



## **Predictive Modeling: What the Future Marketplace Can Expect and How it Will Be Delivered**

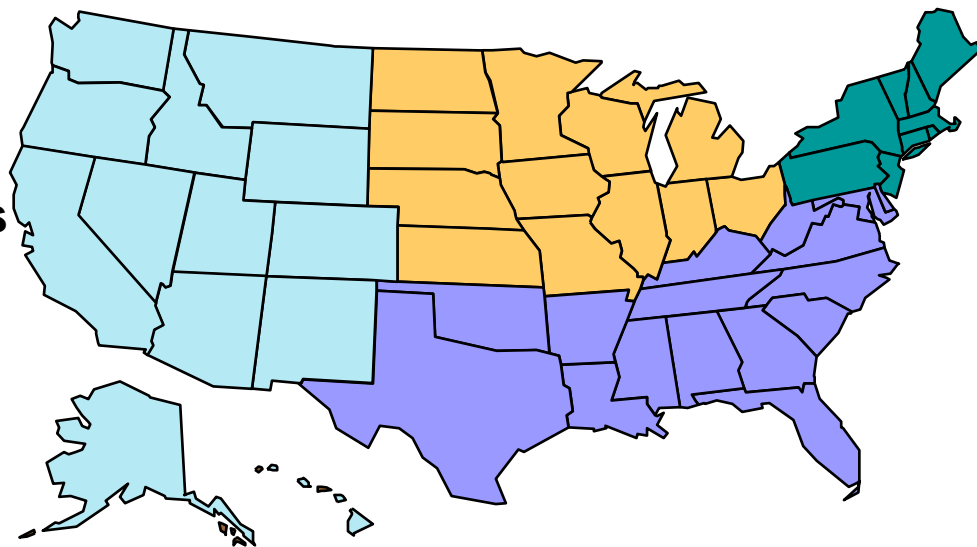
**Andrea Marks, Chief Informatics Executive  
Blue Health Intelligence**

