

**Business case for  
integrating EHDI and  
other health information  
systems**

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# Purpose of this presentation



- Define the **business case** for integrating child health information systems
- Explain basics of how a **Business Case Model (BCM)** works
- Describe how a BCM can help make the case for **integration**

# Business case

**“Using credible estimates based on factual inputs and expert opinion allows health officials to articulate the costs and benefits of information systems integration in terms of dollars, time, and other resources. Presenting a sound business case helps ensure stakeholder support and long-term sustainability of the program – especially when the benefits of integrating systems may not accrue for many years. “**

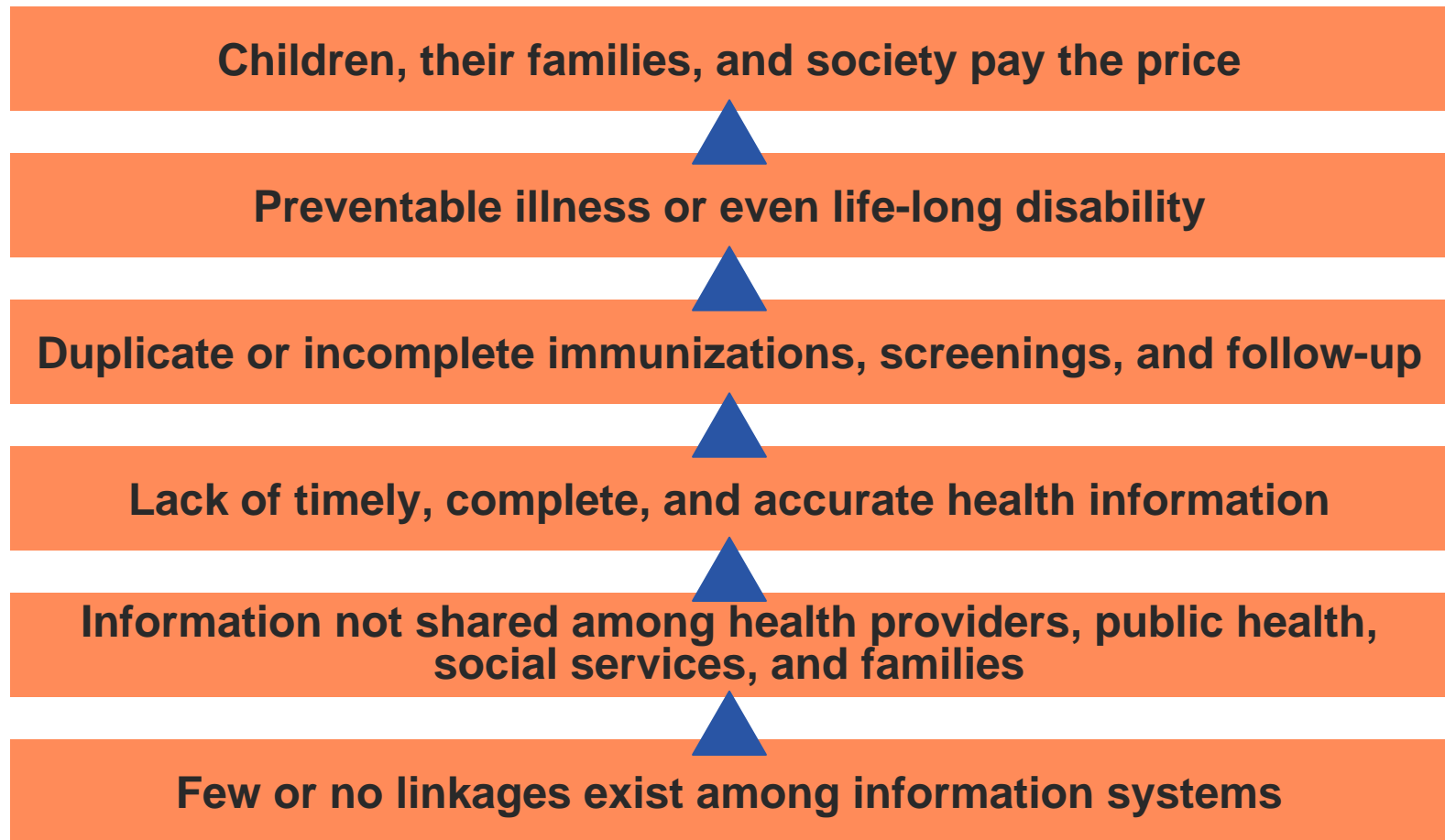
## **Business Case Model User Guide**

*Public Health* **INFORMATICS** *I n s t i t u t e*

# Why do we need a business case for ICHIS?

- Limited public health **resources**
- Increasing focus on **documenting** outcomes
- Need **data** for sustainable **funding**

# Current Problems in PH Information Systems



# Business case for ICHIS must

- Be specific to **added effects** of integrating CHIS
- Reflect difference in type and degree of costs and benefits to **stakeholders**
- Reflect the fact that the benefits may not **accrue** until some time in the **future**
- Be **flexible** to allow for data updates and modifications

# What is a Model?

**“Essentially, all models are wrong, but some are useful.”**

**George E. P. Box  
Professor of Statistics  
University of Wisconsin**

# Characteristics of the BCM

- Based on hard data, but also uses some assumptions and “guesstimates”
- Requires training to use and interpret correctly
- Will become more accurate over time
- *A representation* of the integration of CHIS— not exact data (**projection, not definite**)



# Why use a business case model for ICHIS?

- **Provides cost/benefit analysis**
- **Compares different integration scenarios**
- **Makes strong financial case**
- **Uses information from health economics, medicine, and public health**
- **Customizable to each state**



# What is the business case model for ICHIS?

- **Tool** to quantify benefits and costs of ICHIS
- Contains pre-loaded state-specific data
- Documents projected **ROI** of ICHIS
- Shows results by **stakeholder** group:
  - Family, Employer, Insurer
  - Government
  - Society (= total effects on all stakeholders)

# Integration benefits reflected in Model

- Improved **effectiveness** and **efficiency** of services
- Increase in **quality** and **coordination of care**
- Support for child care **decisions**
- Improvement in **data quality**
- Providers have **complete picture** of child
- Better health **outcomes**

# Questions addressed in Model - 1

- **How can we quantify both the costs and the benefits on a yearly basis in order to decide whether it makes sense from a cost-benefit perspective to invest in the integration of child health information systems?**
- **Which systems should be integrated first in order to get the greatest impact at the least cost?**

