

# ISM

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IT Solutions Management for Human Services

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an affiliate of the American Public Human Services Association

# Business Intelligence - Knowledge Behind the Data

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for Data Warehousing  
Illinois Department of  
Healthcare & Family Services

# Introduction

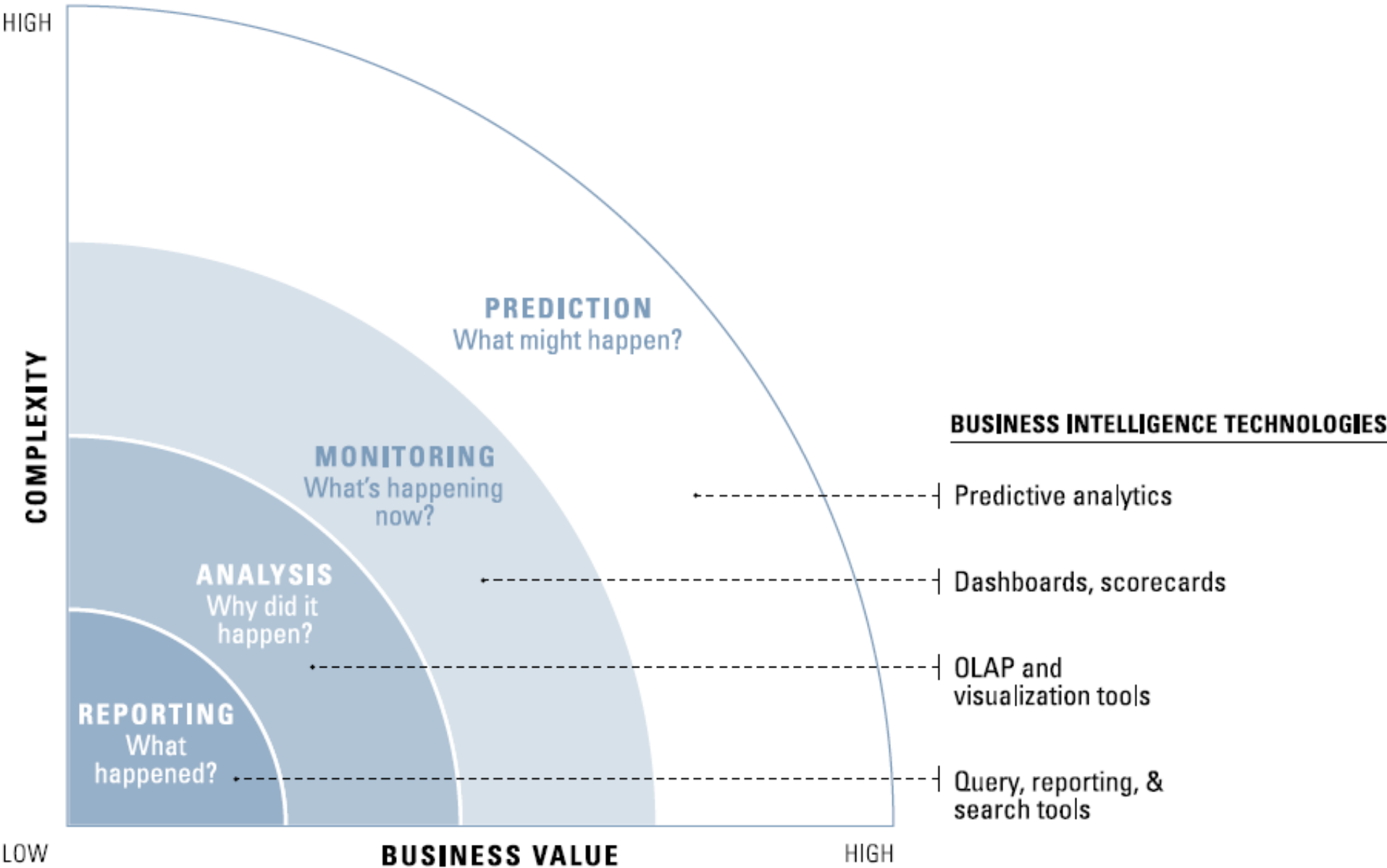
- Project Coordinator since inception of IDPA MDW in 1999
- Led a team in Developing the Proof of Concept Pilot
- Led the effort to bring in vendors for in-house demos of DW strategies
- Led the evaluation team in choosing System Integrator

# What I am going to show you today

- Overview of the IL Medical Data Warehouse project
- Examples of queries \ reports
- The expansion to include Public Health and Human Services data
- Lessons Learned

# The Spectrum of BI Technologies

TDWI Best Practices Report 1<sup>st</sup> Quarter 2007  
Predictive Analytics: Extending the Value of Your Data Warehousing Investment  
By Wayne W. Eckerson