The Sixth National Predictive Modeling Summit

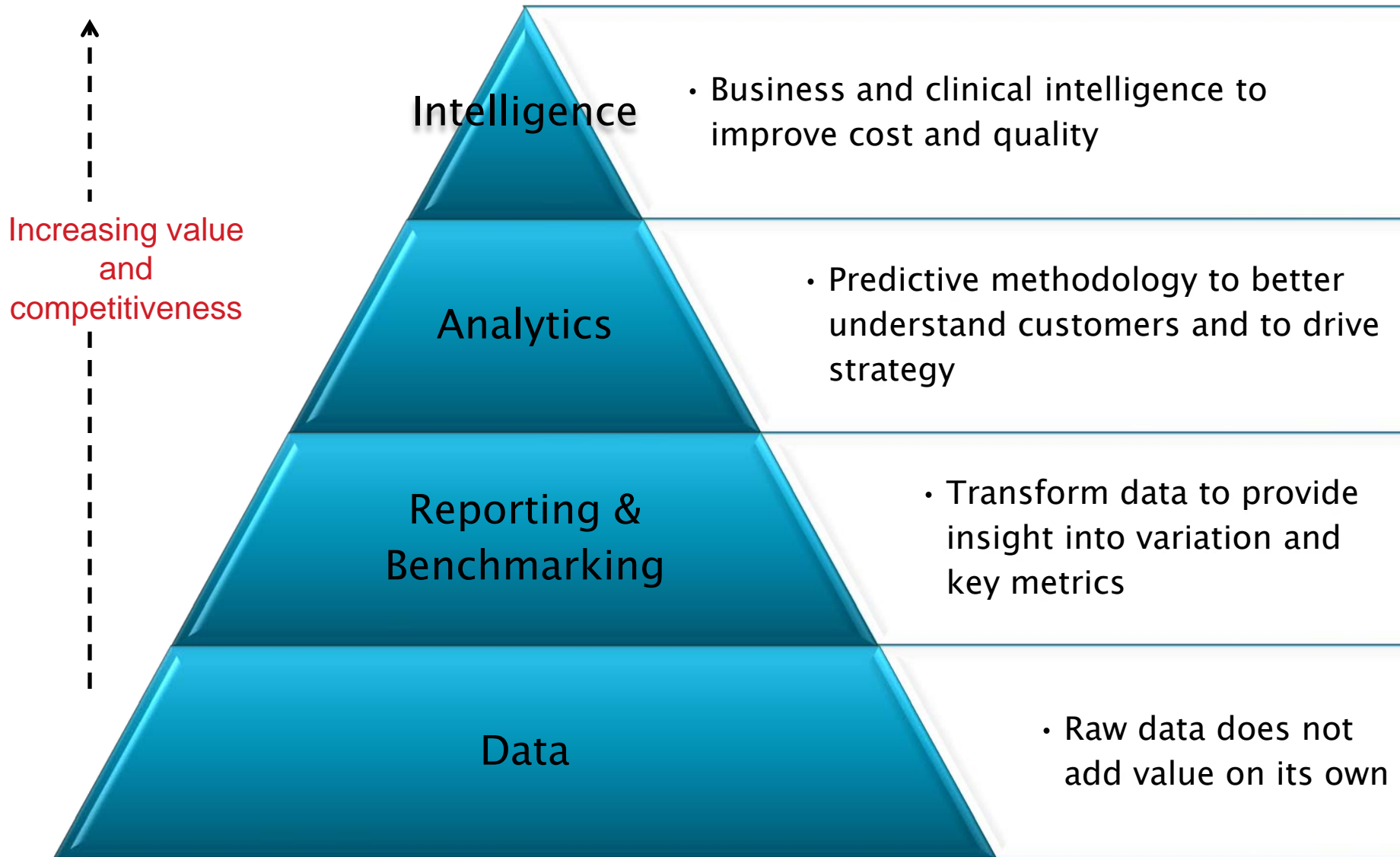
Arlington, VA  
December 5-6, 2012

# Analytics Drive Healthcare Business Decision-Making

- **More than 110 Million covered lives, including every US zip code**
  - Complete assessment of the population
  - Robust benchmarks and peer group comparisons
- **More than 7 years longitudinal view**
  - Monthly refresh
  - Enables comprehensive trend analysis and evaluation of trend drivers
- **Rigorous focus on quality inputs**
  - HIPAA compliant
  - Four levels of certification



# Intelligence and Analytics Increases Value of Data



# Evolution of Healthcare Predictive Modeling

Advancing from statistics to actionable business insights.

## Statistical Exercise

- Reactive
- Historical data

## Understanding Methods

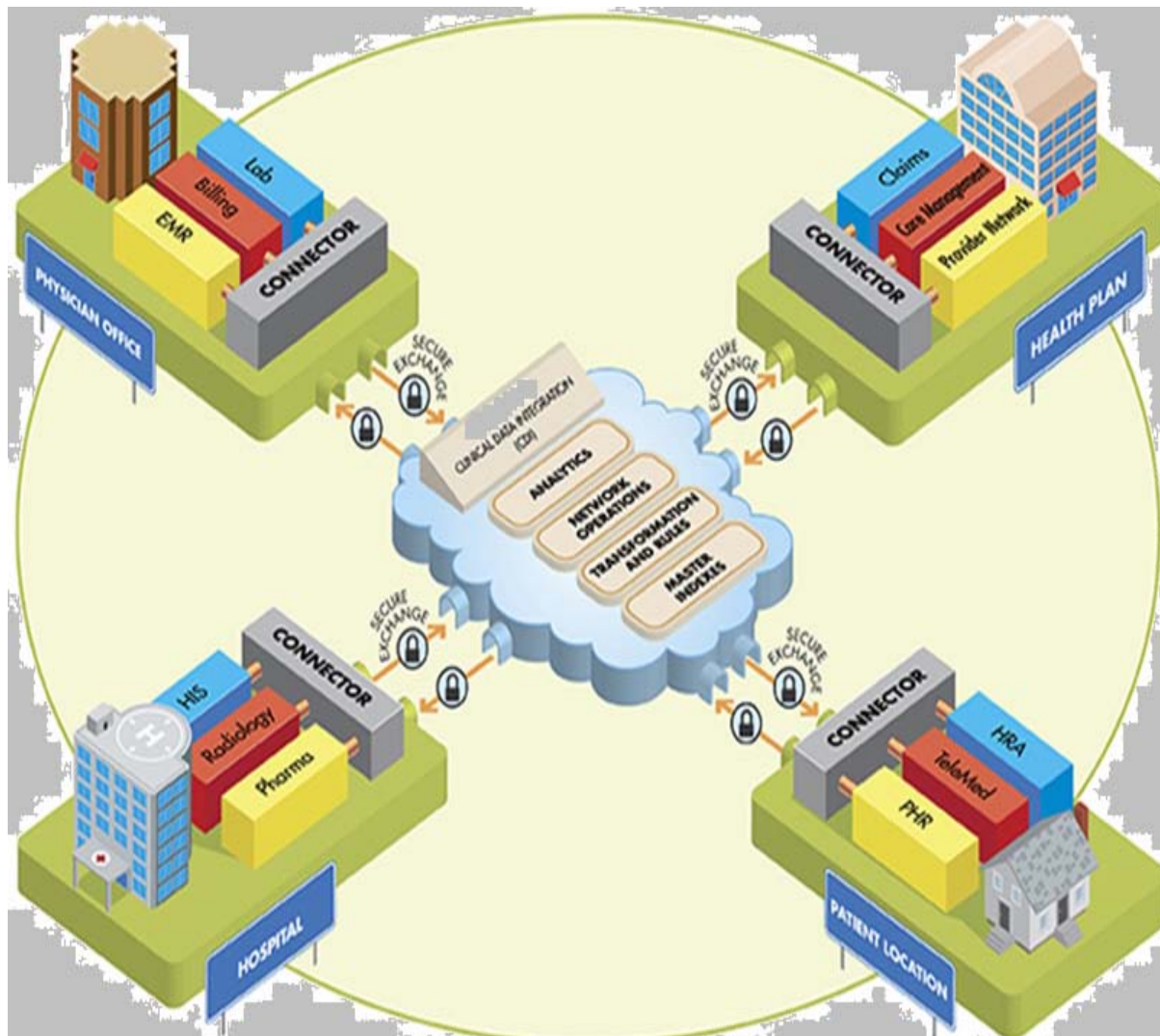
- Artificial Intelligence
- Segmentation
- Recent data

