

High Risk Pregnancies:

Utilizing Data Marts to Implement Precision Targeted Outreach

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Illinois Overview

- Medical Data Warehouse
 - Medicaid \ State Funded
 - Eligibility \ Reference
 - WIC \ Family Case Management
 - Adverse Pregnancy Outcomes
 - Lead Screenings



Significant Facts

- Teradata
 - 8 * 5450 Nodes
 - 27 Tb disk storage
 - 11 Tb usable disk space
- Data Stats
 - 12 + years of Medicaid claims data
- Usage Stats
 - 300+ Users
 - 580 Average Daily Logins



Tools

- BI Query
 - V 8.5.1
 - 11 models
 - 1 main
 - 10 specialized data mart views
 - Used only for ad-hoc access
- Business Objects
 - XI v2
 - 5 universes
 - 200 + reports
- SQL Assistant

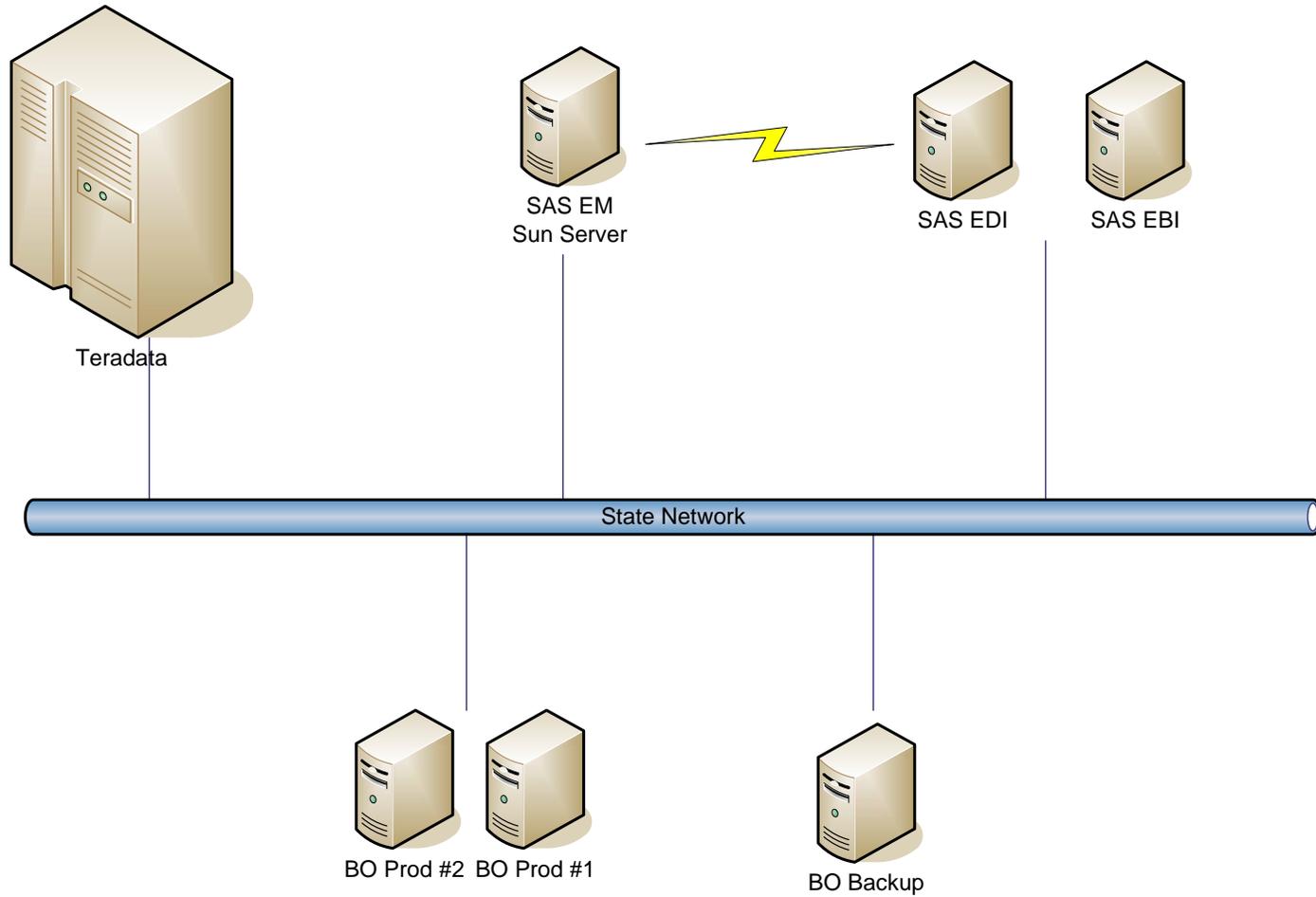


Tools

- SPSS
 - V16.0
- SAS
 - Enterprise Miner
 - V9 (Group 2)
 - Enterprise Data Integrator
 - V9 (Group 1)
 - Enterprise Business Intelligence
 - V9 (Group 1)