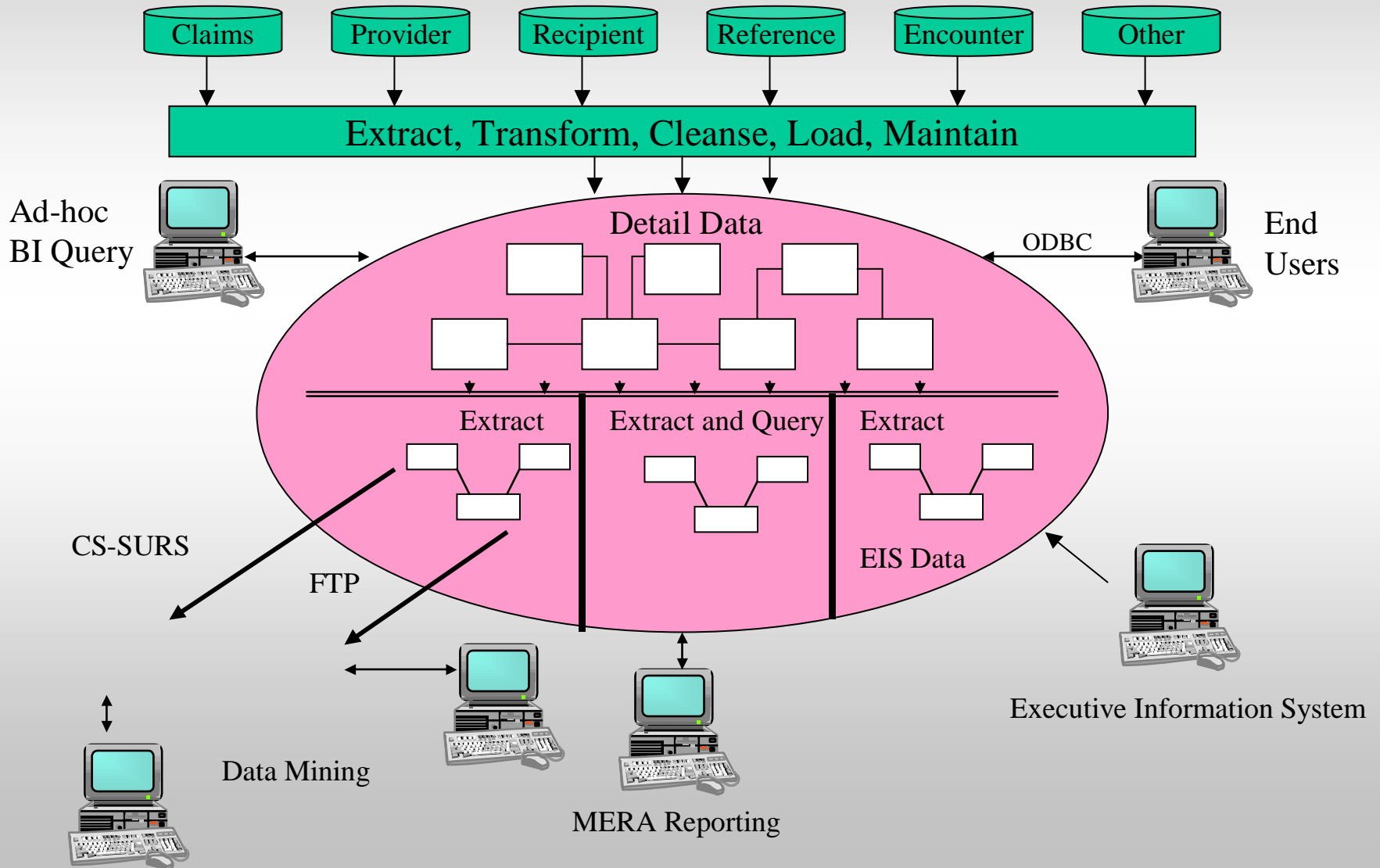


# Project Overview

- Phase I
  - ◆ 3 years of claims loaded initially
  - ◆ Build to 5 years from FY '97
  - ◆ Phase I reports replicated existing mainframe MARS reports (i.e. Balance, Expenditure reports etc.)
  - ◆ Implemented in 9 Months
- Phase II
  - ◆ Expanded hardware platform
  - ◆ Continued loading claims
  - ◆ Developed EIS
- Current Expansion
  - ◆ Details Later