## Advanced Predictive Analytics

- Proactive
- Real-time data
- Integrating disparate data

Future contains endless possibilities

# Reform is the Catalyst for Evolving Market Interactions

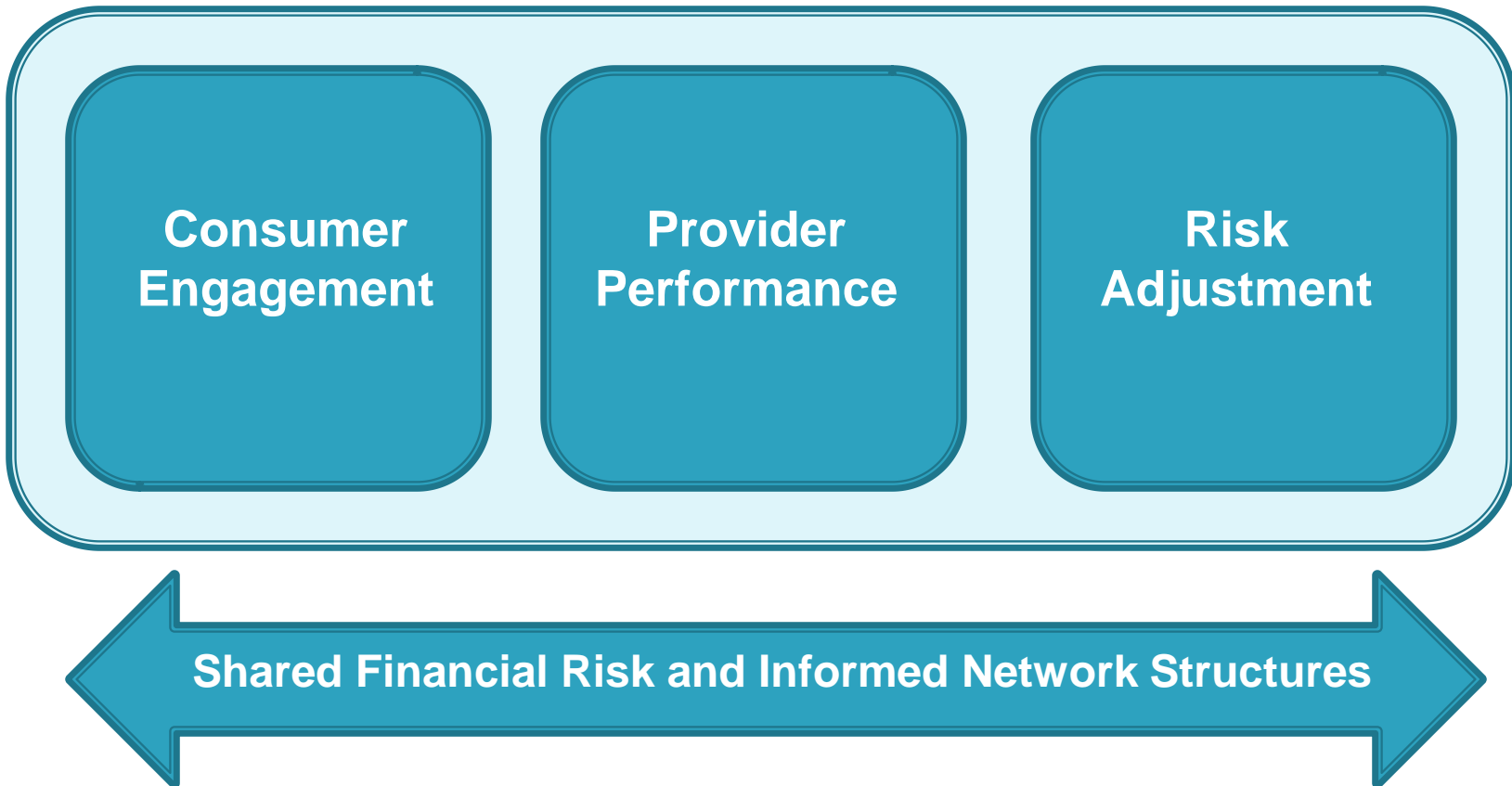


Blue Health Intelligence, an Independent Licensee of the Blue Cross and Blue Shield Association.