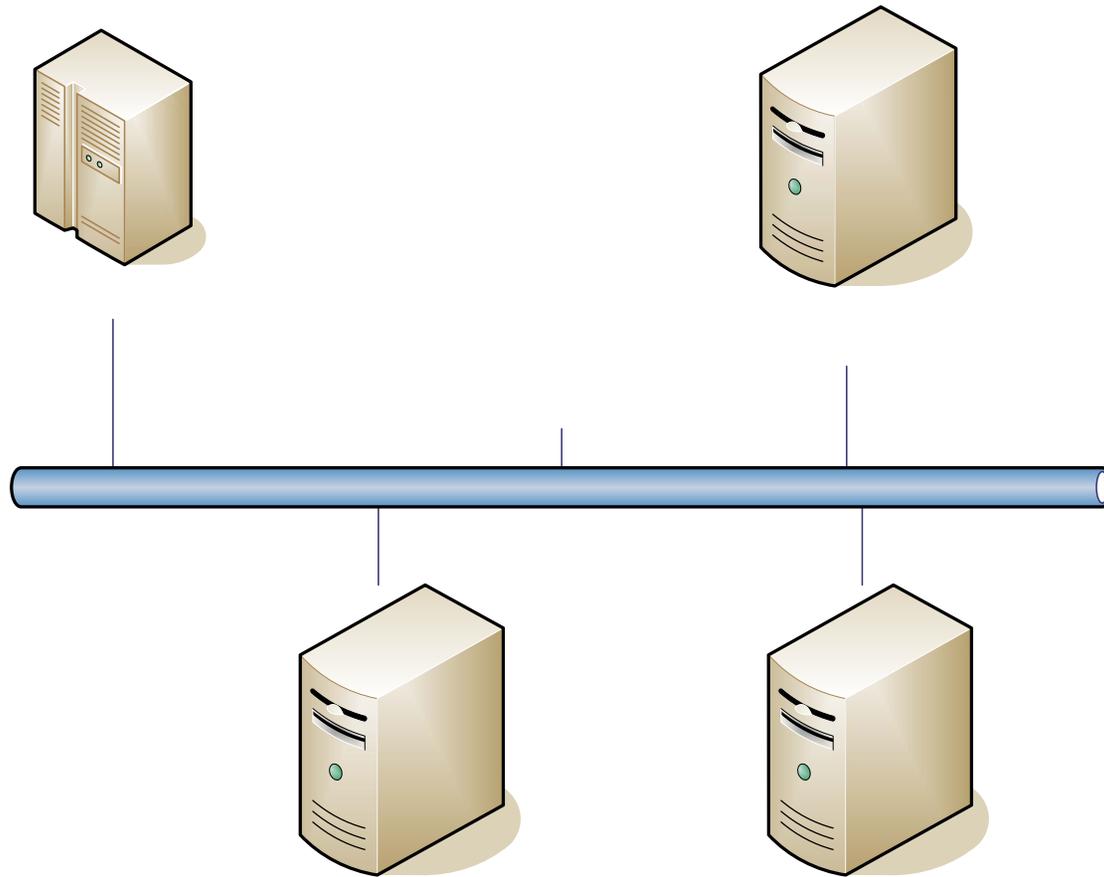


Overall IL Diagram



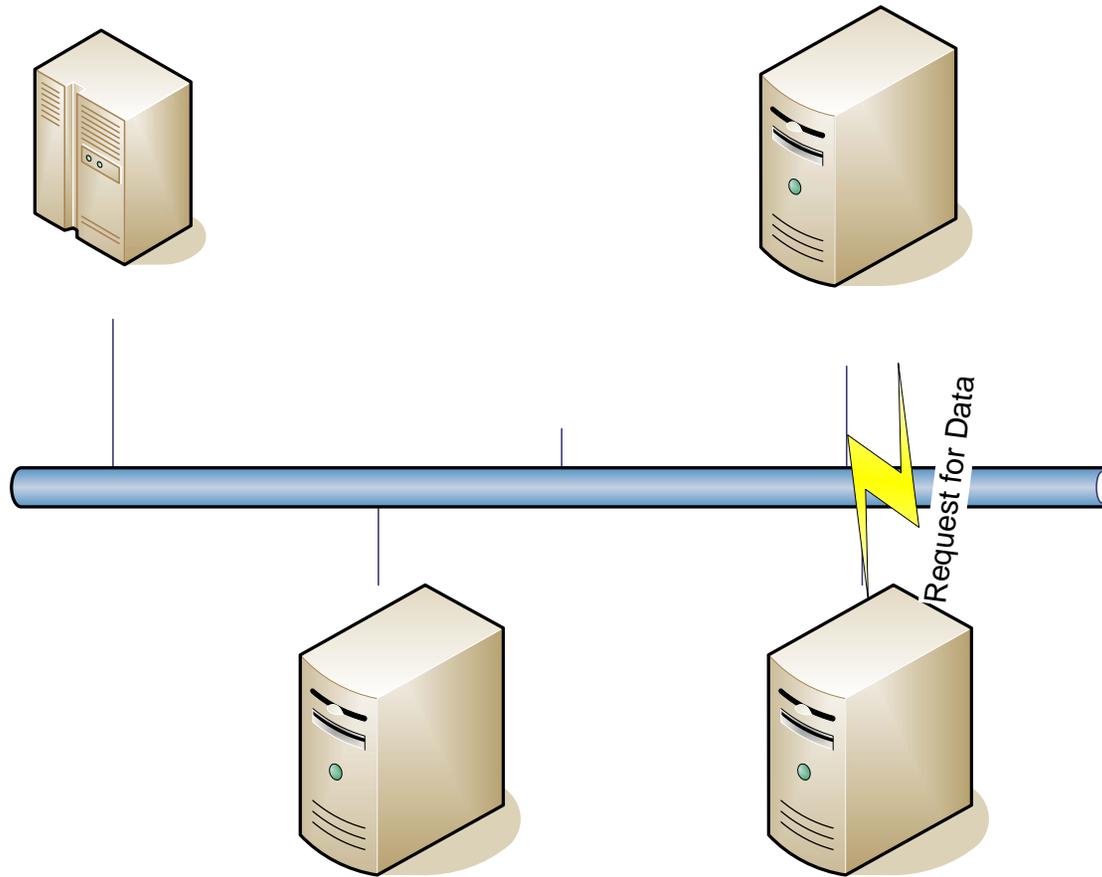


IL Advanced Analytics Overview



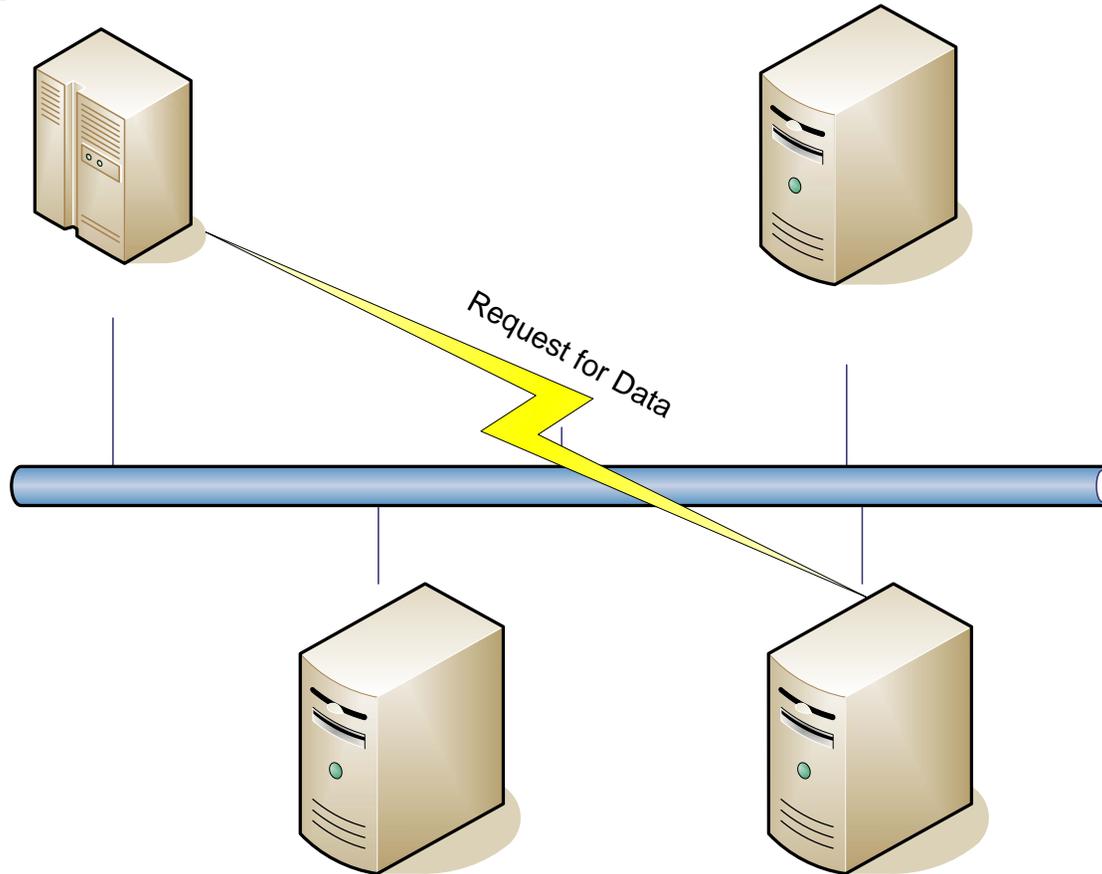


IL Advanced Analytics Overview





IL Advanced Analytics Overview





IL Overall Usage

- Budgeting \ Liability Tracking
- Program Management
- HEDIS Measures
- Illinois Healthy Women (Family Planning)
- Enrollment Tracking \ Reporting
- MCO\LTC Rate Setting
- Technical Recoveries Wizard
- High Risk Pregnancies



IL Overall Usage

- **OIG Audit Fraud**
 - Provider Claim Detail
 - Ping Pong Wizard
 - 40 + BOXI reports