# Questions addressed in Model - 2

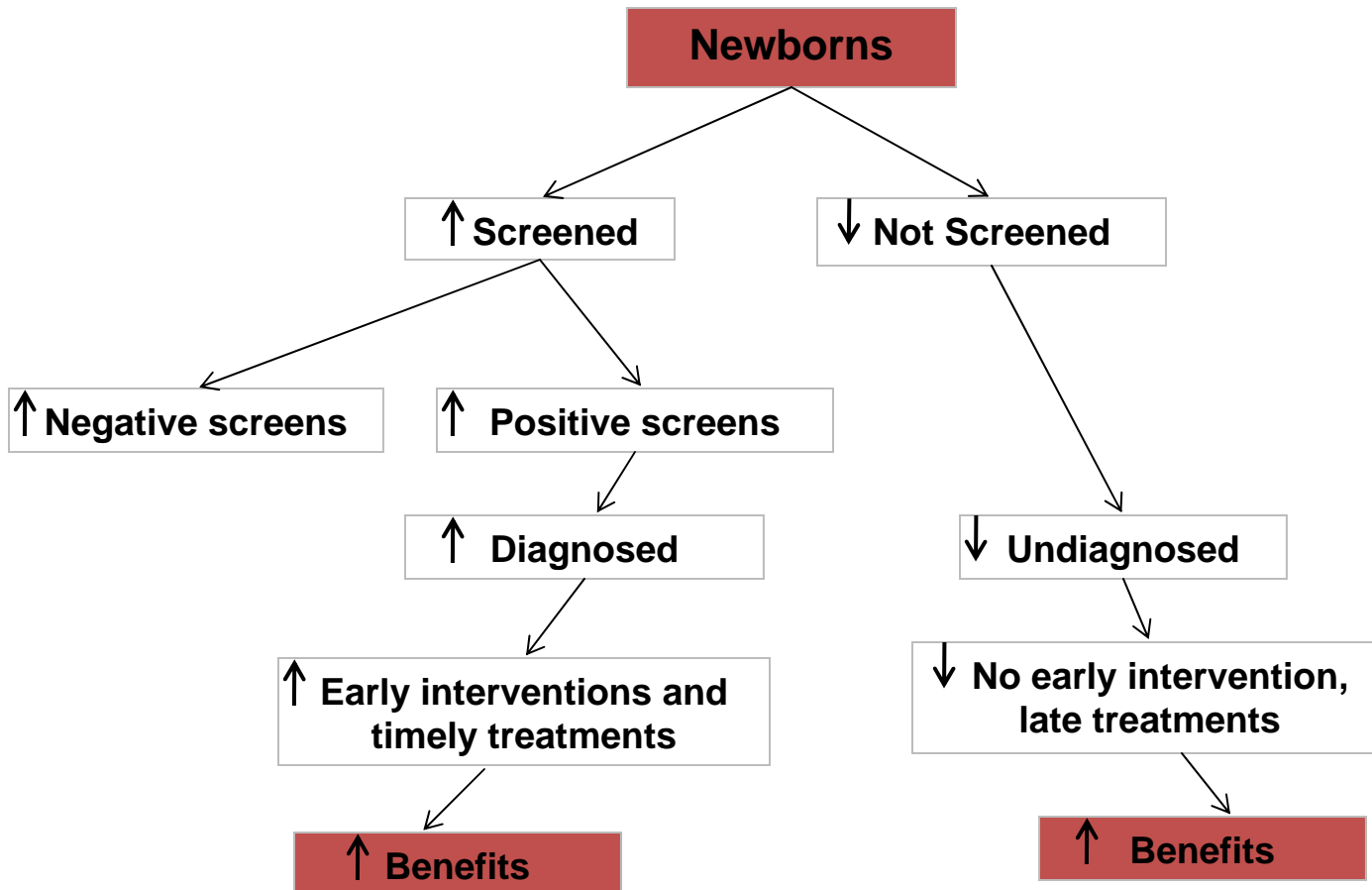
- **What needs to happen on the programmatic side to ensure that the potential benefits of integration are realized?**
- **What are the differences in benefits of a decentralized system vs. a centralized system?**
- **How can we make a convincing business case that clearly describes the cost/benefit analysis that supports a decision to integrate?**

# BCM terminology

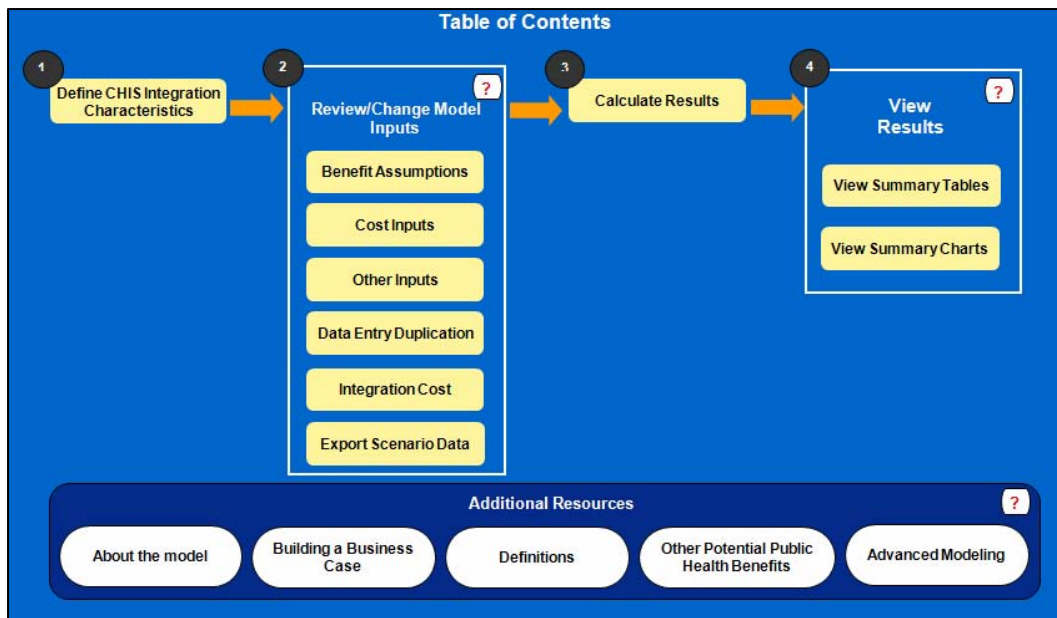
**Benefit assumptions:** estimates of improvements based on expert opinion

- **Benefit assumptions in BCM**
  - Better **tracking** of children
  - Changes in **referral patterns**
  - Improved **efficiency** and **timeliness** of services
  - Improved **decision-making**