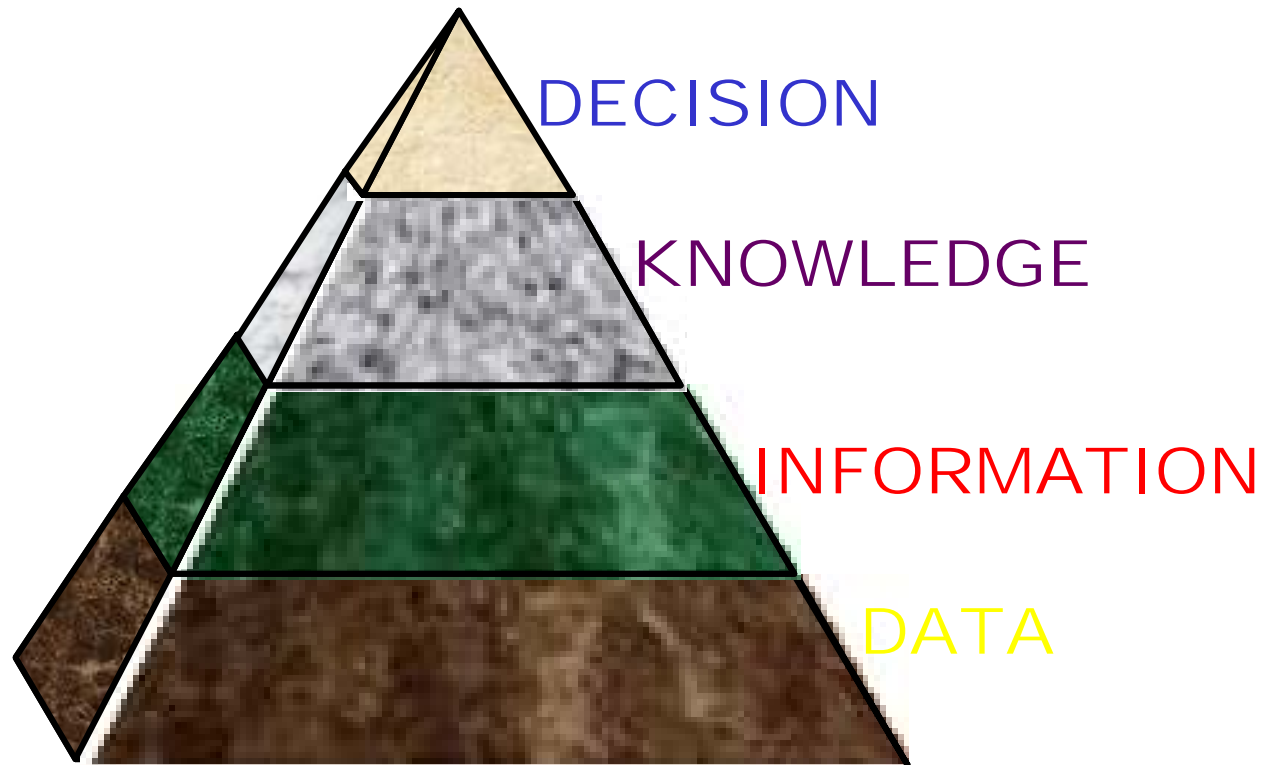
# Illinois Data Warehouse circa 1999

Data Sources – 5 years of data

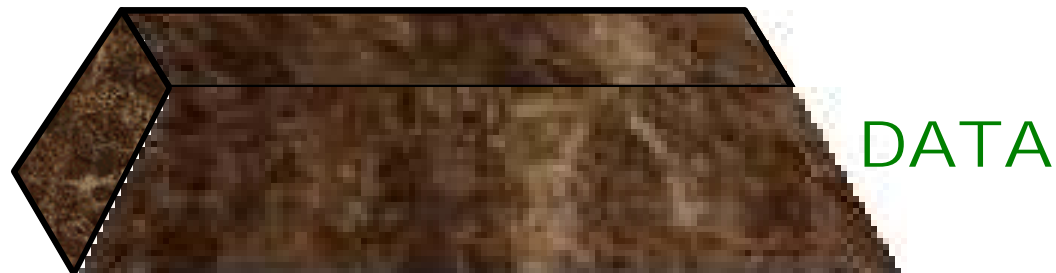




# Analytic Hierarchy of Needs



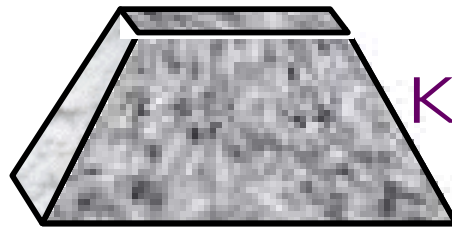
# Source Data- MMIS Files



# Information – Data Warehouse



# Knowledge- Business Intelligence

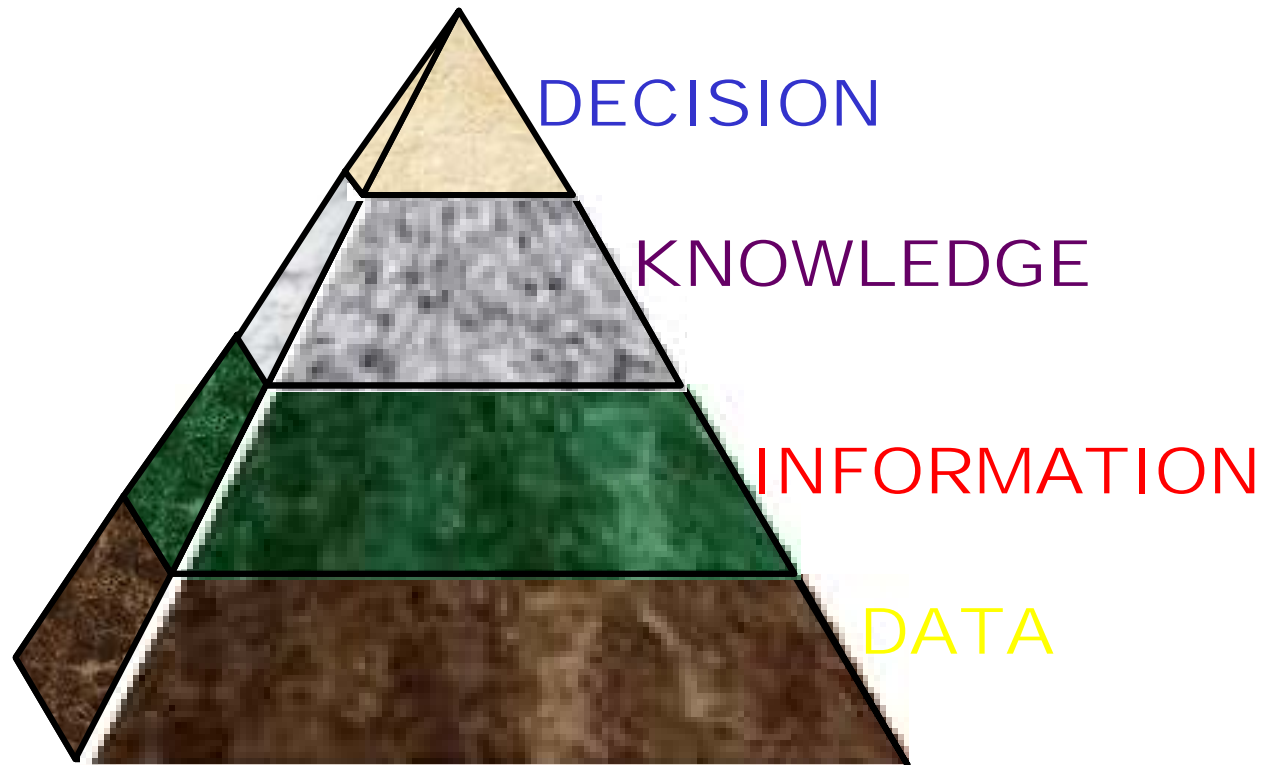


KNOWLEDGE

# Informed Decisions-Proactive Decision Making



# Analytic Hierarchy of Needs



# Types of use

- Ad-Hoc
  - ◆ Strategic Queries
  - ◆ Power Users
- Standard Reports
  - ◆ Existing \ MMIS Reports
  - ◆ Power Users Queries
  - ◆ Strategic Queries
- Data Marts
  - ◆ Analytic
  - ◆ Aggregate



## Healthcare and Family Services

### Summary Page

IDWBM0002-1

Last Run: 07/13/2007

Current: 07/13/2007

Begin: 06/01/2007

End: 06/30/2007




















	Claim Count	Claim Amount	Paid Units Of Service
<b>Paid Claims</b>			
IDPA	8,015,932	\$760,053,081.68	10,597,124
KidCare	986,233	\$46,932,212.09	1,007,189
	9,002,165	\$806,985,293.77	11,604,313
<b>Mass Adjustments</b>			
IDPA	2,312	\$24,678,260.52	
KidCare	78	\$737.15	