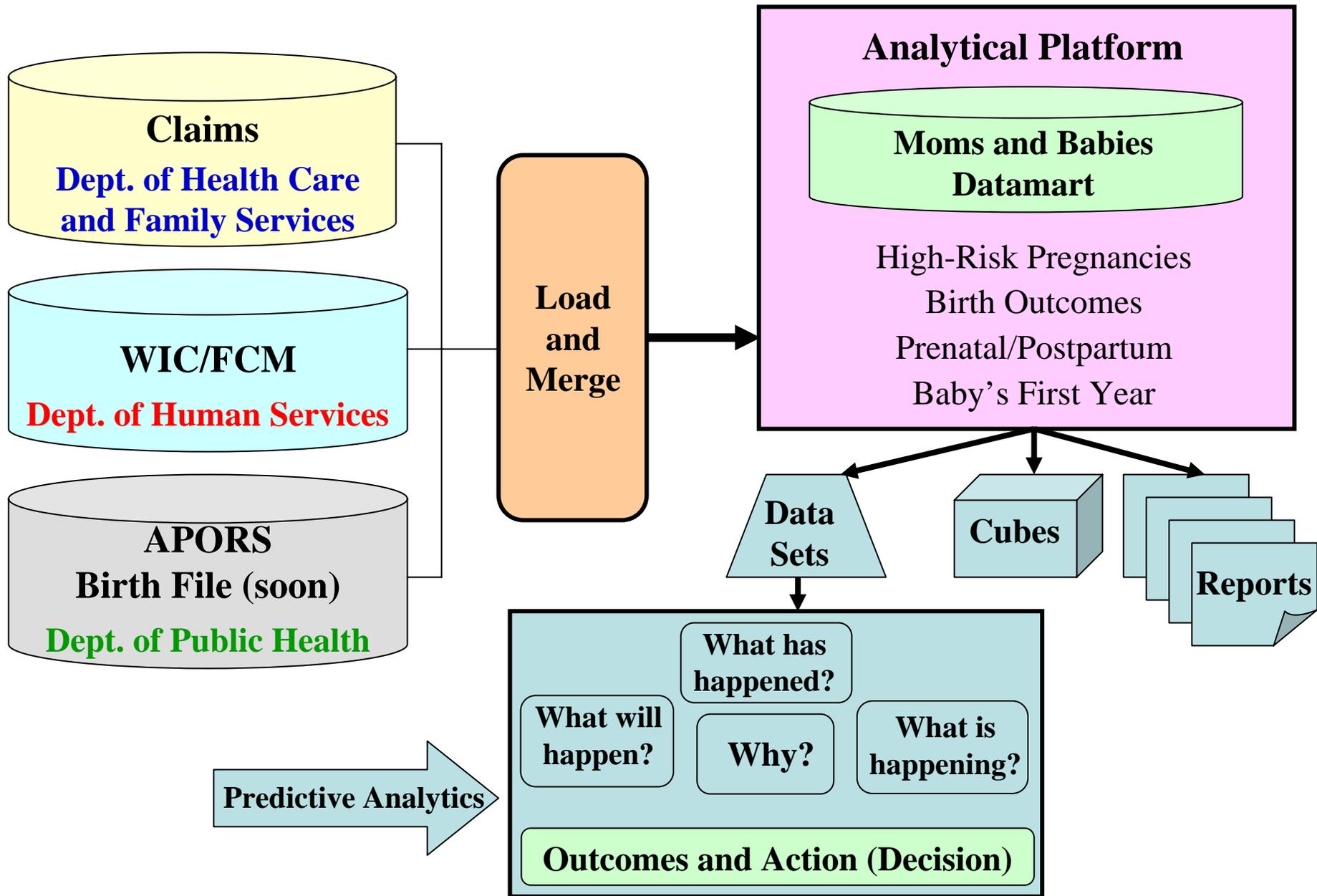
High Risk Pregnancies - Goals

- Better understanding of adverse pregnancy outcomes
- Determine through evidence based analysis what factors predict adverse outcomes
- Target women with high risk scores to implement more focused case management
- Close the loop to determine the impact of the precision outreach



High Risk Pregnancies - Design

- Create Data Mart to Standardize Definitions & Business Rules
- Identify Adverse Outcomes
- Identify Possible Risk Factors
- Statistical Analysis
- Standard Reports
- Ad-Hoc Data Analysis





The Staggering Cost of LBW and VLBW Babies

Normal Pregnancy Costs	\$1,300 - \$1,600 per infant
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LBW and VLBW Pregnancy Costs	\$50,000 - \$75,000 per infant
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Total LBW and VLBW Babies Nationwide:	350,000
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Current Medicaid spending on children:	\$50 billion
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A disproportionate amount of spending attributable to first-year-of-life costs

*Sources: National Governors Association, American Academy of Pediatrics,
UCLA Center for Healthier Children*



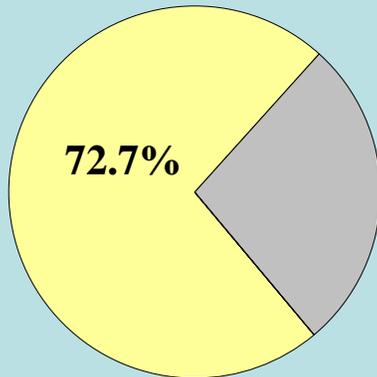
Pre-Natal Services Can Significantly Improve Birth Outcomes

- **Title V of Social Security Act + WIC program**
 - Maternal and child health services
 - Reduce exposure to disabling diseases and health problems
 - Provide services to women and children who are nutritionally at risk
- **Numerous studies and findings showing WIC to be effective in saving Medicaid program costs**
 - One often cited study:
For every \$1.00 spent on WIC, Medicaid saves \$.92 to \$4.21 for every women and child served

Yet, Medicaid-eligible Pregnant Women are Less likely to Receive Prenatal Care

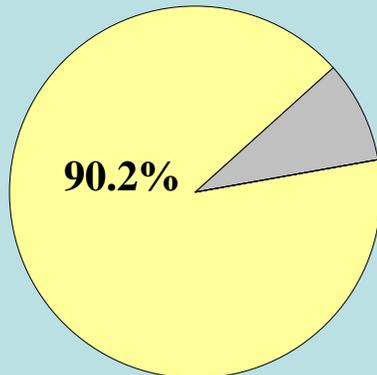
Percentage of pregnant women initiating prenatal care in first trimester of pregnancy

Medicaid Eligible



72.7%

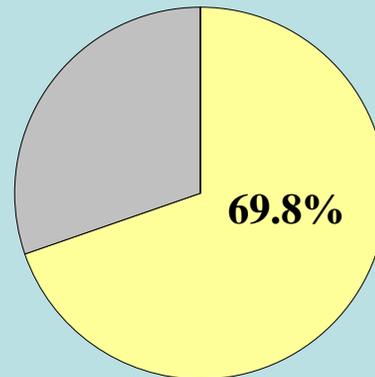
Non-Medicaid Eligible



90.2%

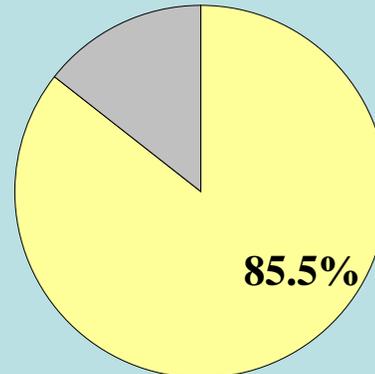
Percentage of pregnant women making adequate number of prenatal care visits

Medicaid Eligible



69.8%

Non-Medicaid Eligible



85.5%



High Risk Pregnancies Phase I

- Mom's delivery details
- Baby's Birth details
- Prenatal care
- Postpartum care
- DRG (Diagnosis Related Group) based birth outcomes
- Geo coded addresses
- Perinatal Facility levels
- Mom's Risk Factors (1997 onwards if enrolled in Medicaid)
- Eligibility
- Basic Demographic information – Name, Address
- Baby's First Year Claims – Cost, Admits