# Assumption illustration

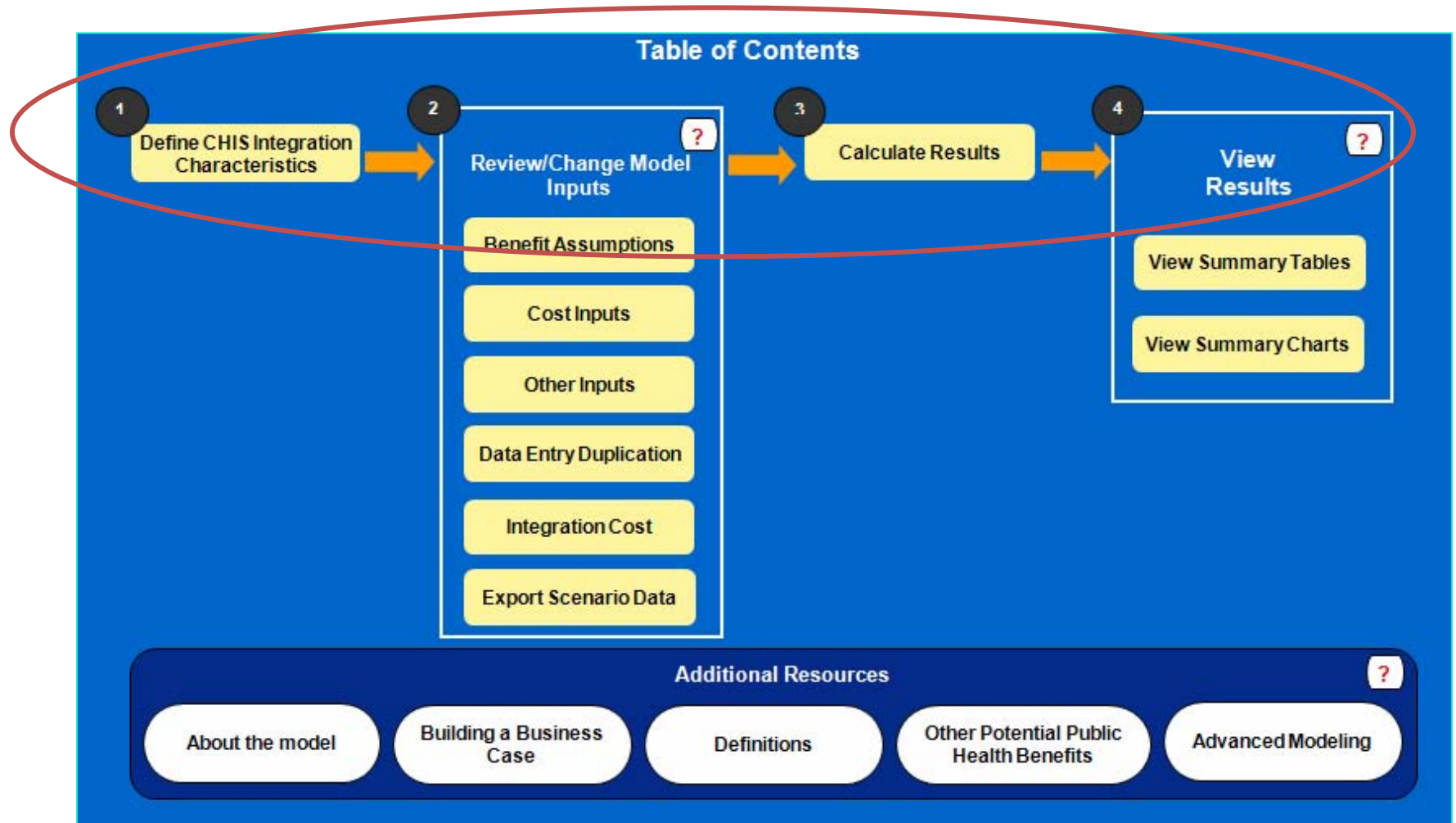


# Working with the Business Case Model





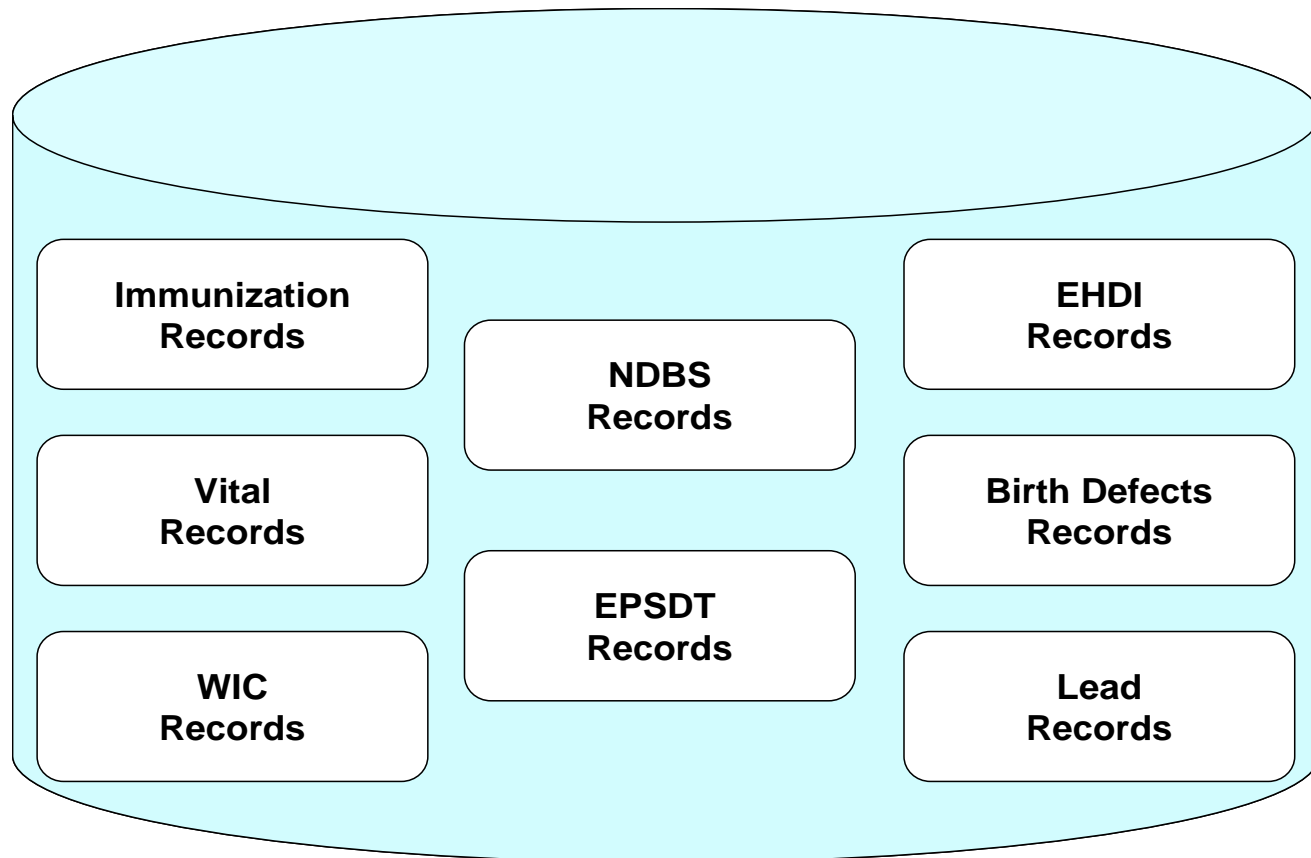
# User Interface



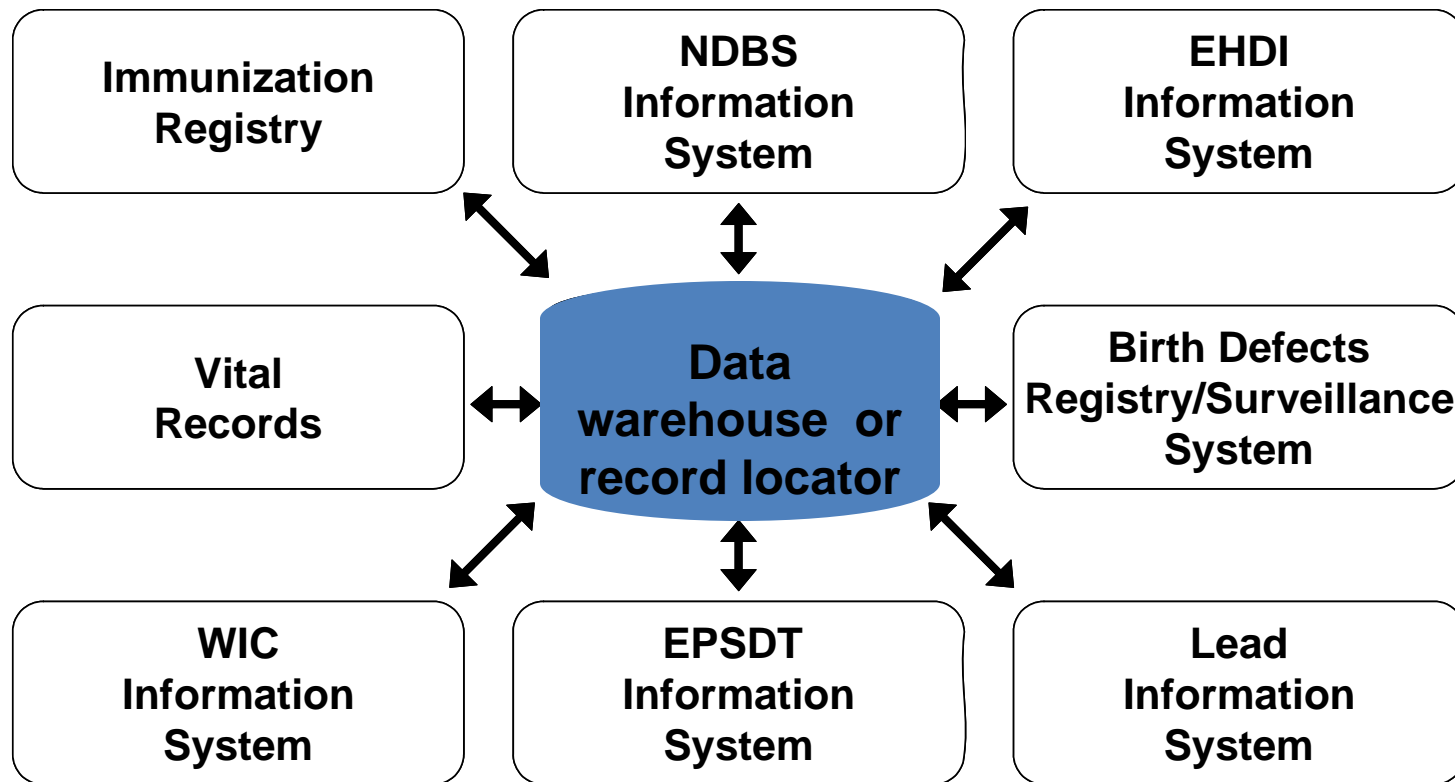
# Four steps to create a scenario

1. **Define** systems you are integrating
2. **Review** and change inputs
3. **Calculate** results
4. **View results:** tables and charts from calculations