	2,390	\$24,678,997.67	
<b>Detail Adjustments</b>			
IDPA	276,651	\$2,439,615.35	
KidCare	28,615	\$670,660.60	
	305,266	\$3,110,275.95	
<b>MTD Mass Adjustments</b>			
IDPA	682	(\$2,377,198.56)	
KidCare	0	\$0.00	
	682	(\$2,377,198.56)	
<b>Totals</b>			
IDPA	8,295,577	\$784,793,758.99	





Groups

- Expenditure
- OIG
- Provider
- Operations
- Recipient
- Pharmacy
- Test Reports
- HCFA
- Archived Reports
- Enrollment Reports
- Liability Tracking

Reports

-  CollectionsWizard-Collections Wizard
-  IDWBM0031 Test-Inpatient Paid Claims Detail by Hospital ID
-  IDWBM0032 Test-Inpatient Paid Claims Fiscal Summary by Hospital ID
-  IDWBM0038- HIPAA-Recipient Claim Detail
-  IDWBM0070-Practitioner Prescribing Patterns By Service Period: DEA
-  IDWBM0070 - reformatting-Practitioner Prescribing Patterns By Service Period: DEA
-  IDWBM0072-Practitioner Prescribing Patterns By Dollar & By RX For A DEA
-  IDWBM0072 - r
-  IDWBM0075-RX
-  IDWBM0078TES
-  IDWBM0083-M
-  IDWBM0100 Te
-  IDWBM0101 Te
-  IDWBM0104-Pe
-  IDWBM0105-Pe
-  IDWBM0410\_Te
-  IDWBM0500S\_
-  MERA183-(Test
-  PingPongWizard