Blue Health Intelligence (BHI) is a trade name of Health Intelligence Company, LLC

Source: "Big Data: Using Data to Gain Competitive Advantage," Joseph Randazzo, Excellus BlueCross BlueShield

# The Future Healthcare Marketplace

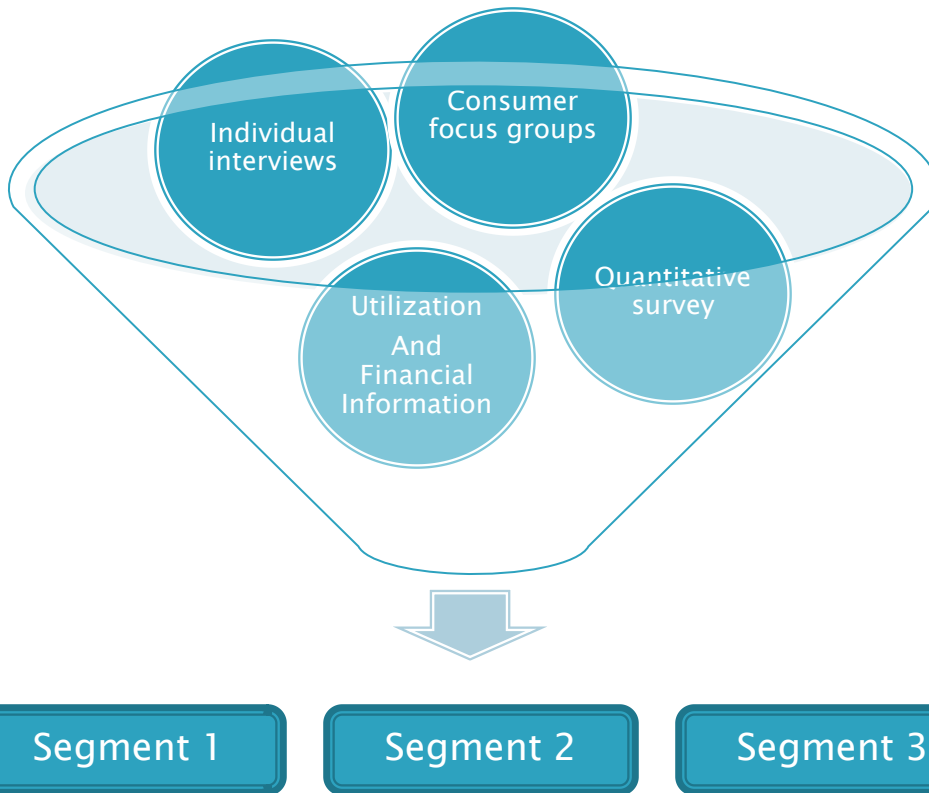


# Segmenting Consumers to Develop Actionable Insights

- Consumer engagement necessary to succeed in an exchange environment.
- To meet the needs of a wide variety of healthcare consumers, need a deep understanding of
  - Demographics
  - Socio-economic status
  - Geographic location
  - Healthcare behavior and attitudes
- Segmentation models will integrate disparate data and distill to specific consumer segments
- Take action on this information to improve outcomes