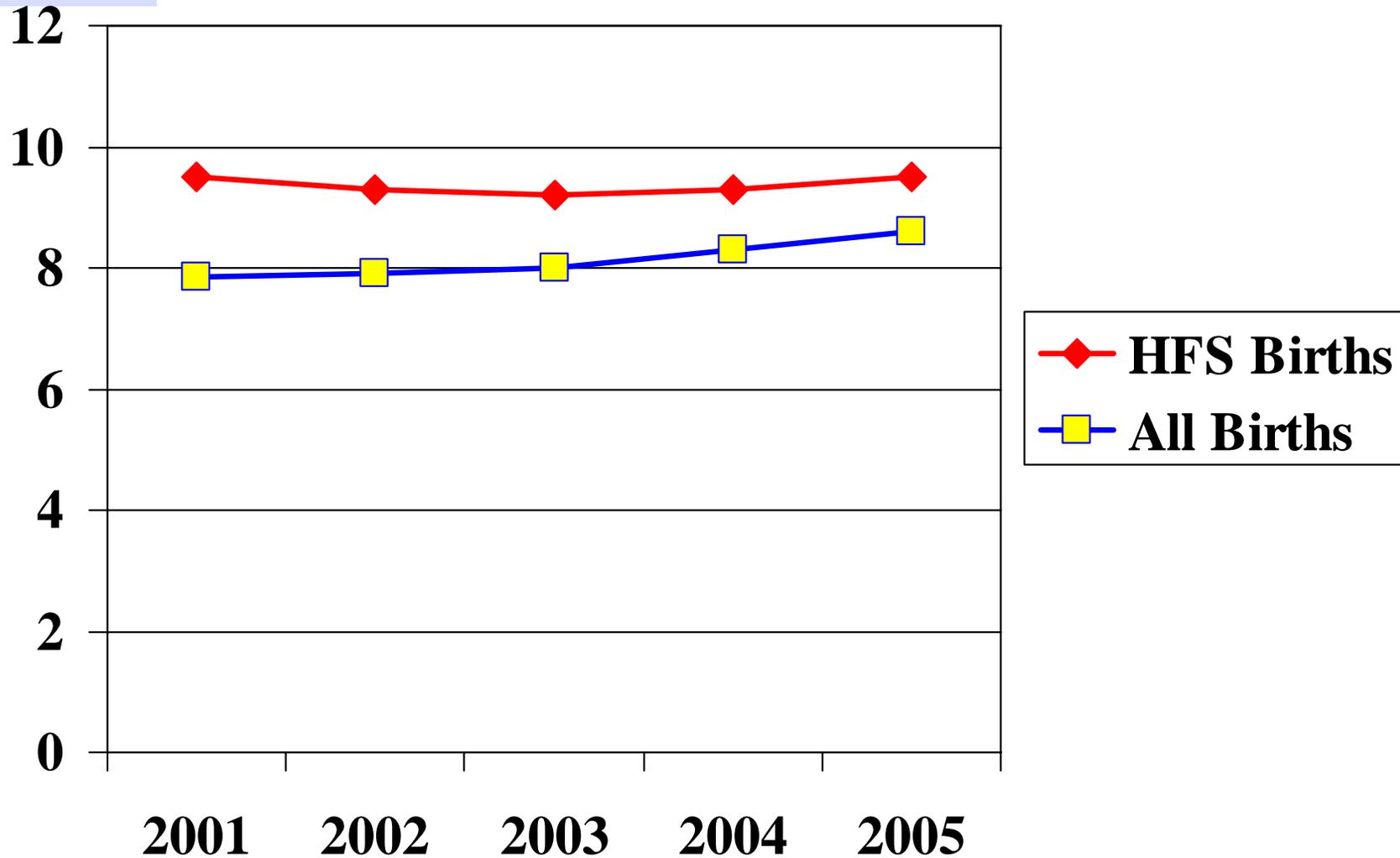


HRP – Phase II

- Actual birth weight from the Birth records
- More Demographic info – Mothers education, Fathers Education, marital status etc
- Self reported Alcohol/Tobacco usage
- Gestational Age – Important factor in determining adequacy of prenatal care
 - Kessner Index
 - Kotelchuck Index
- Multiple Births
- Birth Order – current and previous births
- Last Birth details – Helps in deriving pregnancy spacing
- Mortality File
- More Pregnancy Risk Factors