Report Legend

-  No Prompts
-  Prompts

**Collections Reporting Wizard**

**Uncheck the Data Types Not Needed.**

<input checked="" type="checkbox"/> SMIB	<input checked="" type="checkbox"/> Warrants
<input checked="" type="checkbox"/> HIB	<input checked="" type="checkbox"/> Rejects
<input checked="" type="checkbox"/> Institutional Claims	<input checked="" type="checkbox"/> Vendor Payments
<input checked="" type="checkbox"/> NIPS Claims	<input checked="" type="checkbox"/> 2nd Worksheet
<input checked="" type="checkbox"/> Pharmacy Claims	
<input checked="" type="checkbox"/> Doral Dental Admin Payments	
<input checked="" type="checkbox"/> Unmatched Adjustments	
<input checked="" type="checkbox"/> Recovered and Refunded Amounts	

When Selected in MERA this activates the Collections Wizard

	A	B	C	D	E	F	G	
1								
2	<b>RECIPIENT NAME</b>						7/13/2007	
3	<b>RECIPIENT ADDRESS</b>						Case #	999999999
4	<b>RESIDENT CITY &amp; ZIP</b>						Alpha Case	XX-XXX-XXXXXX
5							SS #	999999999
6	Date Range: 7/13/2005 Thru 7/13/2007						Recip Id:	186122461
7	Case Name: CASE NAME						Born:	11/25/1909
8							Died:	11/25/2006
9	<b>Supplemental Medical Insurance Benefits (SMIB)</b>							
10	Service Date						Amounts	
11	<i>No SMIB (Supplemental Medical Insurance Benefits) Records</i>							
12								
13	<b>Health Insurance Benefits Part A(HIB)</b>							
14	Service Date						Amounts	
15	<i>No HIB (Health Insurance Benefits Part A) Records</i>							
16								
17								
18								
19	<b>Hospitals</b>							
	Service				Charge		Paid	