# Data in the Future Marketplace: Consumer Segmentation

Disparate sources of data drive segmentation analytics



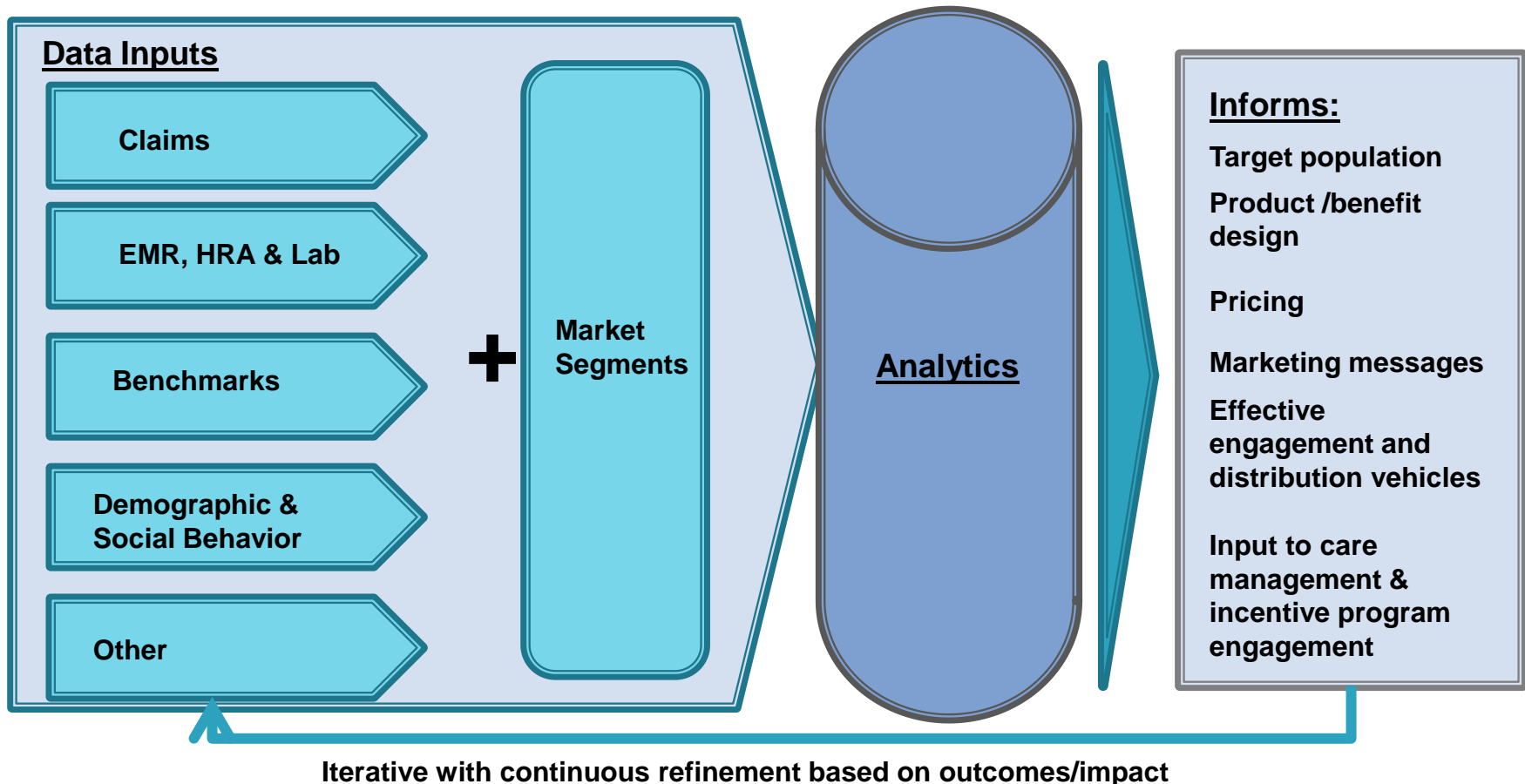
**Disparate data sources** both quantitative and qualitative are used as inputs to identify target segments

**Analytical filters** utilizing data including attitudes and behaviors as well as the intangible and tangible benefits individuals seek provide the foundation for identifying target segments for health engagement



# Data in the Future Marketplace: Consumer Segment Approach

Disparate data informs iteratively, refining approach to attracting and retaining target segments