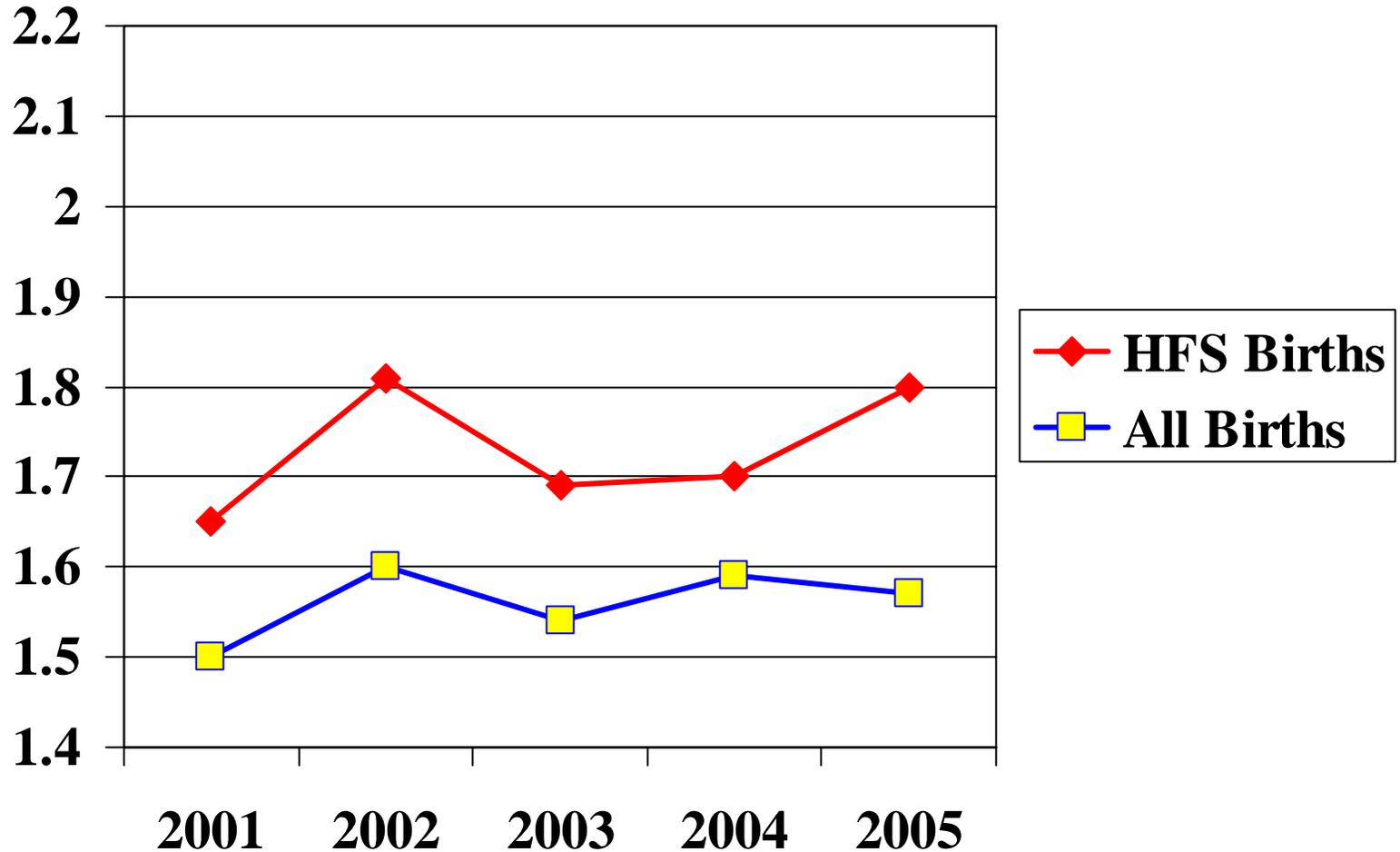
Low Birth Weight Percentage Rate



Source: Illinois Department of Human Services, Birth File Match, 2001-2005



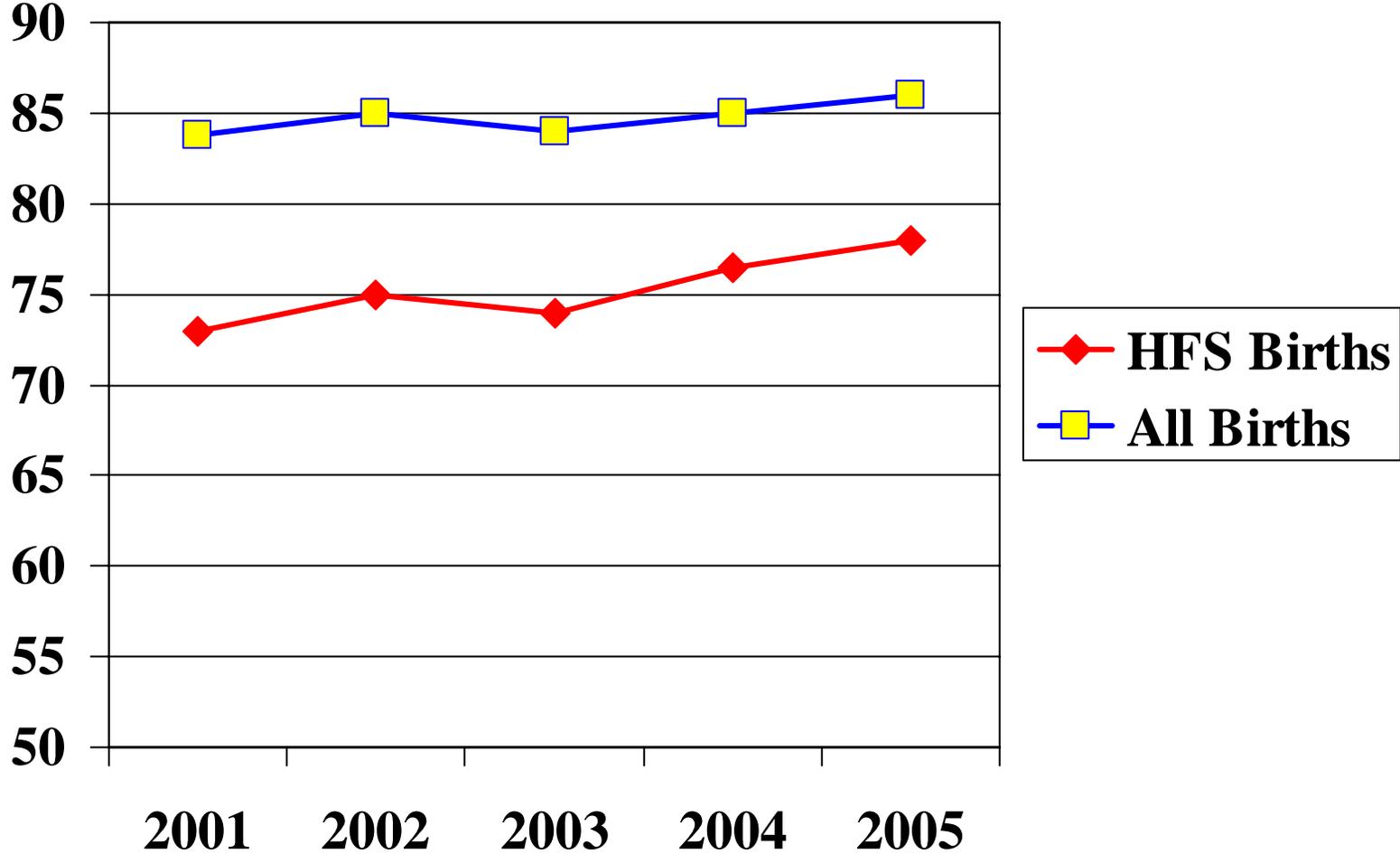
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Women Initiating Prenatal Care in 1st Trimester