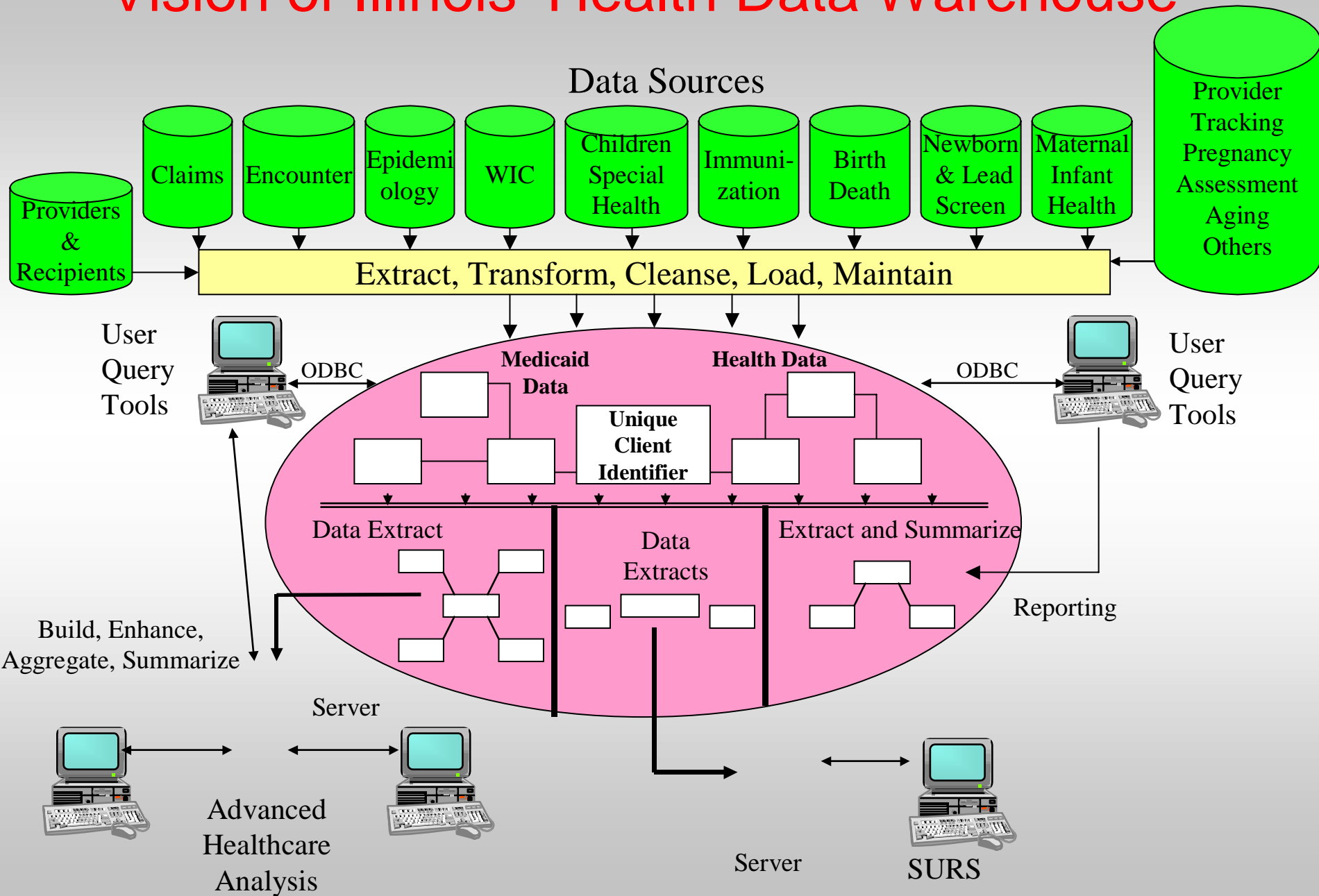
# Current Expansion

- Including data from IDPH and IDHS
- Expanding analysis to include Quality of Care for
  - ◆ Maternal & Child Health
  - ◆ Chronic Diseases
  - ◆ Preventative Maintenance
- Moving from Retrospective to Prospective analysis
- Devising Proactive Strategies based on merged datasets

# Benefits of Integrating Health Data

- Match services to outcomes, e.g., Compare maternal support services rendered to pregnant women to birth outcomes contained in vital records data
- Use vital records data to assist in identifying the potentially eligible population for WIC
- Link lead screen records to Medicaid beneficiaries to determine Medicaid status and aid in reporting both for Medicaid and lead screening
- What is the impact of chronic disease (diabetes, asthma, cardiovascular disease, cancer, etc.) On the population of Illinois?
- Match children with positive metabolic screens to immunization data, particularly children who have been identified as having sickle cell anemia, to assure that they are receiving their immunizations since they are at an increased risk of infection

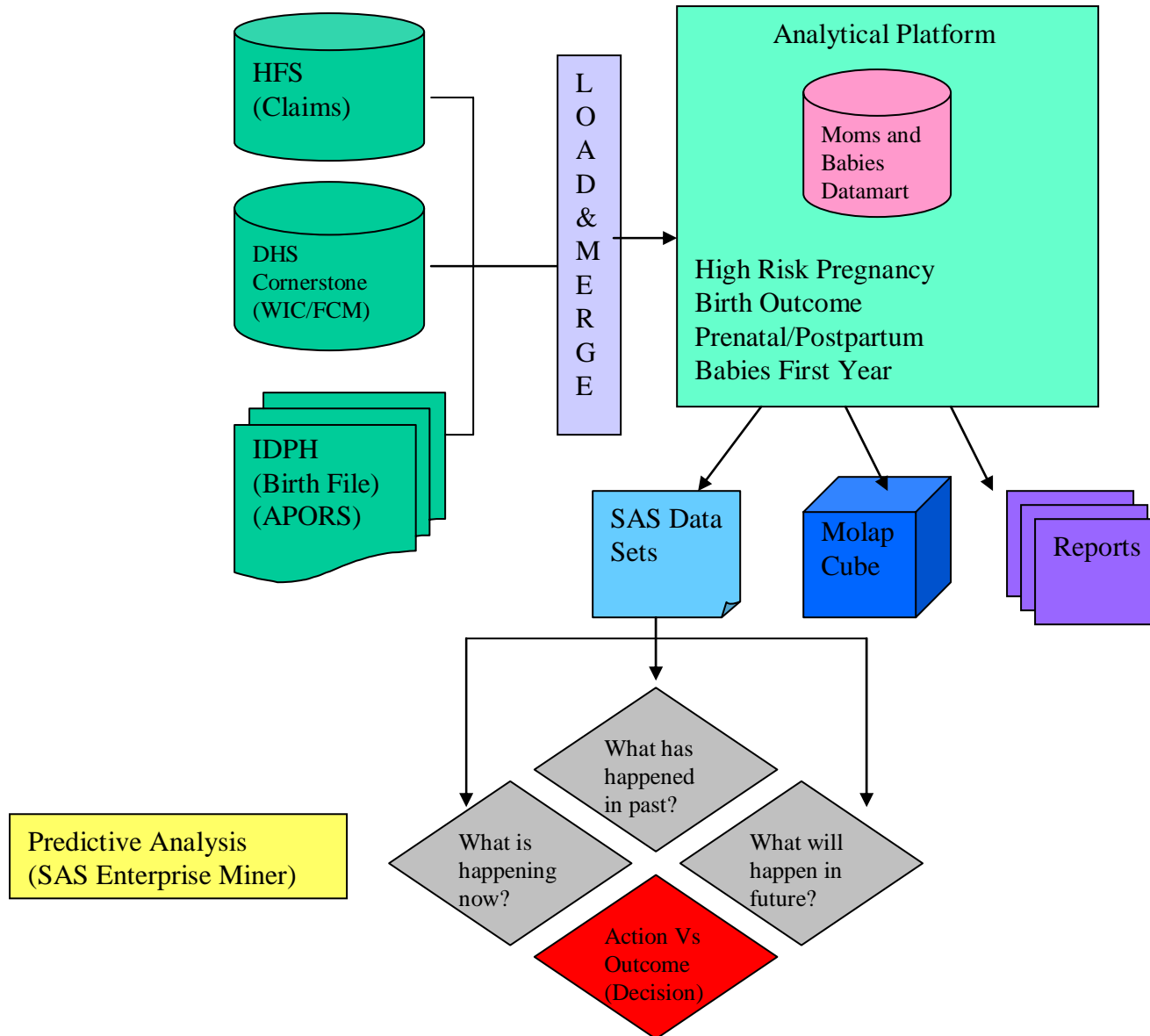
# Vision of Illinois' Health Data Warehouse