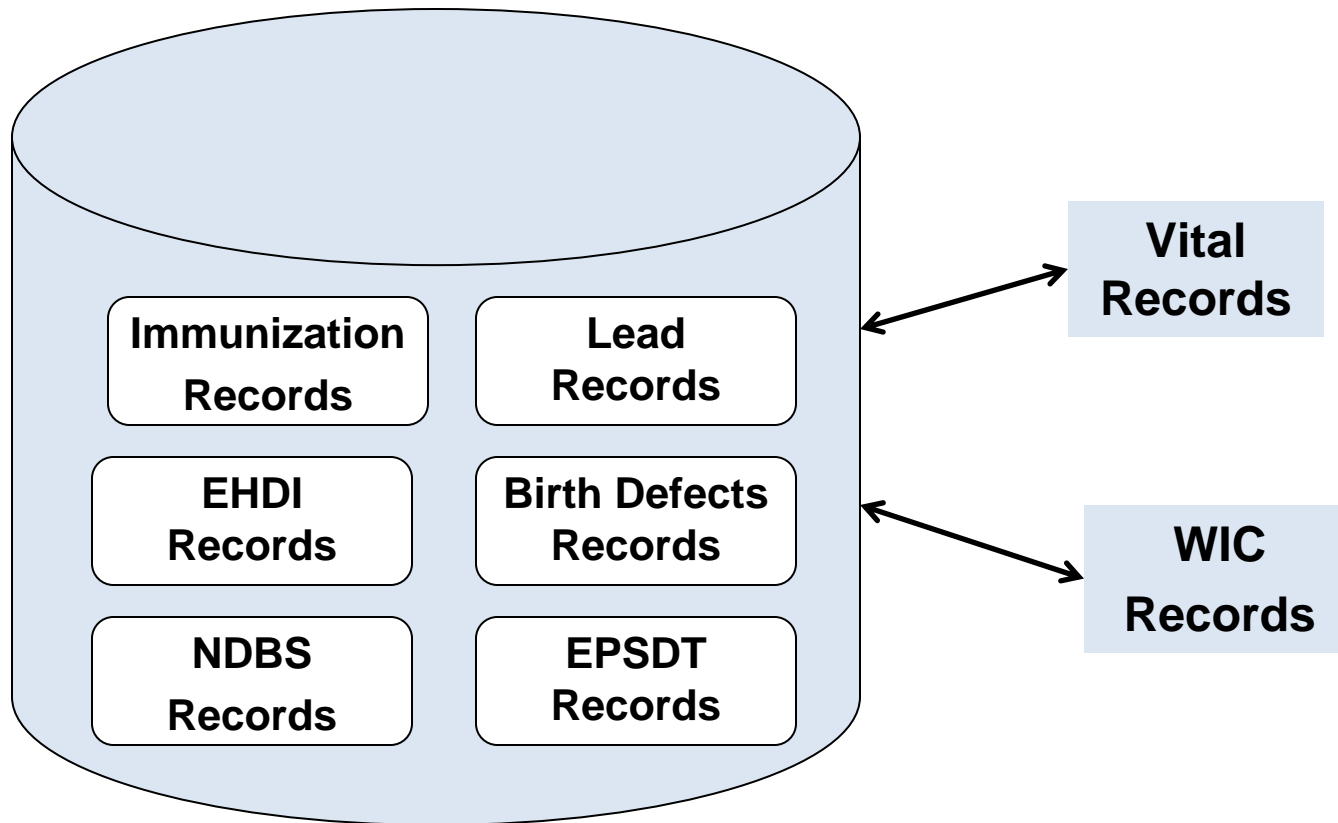
# Centralized system



# Decentralized system

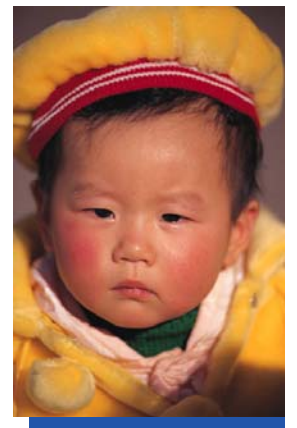


# Hybrid system



# What is already in the model

- **Census Bureau data on population**
- **Average health care costs**
- **Lifetime medical costs per case**
- **Lifetime special ed costs related to diseases**
- **Lifetime lost earnings associated with disabilities**
- **Value/hour time *saved* from integration**
- **Disease morbidity and mortality rates**
- **Impact of CHIS integration on screening, follow-up, participation rates**
- **Cost of living data**



## **Some information to gather before starting**

- **Systems currently integrated in your state**
- **System(s) that will be integrated in the future**
- **Type health information system your state has now (centralized, decentralized, or hybrid)**
- **State-specific start-up and maintenance costs**
- **What your state currently screens for in NDBS**

# Change if you have better data

- **Benefit assumptions**
- **Cost inputs**
- **Data entry duplication information**
- **Integration cost assumptions**





## Summary of Integration Scenario

Scenario date:

1/31/2008 4:39:48 PM

State

Pennsylvania

Year:

2007

Scenario Name:

PA

### State Integration

### Integration Status

Vital Records

Already integrated

Immunizations

Newly integrated

NDBS

Already integrated

EHDI

Newly integrated

Lead

Newly integrated

EPSDT

Newly integrated

WIC

Newly integrated

Birth Defects

Not integrated

Chronic Diseases

Not integrated

Early Intervention

Not integrated

CSHCN

Not integrated

Integration Cost Assumptions:

Default

Benefit Assumptions:

Default

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## Integration Scenario Results

### Results Type:

 Summary Table

 Create Word Report

[Integration Costs](#)
[Integration Scenario Summary](#)