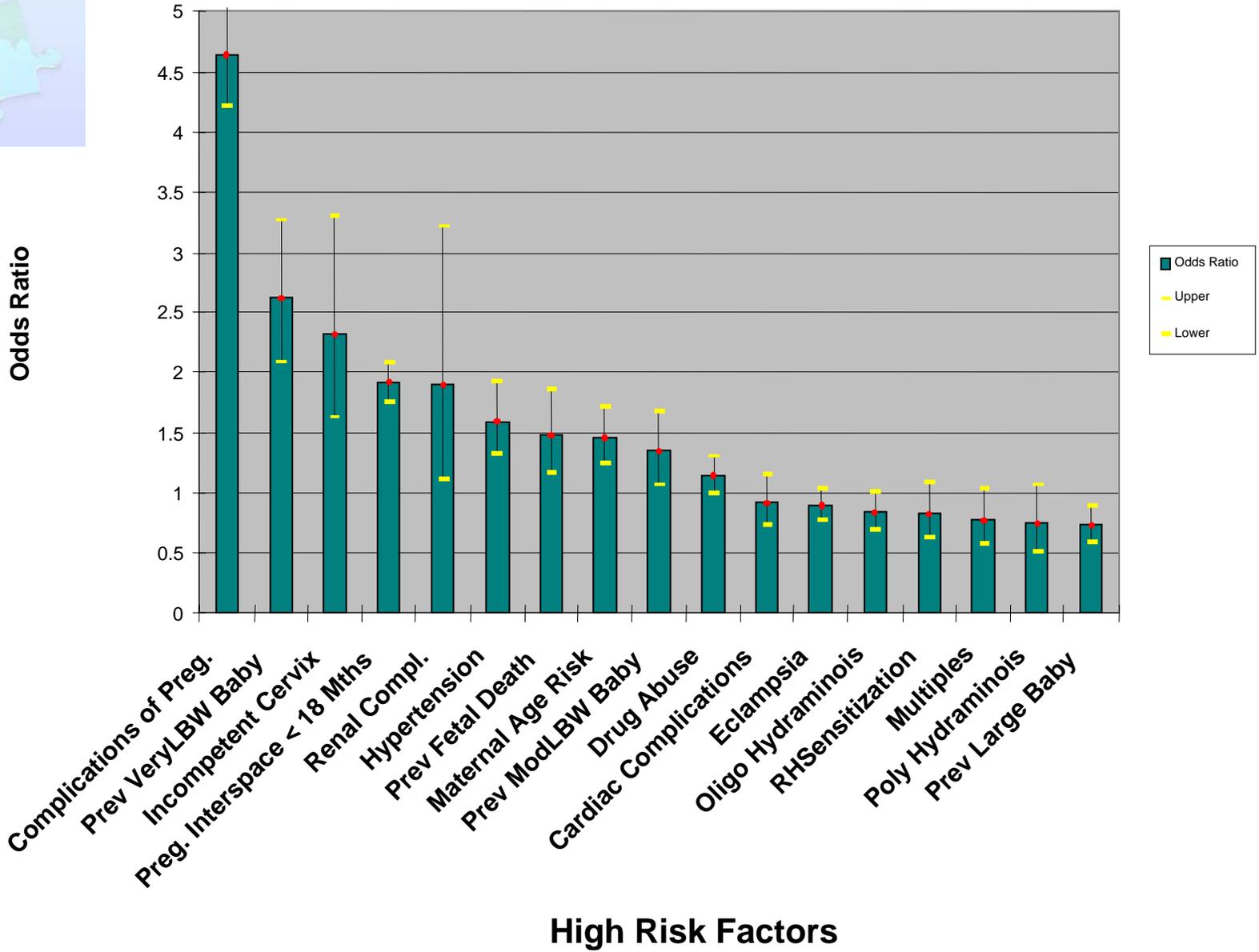


Source: Illinois Department of Human Services, Birth File Match, 2001-2005



HRP – Risk Factors

- Asthma
- Cardiac Complications
- Previous Complications Of Pregnancy
- Depression
- Diabetes
- Drug Abuse
- Previous Eclampsia
- Previous Fetal Death
- Hypertension
- Previous Incompetent Cervix
- Maternal Age Risk (<17 or > 35)
- Mental Health Disorder
- Previous Multiple Births
- Previous OligoHydramnios
- Previous PolyHydramnios
- Pregnancy Interspacing (< 18 months)
- Previous Rupture of Membrane
- Previous Moderate Birth Weight
- Previous Preterm or Small Infant
- Previous Very Low Birth Weight
- Renal Complications
- Previous RH Sensitization
- Spontaneous 2nd Term Abortion
- Previous Threatened Premature Labor
- Previous Uterine Bleed





HRP – Overview of Data Mart

- Mothers Birth Information
 - Risk Factors \ Medical History
 - Prenatal Visits
 - Prenatal Quality History
 - Birth Information
 - Post Partum Care
- Babies Information
 - Cost \ Outcome