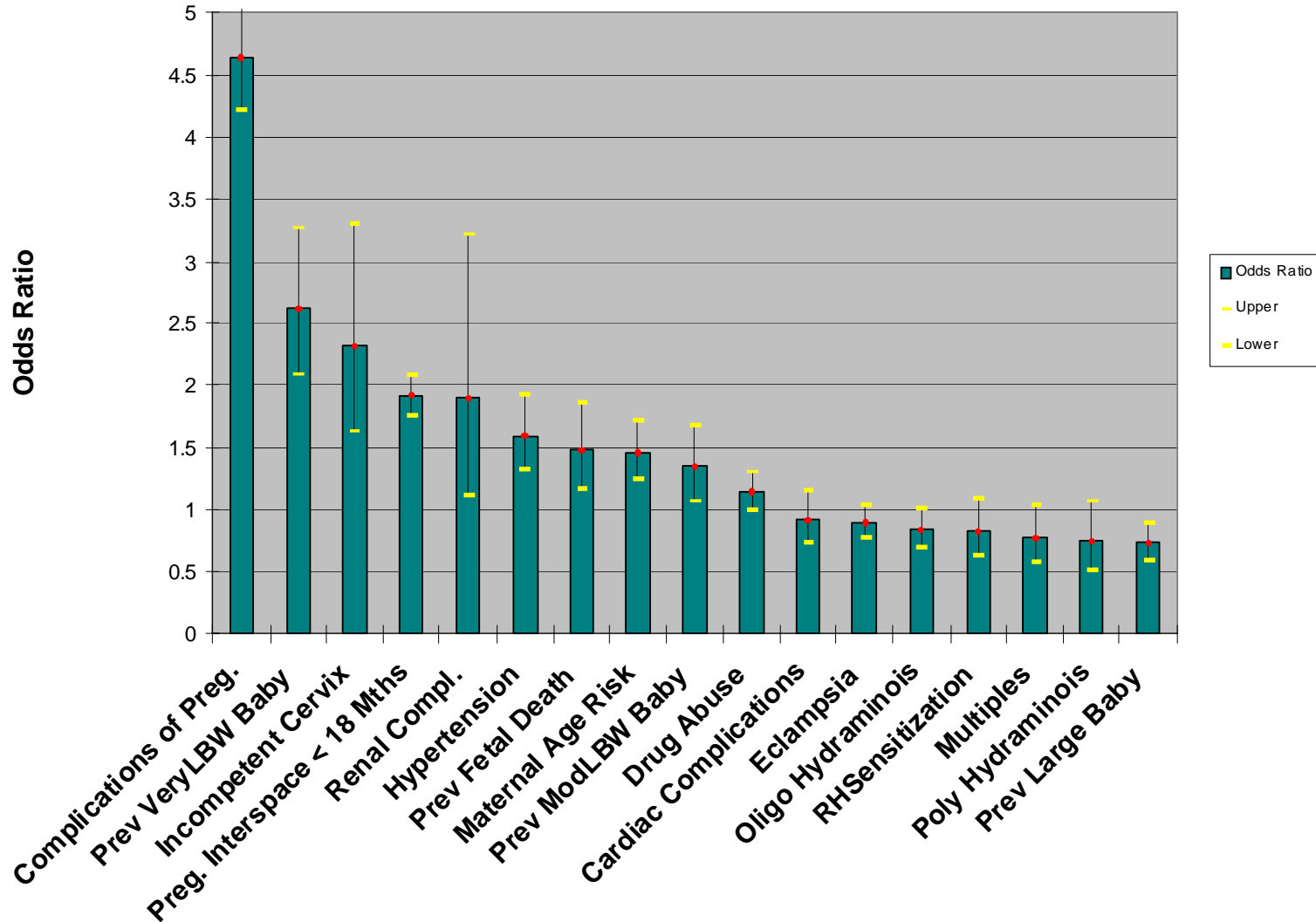
# Unique Client Identifier

- Different data sets use different ids
- No connection between different system's ids
- Clean up each systems data including identifying duplicates
- Quality of the data impacts the match
- Probabilistic match based on quality of common data elements
- Generates cross reference that can be used by any user

