- 4. Develop and implement an objective evaluation or measure of IIS functionality achievement through a certification or other process.**
- 5. Advance the IIS interoperability with the national initiative to develop electronic medical records (EMR) and electronic health records (EHR).**
- 6. Advance national strategies to use IIS data by NIP.**



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