High Risk Pregnancies Vs. Adverse Birth Outcomes

Correlation between High Risk Pregnancy and the Outcome of Birth

Year: 2005			
Risk Groups	Total Cost	Number of Moms	Cost Per Birth
5 or More Risks	\$2,282,410	182	\$14,541
4 Risks	\$6,403,971	468	\$13,684
3 Risks	\$17,551,494	1,693	\$10,367
2 Risks	\$42,527,246	5,791	\$7,344
1 Risk	\$102,388,399	17,176	\$5,961
0 Risk	\$274,359,931	56,782	\$4,832



Using Data Sharing to Drive Policy and Conduct Precision Outreach

In general, linking a wide variety of data, and applying advanced analytics to assess and develop solutions can help us:

- Identify at-risk pregnancies early
- Implement and evaluate Quality Improvement initiatives
- Implement and support outreach programs (diet, nutrition, smoking, substance abuse cessation programs) for pregnant moms, in conjunction with doctors
- Share information with hospitals, OB/GYNs, clinics to improve education
- Evaluate prenatal benefits and model potential program modifications

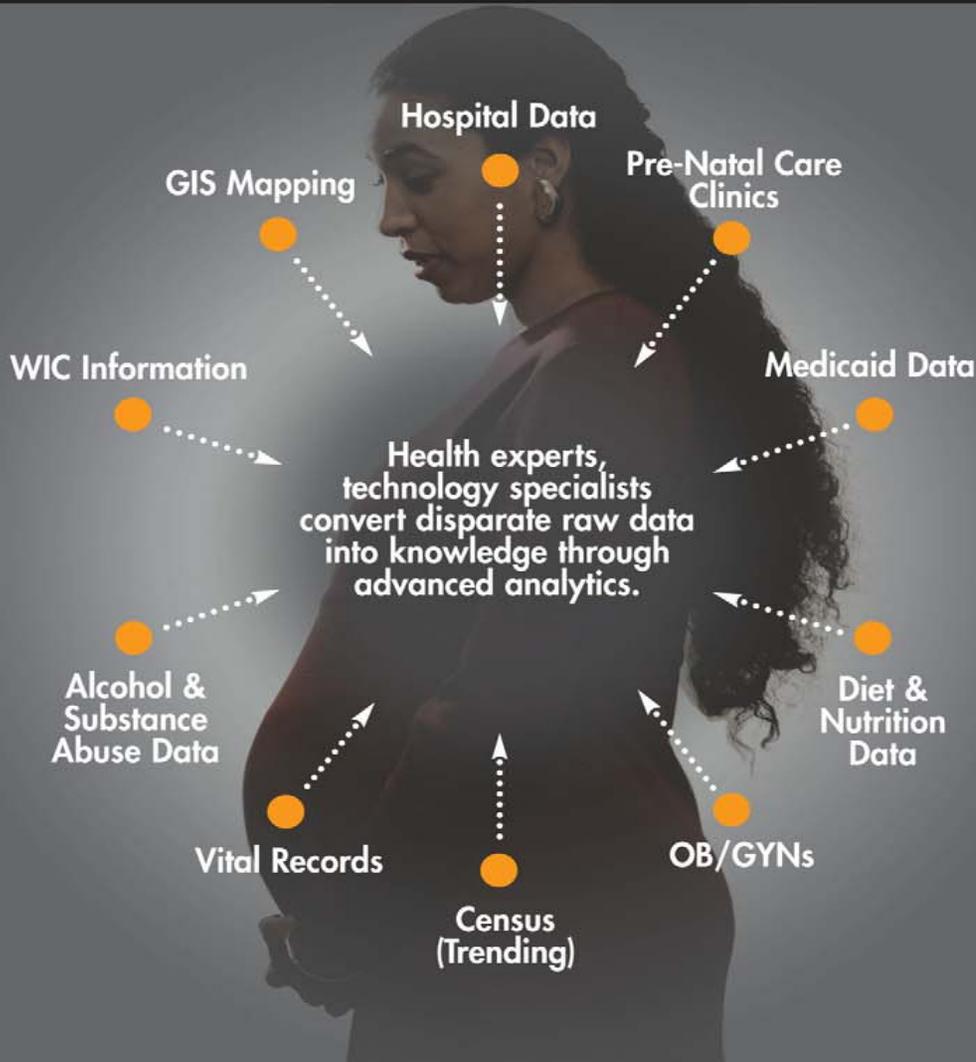
- **Conduct Precision Outreach (by individual) to help ensure that a much higher proportion of low-income women are exposed to pre-natal programs. This can be done by notifying and educating women directly or through doctors and clinics.**

These strategies should result in a reduction of high-risk births

The Vision in Illinois: Sharing Data to Improve Birth Outcomes

Enterprise Data Sharing = Program Actions and Results

Improving Birth Outcomes



Actions

Identify at-risk pregnancies early

- Target, implement and evaluate Quality Improvement initiatives
- Support Outreach programs
- Share information with hospitals, clinics, OB/GYNs
- Evaluate prenatal benefits and model potential program modifications
- Respond quickly to legislative requests

Results

Improved prenatal care services

- Reduced health risks for poor birth outcomes
- Healthier moms and babies
- Improved birth outcomes
- Fewer Low Birth Weight babies
- Reduced neonatal care costs
- Fewer long-term health problems, reduced costs



Money Follows the Person

- Using MDW as repository
- Creating Quality Indicators to better track progress
- Meeting Federal Reporting Requirements



Office of Inspector General

- Creating Interface to allow any system to make a PCD request
- Creating a data mart through SAS that will allow for scoring of possible fraudulent cases
- Put scored data back into Teradata so BOXI can be used to report results



Quality of Care

- Integrating multiple sources to more accurately portray if children have received immunizations and lead screenings
- Creating additional HEDIS reports to further pay for performance initiative



Any Questions