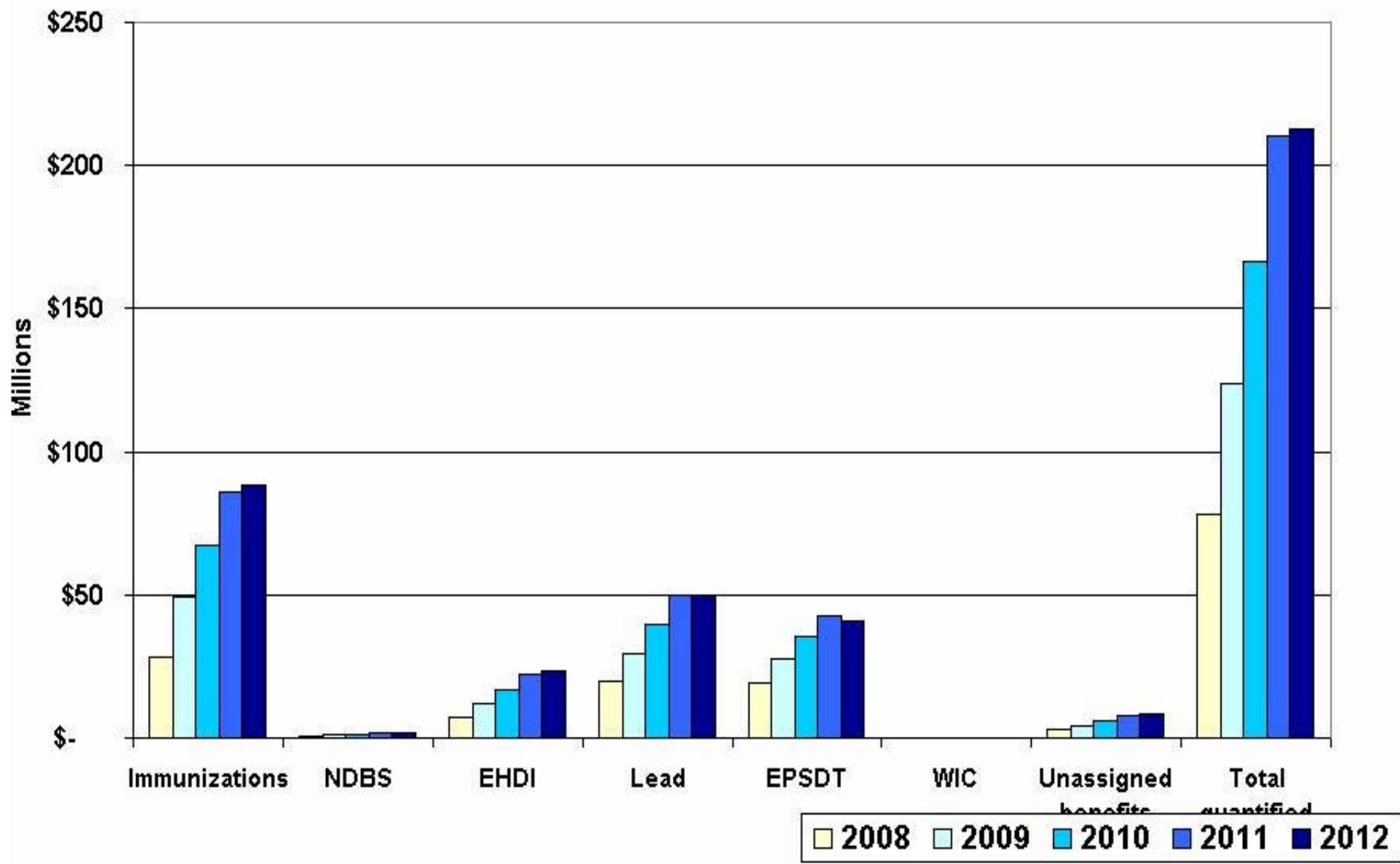
### Summary of Benefits and Costs of Integration: 2008 - 2012

Net Benefit <Costs> From Perspective Of :

Benefits Category	Family/Employer/ Private Insurer	Government	Medical Providers	Society
Immunizations	\$260,007,077	\$36,560,408	\$0	\$296,567,484
Newborn Dried Blood Spot Screening (NDBS)	\$3,671,688	\$1,924,820	\$0	\$5,596,508
Early Hearing Detection and Intervention (EHDI)	\$71,247,609	\$4,331,761	\$0	\$75,579,370
Lead Screening	\$116,793,764	\$58,392,175	\$0	\$175,185,939
Early and Periodic Screening, Diagnostic, and Treatment (EPSDT)	\$183,016,882	-\$27,742,943	\$0	\$155,273,940
Women, Infants, Child (WIC)	\$6,232,751	-\$5,577,473	\$0	\$655,278
Benefits Unassigned to Child Health Programs	\$0	\$0	\$27,326,082	\$27,326,082
<b>Total Quantified Benefits of Integration</b>	<b>\$640,969,771</b>	<b>\$67,888,748</b>	<b>\$27,326,082</b>	<b>\$736,184,600</b>
Annualized Start-Up and Maintenance Costs	\$0	\$0	\$0	\$0
<b>Total Quantified Net Benefits</b>	<b>\$640,969,771</b>	<b>\$67,888,748</b>	<b>\$27,326,082</b>	<b>\$736,184,600</b>

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### Projected Annual Net Benefits



# Integration Benefits to Immunization Program: 2008

View results for

## Number of Cases

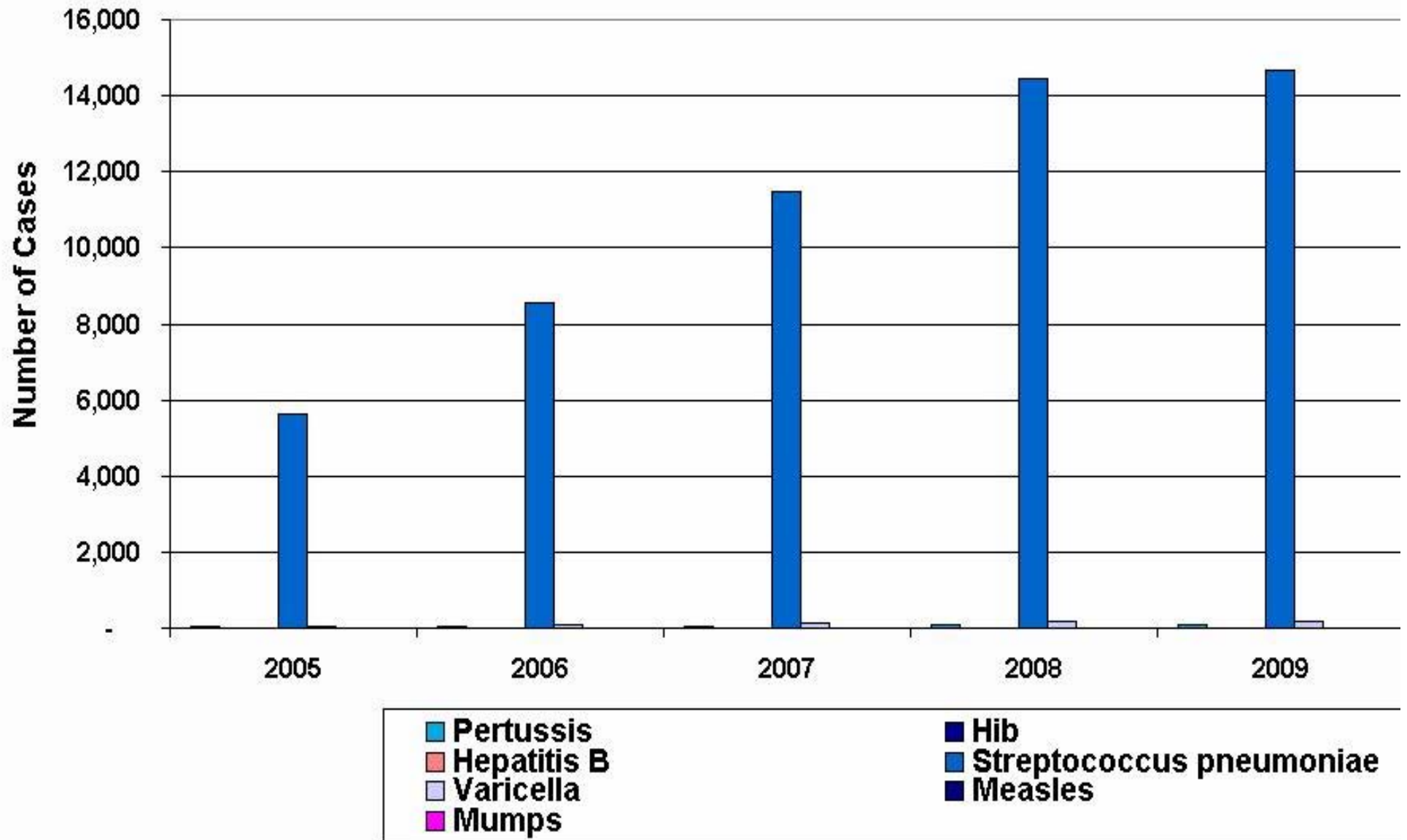
Reduction in level of underimmunization	Reduction in total days of under-vaccination	Reduction in Number of underimmunized children
DTP	72,760	6,960,000
Polio	50,160	4,320,000
Hib	60,600	4,920,000
HepB	56,480	5,440,000
PCV	128,520	11,040,000
VAR	43,880	6,080,000
MMR	39,480	5,000,000