# Advanced Analytics on High Risk Pregnancy

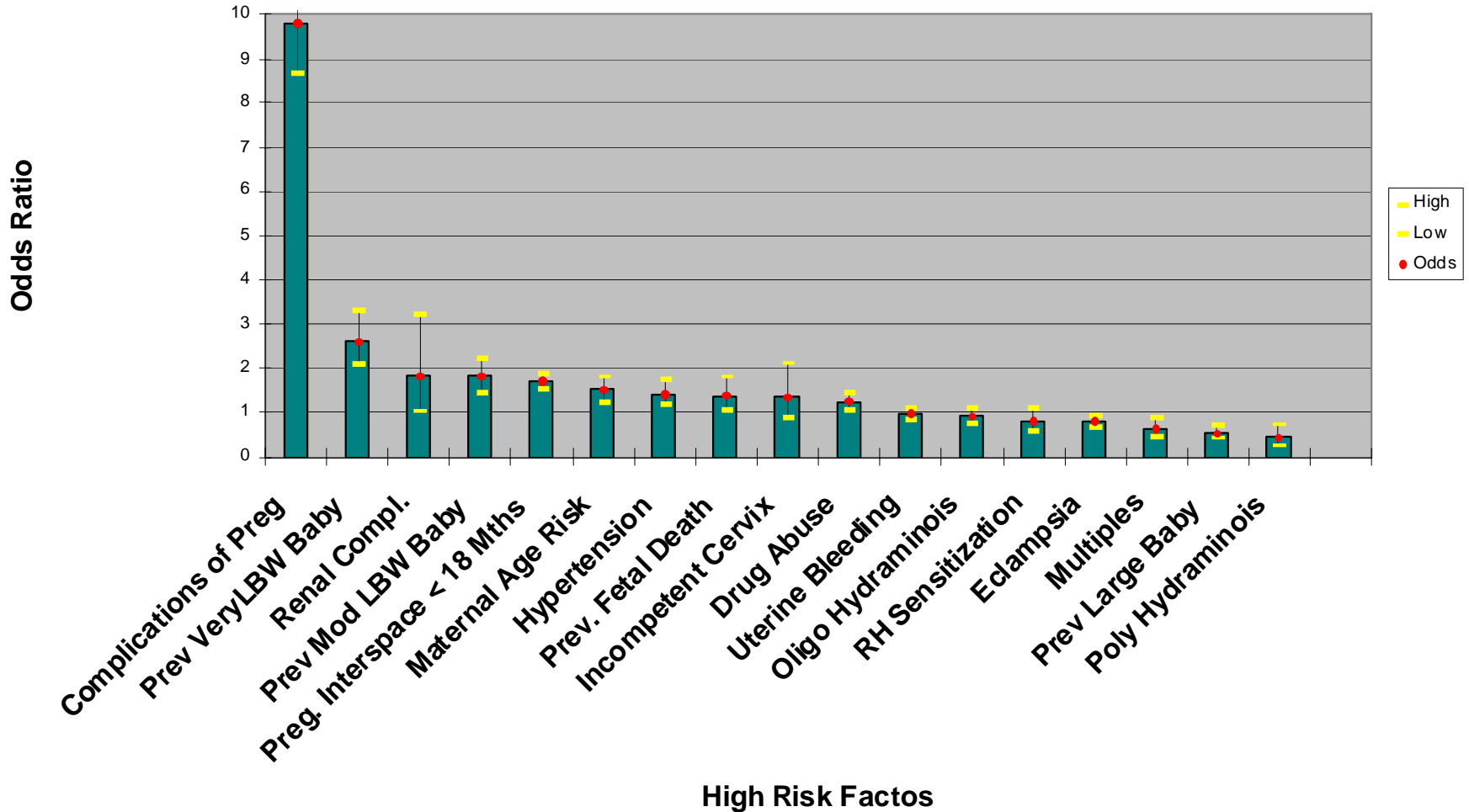


# Odds Ratio of Potential High Risk Factors Causing Extreme Immaturity



High Risk Factors

# Odds Ratio of Potential High Risk Factors Causing Prematurity with Major Problems



# Lessons Learned

- Atomic Data is the key
- Marrying Advanced analytics with a statewide health info repository has the potential to drive decision making statewide
- Working from a position of knowledge allows you to make informed decisions rather than educated guesses
- Result is a win win both in terms of improved health outcomes and state cost savings