# Data in Provider Performance:

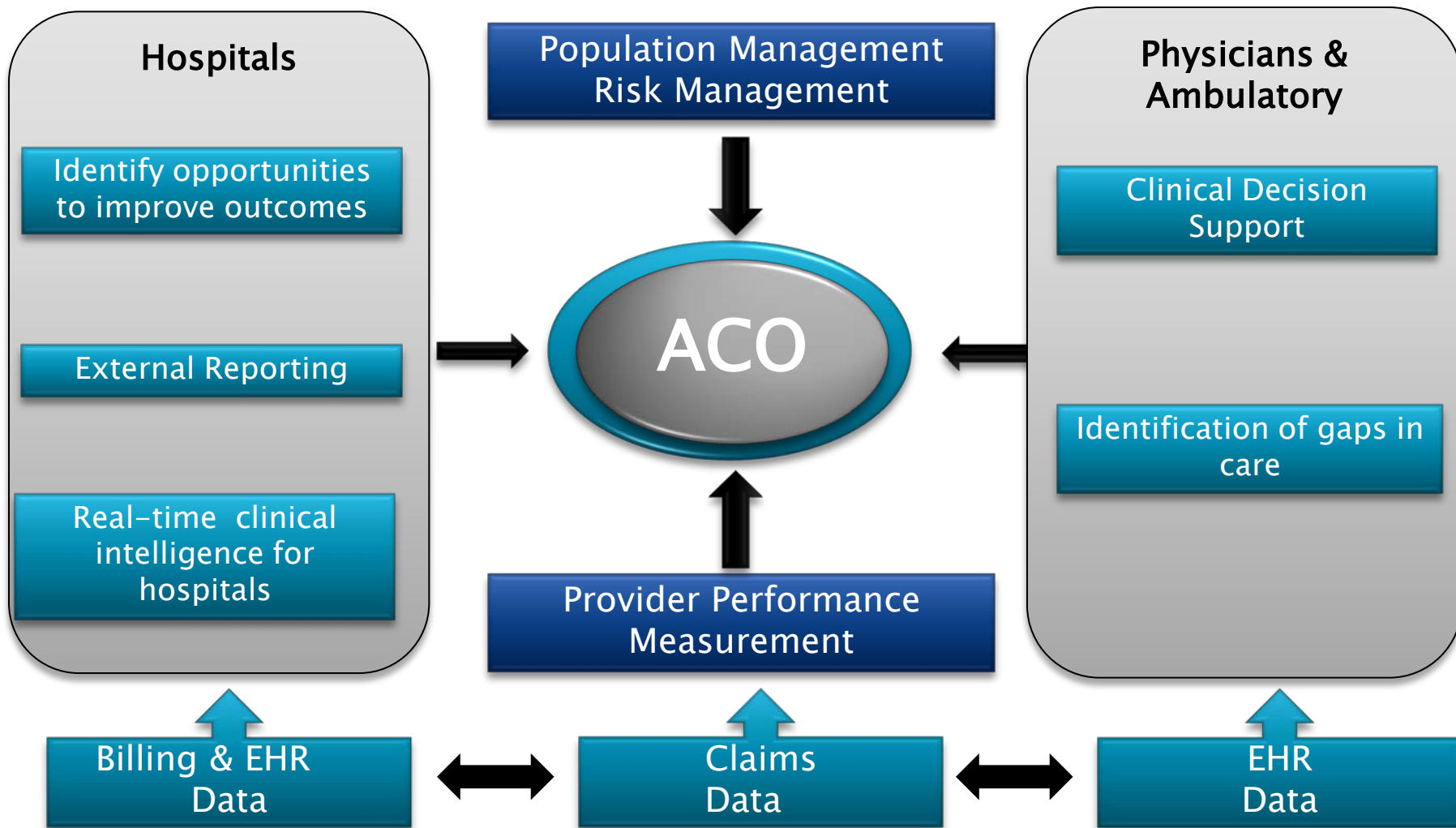
## Hospitals

Hospital analytics provide insights to address critical points of provider management

- Assessment of Quality and Performance Outcomes
  - Reduce readmissions rates and potentially avoidable complications
  - Identify best performing facilities based on cost and quality outcomes
  - Enhance a culture of patient safety, education and transparency
- Support Network Management
  - Create high-performing low-cost narrow networks
- Enable Payment Incentive Solutions
  - Provides a data-driven infrastructure for ACO-PCMH performance measurement and improvement