Reduction in invalid doses (from early vaccination)	4000.0
Reduction in extraimmunization	12000.0
Change in number of disease cases	-25,791.1
Diphtheria	0.0
Tetanus	0.0
Pertussis	-158.9
Polio	0.0
Haemophilus influenzae	-11.3
Hepatitis B	-0.4
Streptococcus pneumoniae	-25,312.9
Varicella	-306.0
Measles	-0.5
Mumps	-1.0
Rebella	0.0
Reduction in child mortality	-6.08

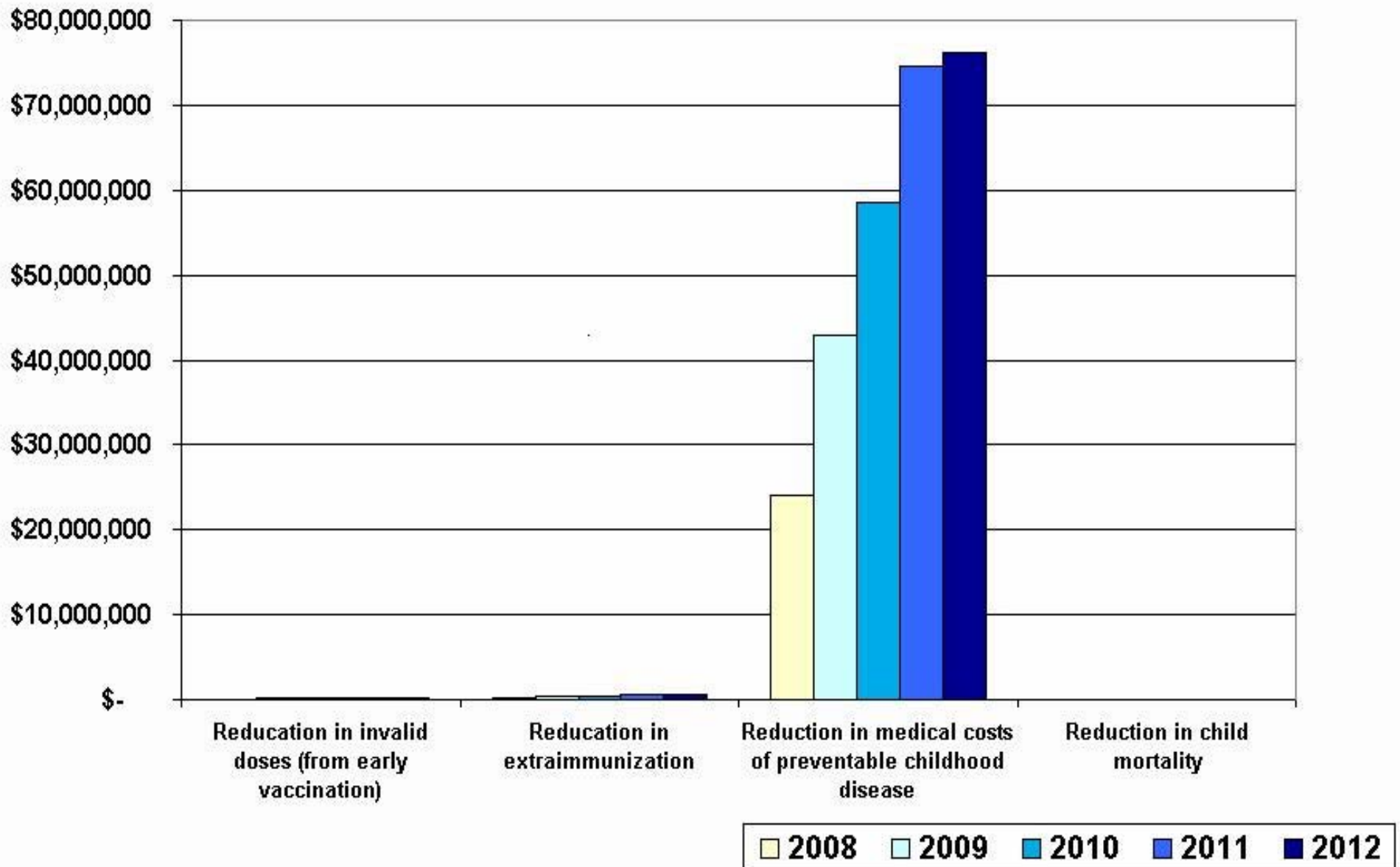
## Net Benefit <Costs> From Perspective Of :

	Family/Employer/ Private Insurer	Government	Medical Providers	Society
Reduction in invalid doses (from early vaccination)	\$96,000	\$52,000	\$0	\$148,000
Reduction in extraimmunization	\$224,000	\$120,000	\$0	\$344,000
Change in number of disease cases	\$24,140,000	\$3,516,000	\$0	\$27,656,000
Diphtheria	\$0	\$0	\$0	\$0
Tetanus	\$0	\$0	\$0	\$0
Pertussis	\$496,000	\$252,000	\$0	\$748,000
Polio	\$0	\$0	\$0	\$0
Haemophilus influenzae	\$12,000,000	\$8,000	\$0	\$12,008,000
Hepatitis B	\$0	\$0	\$0	\$0
Streptococcus pneumoniae	\$11,436,000	\$3,252,000	\$0	\$14,688,000
Varicella	\$208,000	\$4,000	\$0	\$212,000
Measles	\$0	\$0	\$0	\$0
Mumps	\$0	\$0	\$0	\$0
Rebella	\$0	\$0	\$0	\$0
Reduction in child mortality	\$0	\$0	\$0	\$0
Improved efficiency (hours)	\$0	\$0	\$0	\$0
<b>Total net benefit</b>	<b>\$24,460,000</b>	<b>\$3,688,000</b>	<b>\$0</b>	<b>\$28,148,000</b>