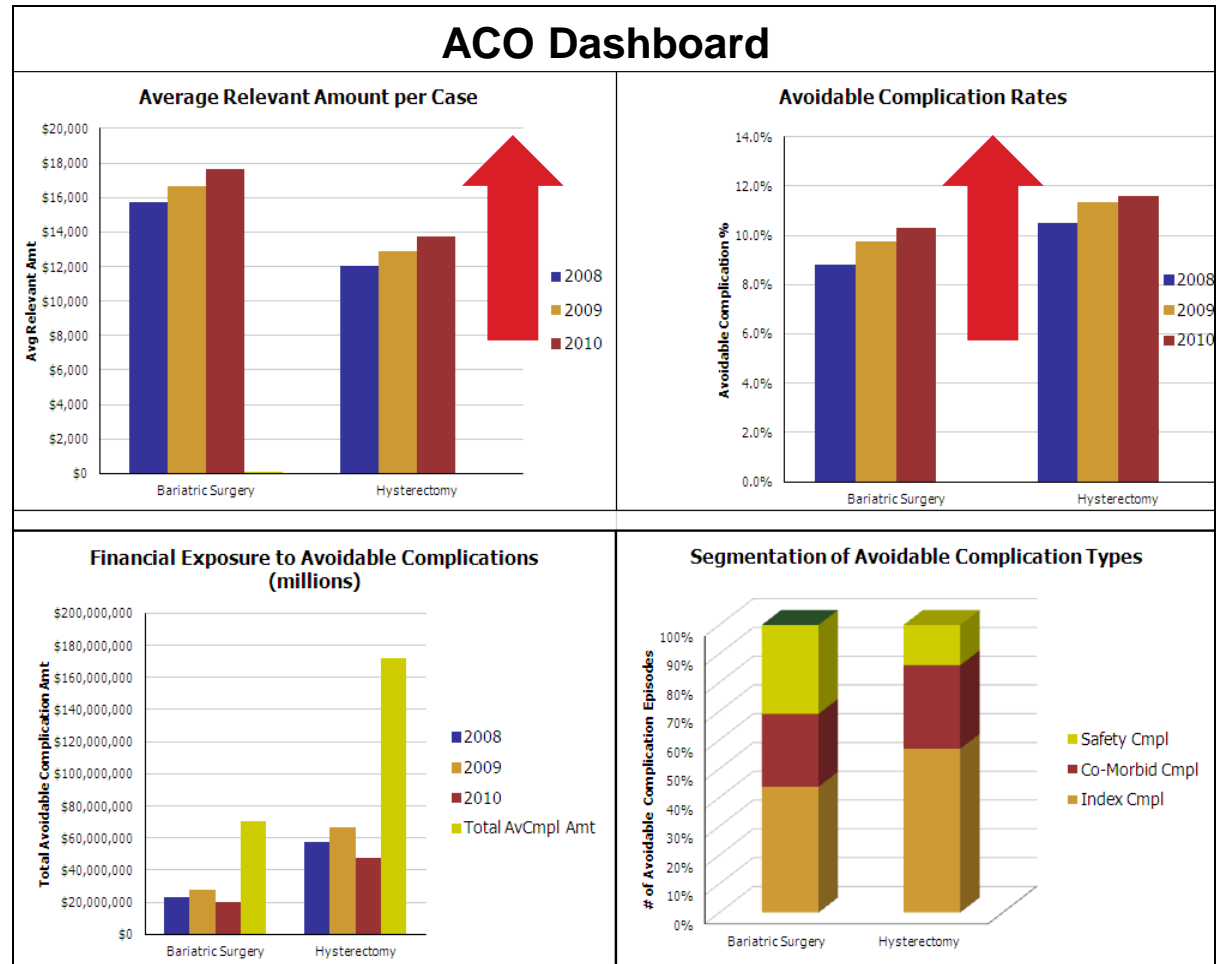
# Data in Provider Performance: ACOs

Disparate data drives analytic solutions for ACO Management



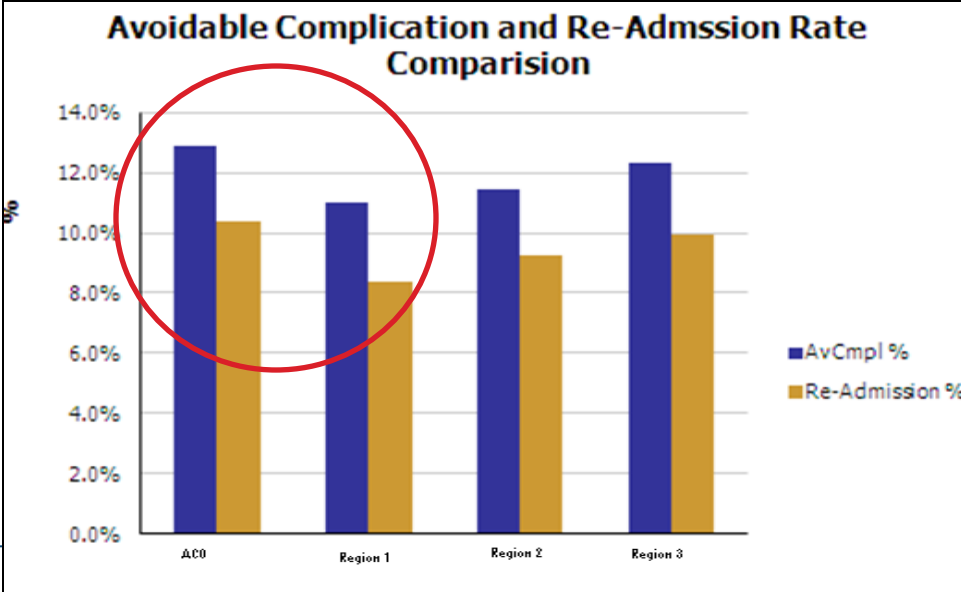
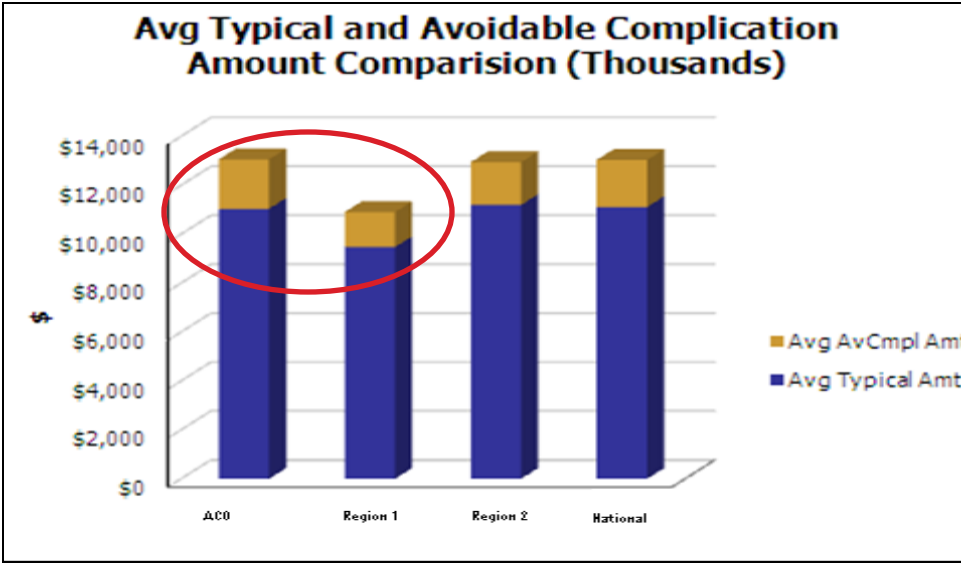
# Understanding ACO Performance