## Projected Cases of Childhood Disease Prevented



## Benefits to Families/Employers/Private Insurers of Improved Immunization Timeliness





## Integration Effects on EHDI Program:

2007

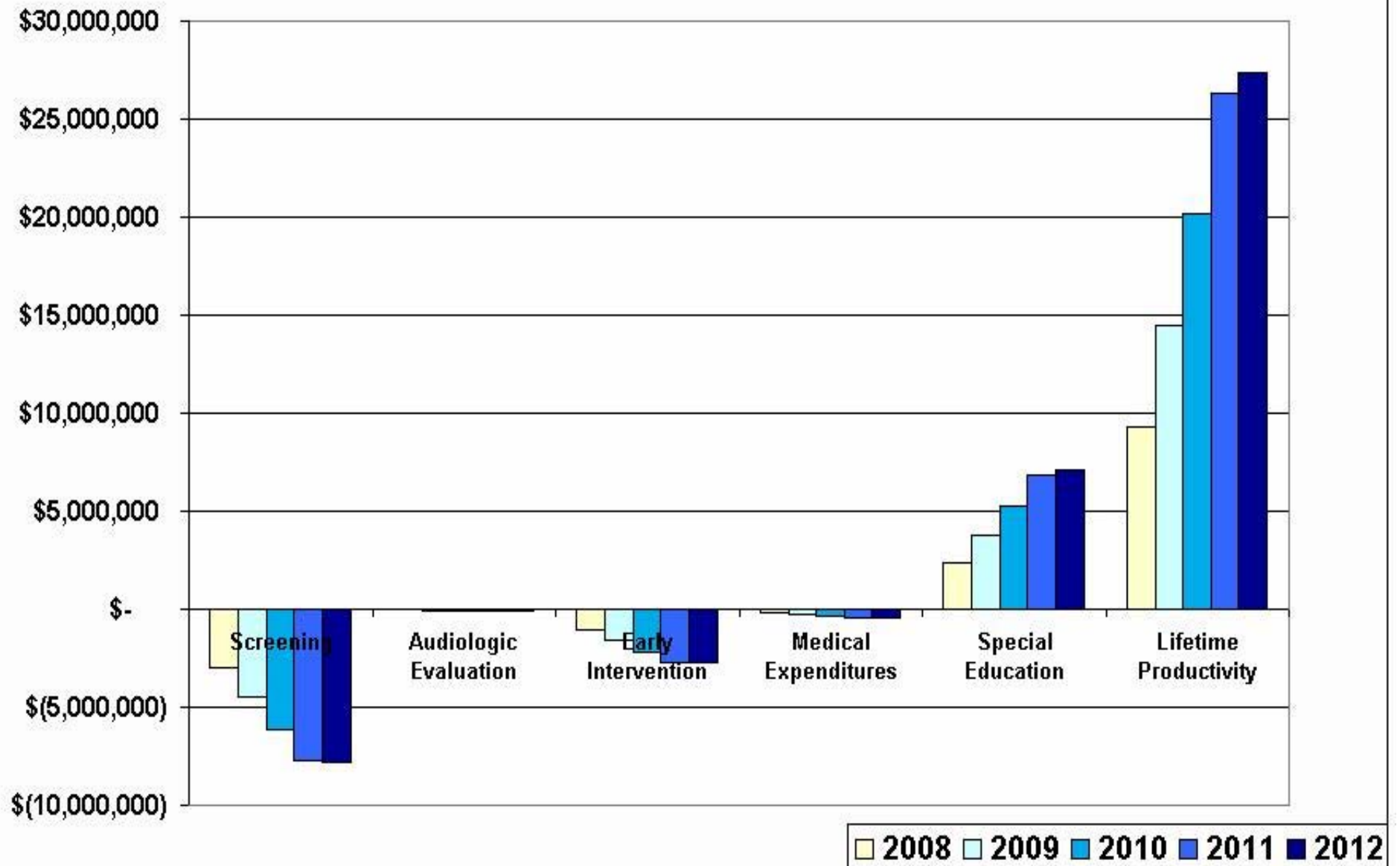
View results for 

Net Benefit &lt;Costs&gt; From Perspective Of :

	Number of Children	Family/Employer/ Private Insurer	Government	Society
Increase in screening and follow-up after integration				
Initial screenings	2,300	-\$36,800	-\$36,800	-\$73,600
Receive recommended follow up audiological exam	124	-\$9,200	-\$9,200	-\$18,400
Enroll in early intervention program by six months of age	20			
Additional hearing loss cases detected before 6 months after integration				
Moderate to profound bilateral hearing loss (# infants)	8			
Mild and/or unilateral hearing loss (# infants)	16			
Costs and savings of early hearing loss detection				
Additional cost for hearing interventions prior to age 5		-\$84,800	-\$84,400	-\$169,200
Reduction in medical costs		-\$23,200	-\$15,200	-\$38,400
Reduction in special education costs		\$0	\$371,200	\$371,200
Increase in lifetime productivity		\$1,430,800	\$0	\$1,430,800
<b>Total net effect</b>		<b>\$1,276,800</b>	<b>\$225,600</b>	<b>\$1,502,400</b>

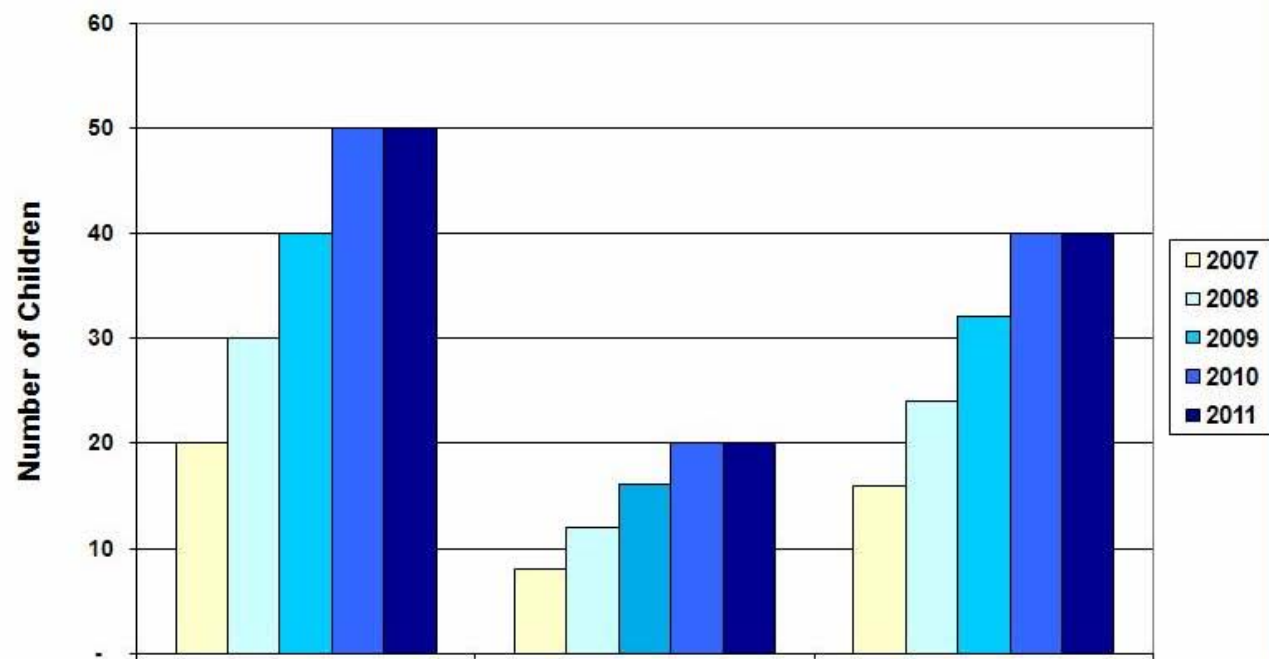
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## Benefits of Improved Early Hearing Detection and Intervention



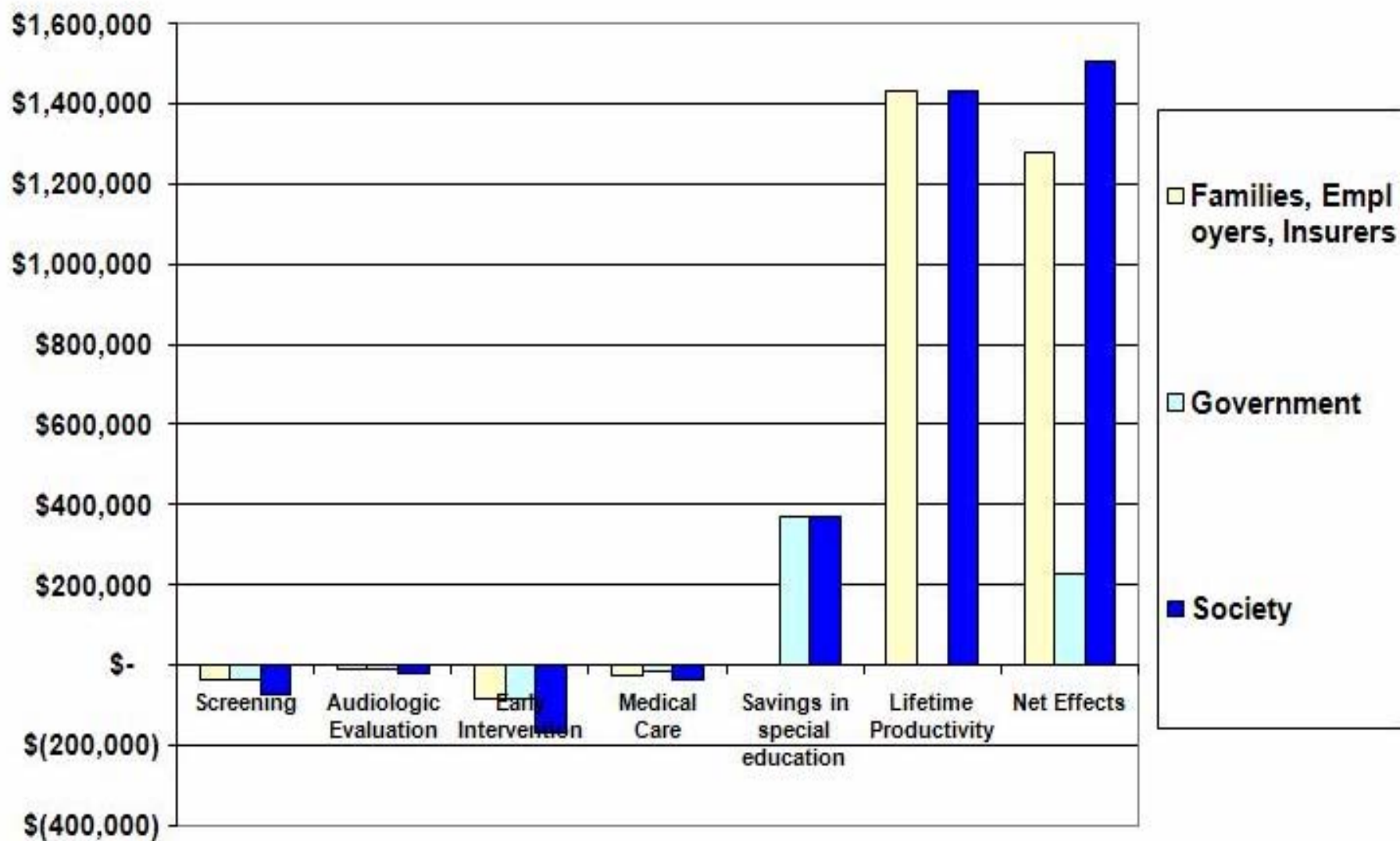


Increase in early intervention and reduction in hearing loss after integration

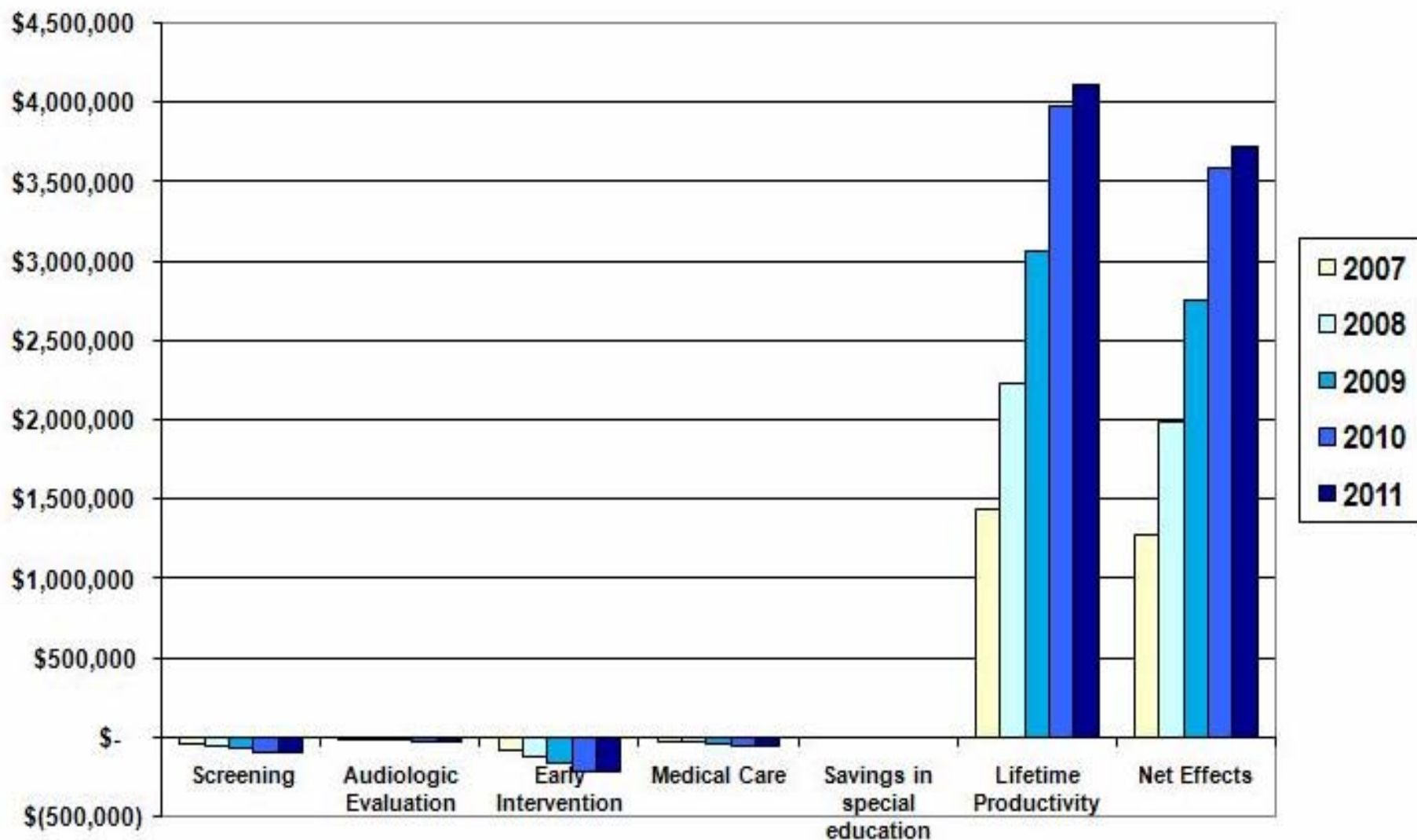


Enroll in Early Intervention <6Mo. Mod. hear loss cases detected Mild hear loss cases detected

## Increase in EHDl participation after integration Effects in first year on stakeholders



## Increase in EHDI participation after integration Effects on Families, Employers, and Insurers



# What the Business Case Model does

- Performs cost/benefit analysis of **integration**
- Compares alternative **integration** scenarios
- Makes a financial case for **integration**
- Produces summary tables and charts showing effects of **integration**
- Customizes **integration** scenarios by state



# What the Business Case Model does NOT do

- **Produce exact cost/benefit figures for integration – it provides educated estimates**
- **Produce calculations on stand-alone information systems**
- **Include preloaded (default) data about costs of integration and maintenance**

# Possible uses of the Model

- **Provide a detailed picture of the specific costs and benefits related to integration of HIS**
- **Present the systems integration proposal to funders, decision-makers, and other stakeholders to stimulate discussion and generate buy-in based on facts and figures**
- **Make adjustments to a project's scope or identify an unfeasible proposal before committing resources to it**
- **Produce a wide variety of scenarios and compare results, making better, more fiscally sound decisions about investing in CHIS integration**

# Acknowledgements

- **Tim Dall and colleagues at the Lewin Group**
- **Workgroup and technical advisors, PHII staff**
- **HRSA/MCHB (Genetic Services Branch) and RWJF funding**

# Learn More





# Training and Support for Business Case Model

	Leader/ Advocate	Casual user	Advanced user
<ul style="list-style-type: none"> <li>• Web site with printable materials</li> </ul>	X	X	X
<ul style="list-style-type: none"> <li>• Presentation: Value of a Business Case Model</li> </ul>	X	X	X
<ul style="list-style-type: none"> <li>• Presentation: Creating a Basic Business Case Scenario</li> <li>• User guide</li> </ul>		X	X
<ul style="list-style-type: none"> <li>• Technical Report</li> <li>• User group</li> </ul>			X

# Additional BCM training sessions

- **AMCHP – March 2, 2008**
- **Webinar - May 13, 2008**
- **For more information:**
  - **Visit:**  
**<http://phii.org/BusinessCase.html>**
  - **Email: [Businesscasemodel@phii.org](mailto:Businesscasemodel@phii.org)**
  - **Call: Jim Mootrey, (404) 592-1416**  
**Karen Torghele, (404) 687-5622**  
**Alan Hinman, (404) 687-5636**