- Review performance to manage cost, complications
- Analysis reveals that cost and complications are increasing
- But need to compare to benchmarks for complete picture



# Strong, Relevant Comparison Groups Form Complete Picture

- Compared to other regions, ACO performance can be improved
- Also need to consider readmission percent, which is also high compared to benchmarks.



# Examine Performance Variations

## Facility Performance by Condition

Facility	Episode #	Total Amount	Avg. Typical Amount	Avg. Comp Amount	Comp %	Readmission %
A	250	\$6,474,691	\$15,913	\$3,651	16.4%	22.1%
B	182	\$3,589,639	\$12,953	\$3,131	15.5%	2.7%
C	164	\$3,168,576	\$15,520	\$1,606	6.3%	6.5%
D	161	\$1,569,870	\$7,134	\$778	8.0%	6.6%
E	144	\$1,888,680	\$10,835	\$676	5.2%	5.6%

A drill down to the facility level enables identification of variance in cost and complications.

# Analysis Enables Decision-Making

Avoidable Complications Summary for Facility A		# of AvCmpl Episodes	AvCmpl Cost
		Complications from Safety Failures	ADVERSE EFFECTS OF DRUGS, OVERDOSE, POISONING
	CATHETER ASSOCIATED URINARY TRACT INFECTIONS (UTI)		
	CLOSTRIDIUM DIFFICILE ASSOCIATED DISEASE (CDAD)		
	COMPLICATIONS OF SURGICAL PROCEDURES OR MEDICAL	308	\$104,502
	DECUBITUS ULCER, GANGRENE, ARTERIAL THROMBOSIS		
Complications from Index Conditions	ACUTE PANCREATITIS, PSEUDO CYST		
	ACUTE POST-HEMORRHAGIC ANEMIA		
	CLOSURE OF FISTULA, LYSIS OF ADHESIONS	252	\$927,859
	EMERGENCY ROOM	70	\$184,270
	EXPLORATORY LAP FOR PERITONITIS, PERFORATION, LEAK	30	\$70,773
Complications from Comorbid Conditions	ACUTE MYOCARDIAL INFARCTION		
	ACUTE RENAL FAILURE	12	\$20,215
	AMI, ANGINA, CHEST PAIN		
	ASTHMA		
	CARDIAC DYSRHYTHMIAS		

•Actionable focus areas identified

# Predicting Risk Allows for Proactive Management and Adjustment

- Risk-adjustment is the process of adjusting payments or premiums to reflect the health status of members
- As risk is increasingly shared across entities, predictive models necessary to address business needs such as
  - Understanding revenue recognition and profitability
  - Understanding financial exposure
  - Informing network, product and program designs
  - Measuring ongoing performance



# Data In the Future Marketplace: Risk Adjustment

Data used to manage risk both in targeting and intervening as well as managing the process with HHS

## Risk Adjustment Analytics

Profitability Analysis

Coding Gaps  
Identification

Provider Risk  
Management

HHS Risk Score  
Submission & Auditing

## Examples of Data Requirements

- Utilization
  - Care management
  - Risk by groupers
  - Product designs
- 
- Condition and patient information from claims and EHR/HRA information
  - Drug information
- 
- Data on effective risk management tools
  - Predictive modeling on impacting coding outcomes
  - Pipes to receive and deliver information
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- Cleaned data for submission
  - Additional data for auditing support

# The Future Healthcare Marketplace

